# INDIANA BAT (*Myotis sodalis*) SURVEY REPORT
# OHIO RIVER CLEAN FUELS, L.L.C.
# WELLSVILLE, COLUMBIANA AND JEFFERSON COUNTIES, OHIO

**Prepared for:**

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**Prepared by:**

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**CEC Project 061-933.0019**

**October 15, 2007**

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## 1.0 INTRODUCTION

This report presents the findings of an Indiana bat (*Myotis sodalis*) presence/probable absence mist net survey conducted for Ohio River Clean Fuels, L.L.C., (ORCF) by Civil & Environmental Consultants, Inc. (CEC) at the proposed ORCF site (herein referred to as the project site). The project site is located on the Wellsville-Ohio 7.5 minute U.S.G.S. Quadrangle approximately 1.9 miles southwest of Wellsville (40°35'39.9" 080°41'19.9") in Columbiana and Jefferson Counties, Ohio. The project site is approximately 645 acres composed of forest habitat (543 acres), agriculture (64 acres), and developed land (38 acres).

CEC previously completed an Indiana bat habitat assessment survey in June 2006. The results of the habitat survey indicated that the forested habitat within the project site contained moderate potential roosting and foraging habitat for the Indiana bat. Based on those findings, ORCF engaged CEC to proceed with the Indiana bat survey work. A copy of the Indiana bat habitat assessment survey report is provided in Appendix A.

This Indiana bat presence/probable absence mist net survey was conducted by Civil & Environmental Consultants, Inc., from June 10 through June 26, 2007. CEC's Indiana bat survey services were completed in accordance with our November 3, 2006 proposal for professional ecological services and ORCF's subsequent authorization to proceed.

The purpose of the study was to confirm the presence or probable absence of the Indiana bat within the project area. The survey was based on CEC's professional judgment and interpretation of the technical criteria outlined in the U.S. Fish and Wildlife Service (USF&WS) (Region 3) agency draft document titled *Indiana Bat (Myotis sodalis) Revised Recovery Plan*, dated March 1999.

## 2.0 METHODOLOGY

CEC biologists traversed the project site and adjacent areas by vehicle, all terrain vehicle (ATV), and foot to identify potential bat habitat (roosting areas, feeding areas, drinking pools, and flight corridors). The initial field reconnaissance was completed in order to establish mist net sites that would maximize the success of the mist net survey. In addition, CEC conducted the reconnaissance in order to determine that there were no open mine portals within the project site. Given the size, shape, and amount of forested habitat within the project area, a total of six mist net sites were selected. Refer to Appendix B for U.S. Fish & Wildlife Service (USF&WS) correspondence relating to the number of proposed mist net sites and proposed net nights.

CEC identified six sites within the project site that contained at least two of the following bat habitats; roosting areas, feeding areas, drinking pools, and/or flight corridors. These six sites that were identified had the highest potential to capture an Indiana bat (Figure 2).

Each mist net site completed by CEC included at least two mist net sets, placed a minimum of 30 meters apart. All mist nets used during the survey were Avinet - USA made 75/2 38mm mesh, polyester, reduced "bag" for bats (Avinet Inc. - Dryden, New York). The mist nets measure 2.6 meters high, contain four shelves, and are of various lengths ranging from 3 meters to 18 meters. CEC used Avinet stackable poles for single high net sets and custom built net poles that allow up to four nets to be stacked on top of each other (quad high). These custom-built net poles reach a maximum of 40 feet into the canopy. The custom-built net poles and CEC mist net surveying techniques are based upon the previous work of Gardner, et al. 1989 and Nagorsen, et al. 1980.

The Indiana Bat mist net survey was completed with strict adherence to the USF&WS *Indiana Bat (Myotis sodalis) Revised Recovery Plan*, dated March 1999 and was authorized by the USF&WS under Federal Fish and Wildlife Permit TE118259-0 and Ohio Department of Natural Resources (ODNR) under Scientific Collection Permit Number 296 (Appendix C). The authorized Collection Permit holders identified all of the bats captured during the survey. All collections made during the survey were recorded on field data sheets, which are presented in Appendix D. Additionally, photographs of each mist net site and representative species of bats captured during the survey are presented in Appendix E.

## 3.0 RESULTS

CEC sampled a total of 32 net nights (6 locations x 2 nights per survey site x 2 net sets per site = 24 net nights + 8 additional net nights) from June 10 through June 26, 2007. The survey sites were sampled beginning at sunset and lasting for a minimum of five hours. No severe weather (precipitation, strong winds, and/or temperatures dropping below 50 degrees Fahrenheit) was encountered during the survey.

The following section provides a detailed description of each mist net site and presents the results of the trapping effort at that site. A table summarizing the survey results for all mist net sites follows the site descriptions.

**Site 1**

Mist net Site 1 was sampled over a 2-day period on June 10 and 11, 2007. On the initial survey night, one mist net set (one 9-meter long, triple high net) was erected over a forested headwater stream within a flight corridor, one mist net set (one 6-meter long, double high net) was erected over a logging road within a forested flight corridor, and one mist net set (one 9-meter long, single high net) was erected over a forested headwater stream within a flight corridor. A total of twenty bats, including twelve little brown bats (*Myotis lucifugus*), and eight big brown bats (*Eptesicus fuscus*) were collected during the first survey night.

On the second survey night, one mist net set (one 9-meter long, triple high net) was erected over a forested headwater stream within a flight corridor, one mist net set (one 9-meter long, double high) was erected over a forested headwater stream within a flight corridor, and two mist net sets (two 6-meter long, single high nets) were erected over a logging road within a forested flight corridor. A total of eleven bats, including five big brown bats and six little brown bats, and were collected during the second survey night at Site 1.

**Site 2**

Mist net Site 2 was sampled over a 2-day period. The initial survey night at Site 2 was June 12, 2007. On this date, one mist net set (one 18-meter long, triple high net, one 9-meter long, single high net, and one 12-meter long, double high net) was erected over a logging road and forested headwater stream within a flight corridor. The second mist net set (one 9-meter long, single high net) was erected over a logging road within a forested flight corridor. A total of nine bats, including one big brown bat, three eastern red bats (*Lasiurus borealis*), two hoary bats (*Lasiurus cinereus*), two little brown bats, and one northern myotis bat (*Myotis septentrionalis*) were collected during the first survey night at Site 2.

On the second survey night at Site 2, one mist net set (one 18-meter long, triple high net, one 9-meter long, single high net, and one 12-meter long, double high net) was erected over a logging road and forested headwater stream within a flight corridor. One mist net set (one 9-meter long, double high net) was erected over a logging road within a forested flight corridor. A total of three little brown bats and one eastern red bat were collected during the second survey night at Site 2.

**Site 3**

Mist net Site 3 was sampled over a 2-day period from June 18 to 19, 2007. On the initial survey night, one mist net set (one 9-meter long, quad high net) was erected over a logging road within a flight corridor, one mist net set (one 18-meter long, double high net) was erected over a beaver dam, and one mist net set (one 6-meter long, double high net) was erected over a logging road adjacent to the beaver dam within a flight corridor. A total of fourteen bats, four little brown bats, four big brown bats, four northern myotis bats, one eastern red bat, and one eastern pipistrelle (*Pipistrellus subflavus*) were collected during the first survey night.

On the second survey night at Site 3, one mist net set (one 9-meter long, quad high net) was erected over a logging road within a flight corridor, one mist net set (one 18-meter long, double high net) was erected over a beaver dam, and one mist net set (one 6-meter long, double high

net) was erected over a logging road adjacent to the beaver dam within a flight corridor. A total of five bats, including one big brown bat, two little brown bats, and two northern myotis bats were collected during the second survey night at Site 3.

**Site 4**

Mist net Site 4 was sampled over a 2-day period on June 20 and 21, 2007. On the initial survey night, one mist net set (one 12-meter long, quad high net) was erected over a forested access road within a flight corridor, one mist net set (one 9-meter long, double high net) was erected over a logging road within a forested flight corridor, and one mist net set (one 6-meter long, single high net) was erected over ponded water along an access road within a flight corridor. A total of nineteen bats, including six little brown bats, nine big brown bats, and four eastern red bats were collected during the first survey night.

On the second survey night, one mist net set (one 12-meter long, quad high net) was erected over a forested access road within a flight corridor, one mist net set (one 9-meter long, double high net) was erected over a logging road within a flight corridor, and one mist net set (one 9-meter long, double high net) was erected over ponded water along an access road within a forested flight corridor. A total of twenty bats, including eleven big brown bats and nine little brown bats, were collected during the second survey night at Site 4.

**Site 5**

Mist net Site 5 was sampled over a 2-day period on June 24 and 25, 2007. On the initial survey night, one mist net set (one 12-meter long, single high net) was erected over a forested headwater stream within a flight corridor, one mist net set (one 6-meter long, single high net) was erected over a forested headwater stream within a flight corridor, and one mist net set (one 3-meter long, single high net and one 3-meter long, double high net) was erected over a pool in a forested headwater stream within a flight corridor. A total of three bats, including two little brown bats, and one big brown bat were collected during the first survey night.

On the second survey night, one mist net set (one 12-meter long, single high net) was erected over a forested headwater stream within a flight corridor, one mist net set (one 9-meter long, double high) was erected over a forested headwater stream within a flight corridor, and one mist net set (one 3-meter long, single high net stacked with one 6-meter long, single high net) was erected over a forested headwater stream within a flight corridor. No bats were collected during the second survey night at Site 5.

**Site 6**

Mist net Site 6 was sampled over a 2-day period on June 25 and 26, 2007. On the initial survey night, one mist net set (one 6-meter long, double high net) was erected over a wetland within a flight corridor and one mist net set (one 6-meter long, double high net) was erected over a forested pond within a flight corridor. A total of thirteen bats, including ten little brown bats, and three big brown bats were collected during the first survey night.

On the second survey night, one mist net set (one 6-meter long, double high net) was erected over a wetland within a flight corridor and one mist net set (one 6-meter long, double high net) was erected over a forested pond within a flight corridor. A total of eight bats, including three big brown bats, four little brown bats, and one eastern pipistrelle were collected during the second survey night at Site 6.

Bat activity was observed within and around the mist net areas on all trapping nights. The following tables provide a summary of all bats captured during the survey, by mist net trapping site (Table 1) and by species (Table 2).

## TABLE 1

## SUMMARY OF INDIANA BAT MIST NET SURVEY RESULTS (BY SITE)

| Common Name | Scientific Name | Date | Site | Total | Federal Status | State Status |
|---|---|---|---|---|---|---|
| Big Brown bat | *Eptesicus fuscus* | 6/10/2007 | 1 | 8 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/10/2007 | 1 | 12 | - | - |
| Big Brown bat | *Eptesicus fuscus* | 6/11/2007 | 1 | 5 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/11/2007 | 1 | 6 | - | - |
| Big Brown bat | *Eptesicus fuscus* | 6/12/2007 | 2 | 1 | - | - |
| Eastern Red bat | *Lasiurus borealis* | 6/12/2007 | 2 | 3 | - | - |
| Hoary bat | *Lasiurus cinereus* | 6/12/2007 | 2 | 2 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/12/2007 | 2 | 2 | - | - |
| Northern Myotis bat | *Myotis septentrionalis* | 6/12/2007 | 2 | 1 | - | - |
| Eastern Red bat | *Lasiurus borealis* | 6/13/2007 | 2 | 1 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/13/2007 | 2 | 3 | - | - |
| Big Brown bat | *Eptesicus fuscus* | 6/18/2007 | 3 | 4 | - | - |
| Eastern Red bat | *Lasiurus borealis* | 6/18/2007 | 3 | 1 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/18/2007 | 3 | 4 | - | - |
| Northern Myotis bat | *Myotis septentrionalis* | 6/18/2007 | 3 | 4 | - | - |
| Eastern Pipistrelle | *Pipistrellus subflavus* | 6/18/2007 | 3 | 1 | - | - |
| Big Brown bat | *Eptesicus fuscus* | 6/19/2007 | 3 | 1 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/19/2007 | 3 | 2 | - | - |
| Northern Myotis bat | *Myotis septentrionalis* | 6/19/2007 | 3 | 2 | - | - |
| Big Brown bat | *Eptesicus fuscus* | 6/20/2007 | 4 | 9 | - | - |
| Eastern Red bat | *Lasiurus borealis* | 6/20/2007 | 4 | 4 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/20/2007 | 4 | 6 | - | - |
| Big Brown bat | *Eptesicus fuscus* | 6/21/2007 | 4 | 11 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/21/2007 | 4 | 9 | - | - |
| Big Brown bat | *Eptesicus fuscus* | 6/24/2007 | 5 | 1 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/24/2007 | 5 | 2 | - | - |
| Big Brown bat | *Eptesicus fuscus* | 6/25/2007 | 6 | 3 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/25/2007 | 6 | 10 | - | - |
| Big Brown bat | *Eptesicus fuscus* | 6/26/2007 | 6 | 3 | - | - |
| Little Brown bat | *Myotis lucifugus* | 6/26/2007 | 6 | 4 | - | - |
| Eastern Pipistrelle | *Pipistrellus subflavus* | 6/26/2007 | 6 | 1 | - | - |

**TABLE 2**
**SUMMARY OF INDIANA BAT MIST NET SURVEY RESULTS**
**(BY SPECIES)**

| Common Name | Scientific Name | Total Number of Bats Captured |
|---|---|---|
| Little brown bat | *Myotis lucifugus* | 60 |
| Big brown bat | *Eptesicus fuscus* | 46 |
| Eastern red bat | *Lasiurus borealis* | 9 |
| Northern myotis bat | *Myotis septentrionalis* | 7 |
| Hoary bat | *Lasiurus cinereus* | 2 |
| Eastern pipistrelle | *Pipistrellus subflavus* | 2 |
| | **Total All Bats** | **126** |

## 4.0 CONCLUSIONS

Between June 10, 2007 and June 26, 2007, CEC conducted an Indiana bat (*Myotis sodalis*) presence/probable absence mist net survey within the Ohio River Clean Fuels, L.L.C., proposed 645-acre industrial development located near Wellsville in Columbiana and Jefferson Counties, Ohio. A total of 126 bats representing six species were captured and identified at six mist net sites within the project area. The six mist net sites consisted of a total of 32 net nights. All bats captured were identified, weighed, measured, and released alive. No Indiana bats were captured during the survey.

Lastly, no open portals were observed within the study area during the field reconnaissance, and based on a review of mine maps, none exist within the site.

## 5.0 LEVEL OF CARE

The Indiana bat survey services performed by CEC were conducted in a manner consistent with the criteria outlined in the U.S. Fish and Wildlife Service (USF&WS) (Region 3) agency draft document titled *Indiana Bat (Myotis sodalis) Revised Recovery Plan*, dated March 1999 and with the level of care and skill ordinarily exercised by members of the environmental consulting profession practicing contemporaneously under similar conditions in the locality of the project.

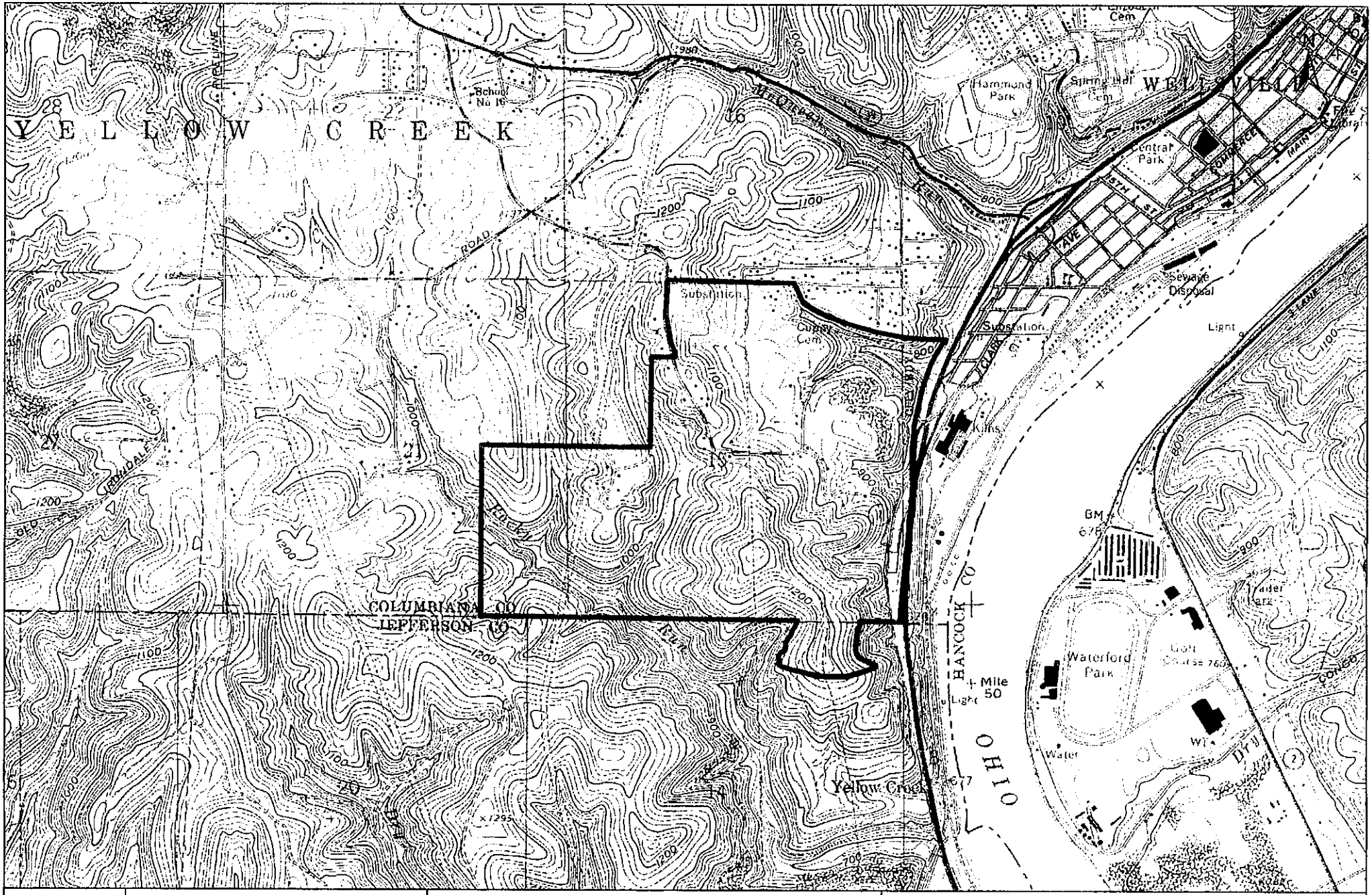
## 6.0 REFERENCES

Gardner, J. E., J. D. Garner, and J. E. Hofmann. 1989. A Portable Mist-Netting System for Capturing Bats with Emphasis on *Myotis sodalis* (Indiana bat). Bat Research News 30:1-8.

Nagorsen, D. W.; Peterson, R. L., 1980: Mammal Collectors Manual. A Guide for Collecting, Documenting, and Preparing Mammal Specimens for Scientific Research. Belonging to the unnumbered series: Life Sciences Miscellaneous Publications. Royal Ontario Museum, Toronto. ISBN: 0-88854-255-0 pa.

U.S. Fish and Wildlife Service (USF&WS) (Region 3). 1999. *Indiana Bat (Myotis sodalis) Revised Recovery Plan*. U.S. Fish and Wildlife Service, Fort Snelling, MN. 258 pp.

# FIGURES




| | | | |
|---|---|---|---|
| USGS WELLSVILLE, OHIO 7.5' QUADRANGLE | 0 1,000 2,000 3,000 4,000 Feet | ISSUED FOR: OHIO RIVER CLEAN FUELS LLC. | U.S.G.S. SITE LOCATION MAP<br>OHIO RIVER CLEAN FUELS FACILITY<br>OHIO RIVER CLEAN FUELS, LLC<br>WELLSVILLE, COLUMBIANA<br>AND JEFFERSON COUNTIES, OHIO |
| DWN BY: M. Harrison / CHK BY: DAM | **Legend**<br>Study Area | ISSUED BY: CEC<br>CIVIL & ENVIRONMENTAL CONSULTANTS, INC.<br>333 Baldwin Road<br>Pittsburgh, PA 15205-9702<br>1-800-365-2324<br>Columbus, OH * Cincinnati, OH * Indianapolis, IN * Nashville, TN * Chicago, IL * St. Louis, MO * Export, PA * Detriot, MI | PROJECT NO.: 061-933 / FIGURE: 1 |
| 1 inch equals 2,000 feet | | | |
| DATE: 10/3/07 | | | |

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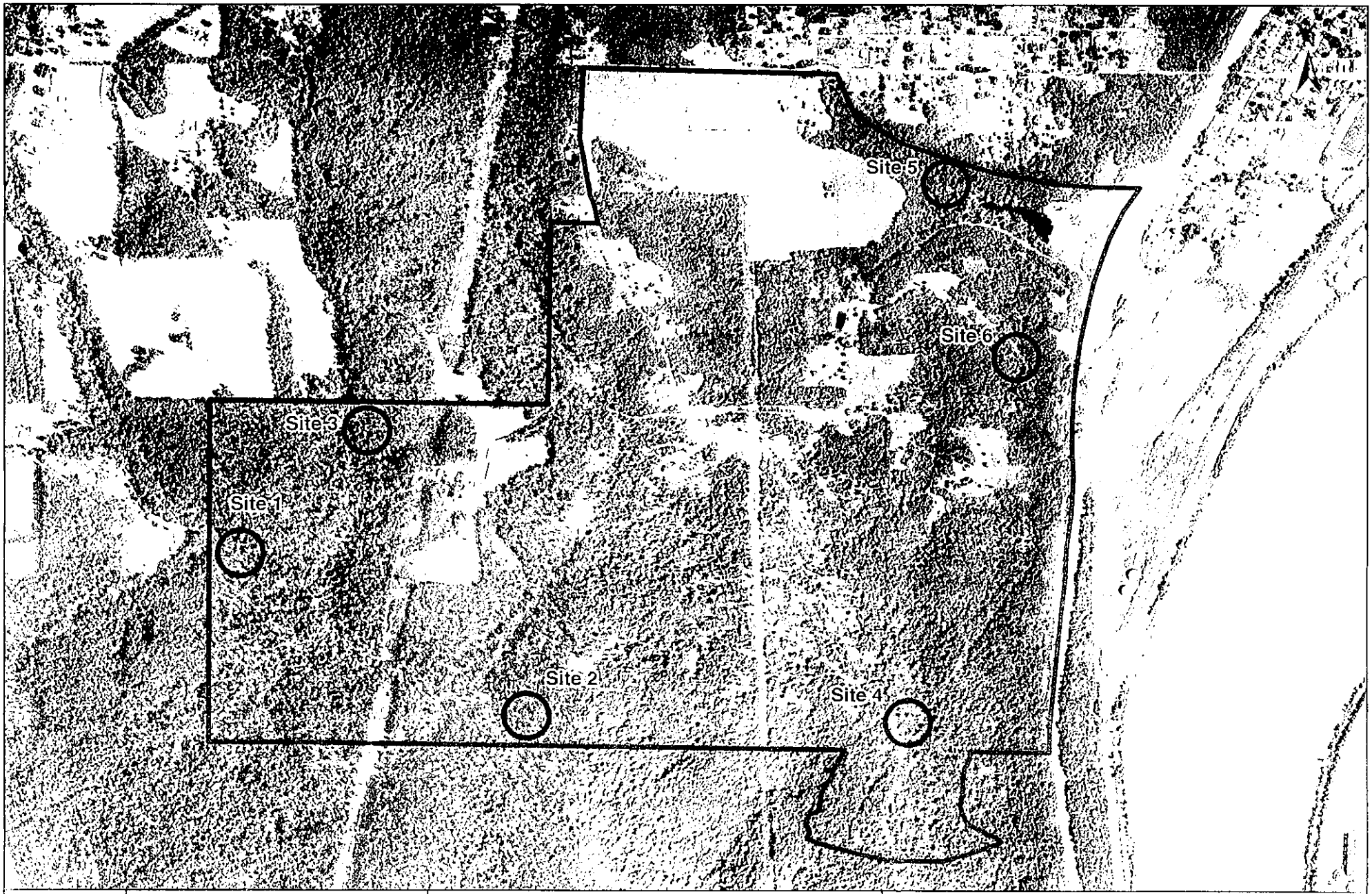


NAD 2004
COLUMBIANA COUNTY
OHIO

Drawn By: M. Hutnisen | Chk By: DAM

1 inch equals 1,000 feet

DATE: 10/3/07

0 500 1,000 1,500 Feet

**Legend**

- Study Area
- Mist Net Site

ISSUED FOR: OHIO RIVER CLEAN FUELS LLC.

ISSUED BY:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
333 Baldwin Road
Pittsburgh, PA 15205-9702
1-800-365-2324
Columbus, OH * Cincinnati, OH * Indianapolis, IN * Nashville, TN * Chicago, IL * St. Louis, MO * Export, PA * Detriot, MI

# MIST NET SITE LOCATION MAP
# OHIO RIVER CLEAN FUELS FACILITY
# OHIO RIVER CLEAN FUELS, LLC.
# WELLSVILLE, COLUMBIANA
# AND JEFFERSON COUNTIES, OHIO

PROJECT NO.: 061-933 | FIGURE: 2

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# APPENDIX A

# INDIANA BAT HABITAT ASSESSMENT REPORT

July 10, 2006

Mr. Tracy V. Drake, Executive Director
Columbiana County Port Authority
1250 St. George Street
East Liverpool, Ohio 43920

Dear Mr. Drake:

Subject: Indiana bat (*Myotis sodalis*) Habitat Assessment
Proposed Development Site
Columbiana County, Ohio
CEC Project 061-069

On June 30, 2006 Civil & Environmental Consultants, Inc. (CEC) completed an Indiana bat habitat assessment at the proposed development site located near Wellsville in Columbiana County, Ohio. The proposed project site is located on the Wellsville-Ohio 7.5 minute U.S.G.S. Quadrangle approximately 1.9 miles west from Wellsville Ohio (40°35'39.9" 080°41'19.9"). The proposed project area includes approximately 367 acres (Figure 1) that is bounded to the north by 18th Avenue and residential development, to the west by sparse residential development and forested habitat, to the south by forested habitat along the Columbiana and Jefferson County Line and to the east by State Route 7 and the Ohio River.

The proposed project area consists of approximately 281 acres of forested habitat and 86 acres of open habitat (Figure 2). The area is generally characterized as a hilltop with headwater drainages connected directly to the Ohio River and to Rocky Run, a tributary of the Ohio River. Two ponds were identified within the site during the habitat assessment. One pond is located along the eastern edge of the site adjacent to 25th Street and drains directly to the Ohio River. The second pond is located along the western portion of the site near Sixteen School Road and drains into a tributary of Rocky Run.

A majority of the project area consists of primitive campgrounds (ranging from mobile homes to lean-tos) and is heavily used by all terrain vehicles (ATV's). There has been recent selective tree harvesting on the site. In general, this area consists of large mature trees interspersed by dense mid- and under-story vegetation. This area is highly fragmented by ATV trails which connect the numerous primitive camp sites. Photographs documenting the existing forested habitat, ATV trails and primitive camping areas are included in Appendix A.

A total of 10 observation points were randomly chosen throughout the site to document onsite vegetation. Data collected at each location included dominant tree species, tree diameter at breast height (DBH), percent canopy closure, understory density, potential Indiana bat roost trees, and herbaceous vegetation data. Each observation location was photographed and assessed for overall potential Indiana bat habitat. Overall, the dominant habitat within and



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Indianapolis 877/746-0749
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St. Louis 866/250-3679

Corporate Web Site http://www.ceainc.com

adjacent to the proposed site consists of select cut mature forest. The average canopy height is 46.5 feet with and average canopy closure of 44%. The dominate tree species include black cherry (*Prunus serotina*), average DBH 10.5, black locust (*Robinia pseudoacacia*), average DBH 10.2, red maple (*Acer rubrum*), average DBH 8.5, sugar maple (*Acer saccharum*), average DBH 9.8, and sassafras (*Sassafras albidum*), average DBH 8.9. Overall the dominant tree species DBH ranged from 2 inches to 30 inches with an average of 9.4 inches. The understory closure ranged from moderate to very dense and is dominated by saplings of immature trees.

Potential Indiana bat roost trees were identified within the project area. These potential roost trees consisted of both live and dead trees that possessed exfoliating bark, dead snags, crevices and/or cracks. The DBH of the identified potential Indiana bat roost trees ranged from 2 to 18 inches and averaged 6.4 inches.

The location of the proposed project site (Figure 2) shows that the area is surrounded by sparse residential and agricultural development interspersed by large areas of forested habitat. The site also is located adjacent to the Ohio River. However, there is little to no floodplain along this stretch of the Ohio River. This section of the Ohio River includes mostly steep forested and developed river banks and hillsides.

Based upon the Indiana bat habitat assessment performed on June 30, 2006 by CEC, the proposed project area does contain potential roosting and foraging habitat for the Indiana bat. However, during the habitat assessment, no large diameter, high quality Indiana bat roost trees were identified. Additionally, historic harvesting of large, mature trees and the high levels of human disturbance within the site further decreases this area's value as high quality Indiana bat habitat.

If you have any questions or require additional information please call us at (412) 429-2324.

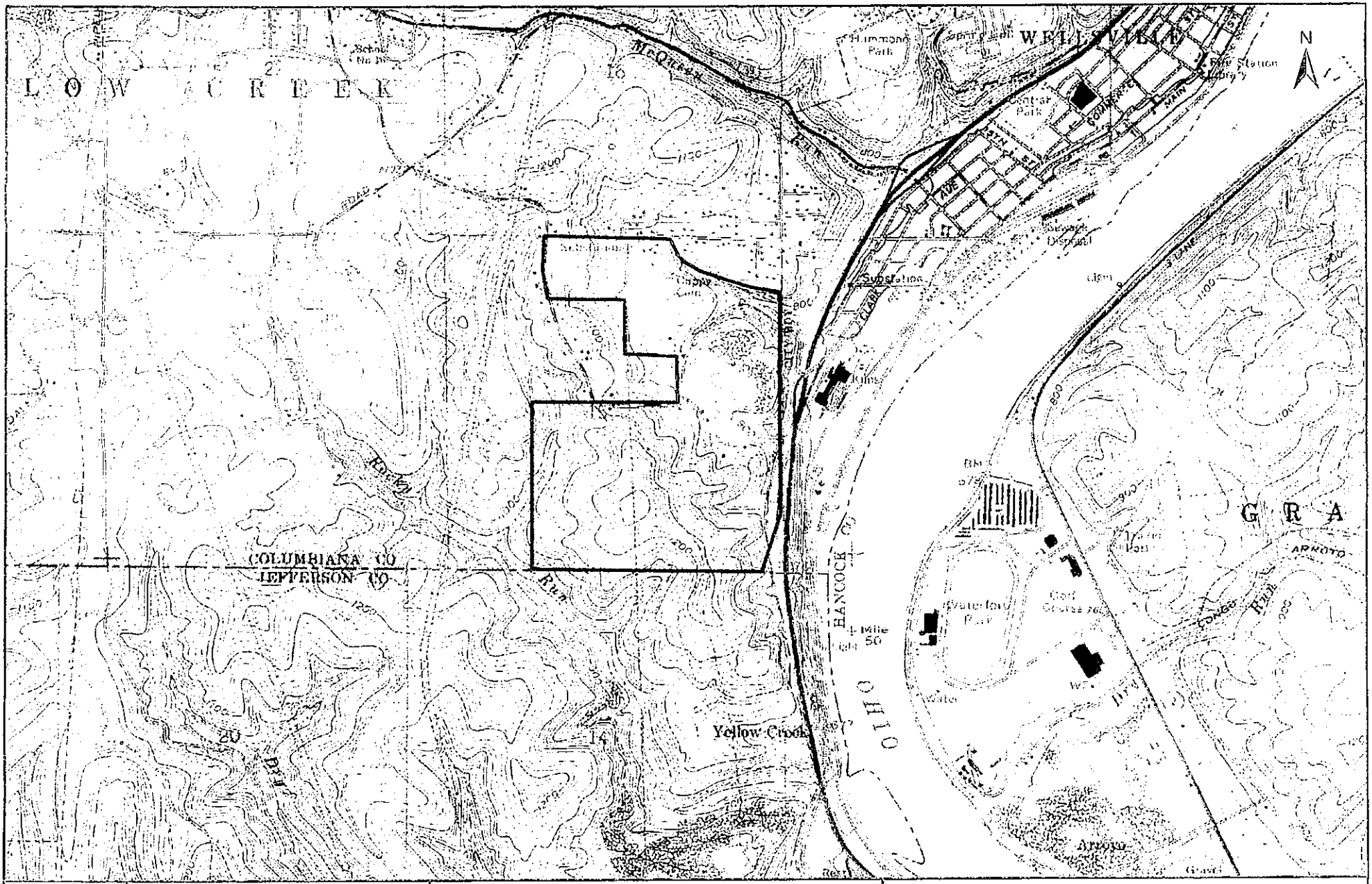
Very truly yours,

CIVIL & ENVIRONMENTAL CONSUTLTANTS, INC.

Neil Bossart
Project Scientist

Daniel A. Maltese
Project Manager

L-061-069.JL10/W




USGS
WELLSVILLE, OHIO
7.5' QUADRANGLE

| DWN. BY | CHK. BY |
|---|---|
| M. Hermsen | N. Bossart |

1 inch equals 2,000 feet

DATE 07/5/06

0 1,000 2,000 3,000 4,000 Feet

**Legend**

Permit Boundary

ISSUED FOR:

ISSUED BY

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
333 Baldwin Road
Pittsburgh, PA 15205-9702
1-800-365-2324
Columbus, OH * Cincinnati, OH * Indianapolis, IN * Nashville, TN * Chicago, IL * St. Louis, MO * Export, PA * Detroit, MI

# PROJECT LOCATION MAP
# COAL LIQUIFICATION PLANT
# BAARD ENERGY
# COLUMBIANA COUNTY, OHIO

PROJECT NO.: 061-178

FIGURE: 1

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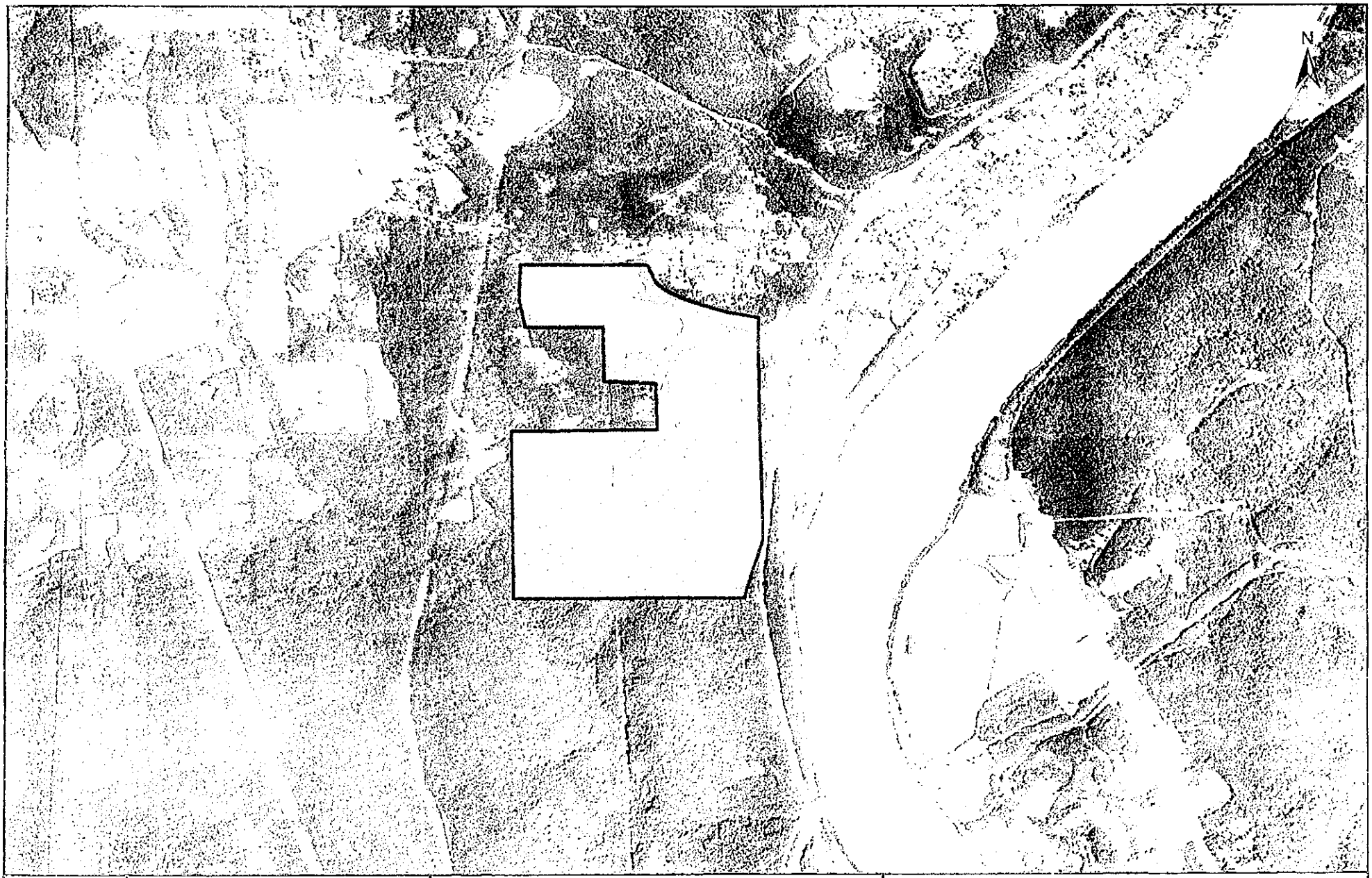


Imagery Flown in 2004, National Agricultural Imagery Program

DWN. BY M. Hermsen | CHK. BY N. Bossart

1 inch equals 2,000 feet

DATE 07/05/06

0 1,000 2,000 3,000 4,000 Feet

**Legend**

- Permit Boundary (367 Acres)
- Forested Area (281 Acres)
- Open Area (86 Acres)

ISSUED FOR

ISSUED BY

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
333 Baldwin Road
Pittsburgh, PA 15205-9702
1-800-365-2324
Columbus, OH * Cincinnati, OH * Indianapolis, IN * Nashville, TN * Chicago, IL * St. Louis, MO * Export, PA * Detroit, MI

# INDIANA BAT HABITAT ASSESSMENT
# COAL LIQUIFICATION PLANT
# BAARD ENERGY
# COLUMBIANA COUNTY, OHIO

PROJECT NO.: 061-178 | FIGURE: 2

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Photo 1: View of typical forested habitat surrounding area 1.

Photo 2: View of typical forested habitat surrounding area 2 with typical dead snags.

Photo 3: Typical forested habitat surrounding area3.

Photo 4: Typical forested habitat surrounding areas 4,5, and 6.

Photo 5: Typical forested habitat surrounding areas 7 and 8.

Photo 6: Typical forested habitat surrounding areas 9 and 10.

# APPENDIX B

# U.S. FISH &WILDLIFE SERVICE CORRESPONDENCE

## Bossart, Neil

**From:** Angela_Zimmerman@fws.gov
**Sent:** Friday, May 11, 2007 11:08 AM
**To:** Bossart, Neil
**Cc:** Jeromy_Applegate@fws.gov; Megan_Seymour@fws.gov
**Subject:** Re: USF&WS Permit amendment and mist net survey authorization

Dear Mr. Bossart:

This is in response to your May 10 email requesting an amendment to your Federal Fish and Wildlife Permit No. TE118259-0 to conduct surveys for the Indiana bat (Myotis sodalis) at the 10-acre proposed Cuyahoga Landfill Borrow Area Expasion property 3 miles west of Bedford in Cuyahoga County, Ohio and the 622-acre proposed Ohio River Clean Fuels Development Area southwest of Wellsville in Columbiana County, Ohio.

The Service has reviewed your proposal for the Indiana bat surveys. The U.S. Fish and Wildlife Service Reynoldsburg, Ohio Field Office has no objection to the surveys as proposed. This notification serves as written concurrence that Civil & Environmental Consultants, Inc. is authorized to proceed with the Indiana bat surveys as described in your May request. Upon completion of the surveys, we request that you submit a copy of the survey results to this office for review. Please include the latitude and longitude coordinates for each survey site in the reports. If any Indiana bats are found during the survey, please notify this office within 48 hours. Furthermore, we recommend that any Indiana bats captured, especially reproductively active females, be monitored through radio-tracking to determine roost locations.

Please carry a copy of this site specific authorization and your Federal permit while conducting the surveys. If you have questions, or if we may be of further assistance in this matter, please contact me.

Sincerely,
Angela Zimmerman
Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
6950 Americana Parkway, Suite H
Reynoldsburg, OH 43068
(614) 469-6923, ext. 22.
(614) 469-6919 FAX

"Bossart, Neil" <nbossart@cecinc.com>
05/10/2007 03:29 PM

To <Jeromy_Applegate@fws.gov>
cc <Angela_Zimmerman@fws.gov>
Subject USF&WS Permit amendment and mist net survey authorization

Mr. Applegate:

Please find attached a permit amendment request letter and associated figures for two Indiana bat mist net surveys.

If you have any questions or require additional information, please let me know.

Thanks,

Neil Bossart
CEC
333 Baldwin Road
Pittsburgh, PA 15205
(412) 429-2324
(412) 429-2114
[attachment "NBossart USFWS Permit Amend.pdf" deleted by Angela Zimmerman/R3/FWS/DOI]

May 10, 2007

Mr. Jeromy Applegate
US Fish & Wildlife Service
6950 Americana Pkwy, Ste. H
Reynoldsburg, Ohio 43068

Dear Mr. Applegate:

Subject: Request for Concurrence and Permit Amendment
Indiana Bat Mist Net Surveys
Proposed Cuyahoga Landfill Borrow Area Expansion and Proposed Ohio River Clean Fuels Development Area
Cuyahoga and Columbiana County, Ohio
CEC Project 061-933.0019 and 062-111

Civil & Environmental Consultants, Inc. (CEC) is requesting concurrence relating to Indiana bat (*Myotis sodalis*) mist net surveys, a permit amendment to CEC's USF&WS Permit (# TE 118259), and authorization to proceed. Waste Management, Inc. and Ohio River Clean Fuels, LLC have contracted CEC to perform presence/probable absence mist net surveys for the following two project areas.

**Cuyahoga Regional Sanitary Landfill**

The first survey is for a proposed borrow area at the Cuyahoga Regional Sanitary Landfill for Waste Management, Inc (USF&WS correspondence March 17, 2004). The proposed project site is located on the Chagrin Falls, Ohio 7.5' U.S.G.S. Quadrangle approximately 3 miles west of Bedford, OH (41°22'59.4" 81°28'28.5"). The proposed project site consists of an approximate 10-acre land tract (Figure 1). The approximate 10-acre project area consists of mature hardwoods with little to no understory or herbaceous ground cover (Figure 2). The dominant tree species within the project area include shagbark hickory (*Carya ovata*), bitternut hickory (*Carya cordiformis*), mocker nut hickory (*Carya tomentosa*), American elm (*Ulmus americana*), sugar maple (*Acer saccharum*), and American basswood (*Tilia americana*). Figure 2 also shows the approximate location of possible mist-net sites within the study area and the limits of proposed clearing.

The mist-net survey is scheduled to start in late May and will be completed by CEC under USF&WS Permit # TE 118259. The mist-net survey will strictly follow the technical criteria outlined in the USF&WS (Region 3) agency draft document titled Indiana Bat (Myotis sodalis) Revised Recovery Plan, dated March 1999 as well as any additional recommendations by the USF&WS.



Pittsburgh 333 Baldwin Road
Pittsburgh, Pennsylvania 15205
Phone 412/429-2324
Fax 412/429-2114
Toll Free 800/365-2324
E-mail info@cecinc.com

Chicago 877/963-6026
Cincinnati 800/759-5614
Columbus 888/598-6808
Detroit 866/380-2324
Export 800/899-3610
Indianapolis 877/746-0749
Nashville 800/763-2326
St. Louis 866/250-3679

Corporate Web Site http://www.cecinc.com

At this time, CEC proposes to complete 2 mist net sites within and adjacent to the proposed Cuyahoga Regional Sanitary Landfill borrow area permit boundary. The mist-net survey will consist of a minimum of 8 net nights (two locations x two nights per survey site x two nets per night). The mist-net survey sites will include at least two mist nets, placed a minimum of 30 meters apart. The survey sites will be sampled for two consecutive nights which will begin at sunset and last for a minimum of 5 hours. In the case of severe weather including precipitation, strong winds, and/or temperatures dropping below 50 degrees Fahrenheit during the initial survey effort, surveys will be terminated and the site will be resurveyed under suitable conditions.

**Ohio River Clean Fuels, LLC**

The second survey (TAILS 2006-TA-0782) is for a proposed industrial development by Ohio River Clean Fuels, LLC. The proposed project site is located in Columbiana County on the Wellsville, Ohio 7.5' U.S.G.S. Quadrangle southwest of Wellsville, OH (N40° 35' 18.4'' W080° 41' 06.6''). The proposed project site consists of an approximate 622-acre land tract (Figure 1). The approximate 622-acre area includes deciduous forest, bottomland hardwoods, agricultural fields, successional pasture fields, residential development, historically mined areas, and a primitive campground/off-road park. (Figure 2). The dominate tree species include black cherry (*Prunus serotina*), average DBH 10.5, black locust (*Robinia pseudoacacia*), average DBH 10.2, red maple (*Acer rubrum*), average DBH 8.5, sugar maple (*Acer saccharum*), average DBH 9.8, and sassafras (*Sassafras albidum*), average DBH 8.9. Overall the dominant tree species DBH ranged from 2 inches to 30 inches with an average of 9.4 inches. The understory closure ranged from moderate to very dense and is dominated by saplings of immature trees. Figure 2 also shows the approximate location of possible mist-net sites within the study area.

The mist-net survey is scheduled to start in early June and will be completed by CEC USF&WS Permit # TE 118259. The mist-net survey will strictly follow the technical criteria outlined in the USF&WS (Region 3) agency draft document titled Indiana Bat (Myotis sodalis) Revised Recovery Plan, dated March 1999 as well as any additional recommendations by the USF&WS.

At this time, CEC proposes to complete 6 mist net sites within the proposed development permit boundary. The mist-net survey will consist of a minimum of 24 net nights (six locations x two nights per survey site x two nets per night). The mist-net survey sites will include at least two mist nets, placed a minimum of 30 meters apart. The survey sites will be sampled for two consecutive nights which will begin at sunset and last for a minimum of 5 hours. In the case of severe weather including precipitation, strong winds, and/or temperatures dropping below 50 degrees Fahrenheit during the initial survey effort, surveys will be terminated and the site will be resurveyed under suitable conditions.

At this time, we respectfully request concurrence for the number of mist net sites proposed, amendment to USF&WS Permit # TE 118259, and authorization to initiate the mist net surveys.

Please sign and return this letter along with any additional requests or guidelines if necessary. If you have any questions or require additional information, please contact me at (412) 429-2324.

Very truly yours,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

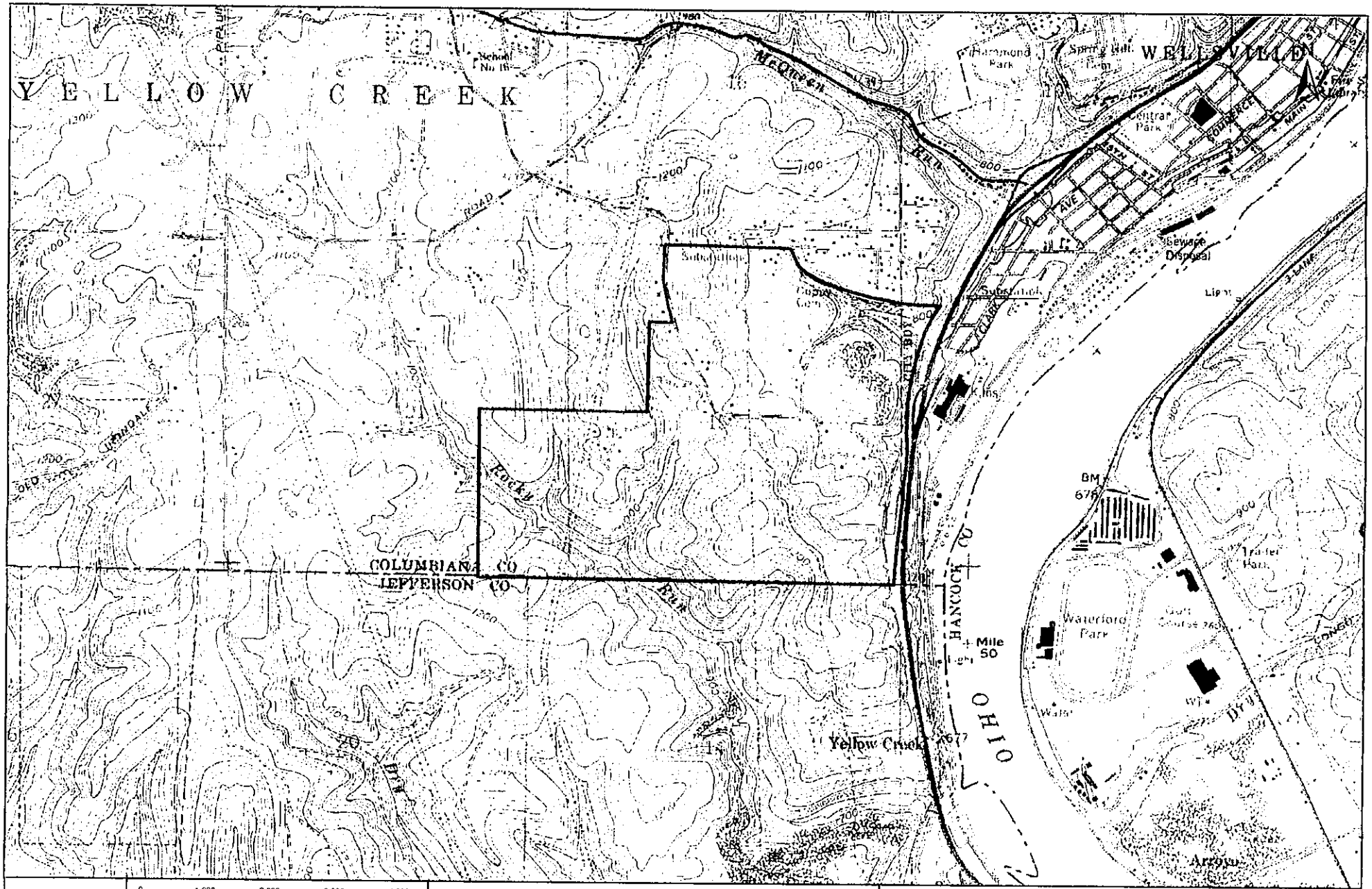
Neil Bossart
Assistant Project Manager

CONCURRENCE:

_____ Date: _____

Mr. Jeromy Applegate
U.S. Fish and Wildlife Service

L-061-933.MAY10/W




USGS
WELLSVILLE, OHIO
7.5' QUADRANGLE

| DWN. BY. | CHK. BY. |
|---|---|
| M. Hermsen | |

1 inch equals 2,000 feet

DATE: 4/10/07

**Legend**

Study Area

ISSUED FOR: OHIO RIVER CLEAN FUELS LLC.

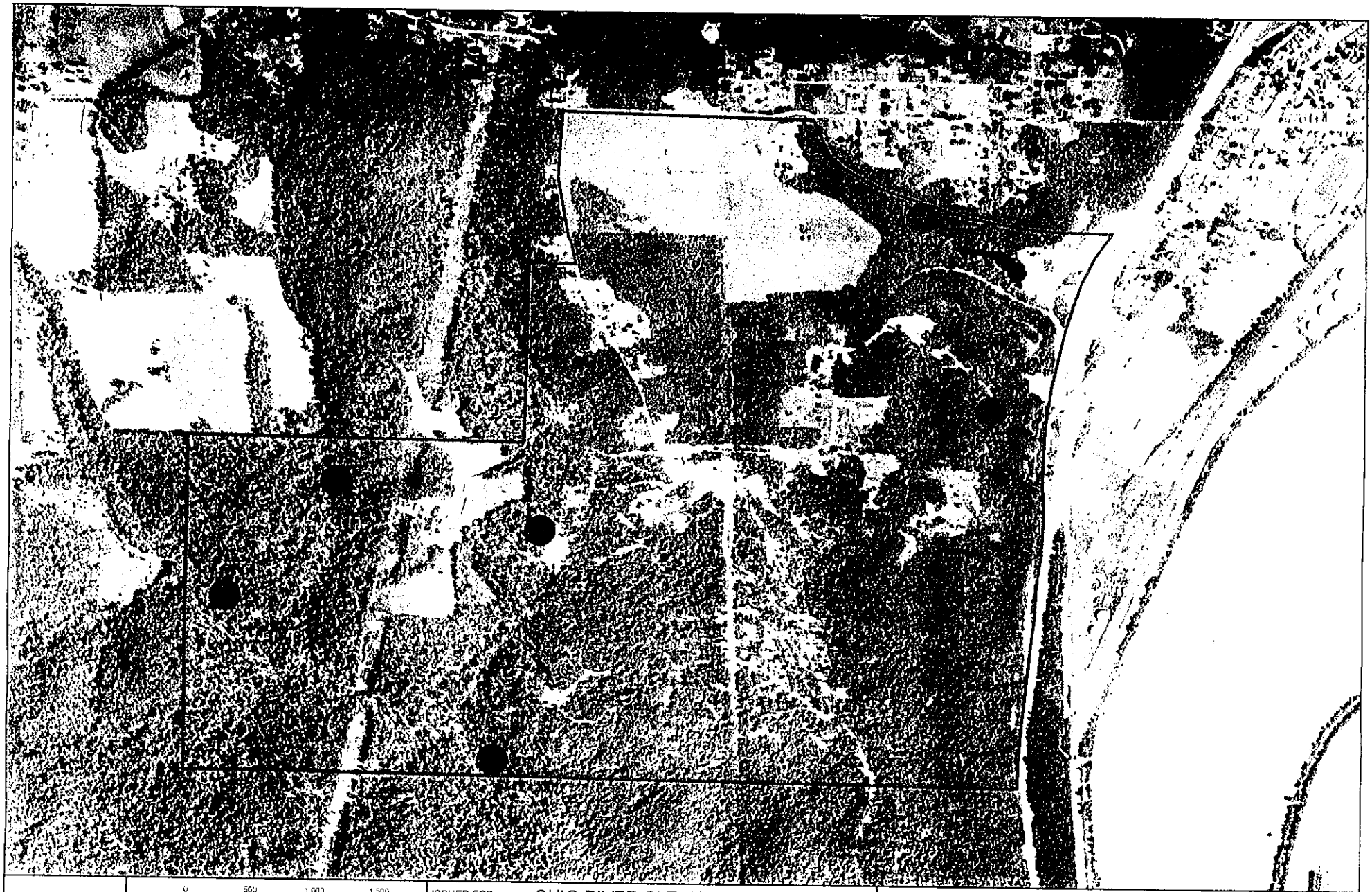
ISSUED BY:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
333 Baldwin Road
Pittsburgh, PA 15205-9702
1-800-365-2324
Columbus, OH * Cincinnati, OH * Indianapolis, IN * Nashville, TN * Chicago, IL * St. Louis, MO * Export, PA * Detroit, MI

# U.S.G.S. SITE LOCATION MAP
# OHIO RIVER CLEAN FUELS FACILITY
# OHIO RIVER CLEAN FUELS, LLC
# WELLSVILLE, COLUMBIANA COUNTY, OHIO

PROJECT NO.: 061-933

FIGURE: 1



NAIP 2004
COLUMBIANA COUNTY
OHIO

DWN. BY: M. Heimsen | CHK. BY:

1 inch equals 1,000 feet

DATE: 4/10/07

0 500 1,000 1,500 Feet

**Legend**

- Mist net Site
- Study Area

ISSUED FOR: OHIO RIVER CLEAN FUELS LLC.

ISSUED BY:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
333 Baldwin Road
Pittsburgh, PA 15205-9702
1-800-365-2324
Columbus, OH * Cincinnati, OH * Indianapolis, IN * Nashville, TN * Chicago, IL * St. Louis, MO * Export, PA * Detroit, MI

POTENTIAL MIST NET SITE MAP
OHIO RIVER CLEAN FUELS FACILITY
OHIO RIVER CLEAN FUELS, LLC.
WELLSVILLE, COLUMBIANA COUNTY, OHIO

PROJECT NO.: 061-933 | FIGURE: 2

# APPENDIX C

# SCIENTIFIC COLLECTION PERMITS

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

3-201
(1-97)

# FEDERAL FISH AND WILDLIFE PERMIT

2. AUTHORITY-STATUTES
16 USC 1539(a)

REGULATIONS *(Attached)*
50 CFR 17.22

50 CFR 13

1. PERMITTEE

CIVIL AND ENVIRONMENTAL CONSULTANTS, INC.
333 BALDWIN ROAD
PITTSBURGH, PA 15205
U.S.A.

3. NUMBER
**TE118259-0**

| 4. RENEWABLE | 5. MAY COPY |
|---|---|
| ☒ YES ☐ NO | ☒ YES ☐ NO |

| 6. EFFECTIVE | 7. EXPIRES |
|---|---|
| 05/15/2006 | 12/31/2007 |

8. NAME AND TITLE OF PRINCIPAL OFFICER *(If #1 is a business)*
NEIL R BOSSART
PROJECT SCIENTIST

9. TYPE OF PERMIT
ENDANGERED SPECIES

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED
ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

C.1. ALSO VALID FOR DREW CRANE, AND ASSISTANTS WORKING UNDER THE DIRECT AND ON-SITE SUPERVISION OF NEIL BOSSART AND DREW CRANE.

D. ACCEPTANCE OF THIS PERMIT SERVES AS EVIDENCE THAT THE PERMITTEE AND ITS AUTHORIZED AGENTS UNDERSTAND AND AGREE TO ABIDE BY THE TERMS OF THIS PERMIT AND ALL SECTIONS OF TITLE 50 CODE OF FEDERAL REGULATIONS, PARTS 13 AND 17, PERTINENT TO ISSUED PERMITS. SECTION 11 OF THE ENDANGERED SPECIES ACT OF 1973, AS AMENDED, PROVIDES FOR CIVIL AND CRIMINAL PENALTIES FOR FAILURE TO COMPLY WITH PERMIT CONDITIONS.

E. Permittee is authorized to take (capture and release, band, collect tissue samples and guano samples, and radio-track) the Indiana bat (*Myotis sodalis*) and gray bat (*M. grisescens*) for scientific research aimed at recovery of the species.

F. Activities are authorized at the following locations:

F.1. Locations within Oklahoma (Region 2) upon receipt of written concurrence from the U.S. Fish and Wildlife Service (USFWS) Field Supervisor, as outlined in Condition G.

F.2. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Michigan, Missouri, and Ohio upon receipt of written concurrence from the USFWS Field Supervisor, as outlined in Condition G.

☒ ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS
ANNUAL REPORT DUE: 1/31

| ISSUED BY | TITLE | DATE |
|---|---|---|
| Peter J. Fasenda for | PROGRAM MANAGER, TE/HC | 05/15/2006 |

F.3. Locations within Region 4 of the USFWS: Alabama, Arkansas, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee upon receipt of written concurrence from the USFWS Field Supervisor, as outlined in Condition G.

F.4. Locations within Region 5 of the USFWS: Maryland, New Jersey, New York, Pennsylvania, Vermont, Virginia and West Virginia in accordance with required state permits.

G. For locations specified in Conditions F.1., F.2., and F.3., Permittee shall request authorization from the USFWS Field Supervisor for the state in which activities are proposed to occur at least 15 days prior to conducting any activities. Your notification must be in writing and must indicate:

G.1. Location of proposed activities, including project site, county, and state.

G.2. A description of the activities (i.e., surveys, radio-telemetry studies, etc.).

G.3. Dates when the project is proposed to take place.

G.4. Evidence that Permittee has received any required contracts to complete the activities.

G.5. You may proceed with activities upon receipt of written concurrence from the Field Supervisor. *Your concurrence letter must be carried with this permit to authorize locations not named in this permit.*

H. The following conditions apply to permitted activities:

H.1. Capture with mist nets, bat traps, or by hand, to document presence or absence and to study habitat use. The monitoring interval for mist nets may not exceed 30 minutes. Captured bats may not be held for more than 45 minutes, unless injured.

H.2. Permittees may carry out non-intrusive measurements on captured bats. Celluloid split-ring bands or lipped metal bands having a unique identifier may be applied to the forearms of captured bats prior to release.

H.3. Suspected maternity roosts are not to be harassed or disturbed. Netting or capture attempts by any other methods within 50 meters of known or suspected maternity roosts is prohibited, unless Permittee receives prior written approval from the U.S. Fish and Wildlife Service Field Supervisor for the state in which the activities are proposed to occur.

H.4. Holohill Systems, or similar, radio transmitters (total package weight not to exceed 0.80 grams) may be applied to Indiana bats during summer roosting periods with non-toxic skin bond adhesive. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first. A maximum of four bats shall be radio-marked at any one study site at any one time.

I. Wing punch tissue samples and guano samples may be collected from each bat captured to assist the USFWS with a study of the genetics of and contaminant effects to the species. Prior to collecting such samples, the permittee shall first contact the following to obtain collection protocol and a collection and shipping kit:

Robert R. Currie
Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801
(828/258-3939 x224; fax 828/258-5330;

J. Upon determination that listed bats are present at previously undocumented sites, Permittee shall notify the USFWS Field Supervisor within the state the survey occurred in within 48 hours.

K. Death or serious injury to listed bats may not exceed two specimens. Once that number is met, your trapping activities must immediately cease. Mortality or serious injury must be reported in writing within 5 calendar days to the U.S. Fish and Wildlife Service, 1 Federal Drive, Ft. Snelling, Minnesota 55111-4056 and the Service office in Condition N.2.a. Dead or moribund bats may be retained for further study only with the written permission of the USFWS (contact information in Condition N.2.a.). Bats that are not authorized for retention are to be chilled; disposition is to be coordinated with the USFWS (Condition N.2.a.) for potential necropsy and/or contaminants analysis.

L. A report of all activities conducted under the authority of this permit is due by January 31 following each year the permit is in effect. In addition, copies of all publications and reports resulting from work conducted under this permit must be

submitted as they become available. Failure to furnish any reports required by this permit is cause for permit revocation and/or denial of future permit applications. At a minimum, your report must include:

L.1. Sex, age, band numbers, dates, and locations (using UTM, latitude-longitude, section descriptors, or accurately plotted on USGS maps) for all bats captured.

L.2. Location and characteristics of roost trees and bat colonies.

L.3. A description of locations searched where no bats were found.

L.4. Information on mortalities or injuries to Indiana bats and disposition of the bats.

L.5. A completed INDIANA BAT SURVEY AND BANDING DATA form (additional copies available from contact in Condition N.2.a.)

M. Copies of your reports shall be sent to the offices listed below. When possible, electronic copies shall be submitted in lieu of hard copies in MS Word, Rich Text Format, or other file format that is compatible with the receiving office.

M.1. Pete Fasbender
U.S. Fish and Wildlife Service
Ecological Services Operations
1 Federal Drive
Fort Snelling, Minnesota 55111-4056
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov

M.2. Victoria Davis
U.S. Fish and Wildlife Service
Attn: Permit Coordinator (AES/TE/P)
1875 Century Boulevard, Suite 200
Atlanta, Georgia 30345-3301
(404/679-7358; fax 404/679-7081)
permitsR4ES@fws.gov

M.3. Heather Bell
U.S. Fish and Wildlife Service
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(413/253-8645; fax 413/253-8482)
permitsR5ES@fws.gov

M.4. Stephanie Weagley
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service, Region 2
P.O. Box 1306
Albuquerque, New Mexico 87103
(505/248-6649; fax 505/248-6788)
permitsR2ES@fws.gov

N. Additionally, based on geographic area, reports and publications shall be submitted to the following:

N.1. For studies conducted in Illinois:

N.1.a. Jody Millar
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
4469 48th Avenue Court
Rock Island, Illinois 61201
(309/793-5800, x524; fax 309/793-5804)

N.1.b. Endangered Species Coordinator
Illinois Department of Natural Resources
Division of Natural Heritage
Endangered and Threatened Species Program
Lincoln Tower Plaza
524 S. Second Street
Springfield, Illinois 62701-1787
(217/785-8290; fax 217/785-8277)

N.2. For studies conducted in Indiana:

N.2.a. Lori Pruitt
Endangered Species Coordinator for Indiana
U.S. Fish and Wildlife Service
Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x217; fax 812/334-4273)

N.2.b. Katie Gremillion-Smith
Endangered Species Coordinator
Indiana Department of Natural Resources
Division of Fish and Wildlife
Room W273, 402 W. Washington St.
Indianapolis, Indiana 46204-2267
(317/232-8160; fax 317/232-8150)

N.3. For studies conducted in Iowa:

N.3.a. Jody Millar
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
4469 48th Avenue Court
Rock Island, Illinois 61201
(309/793-5800, x524; fax 309/793-5804)

N.3.b. Daryl Howell
Endangered Species Coordinator
Iowa Department of Natural Resources
Parks, Recreation, and Preserves
Wallace State Office Building
East 9th and Grand Avenue
Des Moines, Iowa 50319-0034
(515/281-6794)

N.4. For studies conducted in Michigan:

N.4.a. Mike DeCapita
Endangered Species Coordinator for Michigan
U.S. Fish and Wildlife Service
2651 Coolidge Road
East Lansing, Michigan 48823
(517/351-6274; fax 517/351-1443)

N.4.b. Endangered Species Coordinator
Michigan Department of Natural Resources
Wildlife Division
5th Floor, Stevens T. Mason Bldg.
P.O. Box 30444
Lansing, Michigan 48909-7944
(517/373-3337; fax 517/373-6705)

N.5. For studies conducted in Missouri:

N.5.a. Paul McKenzie
Endangered Species Coordinator for Missouri
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, MO 65203-2132
573/234-2132

N.5.b. Peggy Horner
Endangered Species Coordinator
Missouri Department of Conservation
Endangered Species and Natural History Division
2901 W. Truman Blvd.
P.O. Box 180
Jefferson City, Missouri 65102-0180
(573/751-4115; fax 573/526-5582)

N.6. For studies conducted in Ohio:

N.6.a. Angela Zimmerman
Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
Ecological Services Field Office
6950-H Americana Parkway
Reynoldsburg, Ohio 43068-4132
(614/469-6923, x13; fax 614/469-6919)

N.6.b. Endangered Species Coordinator
Ohio Department of Wildlife
2045 Morse Road
Building G
Columbus, OH 43229-6693
(614/265-7043; fax 614/262-1143)

N.7. For studies conducted in Alabama, Arkansas, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee:

Robert R. Currie
Asheville Field Office
U.S. Fish and Wildlife Service
160 Zillicoa Street
Asheville, North Carolina 28801
(828/258-3939 x224; fax 828/258-5330; Robert_Currie@fws.gov)

N.8. For studies conducted in Oklahoma:

Field Supervisor
U.S. Fish and Wildlife Service
9014 East 21ST Street
Tulsa, Oklahoma 74129
Office Telephone: (918) 581-7458

cc: FWS/Region 2 ,4, and 5 (AES/TE)
FWS, TE Coordinators for Illinois, Indiana, Iowa, Michigan, Missouri, Ohio, and Wisconsin
DNR/DOC, TE Coordinators for Illinois, Indiana, Iowa, Michigan, Missouri, Ohio, and Wisconsin

**END**

# DIVISION OF WILDLIFE

Ohio Department of Natural Resources

Division of Wildlife Headquarters
2045 Morse Road, Bldg. G
Columbus, Ohio 43229-6693
1-800-WILDLIFE

**WILD ANIMAL PERMIT:** 296

SCIENTIFIC COLLECTION

**DAVID M. GRAHAM**
Chief, Division of Wildlife

**DATE ISSUED**
5/14/2007

Others authorized on permit

YES (SEE ATTACHMENT)

DREW L. CRANE
3600 PARK 42 DRIVE SUITE 130 B
CINCINNATI, OH 45241

SOCIAL SECURITY NUMBER: 306-86-5727

is hereby granted permission to take, possess, and transport at any time and in any manner specimens of wild animals, subject to the conditions and restrictions listed below or any documents accompanying this permit.

This permit, unless revoked earlier by the Chief, Division of Wildlife, is effective from: 3/16/2007 to: 3/15/2008

This permit must be carried while collecting wild animals and be exhibited to any person on demand.

**THIS PERMIT IS RESTRICTED TO THE FOLLOWING:**

**A. Specific Restrictions:**

1.MAY COLLECT BATS, INCLUDING ENDANGERED SPECIES, FOR SURVEY AND INVENTORY.
2. ALL ACTIVITIES MUST BE IN ACCORDANCE WITH ENDANGERED SPECIES LETTER ISSUED BY THE CHIEF OF THE DIVISION OF WILDLIFE.
3. ALL BAT SPECIMENS ARE TO BE IMMEDIATELY RELEASED AFTER IDENTIFICATION, MEASUREMNT, EVALUATION, TAGGING AND RADIO ATTACHMENT. MUST MAINTAIN CURRENT U.S. FISH AND WILDLIFE SERVICE ENDANGERED SPECIES PERMIT TE 118429. FISH, AMPHIBIANS AND AQUATIC MACRO-INVERTEBRATES MUST BE RELEASED AT CAPTURE SITE, WITH THE EXCEPTION OF NECESSARY VOUCHER SPECIMENS.
4.AN ANNUAL REPORT MUST BE SUBMITTED DENOTING SPECIES, QUANITY AND LOCATIONS WHERE SPECIMANS WERE COLLECTED.

**B. Locations of Collecting:**

STATEWIDE

**C. Equipment and method used in collection:**

KICK SEINES, ELECTO-SHOCKER, SEINES, MIST NETS AND HARP TRAPS

**D. Name and number of each species to be collected:**

FISH, AMPHIBIANS (SALAMANDERS), AQUATIC MACRO-INVERTEBRATES AND BATS, INCLUDING INDIANA BATS

**G. An annual report detailing the date(s), location(s), quanitities and species collected must be submitted to the Division of Wildlife by the following February 1st from issued date above.**

This permit is not valid for collecting migratory birds, their nests, or eggs unless a current permit from the U.S. Fish and Wildlife Service has been obtained.

**F. Additional restrictive documents accompanying this permit?**

**G. NO ENDANGERED SPECIES MAY BE TAKEN WITHOUT WRITTEN PERMISSION FROM THE CHIEF**

OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE

## ATTACHMENT

This attachment to Scientific Collecting Permit # 296 authorizes the following persons to conduct the activities listed on the permit, within the conditions and restrictions set forth. Each person must carry and exhibit upon request, a copy of the permit and this attachment when conducting any of the listed activities. The person named on the permit assumes full responsibility for the actions of the persons on this list and for completing and submitting all required reports.

| Name | Social Security No. |
|---|---|
| NEIL BOSSART | 211-48-5614 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

DIVISION OF WILDLIFE
Ohio Department of Natural Resources

Division of Wildlife Headquarters
2045 Morse Road, Bldg. G
Columbus, Ohio 43229-6693
1-800-WILDLIFE
*David M. Graham, Chief*

May 15, 2007

Drew L. Crane
Civil and Environmental Consultants Inc.
3600 Park 42 Drive, Suite 130B
Cincinnati, OH 45241

Dear Mr. Crane:

Per your request, consider this letter authorization to work with federally endangered or threatened species of bats in Ohio, such as the Indiana bat (*Myotis sodalis*). By authority of the Endangered Species Act (ESA), you are hereby designated as an agent of the Ohio Division of Wildlife (DOW) to conduct work on federally listed species of bats in Ohio. Your designation as an agent of DOW is effective beginning 15 May 2007 and will expire 15 March 2009. If necessary, you may request an extension of this designation to continue your work with federally listed species in Ohio.

Effective until 15 March 2009, this designation allows you to (1) add dead Indiana bat and invertebrate specimens salvaged during field work to the OSU Museum of Biological Diversity's permanent collection, (2) monitor roost sites or survey suspected locations of federally listed species in Ohio, (3) locate additional roost or locations of federally listed species in Ohio, (4) set mist nets in the vicinity of potential federally listed bat roost sites and determine use, (5) band federally listed bats in Ohio.

The United States Fish and Wildlife Service (FWS) and DOW are partners in a cooperative agreement under Section 6c of the ESA. Your designation as an agent of the DOW means your work with federally listed species in Ohio is permitted under federal regulations 50 CFR 17.21c and 50 CFR 17.31b. This includes aid to sick, injured, or orphaned species [50 CFR 17.21c (3) (i)] and salvage of dead specimens useful for scientific study [50 CFR 17.21c (3) (iii)]. You must notify the FWS of any such taking as outlined in 50 CFR 17.21c (4). In addition to salvage activities, you are authorized to take species of federally endangered species, as outlined in 50 CFR 17.21c (5), provided your activities meet the guidelines outlined in 50 CFR 17.21c (5) (i) - 50 CFR 17.21c (5) (iv).

A copy of 50 CFR 17 is attached to this letter for your review. In particular, please review 50 CFR 17.21 and 17.31. Note that a separate permit under Section 10 of the ESA is necessary in the case where you might hold live federally listed species longer than 45 days. Permit requests under Section 10 of the ESA should be directed to endangered species biologist Angela Zimmerman in Reynoldsburg, Ohio (614-469-6923 ext. 22). If you have questions about whether any proposed activities are covered under this authority or need any other assistance, contact the FWS.

Information gathered from your work will be valuable to the DOW to pinpoint existing populations of endangered species in Ohio and better understand their habitat requirements. A written report summarizing your findings should be provided to the following individuals; for bats, Dave Swanson, Forest Wildlife Biologist, at the Waterloo Wildlife Research Station, 360 East State Street, Athens, Ohio 45701, for invertebrates, John Navarro, Division of Wildlife, 2045 Morse Rd Bldg G, Columbus, OH 43229. Annual reports are due by 31 December of each year.

Sincerely,

DAVID M. GRAHAM
Chief

DMG/rlo

Enclosure

cc: C. Caldwell
D. Swanson
J. Navarro
A. Zimmerman
R. Ollis
File

# APPENDIX D

# BAT SURVEY DATA FORMS

# CEC Bat Survey Data Form



**Project Name:** Ohio River Clean Fuels Facility **Project #:** 061-933 **Parcel # :** N/A

**Township:** N/A **County:** Columbiana **Scientists:** N. Bossart J. Dietzen

**Date:** 6/10/07 **Start Temp (°F) [Time]:** 21:15 [ 66° ] **Mid Temp (°F) [Time]:** 23:30 [ 55 ] **End Temp (°F) [Time]:** 02:10 [ 52 ]

**Moon Phase:** quarter **Weather:** Clear, Calm, Cool **Coordinates / Datum:** 40° 35' 11.7" 080° 41' 32.0"

**Identification By:** N. Bossart **Site Number :** 1 **Night Number:** 1 **Habitat:** Mature forested stream valley

**Site Description :** Rocky Run, mature forested stream valley, logging roads

**Number of Net Sets at Site:** _____ **Time Started:** 21:15 **Time Ended:** 2215

**Net A [length (m) and height]:** ( 9 ) x 3

**Net B [length (m) and height]:** ( 6 ) x 2

**Net C [length (m) and height]:** ( 9 ) x 1

**Net D [length (m) and height]:** ( )

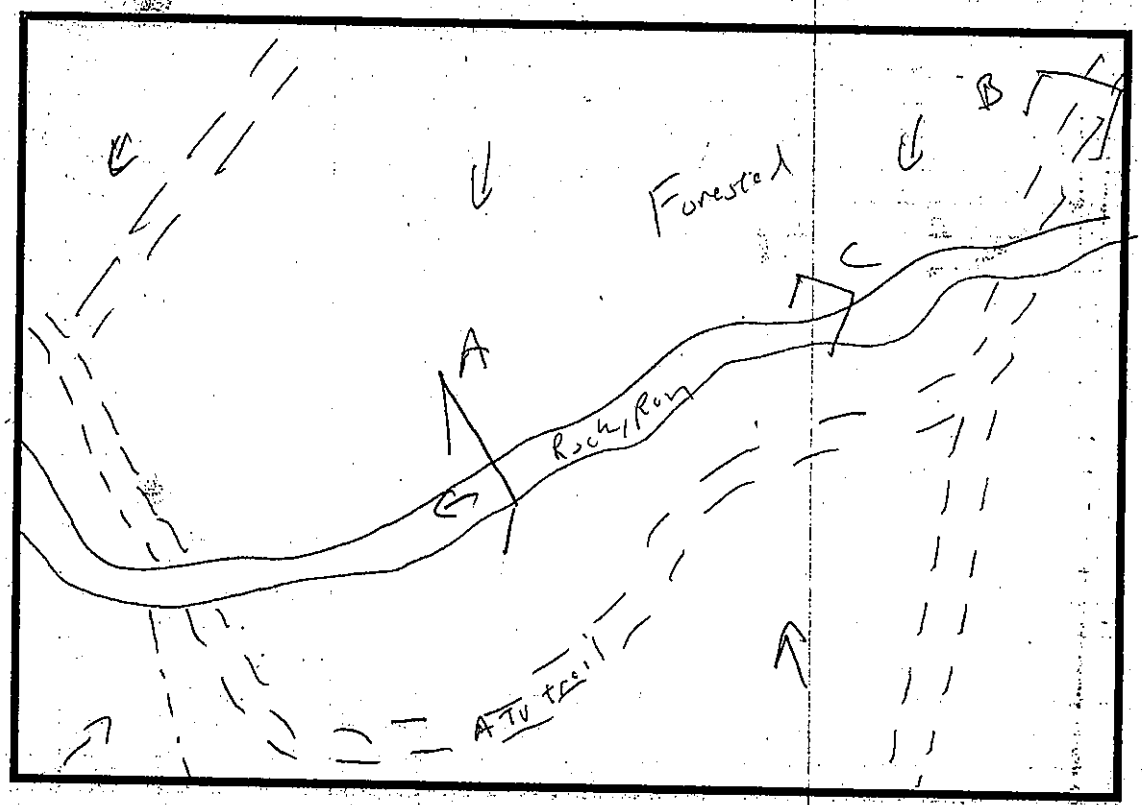
**Other Wildlife Observed:** Screech owl, deer, raccoon, rabbit

**Notes / Comments:** bat activity at 21:15

**Anderson Level II codes and distance (m)**

1. 51 0 m 2. 41 0 m 3. 14 150 m

**Date Entered into Database:** _____




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height In Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Little brown bat | Myotis lucifugus | 21:20 | A | M | NR | 7.7 | 38.4 | 3 | No | No | A | |
| 2 | Little Brown bat | Myotis lucifugus | 21:20 | A | M | NR | 6.4 | 35.9 | 12 | No | No | A | |
| 3 | Little Brown Bat | Myotis lucifugus | 21:20 | A | M | NR | 7.1 | 36.8 | 16 | No | No | A | |
| 4 | Little Brown Bat | Myotis lucifugus | 21:20 | A | M | NR | 7.9 | 37.3 | 28 | No | No | A | |
| 5 | Little Brown Bat | Myotis lucifugus | 21:20 | A | M | NR | 7.2 | 36.4 | 10 | No | No | A | |
| 6 | Little Brown Bat | Myotis lucifugus | 21:40 | A | M | NR | 7.2 | 38.0 | 6 | No | No | A | |
| 7 | Little Brown Bat | Myotis lucifugus | 21:40 | A | M | NR | 6.1 | 35.8 | 20 | No | No | A | |
| 8 | Little Brown Bat | Myotis lucifugus | 21:40 | A | M | NR | 6.9 | 39.1 | 15 | No | No | A | |
| 9 | Little Brown Bat | Myotis lucifugus | 21:40 | A | M | NR | 7.4 | 36.6 | 12 | No | No | A | |
| 10 | Little Brown Bat | Myotis lucifugus | 21:40 | A | M | NR | 6.7 | 36.8 | 4 | No | No | A | |
| 11 | Big Brown Bat | Eptesicus fuscus | 22:25 | A | F | P | 22.9 | 46.9 | 12 | No | No | A | |
| 12 | Big Brown Bat | Eptesicus fuscus | 22:25 | A | F | P | 22.2 | 46.5 | 8 | No | No | A | |
| 13 | Big Brown Bat | Eptesicus fuscus | 22:50 | A | F | P | 25.2 | 44.8 | 16 | No | No | A | |
| 14 | Big Brown Bat | Eptesicus fuscus | 22:50 | A | F | P | 19.6 | 46.1 | 9 | No | No | A | |
| 15 | Big Brown Bat | Eptesicus fuscus | 22:50 | A | F | P | 22.9 | 45.9 | 22 | No | No | A | |
| 16 | Big Brown Bat | Eptesicus fuscus | 23:20 | — | — | — | — | — | — | — | — | A | Escaped |
| 17 | Little Brown Bat | Myotis lucifugus | 23:20 | A | M | NR | 7.4 | 38.0 | 24 | No | Yes | A | |
| 18 | Big Brown Bat | Eptesicus fuscus | 23:20 | A | F | P | 19.3 | 47.1 | 12 | No | No | A | |
| 19 | Big Brown Bat | Eptesicus fuscus | 23:20 | A | M | NR | 17.2 | 47.9 | 8 | No | No | A | |
| 20 | Little Brown Bat | Myotis lucifugus | 1:45 | A | M | NR | 7.1 | 38.5 | 12 | No | No | A | |
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# CEC Bat Survey Data Form



Project Name: Ohio River Clean Fuels Facility  Project #: 061-933  Parcel # : N/A

Township: N/A  County: Columbiana  Scientists: N. Bossart  J. Dietzen

Date: 6/11/07  Start Temp (°F) [Time]: 21:10 [ 69 ]  Mid Temp (°F) [Time]: 2330 [ 57 ]  End Temp (°F) [Time]: 55 [ 2:15 ]

Moon Phase: 2nd Qtr  Weather: Clear, calm, cool  Coordinates / Datum: 40°35'11.7" 080°41'32.0"

Identification By: N. Bossart  Site Number : 1  Night Number: 2  Habitat: Mature forested stream valley

Site Description : Rocky Run, Mature forested stream valley, logging roads

Number of Net Sets at Site: 4  Time Started: 21:15  Time Ended: 02:15

Net A [length (m) and height]: ( 9 ) x 3

Net B [length (m) and height]: ( 9 ) x 3

Net C [length (m) and height]: ( 6 ) x 1

Net D [length (m) and height]: ( 6 ) x 1

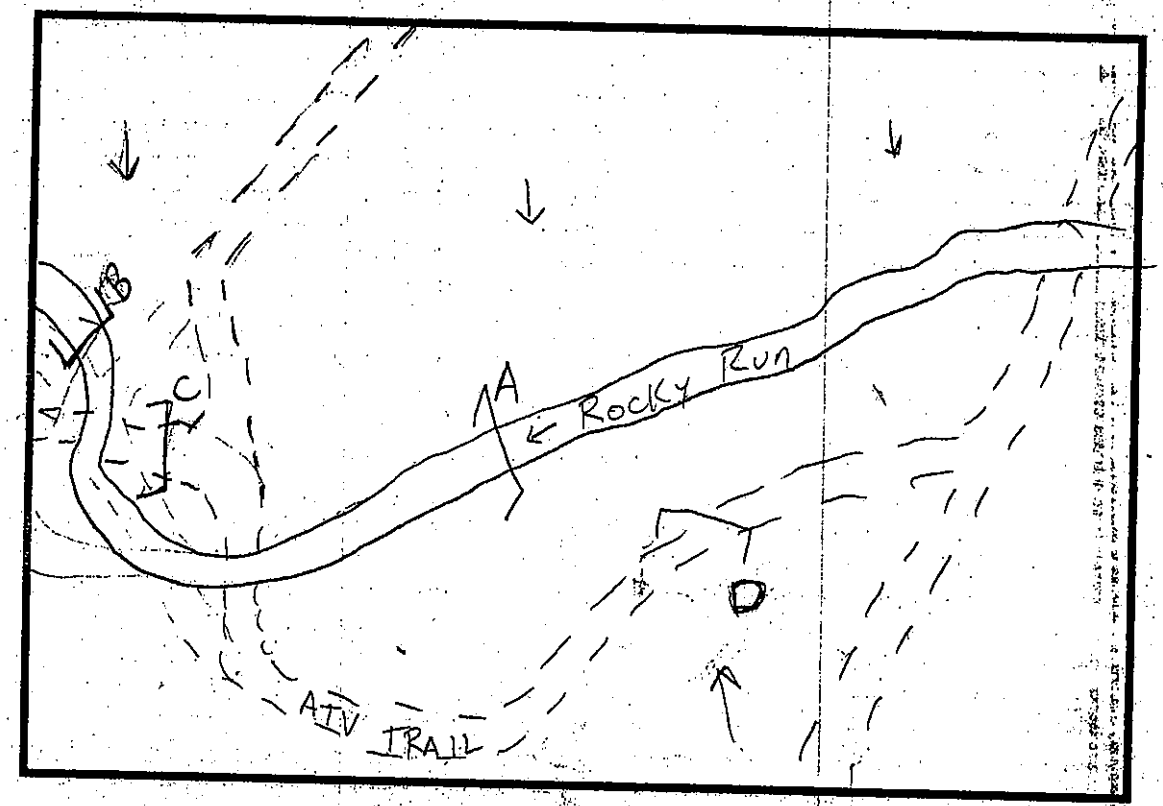
Other Wildlife Observed: Deer, raccoon, rabbit, pileated woodpecker

Notes / Comments:

Anderson Level II codes and distance (m)

1. 51 0 m  2. 41 0 m  3. 14 150 m

Date Entered into Database:




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height in Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Little Brown | Myotis lucifugus | 2140 | A | M | NR | 6.8 | 36.7 | 10 | No | No | B | |
| 2 | Little Brown | Myotis lucifugus | 2140 | A | M | NR | 6.5 | 36.5 | 12 | No | No | B | |
| 3 | Little Brown | Myotis lucifugus | 2145 | A | M | NR | 6.8 | 36.0 | 7 | No | No | A | |
| 4 | Big Brown | Eptesicus fuscus | 2215 | A | F | P | 22.0 | 47.8 | 4 | No | No | C | |
| 5 | Little Brown | Myotis lucifugus | 2215 | A | M | NR | 6.4 | 35.0 | 26 | No | No | A | |
| 6 | Big Brown | Eptesicus fuscus | 2256 | A | F | P | 25.1 | 48.4 | 20 | No | No | A | |
| 7 | Big Brown | Eptesicus fuscus | 2250 | A | M | NR | 16.7 | 45.7 | 23 | No | No | A | |
| 8 | Big Brown | Eptesicus fuscus | 2310 | A | M | NR | 16.6 | 44.9 | 8 | No | No | D | |
| 9 | Little Brown | Myotis lucifugus | 2330 | A | M | NR | 7.2 | 37.8 | 14 | No | No | B | |
| 10 | Big Brown | Eptesicus fuscus | 2330 | A | M | NR | 18.3 | 48.4 | 20 | No | No | A | |
| 11 | Little Brown | Myotis lucifugus | 2445 | A | M | NR | 7.2 | 36.0 | 10 | No | No | A | |
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# CEC Bat Survey Data Form



Project Name: Ohio River Clean Fuels Facility  Project #: 061-933  Parcel # : N/A

Township: N/A  County: Columbiana  Scientists: N. Bossart  J. Dietzen

Date: 6/12/07  Start Temp (°F) [Time]: 67 [2100]  Mid Temp (°F) [Time]: 63 [2330]  End Temp (°F) [Time]: 60 [02:10]

Moon Phase: WHo  Weather: Clear, calm, humid  Coordinates / Datum: 40°35'00.1" 080°41'10.1"

Identification By: N. Bossart  Site Number : 2  Night Number: 1  Habitat: Mature forested stream valley

Site Description : Rocky Run, Mature forested stream valley, logging roads

Number of Net Sets at Site: 2  Time Started: 2105  Time Ended: 0215

Net A [length (m) and height]: (18x3 : 12x2 : 9x1)

Net B [length (m) and height]: (9) x1

Net C [length (m) and height]: ( )

Net D [length (m) and height]: ( )

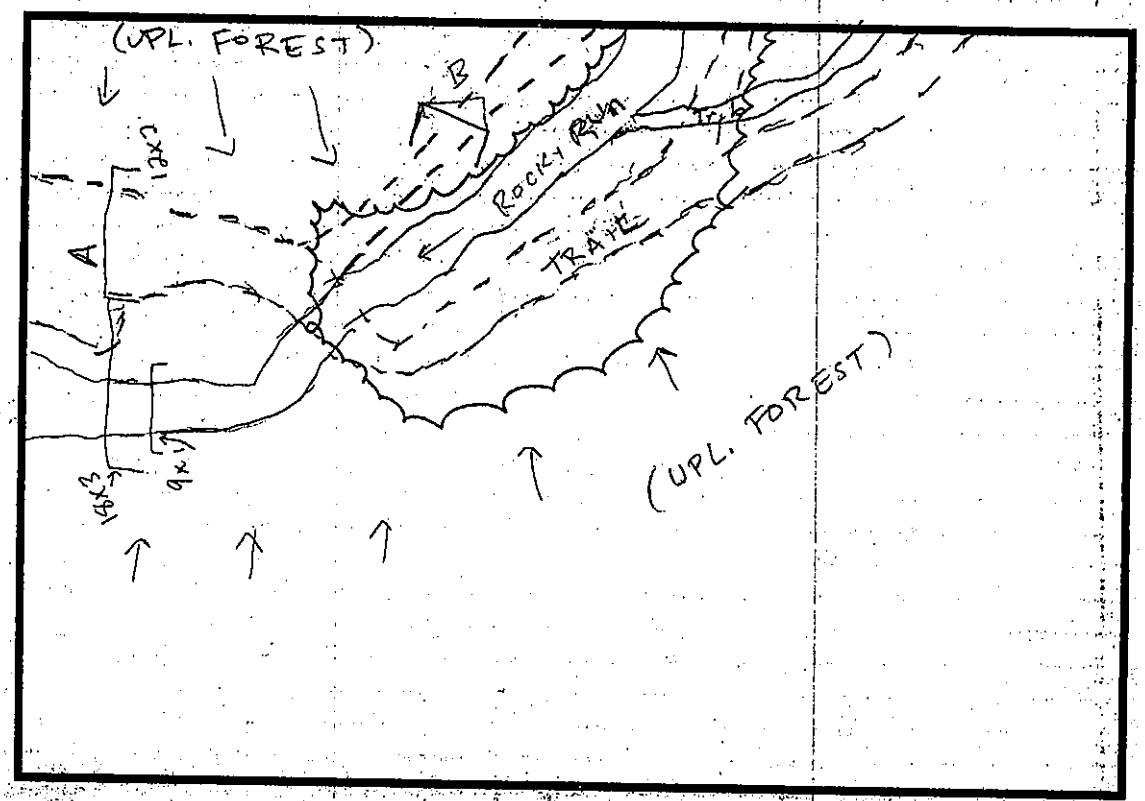
Other Wildlife Observed: Turkeys, deer, treefrog, raccoon, salamander

Notes / Comments: Bat activity at 2115

Anderson Level II codes and distance (m)

1. 51 0 m  2. 41 0 m  3. 191 200m

Date Entered into Database:




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height in Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Big Brown Bat | Eptesicus fuscus | 21:40 | A | m | NR | 14.2 | 42.9 | 6 | — | — | A | little bat |
| 2 | Eastern Red Bat | Lasiurus borealis | 2200 | A | m | NR | 11.3 | 38.6 | 10 | — | — | A | |
| 3 | Northern long-eared | Myotis Septentrionalis | 2230 | A | M | NR | 6.9 | 36.4 | 12 | — | — | A | |
| 4 | Hoary Bat | Lasiurus cinereus | 2315 | A | F | NR | 31.7 | 53.0 | 8 | — | — | A | |
| 5 | Little Brown Bat | Myotis lucifugus | 2350 | A | m | NR | 8.1 | 39.3 | 4 | — | — | B | |
| 6 | Eastern Red Bat | Lasiurus borealis | 2415 | A | M | NR | 13.4 | 39.8 | 2 | — | — | A | |
| 7 | Hoary Bat | Lasiurus Cinereus | 2415 | A | M | NR | 25.8 | 51.9 | 20 | — | — | A | |
| 8 | Little Brown Bat | Myotis lucifugus | 145 | A | m | NR | 7.5 | 37.0 | 3 | — | — | A | |
| 9 | Eastern Red Bat | Lasiurus borealis | 2:10 | A | M | NR | 13.1 | 38.8 | 7 | — | — | A | |
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# CEC Bat Survey Data Form



Project Name: Ohio River Clean Fuels Facility  Project #: 061-933  Parcel # : N/A

Township: N/A  County: Columbiana  Scientists: N. Bossart  J. Dietzen

Date: 6/13/07  Start Temp (°F) [Time]: 66 [2100]  Mid Temp (°F) [Time]: 62 [2330]  End Temp (°F) [Time]: 57 [2210]

Moon Phase: New  Weather: cloudy calm humid  Coordinates / Datum: 40°35'00.1" 080°41'10.1"

Identification By: N. Bossart  Site Number : 2  Night Number: 2  Habitat: Mature forested stream valley

Site Description : Rocky Run, Mature forested stream valley, logging roads

Number of Net Sets at Site: 2 (18x3; 12x2; 9x1)  Time Started: 21:15  Time Ended: 0215

Net A [length (m) and height]: ( )

Net B [length (m) and height]: (9x2)

Net C [length (m) and height]: ( )

Net D [length (m) and height]: ( )

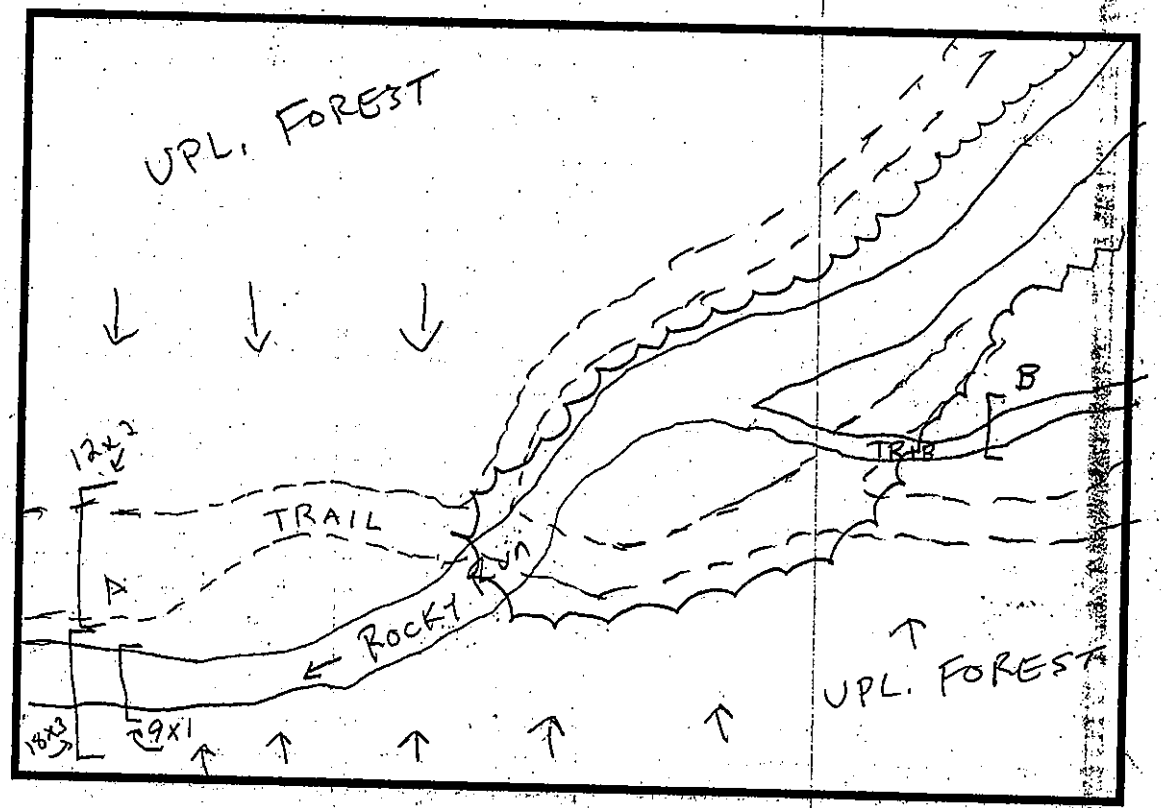
Other Wildlife Observed: Turkey, deer, treefrog, raccoon, groundhog, toad

Notes / Comments: bat activity @ 21:10

Anderson Level II codes and distance (m)

1. 51 0 m  2. 41 0 m  3. 11 200 m

Date Entered into Database:




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height In Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Little Brown Bat | Myotis lucifugus | 2400 | A | M | NR | 8.1 | 37.2 | 18 | — | — | A | |
| 2 | Eastern Red Bat | Lasiurus borealis | 2400 | A | M | NR | 12.8 | 38.6 | 4 | — | — | A | |
| 3 | Little Brown Bat | Myotis lucifugus | 2440 | A | M | NR | 7.5 | 36.7 | 5 | — | — | A | |
| 4 | Little Brown Bat | Myotis lucifugus | 0010 | A | F | P | 10.6 | 37.5 | 24 | — | — | A | |
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# CEC Bat Survey Data Form



Project Name: Ohio River Clean Fuels Facility  Project #: 061-933  Parcel # : N/A

Township: N/A  County: Columbiana  Scientists: N. Bossart  J. Dietzen

Date: 6/18/07  Start Temp (°F) [Time]: 77 [21:15]  Mid Temp (°F) [Time]: 71 [2330]  End Temp (°F) [Time]: 69 [0215]

Moon Phase: 1/4  Weather: Calm, humid, overcast  Coordinates / Datum: 40°35'23.1" 080°41'22.4"

Identification By: N. Bossart  Site Number : 3  Night Number: 1  Habitat: Mature forested headwater stream valley

Site Description : Mature forested headwater stream valley, beaver ponds, logging roads

Number of Net Sets at Site: 3  Time Started: 21:15  Time Ended: 0215

Net A [length (m) and height]: ( 9 ) x 4

Net B [length (m) and height]: ( 18 ) x 2

Net C [length (m) and height]: ( 6 ) x 2

Net D [length (m) and height]: (  )

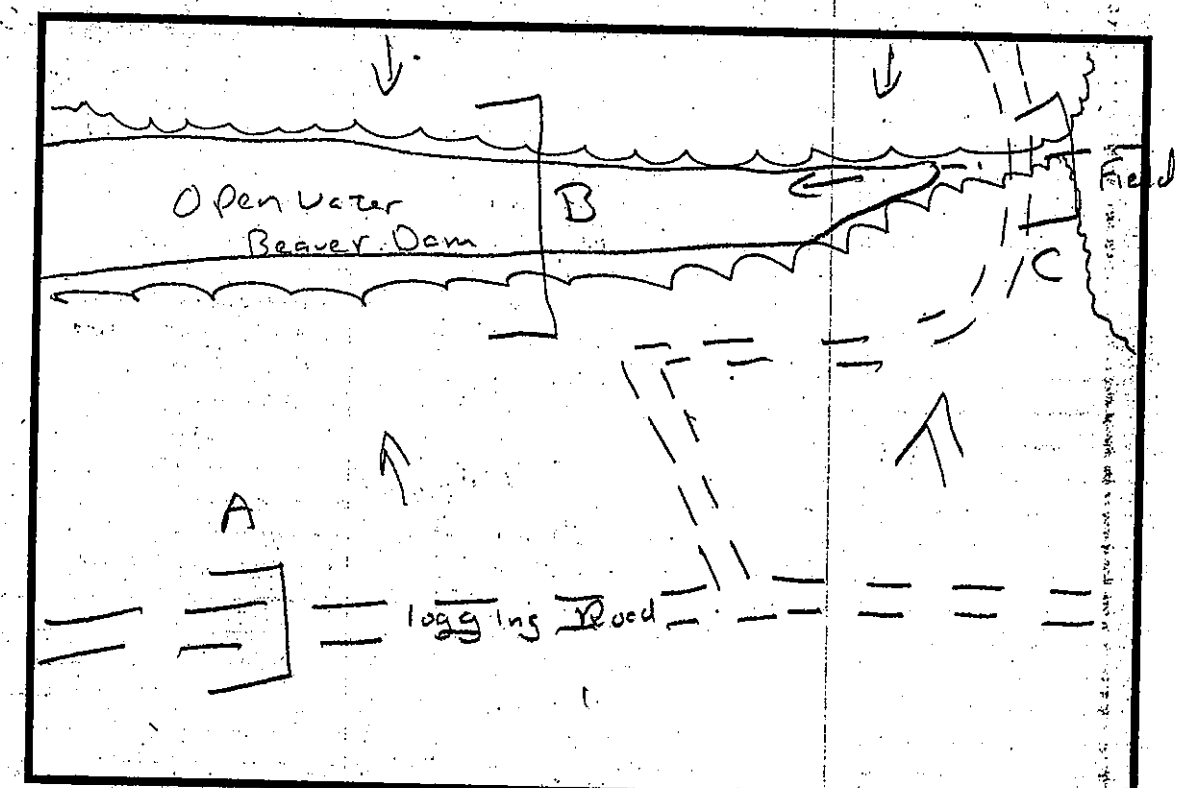
Other Wildlife Observed: Bullfrog, treefrog, Spring peeper, green frog, beaver, turkey, deer, raccoon, whippoor-will

Notes / Comments: Bat activity at 21:15

Anderson Level II codes and distance (m)

1. 41 0 m  2. 51 0 m  3. 21 50 m

Date Entered into Database:




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height in Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Northern Myotis | Myotis Septentrionalis | 2130 | A | M | NR | 5.7 | 36.5 | 10 | — | — | C | |
| 2 | Big Brown Bat | Eptesicus fuscus | 2200 | A | F | L | 20.3 | 49.3 | 8 | — | — | C | |
| 3 | Little Brown Bat | Myotis lucifugus | 2300 | A | F | P | 12.3 | 40.1 | 3 | — | — | C | |
| 4 | Big Brown Bat | Eptesicus fuscus | 2220 | A | F | P | 21.1 | 47.5 | 10 | — | — | B | |
| 5 | Little Brown Bat | Myotis lucifugus | 2300 | A | M | NR | 8.8 | 36.6 | 4 | — | — | C | |
| 6 | Eastern Red Bat | Lasiurus Borealis | 2315 | B | - | - | - | - | 12 | | | B | Escaped |
| 7 | Big Brown Bat | Eptesicus fuscus | 2350 | A | F | P | 22.1 | 49.3 | 12 | - | - | B | |
| 8 | Big Brown Bat | Eptesicus fuscus | 2350 | A | M | NR | 15.3 | 43.6 | 10 | - | - | B | |
| 9 | Northern Myotis | Myotis Septentrionalis | 2350 | A | F | P | 10.0 | 36.5 | 3 | - | - | C | |
| 10 | Little Brown Bat | Myotis lucifugus | 2430 | A | M | NR | 8.1 | 38.2 | 28 | - | - | A | |
| 11 | Northern Myotis | Myotis Septentrionalis | 1:16 | A | M | NR | 6.6 | 34.1 | 12 | - | - | C | |
| 12 | Northern Myotis | Myotis Septentrionalis | 1:10 | A | M | NR | 5.5 | 35.0 | 8 | - | - | C | |
| 13 | Little Brown Bat | Myotis lucifugus | 1:10 | A | M | NR | 7.2 | 37.2 | 18 | - | - | C | |
| 14 | Eastern Pipestrelle | Pipistrellus subflavus | 200 | A | M | NR | 6.2 | 33.5 | 9 | — | — | C | |
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# CEC Bat Survey Data Form



Project Name: Ohio River Clean Fuels Facility  Project #: 061-933  Parcel # : N/A

Township: N/A  County: Columbiana  Scientists: N. Bossart  J. Dietzen

Date: 6/19/07  Start Temp (°F) [Time]: 71 [21:15]  Mid Temp (°F) [Time]: 69 [2330]  End Temp (°F) [Time]: 68 [0215]

Moon Phase: 1/4  Weather: Calm, humid, overcast  Coordinates / Datum: 40°35'23.1" 080°41'22.4"

Identification By: N. Bossart  Site Number : 3  Night Number: 2  Habitat: Mature forested stream valley

Site Description : Mature forested headwater stream valley, beaver ponds, logging roads

Number of Net Sets at Site: 3  Time Started: 21:15  Time Ended: 2:15

Net A [length (m) and height]: ( 9 ) x 4

Net B [length (m) and height]: ( 18 ) x 2

Net C [length (m) and height]: ( 6 ) x 2

Net D [length (m) and height]: (  )

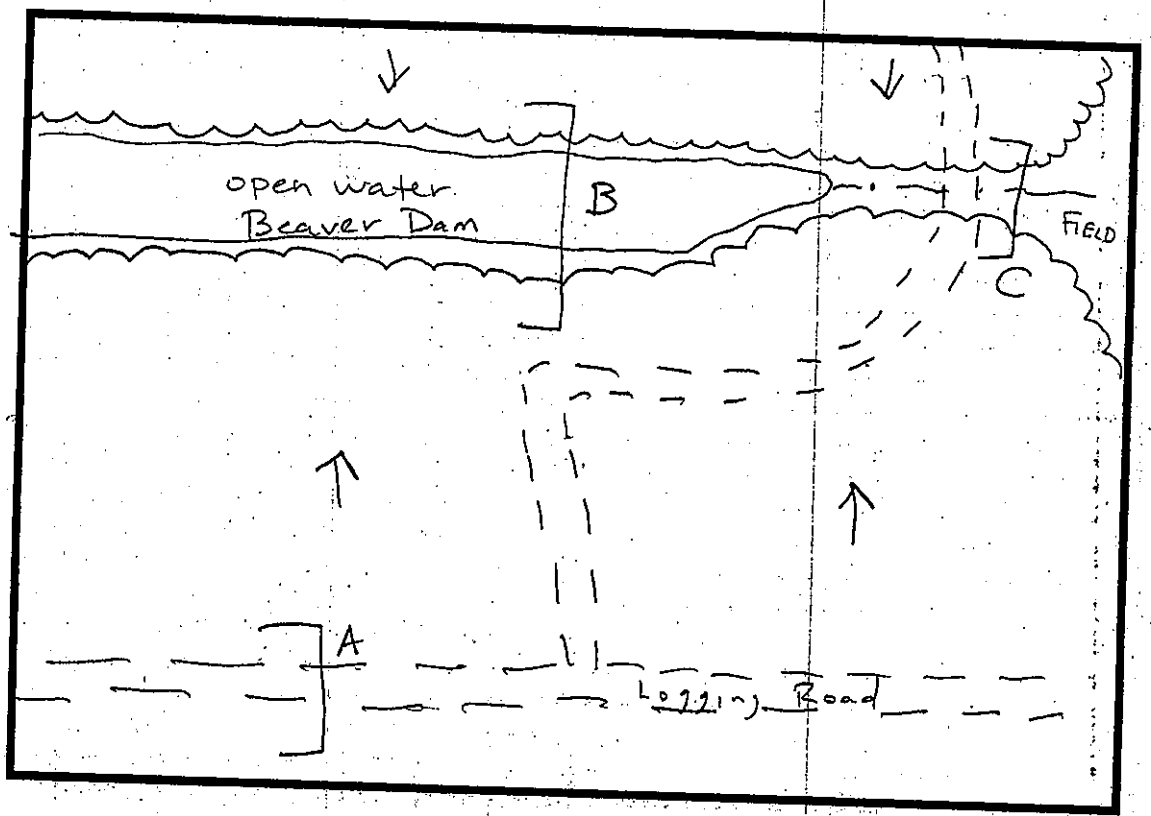
Other Wildlife Observed: Bullfrog, treefrog, Spring peeper, greenfrog, toad, beaver, deer, turkey, raccoon whip-poor-will

Notes / Comments: Bat activity at 21:20

Anderson Level II codes and distance (m)

1. 41 0 m  2. 51 0 m  3. 21 50 m

Date Entered into Database:




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height in Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N. Longeared bat | Myotis Septentrionalis | 2230 | A | F | P | 7.2 | 32.7 | 26 | — | — | A | |
| 2 | Little Brown Bat | Myotis lucifugus | 2415 | A | M | NR | 7.4 | 36.6 | 7 | — | — | C | |
| 3 | Big Brown Bat | Eptesicus fuscus | 0100 | A | F | L | 21.2 | 45.2 | 6 | — | — | C | |
| 4 | Little Brown Bat | Myotis lucifugus | 0100 | A | M | NR | 8.5 | 38.0 | 6 | — | — | B | |
| 5 | N. long eared Bat | Myotis Septentrionalis | 0150 | A | M | NR | — | — | — | — | — | A | Escaped |
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# CEC Bat Survey Data Form



Project Name: Ohio River Clean Fuels Facility  Project #: 061-933  Parcel # : N/A

Township: N/A  County: Columbiana  Scientists: N. Bossart  J. Dietzen

Date: 6/20/07  Start Temp (°F) [Time]: 68 [2115]  Mid Temp (°F) [Time]: 60 [2330]  End Temp (°F) [Time]: 54 [215]

Moon Phase: 1/4  Weather: Clear, calm, cool  Coordinates / Datum: 40°34'58.5" 080°40'30.0"

Identification By: N. Bossart  Site Number : B  Night Number: 1  Habitat: Mature forested ridge top

Site Description : Mature forested ridge top, access road, and logging Roads

Number of Net Sets at Site: 3  Time Started: 21:15  Time Ended: 2:15

Net A [length (m) and height]: ( 12 ) X 4

Net B [length (m) and height]: ( 9 ) X 2

Net C [length (m) and height]: ( 6 ) X 1

Net D [length (m) and height]: (  )

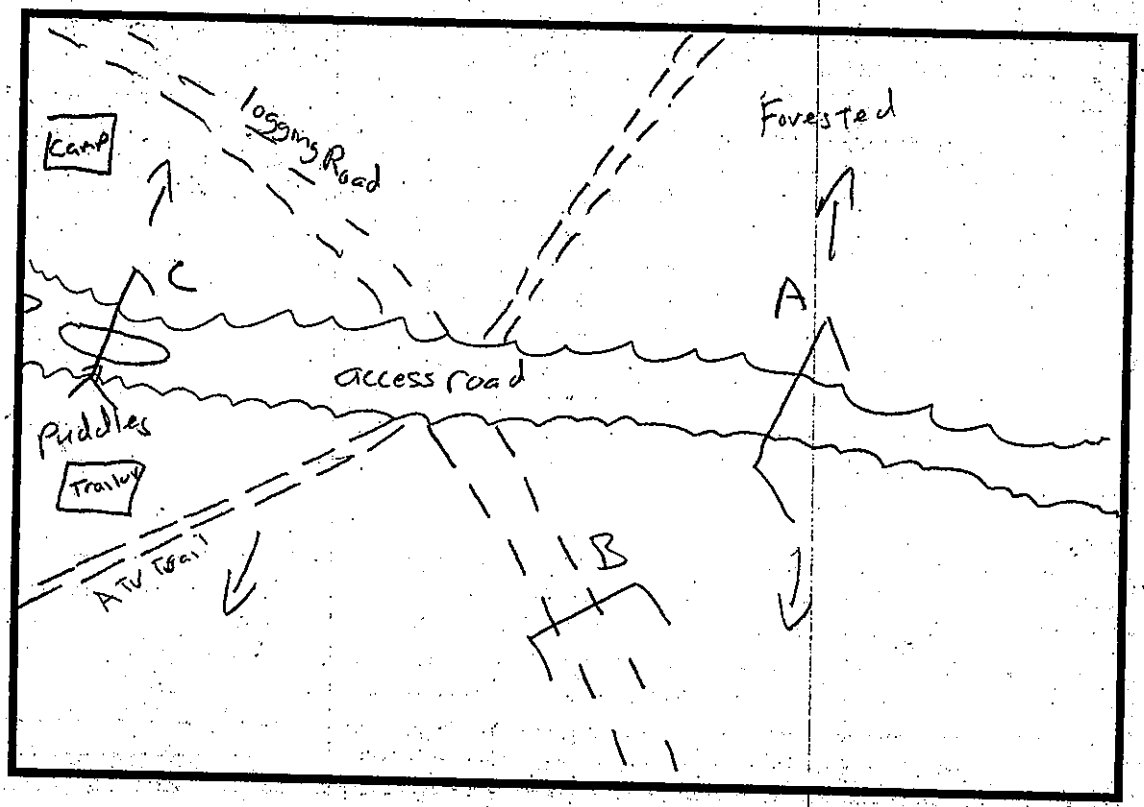
Other Wildlife Observed: Deer, raccoon, toad, birds, turkey,

Notes / Comments: Bat activity at 21:15

Anderson Level II codes and distance (m)

1. 41 0 m  2. 11 0 m  3. 15 100 m

Date Entered into Database:




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height in Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Big Brown Bat | Eptesicus fuscus | 2140 | A | M | NR | 15.0 | 45.2 | 18 | — | — | A | |
| 2 | Eastern Red Bat | Lasiurus borealis | 2140 | A | F | L | 13.5 | 40.4 | 12 | — | — | A | |
| 3 | Big Brown | Eptesicus fuscus | 2155 | A | F | L | 17.4 | 45.2 | 15 | — | — | A | |
| 4 | Little Brown | Myotis lucifugus | 2155 | A | F | P | 9.5 | 37.6 | 20 | — | — | A | |
| 5 | Big Brown | Eptesicus fuscus | 2155 | A | M | NR | 16.0 | 45.9 | 12 | — | | A | |
| 6 | Little Brown | Myotis lucifugus | 2155 | A | F | P | 8.9 | 36.3 | 8 | — | — | A | |
| 7 | Big Brown Bat | Eptesicus fuscus | 2210 | A | F | P | 20.5 | 47.5 | 6 | — | — | A | |
| 8 | Big Brown | Eptesicus fuscus | 2210 | A | M | NR | 17.8 | 46.9 | 8 | — | — | A | |
| 9 | Big Brown | Eptesicus fuscus | 2210 | A | F | L | 16.4 | 44.5 | 12 | — | — | A | |
| 10 | Big Brown | Eptesicus fuscus | 2210 | A | F | P | 26.5 | 48.0 | 20 | — | — | A | |
| 11 | Big Brown | Eptesicus fuscus | 2210 | — | — | — | — | — | 24 | — | — | A | Escaped |
| 12 | Big Brown Bat | Eptesicus fuscus | 2240 | A | F | L | 19.5 | 48.7 | 10 | — | — | A | |
| 13 | Eastern Red Bat | Lasiurus borealis | 2240 | A | M | NR | 11.8 | 38.0 | 14 | — | — | A | |
| 14 | Little Brown Bat | Myotis lucifugus | 2400 | A | M | NR | 7.2 | 37.3 | 6 | — | — | B | |
| 15 | Little Brown Bat | Myotis lucifugus | 2400 | A | M | NR | 8.5 | 36.9 | 6 | — | — | B | |
| 16 | Little Brown Bat | Myotis lucifugus | 2420 | A | F | NR | 8.4 | 36.4 | 20 | — | — | A | |
| 17 | Eastern Red Bat | Lasiurus borealis | 2460 | A | M | NR | 13.5 | 40.1 | 30 | — | — | A | |
| 18 | Little Brown Bat | Myotis lucifugus | 1:30 | A | M | NR | 8.6 | 37.4 | 8 | — | — | B | |
| 19 | Eastern Red Bat | Lasiurus borealis | 2:15 | A | F | PL | 13.4 | 41.9 | 24 | — | — | A | |
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# CEC Bat Survey Data Form



Project Name: Ohio River Clean Fuels Facility  Project #: 061-933  Parcel # : N/A

Township: N/A  County: Columbiana  Scientists: N. Bossart  J. Dietzen

Date: 6/21/07  Start Temp (°F) [Time]: 71 [21:20]  Mid Temp (°F) [Time]: 64 [2330]  End Temp (°F) [Time]: 60 [0215]

Moon Phase: 1/2  Weather: Calm, clear, cool  Coordinates / Datum: 40°35'58.75" 080°40'30.0"

Identification By: N. Bossart  Site Number : 4  Night Number: 2  Habitat: Mature forested ridge top

Site Description : Mature forested ridge top, access road, and logging roads

Number of Net Sets at Site: 3  Time Started: 21:20  Time Ended: 2.20

Net A [length (m) and height]: ( 12 ) x 4

Net B [length (m) and height]: ( 9 ) x 2

Net C [length (m) and height]: ( 9 ) x 2

Net D [length (m) and height]: (  )

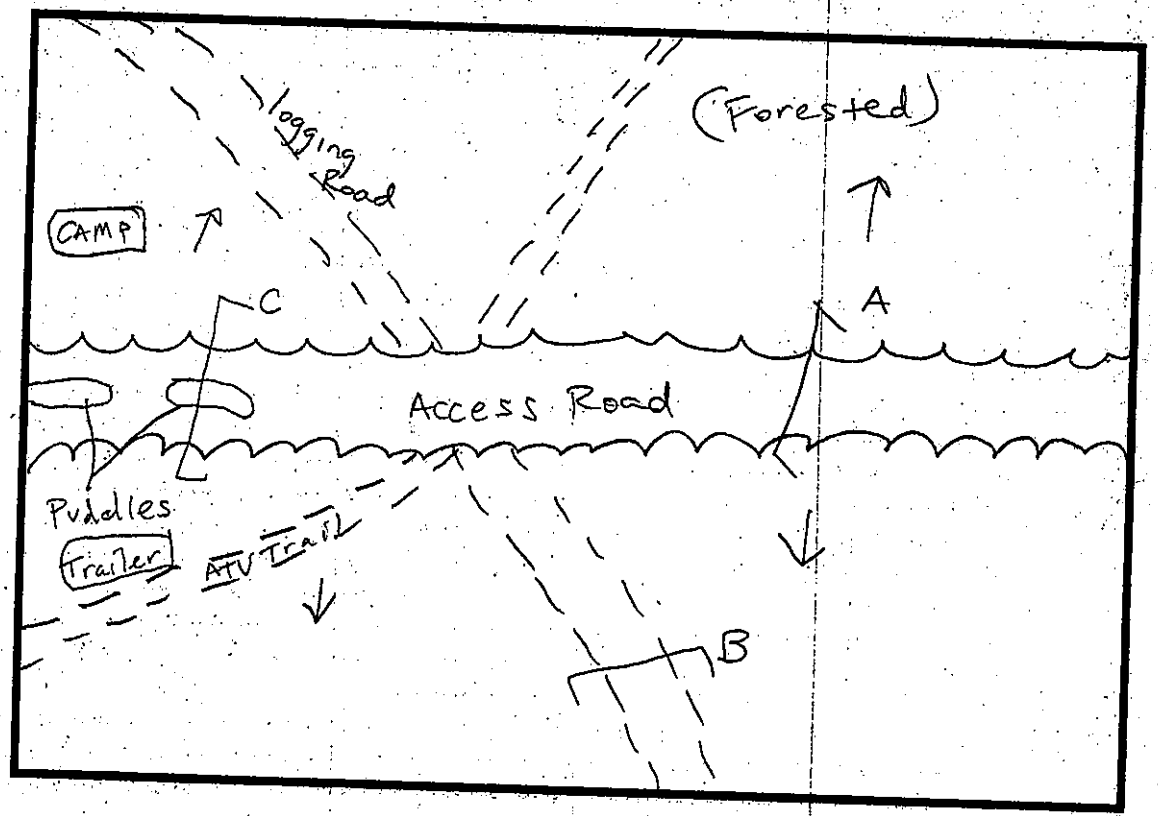
Other Wildlife Observed: Deer, raccoon, toads, turkey

Notes / Comments: Bat activity at 21:25

Anderson Level II codes and distance (m)

1. 91 0 m  2. 41 0 m  3. 15 100 m

Date Entered into Database:




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height in Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Big Brown Bat | Eptesicus fuscus | 2215 | A | F | L | 20.7 | 46.2 | 20 | — | — | A | |
| 2 | Big Brown Bat | Eptesicus fuscus | 2215 | A | F | L | 19.9 | 45.4 | 15 | — | — | A | |
| 3 | Big Brown Bat | Eptesicus fuscus | 2215 | A | F | L | 20.0 | 47.4 | 12 | — | — | A | |
| 4 | Big Brown Bat | Eptesicus fuscus | 2215 | A | F | L | 21.9 | 47.4 | 8 | — | — | A | |
| 5 | Little Brown Bat | Myotis lucifugus | 2240 | A | F | NR | 7.8 | 37.4 | 3 | — | — | C | |
| 6 | Big Brown Bat | Eptesicus fuscus | 2235 | A | F | L | 18.3 | 46.6 | 14 | — | — | B | |
| 7 | Big Brown Bat | Eptesicus fuscus | 2250 | A | F | L | 20.6 | 46.4 | 24 | — | — | A | |
| 8 | Little Brown Bat | Myotis lucifugus | 2400 | A | M | NR | 8.3 | 36.9 | 4 | — | — | A | |
| 9 | Little Brown Bat | Myotis lucifugus | 2400 | A | F | NR | 9.0 | 38.5 | 10 | — | — | A | |
| 10 | Little Brown Bat | Myotis lucifugus | 2400 | A | M | NR | 7.1 | 37.4 | 15 | — | — | A | |
| 11 | Little Brown Bat | Myotis lucifugus | 2400 | A | M | NR | 7.4 | 36.8 | 18 | — | — | A | |
| 12 | Big Brown Bat | Eptesicus fuscus | 2400 | A | F | L | 22.2 | 49.8 | 20 | — | — | A | |
| 13 | Big Brown Bat | Eptesicus fuscus | 2400 | A | F | L | 21.2 | 47.7 | 22 | — | — | A | Growth on bottom lip |
| 14 | Big Brown Bat | Eptesicus fuscus | 2420 | A | F | L | 19.4 | 47.1 | 6 | — | — | B | |
| 15 | Big Brown Bat | Eptesicus fuscus | 2440 | A | F | L | 19.8 | 46.5 | 16 | — | — | A | |
| 16 | Little Brown Bat | Myotis lucifugus | 2440 | A | M | NR | 7.4 | 36.5 | 27 | — | — | A | |
| 17 | Big Brown Bat | Eptesicus fuscus | 100 | A | M | NR | 17.5 | 46.7 | 6 | — | — | C | |
| 18 | Little Brown Bat | Myotis lucifugus | 200 | A | M | NR | 7.9 | 38.9 | 21 | — | — | A | |
| 19 | Little Brown Bat | Myotis lucifugus | 2:00 | A | M | NR | 7.7 | 37.4 | 26 | — | — | A | |
| 20 | Little Brown Bat | Myotis lucifugus | 2:20 | A | M | NR | 7.9 | 37.1 | 30 | — | — | A | |
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# CEC Bat Survey Data Form



Project Name: Ohio River Clean Fuels Facility  Project #: 061-933  Parcel # : N/A

Township: N/A  County: Columbiana  Scientists: N. Bossart  J. Dietzen

Date: 6/24/07  Start Temp (°F) [Time]: 73 [2110]  Mid Temp (°F) [Time]: 64 [2340]  End Temp (°F) [Time]: 64 [0210]

Moon Phase: 1/2  Weather: Clear, calm, cool  Coordinates / Datum: 40°35'45.1" 080°40'34.2"

Identification By: N. Bossart  Site Number : 5  Night Number: 1  Habitat: Mature forested ~~headwater~~ Stream Valley

Site Description : Mature forested headwater stream valley

Number of Net Sets at Site: ~~3~~  Time Started: 2110  Time Ended: 2210

Net A [length (m) and height]: ( 12 ) x 1

Net B [length (m) and height]: ( 6 ) x 1  3x3 ~~3x1~~

Net C [length (m) and height]: ( 3 ) x 1

Net D [length (m) and height]: ( 3 ) x 2

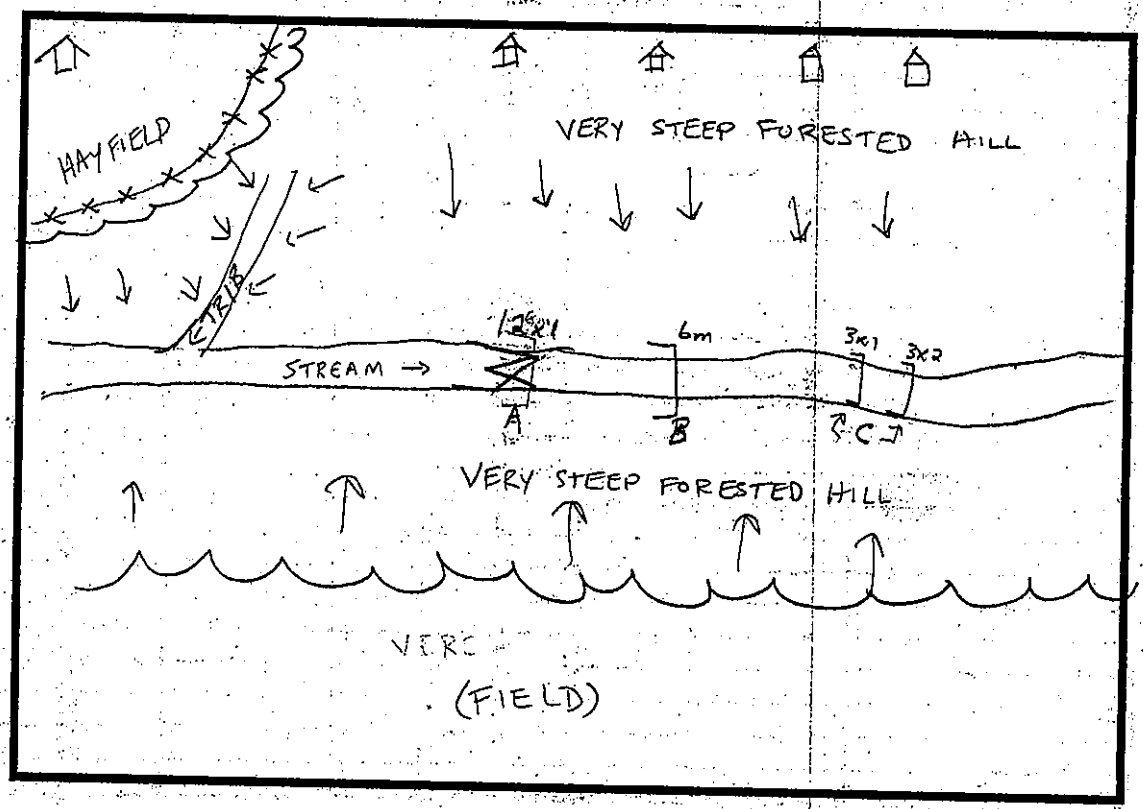
Other Wildlife Observed: Deer, raccoon, turkey

Notes / Comments: Bat activity at 2105

Anderson Level II codes and distance (m)

1. 51 0 m  2. 41 0 m  3. 21 ~~50~~ m

Date Entered into Database:




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height in Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Big Brown Bat | Eptesicus fuscus | 2135 | A | F | L | 16.3 | 44.2 | 12 | — | — | C | |
| 2 | Little Brown Bat | Myotis lucifugus | 2430 | A | M | NR | 7.9 | 36.0 | 3 | - | - | A | |
| 3 | Little Brown Bat | Myotis lucifugus | 01:05 | A | M | NR | 8.4 | 39.5 | 2 | — | — | A | |
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# CEC Bat Survey Data Form

Page ____ of ____

Project Name: Ohio River Clean Fuels Facility  Project #: 061-933  Parcel # : N/A

Township: N/A  County: Columbiana  Scientists: N. Bossart  J. Dietzen

Date: 6/25/07  Start Temp (°F) [Time]: 73 [21:15]  Mid Temp (°F) [Time]: 69 [23:30]  End Temp (°F) [Time]: 67 [0215]

Moon Phase: 1/2  Weather: Clear, calm, cool  Coordinates / Datum: 40°35'45.1" 080°40'34.2"

Identification By: N. Bossart  Site Number : 5  Night Number: 2  Habitat: Mature forested headwater Strear Valley

Site Description : Mature forested headwater Stream valley

Number of Net Sets at Site: 3  Time Started: 21:15  Time Ended: 02:15

Net A [length (m) and height]: ( 12 ) x 1

Net B [length (m) and height]: ( 9 ) x 2

Net C [length (m) and height]: ( 3x1 : 6x1 ) Stacked

Net D [length (m) and height]: (  )

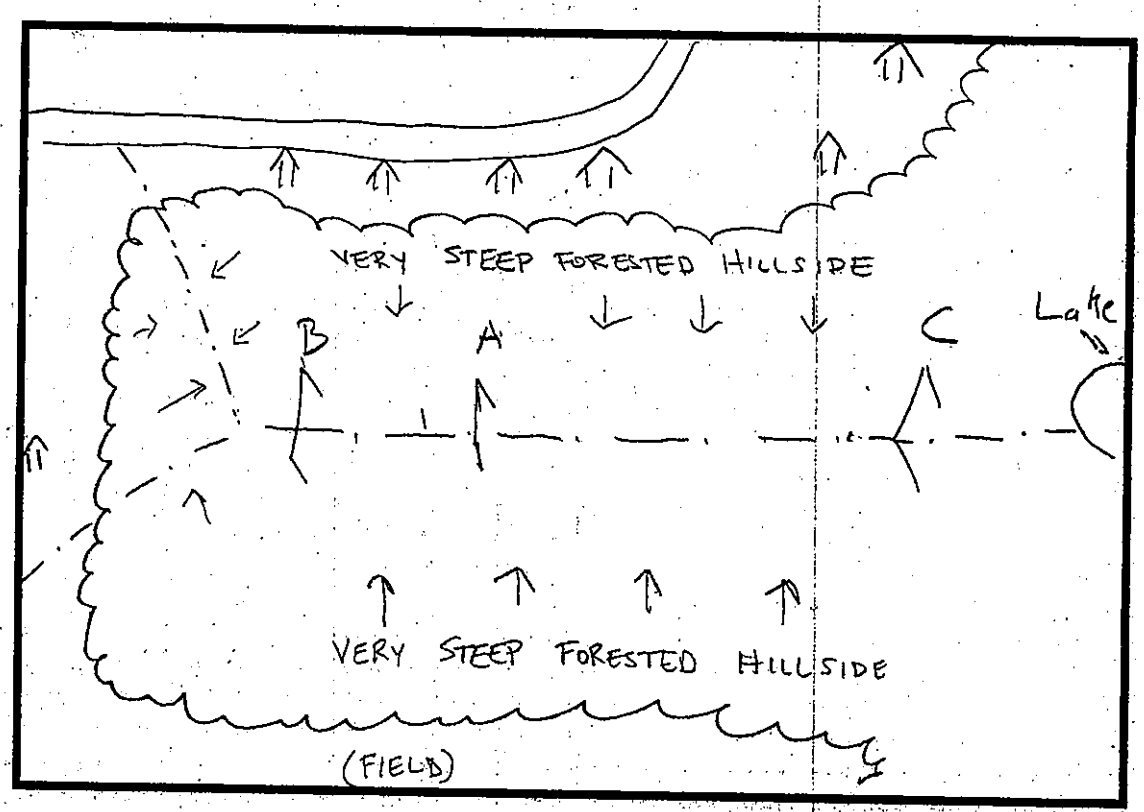
Other Wildlife Observed: Deer, raccoon, turkey, opposum

Notes / Comments: Bat activity at 21:15

Anderson Level II codes and distance (m)

1. 51 0 m  2. 41 0 m  3. 21 50 m

Date Entered into Database:




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height in Net | Band | Parasite | Net | Comments |
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# CEC Bat Survey Data Form



Project Name: OHRCF  Project #: 060-933  Parcel # : N/A

Township: _____  County: Columbiana  Scientists: DCrane, J. Purtee

Date: 6-25-07  Start Temp (°F) [Time]: 75 [2050]  Mid Temp (°F) [Time]: 70 [0000]  End Temp (°F) [Time]: 68 [0200]

Moon Phase: 3/4  Weather: Clear & humid  Coordinates / Datum: 40°35'25.6" 080°40'21.6"

Identification By: D.Crane  Site Number : 6  Night Number: 1  Habitat: Forested pond/wetland

Site Description : Forested pond/wetland w/ standing water present.

Number of Net Sets at Site: 2  Time Started: 2055  Time Ended: 0200

Net A [length (m) and height]: ( 6 ) 6

Net B [length (m) and height]: ( 6 ) 6

Net C [length (m) and height]: ( — ) —

Net D [length (m) and height]: ( — ) —

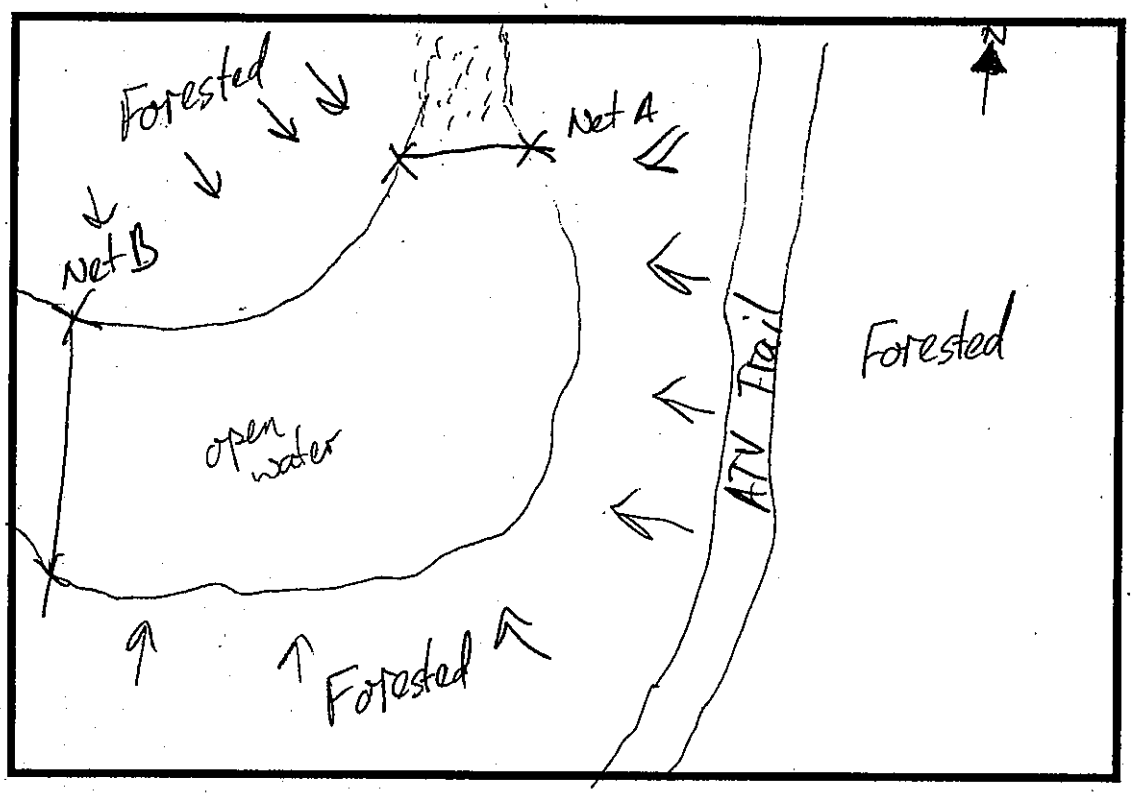
Other Wildlife Observed: Many frogs

Notes / Comments: Bat activity at 21:20

Anderson Level II codes and distance (m)

1. 51 0 m  2. 41 0 m  3. 17 70 m

Date Entered into Database: _____




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height in Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | LITTLE BROWN | MYOTIS LUCIFUGUS | 2145 | A | F | L | 7.75g | 35.6MM | 2M | N | N | A | |
| 2 | LITTLE BROWN | M. LUCIFUGUS | 2145 | A | F | PL | 7.25g | 37.6MM | 1.5M | N | N | B | |
| 3 | LITTLE BROWN | M. LUCIFUGUS | 2145 | A | F | L | 7.00g | 36.1MM | 2M | N | N | B | |
| 4 | LITTLE BROWN | M. LUCIFUGUS | 2145 | — | — | — | — | — | — | — | — | — | ESCAPED BEFORE PROCESS |
| 5 | BIG BROWN | EPTESICUS FUSCUS | 2145 | A | M | NR | 16.25g | 43.7MM | 1M | N | N | B | |
| 6 | LITTLE BROWN | M. LUCIFUGUS | 2200 | A | F | L | 7.50g | 36.6MM | 1M | N | N | A | |
| 7 | BIG BROWN | E. FUSCUS | 2145 | A | M | NR | 16.0g | 44.6MM | 4.5M | N | N | B | |
| 8 | BIG BROWN | E. FUSCUS | 2145 | A | M | NR | 19.25g | 48.3 MM | 3.0M | N | N | B | |
| 9 | LITTLE BROWN | M. LUCIFUGUS | 2145 | A | F | L | 8.75g | 37.5MM | 2.0M | N | N | B | |
| 10 | LITTLE BROWN | M. LUCIFUGUS | 2145 | A | M | NR | 8.5g | 38.5MM | 2.0M | N | N | B | |
| 11 | LITTLE BROWN | M. LUCIFUGUS | 2145 | A | F | PL | 8.0g | 37.2MM | 3.0M | N | N | A | |
| 12 | LITTLE BROWN | M. LUCIFUGUS | 0000 | A | M | NR | 8.5g | 37.3MM | 4.0M | N | N | B | |
| 13 | LITTLE BROWN | M. LUCIFUGUS | 0100 | A | F | L | 9.0g | 36.7MM | 2.0M | N | N | B | |
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# CEC Bat Survey Data Form



Project Name: OH ECF  Project #: 060933  Parcel # : N/A

Township: _____  County: COLUMBIANA  Scientists: D.CRANE, J.PURTEE

Date: 6-26-07  Start Temp (°F) [Time]: 76° [2100]  Mid Temp (°F) [Time]: 72° [2300]  End Temp (°F) [Time]: 69° [0200]

Moon Phase: 3/4  Weather: CLEAR, HUMID  Coordinates / Datum: 40°35'25.6" 080°40'21.6"

Identification By: D.CRANE  Site Number : 6  Night Number: 2  Habitat: FORESTED POND/WETLAND

Site Description : FORESTED POND, WETLAND W/STANDING WATER PRESENT

Number of Net Sets at Site: 2  Time Started: 2100  Time Ended: 0200

Net A [length (m) and height]: ( 6 ) 6

Net B [length (m) and height]: ( 6 ) 6

Net C [length (m) and height]: ( - ) -

Net D [length (m) and height]: ( - ) -

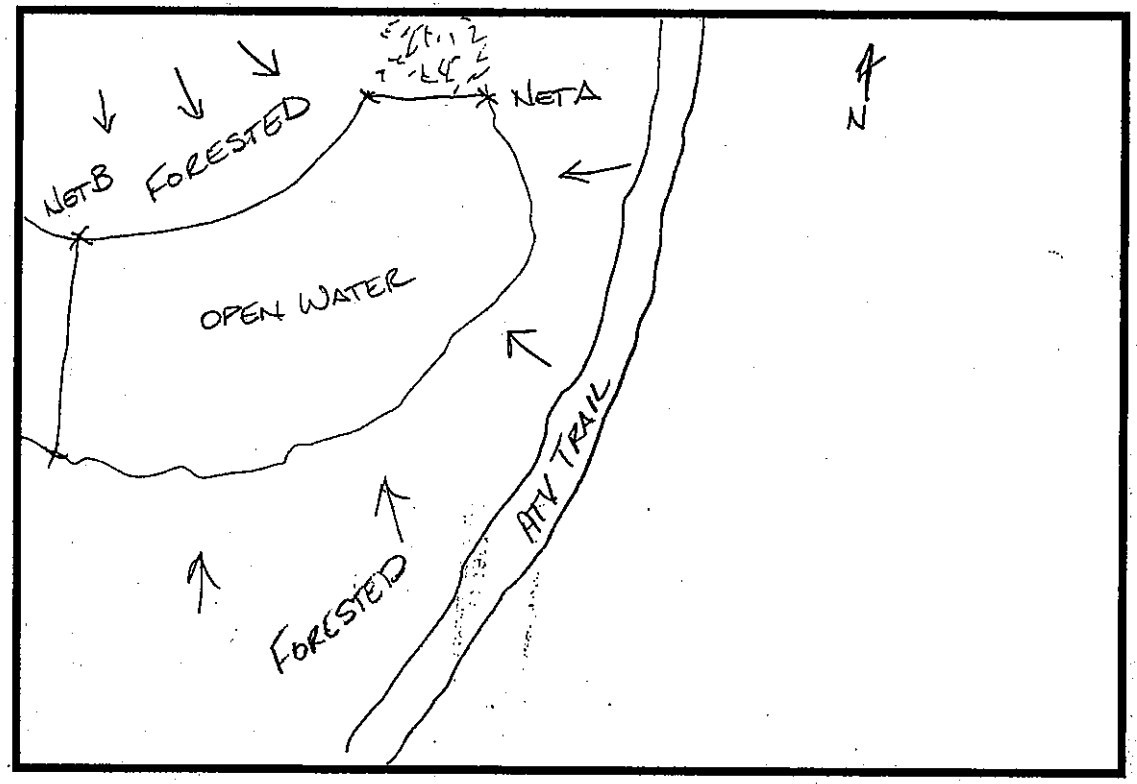
Other Wildlife Observed: MANY FROGS

Notes / Comments: Bat activity at 21:20

Anderson Level II codes and distance (m)

1. 51 0 m  2. 41 0 m  3. 61 0 m

Date Entered into Database: _____




Sketch site with net locations, label nets with letters; include streams and roads in drawing.

# CEC Bat Survey Data Form

| | Common Name | Scientific Name | Time | Age | Sex | Reproductive Condition | Weight | Forearm Length | Height in Net | Band | Parasite | Net | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | LITTLE BROWN | MYOTIS LUCIFUGUS | 2200 | A | F | P | 10.25g | 37.8MM | 4M | N | N | B | |
| 2 | LITTLE BROWN | M. LUCIFUGUS | 2200 | A | M | NR | 7.5g | 37.5MM | 2M | N | N | A | |
| 3 | BIG BROWN | EPTESICUS FUSCUS | 2300 | A | M | NR | 20.5g | 45.7MM | 3M | N | N | B | |
| 4 | BIG BROWN | E. FUSCUS | 2300 | A | M | NR | 17.0g | 45.0MM | 3M | N | N | B | |
| 5 | LITTLE BROWN | M. LUCIFUGUS | 0100 | A | M | NR | 7.5g | 36.1MM | 3M | N | N | B | |
| 6 | LITTLE BROWN | M. LUCIFUGUS | 0100 | A | F | L | 7.75g | 35.2MM | 1M | N | N | A | |
| 7 | EAST. PIPISTRELLE | PIPISTRELLUS SUBFLAVUS | 0200 | A | M | NR | 6.5g | 34.5MM | 2M | N | N | A | |
| 8 | BIG BROWN | E. FUSCUS | 0200 | A | M | NR | 17.0g | 44.7MM | 3.5M | N | N | B | |
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# APPENDIX E

# PHOTOGRAPHS

Photo 1: View of ATV trail, mist net site 1.

Photo 2: View of Rocky Run, mist net site 1.

Photo 3: View of Rocky Run, mist net site 1.

Photo 4: View logging road, mist net site 2.


Photo 5: View of logging road, mist net site 3.


Photo 6: View of beaver pond, mist net site 3.


Photo 7: View of logging road, mist net site 4.

Photo 8: View of access road, mist net site 4.

Photo 9: View of headwater stream, mist net site 5.


Photo 10: View of headwater stream, mist net site 5.

Photo 11: View of logging road, mist net site 6.

Photo 12: View of pond, mist net site 6.

Photo 13: Hoary Bat (*Lasiurus cinereus*), captured at mist net site 2.


Photo 14: Hoary bat (*Lasiurus cinereus*), captured at mist net site 2.


Photo 15: Little Brown bat (*Myotis lucifugus*), captured at mist net site 2.


Photo 16: Eastern Red bat (*Lasiurus borealis*), captured at mist net site 2.


Photo 17: Big Brown bat (*Eptesicus fuscus*), captured at mist net site 3.


Photo 18: Eastern pipistrelle (*Pipistrellus subflavus*), captured at mist net site 3.


Photo 19: Northern Myotis bat (*Myotis septentrionalis*), captured at mist net site 2.