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WV Purchasing Division



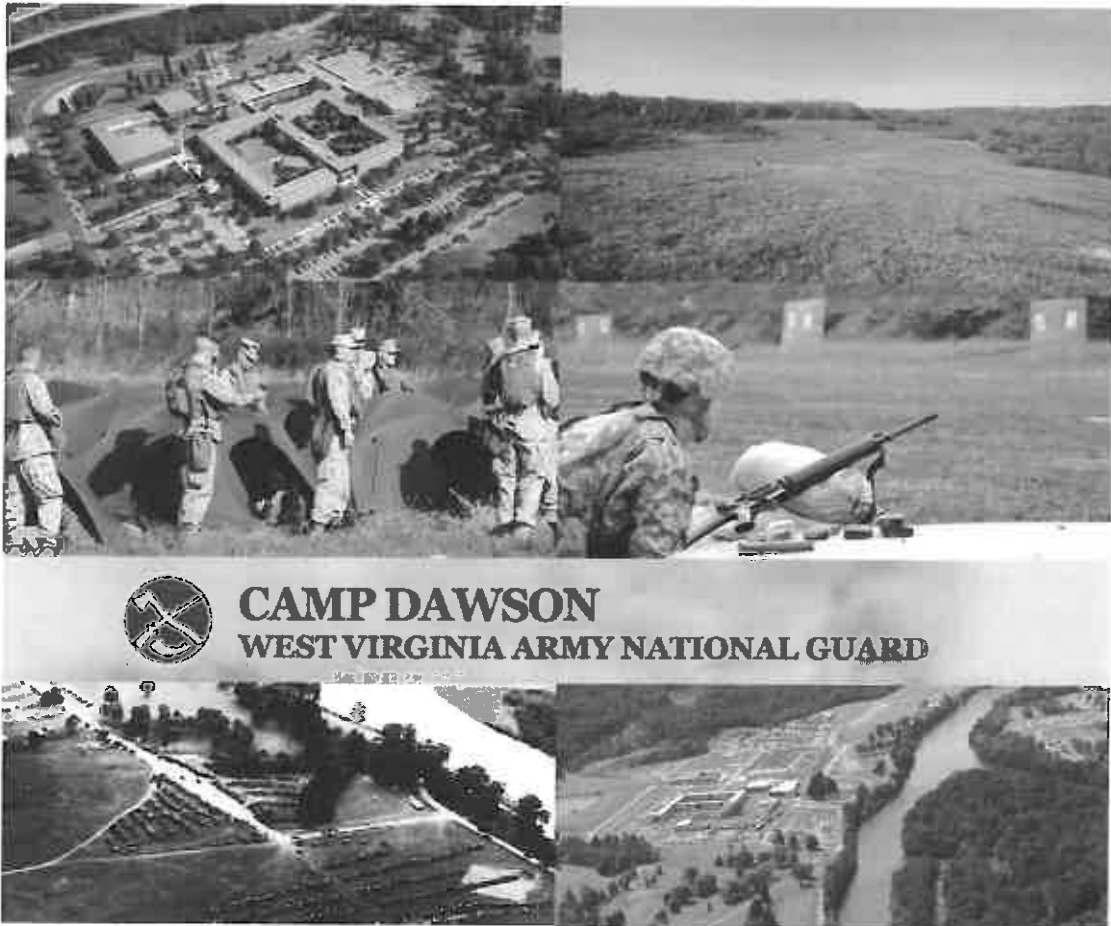
Blue Mountain Inc.

10125 Mason Dixon Hwy. Burton, WV 26562
PHONE 304.662.6486 | TOLL FREE 800.4SURVEY
EMAIL bmi@bluemtninc.com | www.bluemtninc.com

**QUOTATION FOR: CRITICAL FAUNA SURVEY &
ENDANGERED SPECIES PLAN FOR INDIANA BATS
AND NORTHERN LONG-EARED BATS ON CAMP
DAWSON ARMY TRAINING SITE**

Solicitation Number: CRFQ 0603 ADJ1600000020

**Camp Dawson Army Training Site
240 Army Road • Kingwood • West Virginia • 26537-1077**





Blue Mountain Inc.
11023 Mason Dixon Highway
Burton, WV 26562
Ph: (304) 662-6486
Fax: (304) 662-6501

April 19, 2016

Ms. Crystal Rink
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130
(304) 558-2402
Crystal.G.Rink@wv.gov

Facility Maintenance Manager
Camp Dawson Army Training Site
240 Army Road
Kingwood, WV 26537-1077

Subject: Quotation for Critical Fauna Survey & Endangered Species Plan for Indiana Bats and Northern Long-Eared Bats on Camp Dawson Army Training Site
Preston County, West Virginia
Blue Mountain, Inc.

Blue Mountain, Inc. (BMI) is pleased to provide for your consideration our technical and cost proposal for Critical Fauna Survey and Endangered Species Plan on Camp Dawson Army Training Site in Preston County, West Virginia at the Camp Dawson Collective Training Area (CDCTA).

Preparation of this proposal was based on the following:

- The Request for Quotation (CRFQ) ADJ1600000020 listed on West Virginia Oasis Self Vender System.

This proposal includes multiple facets of the information gathering, permitting, and planning processes to provide the Critical Fauna Survey and Endangered Species Plan for CDCTA. All aspects of this proposal were developed to fit the information provided in the CRFQ ADJ1600000020.

Our cost proposal is based on the assumption that twenty (20) geographically different acoustic survey sites with statistically significant acoustic identification of Northern Long-eared bat or Indiana Bat, resulting in twenty (20) mist net survey sites. BMI is also assuming that five (5) female or juvenile Indiana or Northern Long-eared bats will be caught and radio tracked.



Blue Mountain Inc.
11023 Mason Dixon Highway
Burton, WV 26562
Ph: (304) 662-6486
Fax: (304) 662-6501

To perform the Critical Fauna Survey, Blue Mountain, Inc. is subcontracting with the Jackson Group (www.jacksongroupco.com). They have three individuals with Collecting Permits, Mr. Jeremy L. Jackson, Mr. JD Wilhide, and Ms. Kat Cunningham. These individuals will be supplemented with technicians from Blue Mountain, Inc. to perform the work.

Blue Mountain, Inc.'s DUNS number is 805979713 and our FEIN is 55-0704426.

Blue Mountain, Inc. appreciates this opportunity to present our proposal for the Critical Fauna Survey and Endangered Species Plan on Camp Dawson Army Training Site project. Our expertise, planning, and efficient turnaround time will be an asset for CONSOL in this project and any future endeavors. Please feel free to contact the undersigned for any questions regarding this proposal, our company, or any other information.

Respectfully,

Blue Mountain, Inc.

Wanda Six
President/Owner
\\Enclosures



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Blue Mountain Inc.
BID FORM

EXHIBIT A
CRFQ ADJ160000020

ALL LABOR, MATERIALS, EQUIPMENT, AND SUPPLIES NECESSARY TO CONDUCT CRITICAL FAUNA SURVEY AND ENDANGERED SPECIES MANAGEMENT PLAN FOR THE INDIANA BAT AND NORTHERN LONG-EARED BAT, ON CAMP DAWSON ARMY TRAINING SITE AT KINGWOOD, WV

BID FORM

The undersigned, hereafter called the Bidder, being familiar with and understanding the bidding documents; and being familiar with the required qualifications and the mandatory requirements of the Project with regards to the deliverables and associated timelines, hereby proposes to furnish labor, material, equipment, supplies, and transportation to perform the work as described in the bidding documents

BIDDERS COMPANY NAME: Blue Mountain, Inc.

VENDOR ADDRESS: 11023 Mason Dixon Hwy.
Burton, WV 26562

TELEPHONE: 304-662-6486

FAX NUMBER: 304-662-6501

E-MAIL ADDRESS: BMI@bluemtninc.com

CONTRACT TOTAL BID:

Seven hundred twenty three thousand two hundred seventy dollars
(\$ 723,270.00) *** (Contract bid to be written in words and numbers.)

The contract will be awarded to the Bidder with the lowest contract total bid meeting all of the specifications. Bidder understands that to the extent allowed by the West Virginia Code, the OWNER reserves the right to waive any informality or irregularity in any bid, or bids, and to reject any and all bids in whole or in part; to reject a bid not accompanied by the required bid security or by other data required by the bidding documents; to reject any conditions of the bid by the Bidder that is any way inconsistent with the requirements, terms, and conditions of the bidding documents; or to reject a bid that is in any way incomplete or irregular.

Failure to use this bid form may result in bid disqualification.

SIGNATURE:  DATE: April 19, 2016

NAME: WANDA S. SIX
(Please Print)

TITLE: President



BUDGET SUMMARY

Blue Mountain, Inc. budget estimate is based on the following assumption: 33 acoustic survey sites, 20 statistically significant geographically different endangered bat identifications resulting in 20 mist netting sites (of 7 net sites), and capturing 5 individuals fitting the criteria for radio tracking.

Description	Quantity	Unit Rate	Estimated Total
Acoustic Survey	33 Detector Sites	\$1,117.75/site	\$36,886.00
Mist Net Survey* (Per positive Acoustic Site)	7 net sites per assumed 20 positive Acoustic Sites	\$30,702.75/7 net sites	\$614,055.00
Radio Tracking** (7-days of tracking)	1 Bat for 7 days per assumed 5 Bats	\$13,742.00/1 bat for 7 days	\$68,710.00
Endangered Species Management Plan			\$3,619.00

*Mist Netting will only be conducted if positive identification is made during the acoustic survey.

**Radio tracking will only be conducted if female or juvenile Indiana or Northern Long-eared bats are captured.





Blue Mountain Inc.
CERTIFICATION & SIGNATURE PAGE
CONTRACT MANAGER

REQUEST FOR QUOTATION
CRFQ ADJ160000020
Critical Fauna Survey & Endangered Species Plan for Indiana Bats and Northern Long-Eared Bats on Camp Dawson Army Training Site
Kingwood, WV (Preston Co.)

10. VENDOR DEFAULT:

10.1. The following shall be considered a vendor default under this Contract.

10.1.1. Failure to perform Contract Services in accordance with the requirements contained herein.

10.1.2. Failure to comply with other specifications and requirements contained herein.

10.1.3. Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.

10.1.4. Failure to remedy deficient performance upon request.

10.2. The following remedies shall be available to Agency upon default.

10.2.1. Cancellation of the Contract.

10.2.2. Cancellation of one or more release orders issued under this Contract.

10.2.3. Any other remedies available in law or equity.

11. MISCELLANEOUS:

11.1. **Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: Kaley DuBoeur
Telephone Number: 304-662-6486
Fax Number: 304-662-6501
Email Address: K.Duroeur@bluemtninc.com
BMF@bluemtninc.com



Blue Mountain Inc.
VENDOR PREFERENCE CERTIFICATE
PURCHASING AFFIDAVIT
ADDENDUM ACKNOWLEDGEMENT FORM

State of West Virginia VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. Application is made for 2.5% vendor preference for the reason checked:

- Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
- Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
- Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,

2. Application is made for 2.5% vendor preference for the reason checked:

Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,

3. Application is made for 2.5% vendor preference for the reason checked:

Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,

4. Application is made for 5% vendor preference for the reason checked:

Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,

5. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,

6. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules*.

Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (*West Virginia Code*, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Blue Mountain, Inc

Signed: [Signature]

Date: April 19, 2016

Title: President

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Blue Mountain, Inc.

Authorized Signature: [Signature] Date: April 19, 2016

State of West Virginia

County of Monongalia, to-wit:

Taken, subscribed, and sworn to before me this 19 day of April, 2016

My Commission expires Jan 28 2020 20

AFFIX SEAL HERE

NOTARY PUBLIC [Signature]

Purchasing Affidavit (Revised 07/01/2012)



ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRF-Q ADJ160000020

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

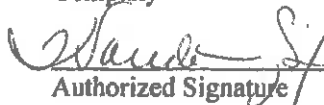
Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Blue Mountain, Inc.
Company


Authorized Signature

April 19, 2016
Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.





**Workers Compensation and Employers
Liability Insurance Policy**

Policy Number:	WCB1010852
Named Insured:	Blue Mountain Inc
Agency Name:	Dyer, Heflin, Bowers, and Eckels



**Extension of Information Page
Classification of Operations**

Class Code No.	Class Description	Exposure	Rate Per \$100 of Remuneration	Estimated Annual Premium
State: PA				
Premium Period: 12/28/2015 - 12/28/2016				
Location: 2				
0955	ENGINEERING CONSULTING FIRM	\$319,513.00	0.34	\$1,086.00
9812	Employers Liability Limits		0.014	\$15.00
9885	Merit Rating Premium		0.95	\$55.00CR
0900	Expense Constant			\$250.00
	Total Standard Premium			\$1,046.00
0064	Premium Discount		0.0535	\$56.00CR
9740	Terrorism		0.028	\$89.00
9741	Catastrophe (Other than certified acts of terrorism)		0.014	\$45.00
0938	Employer Assessment Premium Pursuant to Act 57 of 1997		0.0164	\$23.00
	Estimated Annual Premium			\$1,374.00
	Total Amount Due			\$1,397.00

Issue Date: 01/13/2016
Issuing Office: Charleston, WV



POLICY INFORMATION PAGE ENDORSEMENT

- Insured's Name (WC 89 06 01)
- Policy Number (WC 89 06 02)
- Effective Date (WC 89 06 03)
- Expiration Date (WC 89 06 04)
- Insured's Mailing Address (WC 89 06 05)
- Experience Modification (WC 89 04 06)
- Producer's Name (WC 89 06 07)
- Change in Workplace of Insured (WC 89 06 08)
- Insured's Legal Status (WC 89 06 10)
- Item 3.A. States (WC 89 06 11)
- Item 3.B. Limits (WC 89 06 12)
- Item 3.C. States (WC 89 06 13)
- Item 3.D. Endorsement Numbers (WC 89 06 14)
- Item 4.* Class, Rate, Other (WC 89 04 15)
- Interim Adjustment of Premium (WC 89 04 16)
- Carrier Servicing Office (WC 89 06 17)
- Interstate/Intrastate Risk ID Number (WC 89 06 18)
- Carrier Number (WC 89 06 19)
- Issuing Agency/Producer Office Address (WC 89 06 25)

is changed to read: Added Blanket Waiver for West Virginia.
 Added Alternate Employer Rice Poseidon Midstream LLC.
 Added Alternate Employer Rice Olympus Midstream LLC.

*Item 4. Change To:

Classifications	Code No.	Premium Basis Total Estimated Annual Remuneration	Rate Per \$100 of Remuneration	Estimated Annual Premium

Total Estimated Annual Premium \$32,252.00

Minimum Premium \$291.00

Deposit Premium

All other terms and conditions of this policy remain unchanged.

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.

(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)

Endorsement Effective Date: 12/28/2015

Policy Number: WCB1010852

Endorsement No.: 1

Insured Name: Blue Mountain Inc

Premium: \$323.00

Insurance Company: BrickStreet Mutual Insurance Company

Gregory A. Denton

Countersigned by



**Workers Compensation and Employers
Liability Insurance Policy**



Policy Number:	WCB1010852
Named Insured:	Blue Mountain Inc
Agency Name:	Dyer, Heflin, Bowers, and Eckels

**Extension of Information Page
Classification of Operations**

State: WV

Premium Period: 12/28/2015 - 12/28/2016

Location: 1

8602	SURVEYORS, TIMBER CRUISERS, OIL OR GAS GEOLOGISTS OR SCOUTS, & DRIVERS	\$1,663,804.00	0.62	\$10,316.00
8603	ARCHITECTURAL OR ENGINEERING FIRM - CLERICAL	\$2,360,153.00	0.14	\$3,304.00
8603 Include	ARCHITECTURAL OR ENGINEERING FIRM - CLERICAL	\$175,279.00	0.14	\$245.00
0930	Waiver of Subrogation Premium			\$200.00
9812	Employers Liability Limits		0.014	\$194.00
9898	Experience Modification Premium		1.62	\$8,841.00
	Total Standard Premium			\$23,100.00
9740	Terrorism		0.014	\$588.00
9741	Catastrophe (Other than certified acts of terrorism)		0.014	\$588.00
9614	Broad Form Employers Liability		0.0792	\$1,098.00
0164C	Coal Mine Disease Exposure - 0164C		2.23	\$5,504.00
9703	WV Regulatory Budget Surcharge		0.05	\$1,198.00
9702	WV Deficit Reduction Surcharge		0.09	\$2,156.00
9704	WV Fire and Casualty Surcharge		0.0055	\$38.00
	Estimated Annual Premium			\$30,878.00
	Total Amount Due			\$34,270.00
	Policy Estimated Annual Premium			\$32,252.00
	Policy Total Amount Due			\$35,667.00

Issue Date: 01/13/2016
Issuing Office: Charleston, WV

POLICY INSTALLMENT PLAN SCHEDULE

Blue Mountain Inc
 Policy Number: WCB1010852
 Coverage Period: 12/28/2015 to 12/28/2016

You have elected to pay the total estimated annual premium using an installment plan. There is a payment plan processing fee of \$0 for each installment. You may pay the entire balance at any time to avoid future installment charges.

The installment plan schedule presented below is an estimate. An invoice will be sent to you prior to each installment period. The payment schedule will change if there are changes to the total estimated premium due to mid-term policy activity.

INSTALLMENT PLAN SCHEDULE

Installment	Amount Due	Due Date
Deposit Premium	\$8,825.00	12/28/2015
Installment	\$8,825.00	03/19/2016
Installment	\$9,010.00	06/17/2016
Installment	\$9,007.00	09/17/2016
Total Estimate Policy Premium	\$35,667.00	

Issue Date: 01/13/2016
 Issuing Office: Charleston, WV

Contact us at www.brickstreet.com or Call Us at 866.45BRICK (452-7425)



ALTERNATE EMPLOYER ENDORSEMENT

This endorsement applies only with respect to bodily injury to your employees while in the course of special or temporary employment by the alternate employer in the state named in Item 2 of the Schedule. Part One (Workers Compensation Insurance) and Part Two (Employers Liability Insurance) will apply as though the alternate employer is insured. If an entry is shown in Item 3 of the Schedule the insurance afforded by this endorsement applies only to work you perform under the contract or at the project named in the Schedule.

Under Part One (Workers Compensation Insurance) we will reimburse the alternate employer for the benefits required by the workers compensation law if we are not permitted to pay the benefits directly to the persons entitled to them.

The insurance afforded by this endorsement is not intended to satisfy the alternate employer's duty to secure its obligations under the workers compensation law. We will not file evidence of this insurance on behalf of the alternate employer with any government agency.

We will not ask any other insurer of the alternate employer to share with us a loss covered by this endorsement.

Premium will be charged for your employees while in the course of special or temporary employment by the alternate employer.

The policy may be canceled according to its terms without sending notice to the alternate employer.

Part Four (Your Duties If Injury Occurs) applies to you and the alternate employer. The alternate employer will recognize our right to defend under Parts One and Two and our right to inspect under Part Six.

Schedule

1. Alternate Employer

Rice Olympus Midstream LLC

Address

400 Woodcliff Drive
Canonsburg, PA 15317

2. State of Special or Temporary Employment

West Virginia

3. Contract or Project

Surveying and Mapping

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.

(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)

Endorsement Effective Date: 12/28/2015

Policy Number: WCB1010852

Endorsement No.: 1

Insured Name: Blue Mountain Inc DBA Blue Mountain Engineering

Premium: \$32,252.00

Insurance Company: BrickStreet Mutual Insurance Company

Countersigned by



ALTERNATE EMPLOYER ENDORSEMENT

This endorsement applies only with respect to bodily injury to your employees while in the course of special or temporary employment by the alternate employer in the state named in Item 2 of the Schedule. Part One (Workers Compensation Insurance) and Part Two (Employers Liability Insurance) will apply as though the alternate employer is insured. If an entry is shown in Item 3 of the Schedule the insurance afforded by this endorsement applies only to work you perform under the contract or at the project named in the Schedule.

Under Part One (Workers Compensation Insurance) we will reimburse the alternate employer for the benefits required by the workers compensation law if we are not permitted to pay the benefits directly to the persons entitled to them.

The insurance afforded by this endorsement is not intended to satisfy the alternate employer's duty to secure its obligations under the workers compensation law. We will not file evidence of this insurance on behalf of the alternate employer with any government agency.

We will not ask any other insurer of the alternate employer to share with us a loss covered by this endorsement.

Premium will be charged for your employees while in the course of special or temporary employment by the alternate employer.

The policy may be canceled according to its terms without sending notice to the alternate employer.

Part Four (Your Duties If Injury Occurs) applies to you and the alternate employer. The alternate employer will recognize our right to defend under Parts One and Two and our right to inspect under Part Six.

Schedule

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Rice Poseidon Midstream LLC

Address

400 Woodcliff Drive
Canonsburg, PA 15317

2. State of Special or Temporary Employment

West Virginia

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Policy Number: WCB1010852

Endorsement No.: 1

Insured Name: Blue Mountain Inc DBA Blue Mountain Engineering

Premium: \$32,252.00

Insurance Company: BrickStreet Mutual Insurance Company

Countersigned by



WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT - BLANKET

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Schedule

State	Description
WV	Any party with whom the insured agrees to waive subrogation in a written contract.

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.

(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)

Endorsement Effective Date: 12/28/2015 Policy Number: WCB1010852

Endorsement No.: 1

Insured Name: Blue Mountain Inc DBA Blue Mountain Engineering

Premium: \$32,252.00

Insurance Company: BrickStreet Mutual Insurance Company

Gregory A. Denton

Countersigned by





Blue Mountain Inc.
PROJECT SCHEDULE



PROJECT SCHEDULE

BMI can initiate our services of this project upon contract award. A pre-work conference will be coordinated for BMI and will be scheduled at Camp Dawson within fifteen (15) days after the official award of the contract.

Task	Timeline
Prepare Summary Work Plan Proposal	10 Days
Camp Dawson Environmental Meeting	15 Days from Contract Award Date
Start-up Letter & Approved Plan of Work	30 Days from Contract Award Date
Weekly Progress Reports	Weekly
Complete Surveys	August 15, 2016
Complete Draft Survey Report	September 15, 2016
Complete Survey Report and Draft ESMP	October 15, 2016
Completion of Project & ESMP	November 15, 2016

BMI will be proactive in communication to ensure scheduling needs are being met, and can expedite processes in response to requests or needs. The estimated work completion times are independent of response times from other companies and agencies outside of BMI control.





Blue Mountain Inc.
TECHNICAL PROPOSAL

TECHNICAL PROPOSAL

Acoustic Survey

The proposed scope of work includes conducting acoustic surveys at selected forested sites in the Camp Dawson Collective Training Area (CDCTA) in Preston County, West Virginia. Acoustic survey effort will be based on the most recent survey (2013) of the CDCTA conducted in the following areas: Briery, Pringle, and Volkstone Tracts. Based on available acreage, we propose to survey a total of 33 sites. Therefore, a total of 132 detector-nights (33 sites) of effort following the USFWS 2016 guidelines to determine presence or probable absence of Indiana and Northern Long-eared bats.

If a listed bat call is confirmed at an acoustic site, then mist-netting will be conducted.

Phase 2 Acoustic Surveys (USFWS 2016) (Acoustic Protocol) for non-linear projects will proceed as follows:

- For each site, 2 acoustic bat detectors will be deployed for 2 nights to yield 4 detector-nights of recording effort. Detectors may be relocated, or microphones repositioned for the second night to improve recordings, this will be noted with new position information described in detail.
- Detectors will be deployed for at least 2 nights; nights need not be consecutive.
- It is assumed that 5 sites will be surveyed at a time, thereby completing 5 sites every 2 nights.
- Microphones will be directional.
- Detectors shall be deployed such that they are:
 - At least 1.5 meter (m) in any direction from vegetation or other obstructions;
 - In areas with minimal vegetation within 10 m of the microphone;
 - Parallel to woodland edges;
 - At least 15 m from any known roosts;
 - At least 1.5 m above the ground;
 - At least 200 m from any adjacent sampling site microphone; and,
 - Angled above the horizontal plane if located within 3 m of the ground.
- Each acoustic set up is to be photographed and its location shall be determined with a handheld global positioning system (GPS).
- Bat detectors will be set up to automatically record from sunset to sunrise.
- Proper functioning/calibration of bat detectors will be performed at the set-up of each new sampling site.
- Sampling will be considered acceptable if detectors can be shown to have functioned properly throughout the sampling period, and:
 - Temperatures remain above 50°F (10°C) during the first 5 hours of recording time.

- Precipitation, including rain or fog, does not exceed 30 minutes duration, or is not intermittent throughout the first 5 hours of sampling each night.
- Winds do not exceed 9 miles/hour (sustained) during the first 5 hours of sampling each night.
- If all acceptable conditions are not met, the sampling night must be repeated until they are.
- If weatherproofing of microphones is necessary, weatherproof set ups will be photographed and described.
- Recorded calls shall be collected/downloaded from bat detectors daily for analysis.
- Conduct Automated Analysis (Acoustic Protocol, Step 6): For all sites the call files shall be processed through the most recently approved version of Kaleidoscope Pro.
 - If listed bat species (Indiana bat or Northern Long-eared bat are considered unlikely by Kaleidoscope Pro (MLE p-values >0.05) then no further analysis is required, and presence will be assumed to be unlikely.
 - If listed bat species presence is considered likely at a site on at least one night by Kaleidoscope, then analysis will proceed to Step 7 of the Acoustic Protocol, Qualitative Analysis.
- Qualitative Analysis (Acoustic Protocol, Step 7) of each acoustic site and night with probable detections of listed species during Step 6 should include the entire night's high-frequency call data. Files from that night shall be reviewed visually by a biologist experienced in visual vetting of bat calls. Analysis shall include the number of call files flagged as probable listed bat species; and a qualitative analysis of all probable listed species call sequences.
- Qualitative analysis will include a written description of the call qualities used to confirm species identification.
- If visual vetting confirms listed species, listed bat species presence will be reported to the client.
- If visual vetting does not confirm listed species, a written justification will be provided to explain species identification.
- Names and qualifications of individuals conducting visual vetting will be provided.
- The following will be submitted as each sampling site is completed:
 - Kaleidoscope Pro output, in the form of an Microsoft Excel spreadsheet;
 - Completed site data sheet;
 - Site and set-up photos; and,
 - Call files for each site.
- A Daily Progress Report will be submitted at the end of each day.

Mist Net Survey

Current USFWS guidelines (USFWS 2016) for Indiana and Northern Long-eared bat mist-net surveys prescribe 42 net-nights of effort per 123 acres of forest for states in the Northeast and Appalachian Recovery Units. Mist netting will be conducted based on results of the acoustic surveys. For each positive acoustic sampling site (every 123 acres) the level of netting effort will be 42 net nights. Seven sites will be surveyed for a period of two nights using three nets, in order to meet USFWS guideline requirements of 42 net-nights per 123 acres.

Specific sites for net placement within individual forest blocks will be determined by permitted bat biologists in the field, and will follow USFWS (2016) guidelines for mist-net surveys.

All surveys will follow methods outlined within USFWS (2016). Standard two-ply, 50 denier, nylon mist-nets with a mesh size of 38 millimeters (1.30 inches) will be used at all mist-net sites. Mist-netting will begin at sunset and continue for at least five hours. Mist-nets will typically be placed in suitable bat habitat and positioned perpendicularly across flight corridors filling the corridor from side to side and extending from ground-level up to overhanging canopy. Nets will be checked approximately every 10 minutes. Disturbance in the form of noise, light, or movement will be minimized at all net locations. If weather conditions such as persistent rain (> 30 minutes), strong, sustained winds (> 9 mph), or cold temperature (below 50°F [10°C]) impair netting efforts, then those net sites will be sampled for an additional night. All mist-net surveys will be performed by staff and sub-contractors holding the proper state and federal permits, as outlined in the Qualifications section (page 28).

For each mist-net night, the date, start and end time, site description, site coordinates, mist-net specifics, and weather data (temperature, cloud cover, wind speed, precipitation, and moon phase) will be recorded. All captured bats will be identified to species. In addition, sex, age, reproductive condition, body mass (grams), and forearm length (millimeters) will be recorded for each bat. To assess exposure to White-Nose Syndrome (WNS) in individual bats, a Reichard wing damage index score (0-3) will be recorded for all captured bats (Reichard 2009). To prevent cross contamination of captured bats with *Pseudogymnoascus destructans*, the fungus that causes WNS, the USFWS WNS decontamination protocol will be followed for all mist-netting efforts (USFWS 2016). Captured bats of species other than Indiana and Northern Long-eared bats will be measured and processed immediately and will be released within 15 minutes. Indiana and Northern Long-eared bats may be held for up to 30 minutes in order to attach radio-transmitters. Species of bats captured will be photo-documented with voucher photographs. Forearm bands may be attached to captured Myotis species.

Telemetry Surveys

If adult female or juvenile Indiana and Northern Long-eared bats (NLEB) are captured, telemetry surveys will be conducted to determine if these bats are utilizing trees in or near the Project as roost sites for maternity colonies. A maximum of two bats per netting site will be tracked. Transmitters will only be attached to adult female or juvenile Indiana and NLEB bats. Male NLEB and Indiana bats will not be tracked and no other bat species will be tracked. Transmitted bats will be tracked to roost trees within lands in which site access has been granted. If the bat is located outside of these lands, its day roost location will be triangulated from accessible parcels along the survey corridor and/or public roads. Bats will be outfitted with a radio-transmitter (model no. LB-2X or similar; Holohil Systems Ltd., Ontario, Canada) and tracked for a maximum of seven days or until the transmitter signal is lost. Transmitter signals will be considered lost when no signal is heard for 2 days, at which time telemetry surveys will cease for that individual. Transmitter signals will be followed during daylight hours to find roost trees. For each roost tree, photographs, GPS coordinates, roost type (tree, building, etc.), tree species, tree type (live, snag), tree diameter at breast height (DBH), approximate roost height (m), and roost location (cavity, crevice, bark, etc.), tree species composition, stand age, and vegetation community type will be recorded.

Emergence Surveys

All emergence surveys will follow USFWS guidelines (USFWS 2016). Emergence surveys will begin one half hour before sunset and continue for at least one hour after sunset. Emergence surveys will not be conducted when: a) temperatures are below 50°F (10°C), b) precipitation (rain or fog) persists for > 30 minutes, or c) winds > 9 miles/hour (4 meters/second; 3 on Beaufort scale) are sustained. For each emergence survey date, start and end time, roost name, number of bats exiting, and general weather conditions (e.g. temperature, precipitation, wind speed) will be recorded. Two exit counts will be performed on each documented roost tree to determine the number of bats in the roost and to confirm the specific roost type and location.





Blue Mountain Inc.
DELIVERABLES

DELIVERABLES

Summer Survey Work Plan will include:

- Detailed methodologies for surveys.
- How data will be collected, stored, and analyzed.
- How results will be reported and report formats.
- Complete breakdown of costs, and a proposed schedule for all work submission of deliverables.

Final Survey Work Plan will include:

- Description and justification of any modifications from the study plan.
- Full names of the survey personnel and associated permits.
- Summary tables of capture and tracking data.
- Photographs of each mist-net location, representative photos of each bat species captured and any individual *Myotis* species.
- GPS coordinates of each net location and roost tree locations.
- Copies of all data sheets.
- Maps of each mist-net and roost tree location.
- Curriculum vitae of primary researchers and technicians.

Endangered Species Management Plan Coordination Letter will be sent on WVARNG letterhead to inform all interested parties, along with local, state, and federal natural resources management agencies of the preparation of the ESMP and to ask for their input.

Endangered Species Management Plan: a Draft ESMP will be drafted in accordance with Army Policy, the ESA of 1973, and the NEPA of 1969, as amended (42 USC 4321). Two hard copies and one electronic copy including all GIS SDSFIE 2.6 compliant data layers will be provided to WVARNG personnel by October 15, 2016. After comments are received from WVARNG personnel on the Draft ESMP, a final ESMP will be compiled. Three hard copies of the final ESMP and one electronic copy will be provided to WVARNG personnel by November 15, 2016.

Data Collected: All data collected in coordination with completing the requested surveys will be delivered to WVARNG staff. All GIS will be SDSFIE 2.6 compliant.



A large, stylized mountain range graphic with three peaks, rendered in a dark gray color, positioned behind the company name.

Blue Mountain Inc.
QUALIFICATIONS

QUALIFICATIONS

Permit Numbers and Staffing

This project will be surveyed by Jeremy L. Jackson (Collecting Permit Number: TE102292-10), JD Wilhide (Collecting Permit Number: TE14828-3), and Kat Cunningham (Collecting Permit Number: TE48049B-0), plus technicians.

References

- A. Brad Romano, Wildlife Biologist Program Manager
Shoener Environmental, (814) 736-3080 ext. 312, bromano@shoener.com
- B. Brad Steffen, Bat Program Director
TRC Solutions, (513) 489-2255 ext. 1045, bsteffen@trcsolutions.com
- C. Rhett Good, Research Biologist/Senior Manager
WEST Inc., (812) 339-1756, rgood@west-inc.com
- D. Rhett Baggert, PWS, QHP, Practice Leader of Environmental & Natural Resources
Barge Waggoner Sumner & Cannon, Inc., (615) 252-4213, Rhett.Bagget@bwsc.net
- E. Ryan Slack, Project Manager
Civil & Environmental Consultants, (877) 746-0749, RSlack@cecinc.com
- F. Traci Porter, Professor of Biology
Salem University, Traci.Porter@salem.edu
- G. Brian Butler, Wildlife Consultant
Bath Conservation and Management, (717) 836-5795

Relevant Project Experience

Please see the following pages for relevant project experience.



DEPARTMENT OF THE INTERIOR
 U.S. FISH AND WILDLIFE SERVICE
 Endangered Species Permit Office
 1875 Century Boulevard, Suite 200
 Atlanta, GA 30345
 permitsR4ES@fws.gov

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

JEREMY LYNN JACKSON
 dba JACKSON ENVIRONMENTAL CONSULTING SERVICES
 1586 BOONESBOROUGH ROAD
 RICHMOND, KY 40475
 U.S.A.

2. AUTHORITY-STATUTES
 16 USC 1539(a)

REGULATIONS
 50 CFR 17.22

50 CFR 13

3. NUMBER
 TE102292-10 **AMENDMENT**

4. RENEWABLE
 YES
 NO

5. MAY COPY
 YES
 NO

6. EFFECTIVE
 03/03/2015

7. EXPIRES
 03/03/2018

8. NAME AND TITLE OF PRINCIPAL OFFICER (If not business)

9. TYPE OF PERMIT
 NATIVE ENDANGERED SP. RECOVERY - E WILDLIFE

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

Alabama, Arkansas, Georgia, Illinois, Indiana, Iowa, Kentucky, Mississippi, Missouri, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia.

11. CONDITIONS AND AUTHORIZATIONS

A. GENERAL CONDITIONS SET OUT IN SUBPART E OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK 42 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, TRIBAL, OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

C. 1. In addition to the permittee, the following individuals are authorized to conduct activities as authorized by this permit: Dan Cox, Jason Damm and Rex Medlin.

Trained assistants not named on this permit may work on permitted bat activities under the direct and on-site supervision of the individuals named above. However, trained assistants may not work independently at a site. Trained assistants are individuals who are considered qualified by the permitted biologist(s) to select sampling sites, deploy sampling equipment and nets, and handle bats in the field.

At least one named permittee must remain present at each mist-net site while it is being operated.

D. Acceptance of this permit serves as evidence that the permittee understands and agrees 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.

ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS

Annual reports due by January 31 following each year this permit is in effect

ISSUED BY

TITLE

CHIEF, DIVISION OF ENVIRONMENTAL REVIEW

DATE

04/20/2015

Roxanna Hinzman

Chief, Division of Environmental Review

E. Permittee is authorized to take (enter hibernacula or maternity roost caves, salvage dead bats, capture with mist nets or harp traps, handle, identify, collect hair samples, band, radio-tag, light-tag, and wing-punch) Indiana bats (*Myotis sodalis*), gray bats (*Myotis grisescens*), northern long-eared bats (*Myotis septentrionalis*), and Virginia big-eared bats (*Corynorhinus townsendii virginianus*) while conducting presence/absence surveys, studies to document habitat use, and population monitoring, as conditioned below.

F. Activities at the following locations require written site-specific approval from the USFWS Field Supervisor in the State(s) where the project will occur (as outlined in Condition G):

F.1. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Missouri, and Ohio

F.2. Locations within Region 4 of the USFWS: Alabama, Arkansas, Georgia, Kentucky, Mississippi, North Carolina, and Tennessee

F.3. Locations within Region 5 of the USFWS: New York, Pennsylvania, Virginia and West Virginia

G. Permittee shall notify the USFWS Field Supervisor for the state in which activities are proposed to occur at least 15 days prior to conducting any activities. Contact information is in Condition P, below. Your request for this site-specific approval must be in writing and must indicate:

G.1. The purpose and a description of the activities proposed (e.g., surveys, radio telemetry studies, etc.).

G.2. Location of proposed activities, including project site (full description and lat/long), county, and state.

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

G.4. You may proceed with activities only with receipt of written concurrence from the applicable USFWS Field Supervisor. *Your concurrence letter must be attached with this permit to authorize site-specific activities.*

H. Permittee shall adhere to the following conditions involving capture and handling of bats:

H.1. Federally listed bats may be captured (e.g., mist-nets and harp traps) following the protocol(s) provided by the USFWS, when available. Permittees must contact the USFWS FO in the State(s) in which activities are proposed to ensure correct protocol(s) are used. For example, the current Range-wide Indiana Bat Summer Survey Guidelines are available at:

<http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>. The monitoring interval for mist nets is once every 10 minutes. Harp traps must be continually monitored.

H.2. Captured bats may be held for a maximum of 30 minutes, unless injured. If an exception is required to this prohibition, permittee must receive prior written approval from the USFWS Field Supervisor for the state in which the activities are proposed to occur.

H.3. Permittees shall carry out non-intrusive measurements on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species specific data form provided by the USFWS (e.g., INDIANA BAT SURVEY AND BANDING DATA form). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Photographs of the identifying characteristics for each individual federally listed species captured are encouraged. The permittee may be requested to provide individual photographs after submittal of annual reporting data.

H.4. If bands are applied, they must be lipped metal bands having a unique identifier. Bands should be applied to the forearm of captured bats prior to release. No more than one band per bat may be used. Position the band on the wing so that when the bat is hanging upside down, the band numbers are right-side up. A single band should be placed on the right forearm of each male and the left forearm of each female bat.

H.5. Radio transmitters may be applied during spring, summer, and fall roosting and migration periods via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least five days, or until the transmitter falls off, whichever occurs first.

H.6. No capture activities shall occur within 20 meters of a known or potential summer or winter roost site, either natural or artificial, of a federally listed bat. If an exception is required to this prohibition, permittee must receive prior written approval from the USFWS Field Supervisor for the State in which the activities are proposed to occur.

H.7. Permittee may collect dorsal hair samples and wing biopsy tissue samples from captured bats for scientific study. Hair samples shall be obtained via clipping fur from between scapula from females and juvenile males. The clipped area is the same area frequently clipped for radio transmitter attachment. Wing tissue samples may be taken using a new, sterile biopsy punch (2mm) for each endangered bat sampled. No more than two samples, one from each wing, may be obtained per bat. All boards and equipment used to obtain samples must be disinfected according to the protocol in Condition B.

H.8. Cyalume light tags may be affixed to the back of unsexed bats during summer roosting period via non-toxic skin bond adhesive to aid in identification of individuals for collection recordings. Light tags shall not be affixed to bats carrying radio transmitters. Light tag length shall be 20 mm or less and weight shall be 0.15 g or less. The light tag must be resistant to tooth puncture and sealed to prevent bats from ingesting cyalume compound. Any light tag that has the potential to expose bats to the cyalume compound is prohibited; the compound is known to be toxic to bats.

H.9. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at: <http://whitenosesyndrome.org/>

H.10. Caves, mines, or other suitable hibernation sites may be quietly searched in a manner that minimizes disturbance by utilizing the minimum number of people and time required to complete the survey. Surveys of known hibernacula conducted during the winter hibernation season shall follow the guidelines established in the recovery plans for each federally listed bat species with regards to how often a site may be visited and other species-specific requirements related to entering hibernaculum (for example, for Indiana bats, winter surveys should not be repeated more often than once every other year in any given hibernaculum; for gray bats, winter surveys should not be repeated more often than once every three years in any given hibernaculum), unless authorized by the appropriate Service Recovery Lead identified in Condition O (below).

Under no circumstances should multiple trips to the hibernation area occur within the same year without written approval of the USFWS Field Supervisor for the state in which activities are proposed.

Bats may be handled during winter surveys in order to collect band information and confirm the identification of listed species. When possible, bands should be read without touching the bat. Banded bats should only be handled if easily accessible and removal of the bat does not disturb a large number of additional bats and is unlikely to result in injury to the bat. Detailed photographs should be taken to document the presence of listed species in previously undocumented hibernaculum. Where hibernacula area and safety conditions allow,

individuals entering hibernacula are recommended to utilize night vision goggles or red-filtered light and to remain in the site no more than 90 minutes to complete the work.

H.11. Surveys of gray bat and Virginia big-eared bat maternity roosts and their other known summer roost sites shall be conducted by observing the bats with night vision equipment and/or infrared light sources (e.g., thermal infrared) as they emerge from their roosts to avoid any possible disturbance to these bats. At previously undocumented sites for these species, the accepted method to determine if they are present is to carefully and slowly enter the potential roost site to check for evidence of presence/use, such as visual observation of bats, significant quantities or a strong smell of guano, or the audible sounds produced by bats roosting at the site. As soon as any evidence is obtained that the roost site is being used by a federally-listed bat species, survey team members shall immediately exit the roost site and make further observations from outside the entrance to the roost. All further observations shall be made from the entrance during the evening emergence.

I. Upon determination that endangered bats are present, permittee shall notify the following offices immediately (not to exceed 1 business day): the appropriate USFWS Regional Office (Condition N.), and the USFWS Field Office within the geographic location of study areas (Condition Q.).

J. Permittee must carry a copy of this permit at all times when conducting the authorized activities. NOTE: This permit is limited to the above activities and identified species.

K. Issuance of this permit does not constitute permission to conduct these activities on National Wildlife Refuges or any other public or private lands; such permission must be obtained separately from the appropriate landowner or land manager before beginning the authorized activities. This permit, neither directly nor by implication, grants the right of trespass.

L. Accidental injury or mortality may occur to one specimen. In the event that any accidental injury or mortality occurs, all activities must cease and the injury or mortality be reported immediately (not to exceed 1 business day) to the applicable office listed in condition N. and to the Lead Recovery Biologist for the species (condition O). The USFWS will work with the permittee to determine the cause of injury or mortality and whether such could be avoided should activities be allowed to proceed. Dead or moribund bats may be retained for further study only with the written permission of the USFWS. Any bats that are not authorized for retention are to be chilled and promptly transferred to the USFWS for potential necropsy and/or for scientific or educational purposes.

Upon locating a dead, injured, or sick bat or any other threatened or endangered species, under circumstances not addressed in this authorization, initial notification must be made immediately (not to exceed 1 business day) to the appropriate USFWS Office identified in condition N., below, including a description of the circumstances, location information, and photo documentation. Notification should also be made at the same time to the appropriate USFWS Field Office identified in condition P., below. Care should be taken in handling sick, injured, or dead specimens to ensure effective treatment or to preserve biological materials for later analysis. In conjunction with the care of sick or injured threatened or endangered species, and the preservation of biological materials from a dead animal, the permittee should take responsible steps to ensure that the site is not unnecessarily disturbed. Prior to collecting the specimen(s), you must photograph the specimen(s) to document the conditions in which they were found. You may preserve the specimen(s) by freezing them or other suitable method to allow scientific study. Disposition of collected specimen(s) shall be determined by the USFWS Field Office.

M. Reports are due on January 31 following each year this permit is in effect. At a minimum, your report shall include:

M.1. The date, time, geographic locations (including datum and projection information).

- M.2. All locations surveyed (regardless of whether federally listed bats were captured/observed).
- M.3. Band numbers of all bats banded and all bats recovered/observed.
- M.4. Information on any injuries and/or mortalities and disposition of specimens.
- M.5. Location and characteristics of roost trees and bat colonies.
- M.6. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.
- M.7. Data shall be submitted for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data form provided by the USFWS (e.g. INDIANA BAT SURVEY AND BANDING DATA forms, the data collection forms found in the current Rangewide Indiana Bat Summer Survey Guidelines cited in Condition H.1., or other species-specific forms). Photographs of the identifying characteristics for each individual federally listed species captured are encouraged. The permittee may be requested to provide individual photographs after submittal of annual reporting data.

M.8. Copies of all site-specific authorization letters required under Condition G.

If no activities occurred over the course of the year, indication of such shall be submitted as an annual report.

N. 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 PDF, Word, Portable Document Format, Rich Text Format, or other file format that is compatible with the receiving office.

N.1.
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Midwest Region (Region 3)
Ecological Services - Endangered Species
5600 American Blvd. W, Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov

N.2.
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southeast Region (Region 4)
1875 Century Boulevard, Suite 200
Atlanta, Georgia 30345-3301
(404/679-7101; fax 404/679-7081)
permitsR4ES@fws.gov

N.3.
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(703/358-2402; fax 413/253-8482)
permitsR5ES@fws.gov

O. Additionally, based on species, reports and publications shall be submitted to the following:

O.1. For Studies involving Indiana Bats:

Lori Pruitt, Recovery Lead
U.S. Fish and Wildlife Service
Indiana Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x1213; fax 812/334-4273)

O.2. For Studies involving Gray Bats:

Shauna Marquardt, Recovery Lead
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park De Ville Drive, Suite A
Columbia, Missouri 65203
(573/234-2132 x174; fax 573/234-2181)

O.3. For Studies involving Northern Long-eared Bats:

Jill Utrup, Recovery Lead
U.S. Fish and Wildlife Service
Twin Cities Ecological Services Field Office
4104 American Blvd. E.
Bloomington, Minnesota 55425
(612/725-3548 x207; fax 612/725-3609)

O.4. For Studies involving Virginia Big-eared Bats:

Barbara Douglas
U.S. Fish and Wildlife Service
West Virginia Ecological Services Field Office
694 Beverly Pike
Elkins, West Virginia 26241
(304/636-6586 x19; fax 304/636-7824)

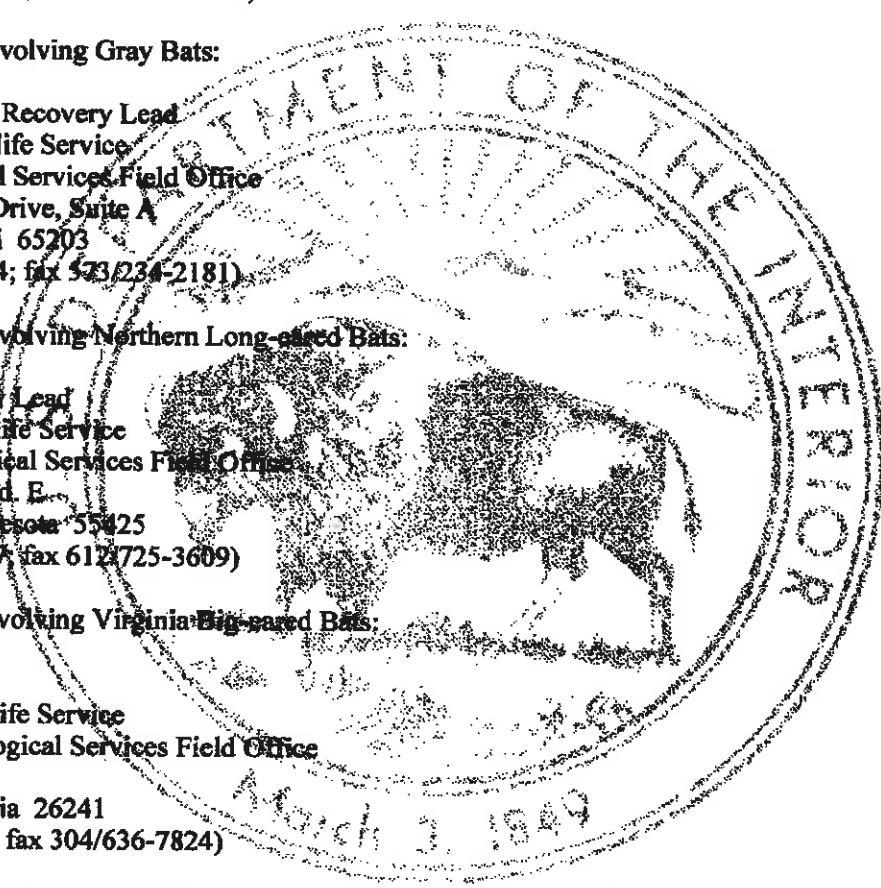
P. Additionally, based on geographic area, reports and publications shall be submitted to the following:

P.1. For studies conducted in Alabama:

Field Supervisor
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, Alabama 36526-4419
(251) 441-5181

P.2. For studies conducted in Arkansas

Field Supervisor
Arkansas Field Office
110 South Amity Suite 300



Conway, Arkansas 72032-8975
Telephone: 501 513-4470
Facsimile: 501 513-4480

P.3. For studies conducted in Georgia:

Field Supervisor
Georgia Field Office
105 Westpark Drive, Suite D
Athens, GA 30606-3175
(706) 613-9493; fax 706/613-6059

P.4. For studies conducted in Illinois:

P.4.a.

Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5805)

P.4.b.

Joe Kath
Endangered Species Coordinator
Illinois Department of Natural Resources
Division of Natural Heritage
One Natural Resource Way
Springfield, Illinois 62702-1271
(217/785-8764; fax 217/785-2438)

P.5. For studies conducted in Indiana:

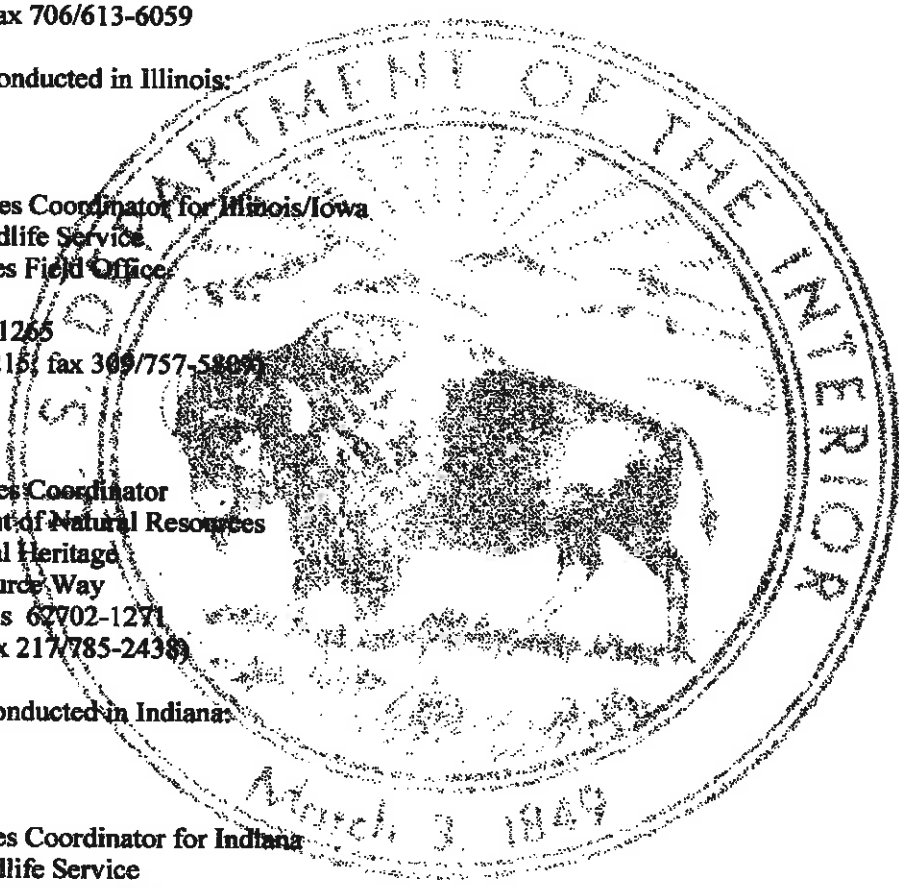
P.5.a.

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 x1213; fax 812/334-4273)

P.5.b.

Scott Johnson
Indiana Department of Natural Resources
5596 East State Road 46
Bloomington, Indiana 47401
(812/334-1137, ext. 3400)

P.6. For studies conducted in Iowa:



P.6.a.

Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5807)

P.6.b.

Kelly Poole
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
(515/281-8524)

P.7. For studies conducted in Kentucky:

Field Supervisor
Frankfort Field Office
J C Watts Federal Bldg., Rm 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0468

P.8. For studies conducted in Mississippi:

Field Supervisor
Mississippi Field Office
6578 Dogwood View Pkwy, Ste A
Jackson, MS 39213-7856
(601) 321-1122

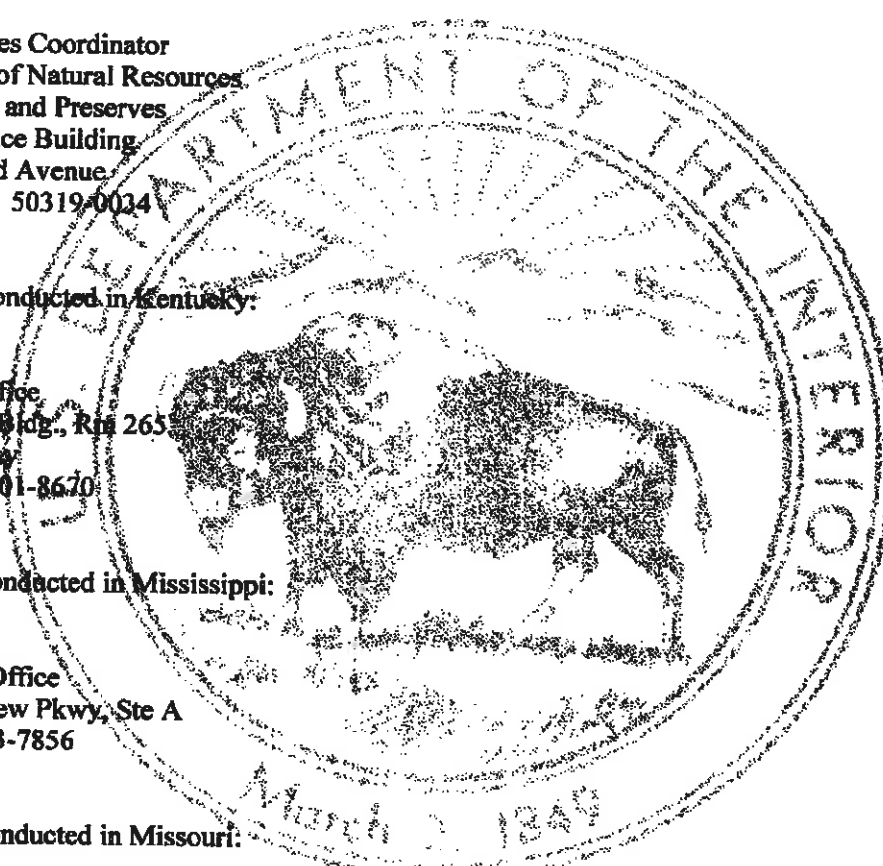
P.9. For studies conducted in Missouri:

P.9.a.

Field Supervisor
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-2132
(573/234-2132; fax 573/234-2181)

P.9.b.

Scientific Collecting Permit Coordinator
Missouri Department of Conservation
Endangered Species and Natural History Division
2901 W. Truman Blvd., P.O. Box 180
Jefferson City, Missouri 65102-0180



(573/522-4115 ext. 3322; fax 573/751-4864)

P.10. For studies conducted in New York:

Field Supervisor
New York Field Office
3817 Luker Road
Cortland, NY 13045
(607) 753-9334

P.11. For studies conducted in North Carolina:

Field Supervisor
Asheville Field Office
160 Zillicoa Street
Asheville, NC 28801-1082
(828) 258-3939

P.12. For studies conducted in Ohio:

P.12.a.

Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614/416-8993, x22; fax 614/416-8994)

P.12.b.

Endangered Species Coordinator
Ohio Department of Natural Resources
Division of Wildlife
2045 Morse Road, Building G
Columbus, Ohio 43229-6693
(614-265-6329; fax 614/262-1143)

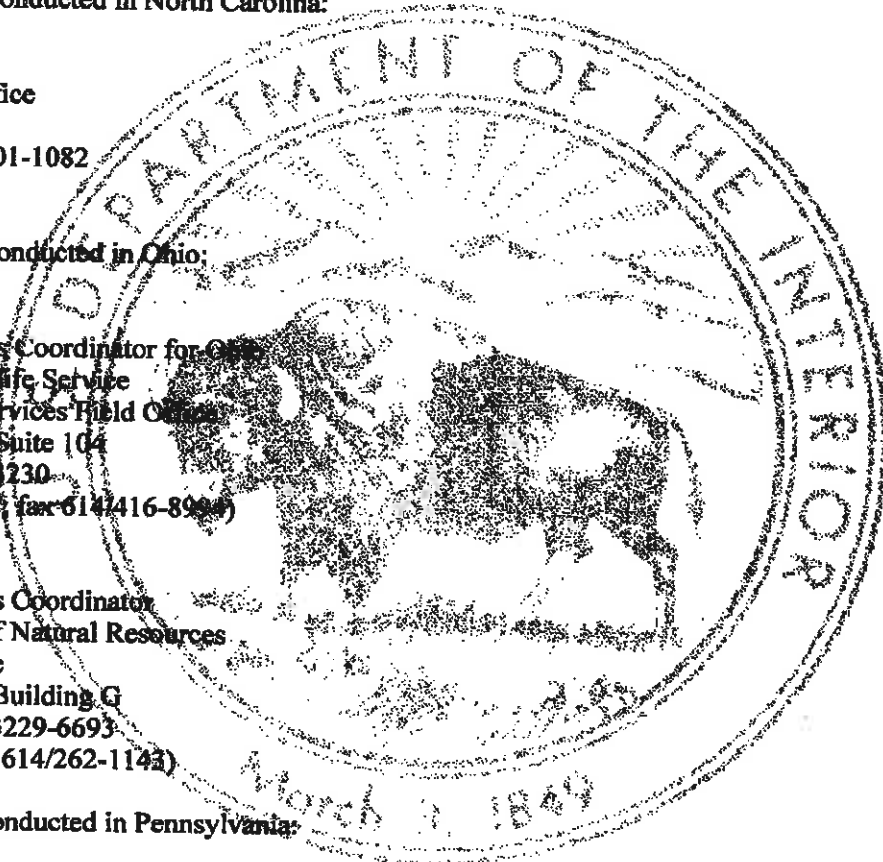
P.13. For studies conducted in Pennsylvania:

Field Supervisor
Pennsylvania Field Office
315 So. Allen Street, Suite 322
State College, PA 16801-4850
(814) 234-4090

P.14. For studies conducted in Tennessee:

P. 14 a.

Field Supervisor
Cookeville Field Office
U.S. Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501-4027



(931) 528-6481

P. 14.b.

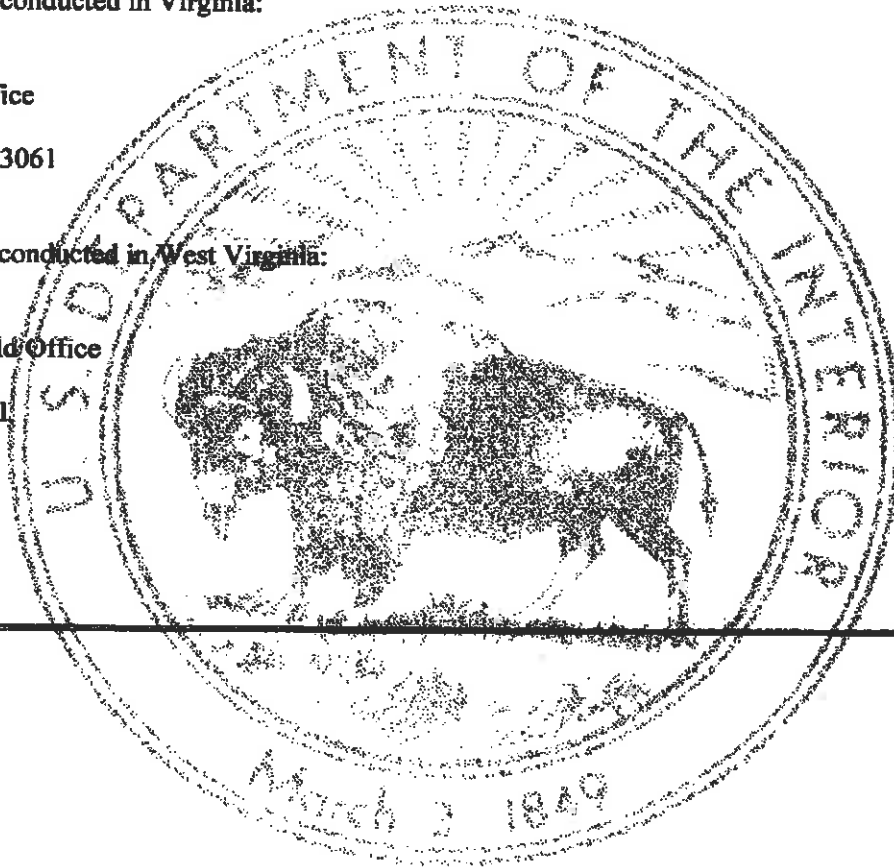
Brian Flock
Bat Coordinator
Tennessee Wildlife Resources Agency
P.O. Box 40747
Nashville, TN 37204
(615) 781-6569

P.15. For studies conducted in Virginia:

Field Supervisor
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061
(804) 693-6694

P.16. For studies conducted in West Virginia:

Field Supervisor
West Virginia Field Office
694 Beverly Pike
Elkins, WV 26241
(304) 636-6586



Education

BS, Wildlife Ecology & Management, 2000 Arkansas State University

MS, Biology, 2004
Arkansas State University

U.S. Army, 82nd Airborne 1993-1997

Specialty and Skill Areas

Environmental Permitting
Environmental Modeling
Environmental Assessments (EA's)
Habitat Suitability Indices (HSI)
Terrestrial Ecology
Aquatic Ecology
Endangered Species, Specializing in Endangered Bat Species
Geographic Information Systems (GIS)
Cave Surveys, Mapping, and Bio-monitoring
Mammalian, Ornithological, Herpetological, and Botanical Surveying and Bio-monitoring

Professional Affiliations

Kentucky Coal Association
West Virginia Coal Association
The National Wildlife Society
Kentucky Section of The National Wildlife Society
American Society of Mammalogists
The Ecological Society of America
Southeastern Bat Diversity Network
Kentucky Bat Working Group
Arkansas Bat Working Group
Arkansas Academy of Science

Certifications

Certified Ecologist
Certified Associate Wildlife Biologist
Rogers Level I—Applied Fluvial Geomorphology
Basic Wildland Fire Certified
Certified Waste Operations Response (40 Hours)

Permits

State and Federal Scientific Collection Permit for Endangered Species in Arkansas, Illinois, Indiana,

Kentucky, Ohio, Tennessee, North Carolina, Pennsylvania, Virginia, and West Virginia

Research

2000 – Present. Northern Long-eared Bat distribution records, habitat assessment and quantifying roost selection related to timber management in Arkansas.

2005 – Present. Northern Long-eared bat distribution in Appalachia.

Manuscripts in Preparation

Sasse, D.B., M.J. Harvey, J.J. Jackson, T. Klotz, P.R. Moore, R.W. Perry, R.K. Redman, D.A. Saugey, T.S. Risch and J.D. Wilhide. 2014. New records and notes on the ecology of the northern long-eared bat (*Myotis septentrionalis*) in Arkansas. Journal of the Arkansas Academy of Science. Vol. 68:170-173.

Sasse, D.B.; T.S. Risch, D.A. Saugey; M.J. Harvey, J.D. Wilhide, R.K. Redman, J.J. Jackson, T. Klotz, and P.R. Moore. 2013. New Records of the Eastern small-footed bat (*Myotis leibii*) in Arkansas. Journal of the Arkansas Academy of Science. Vol. 67:214-216.

J.L. Jackson, and J.D. Wilhide. Effects of forest management practices on the distribution of bat assemblages

J.L. Jackson, W.D. Reed, and J. Bednarz. Relative density of nesting Red-shouldered Hawks (*Buteo lineatus*) in bottomland hardwoods forest during spring migration

J.L. Jackson, B. Samples, and S. E. Trauth. Herpetological distributions in Mississippi County, Arkansas

W.D. Reed, J.L. Jackson, T. Wetsell, and S. Vanderpool. Distribution and population boundary of pond berry (*Lindera melissifolia*) in northeast Arkansas

J.L. Jackson, R. Kissell and J.D. Wilhide. Effects of wildlife stand improvements and prescribed burning on the roosting ecology of the northern

long-eared bat (*Myotis septentrionalis*). (Prep for Journal of Mammalogy)

Manuscripts in Press

J.L. Jackson. Effects of wildlife stand improvements and prescribed burning on the bat communities on the Buffalo Ranger District, Ozark National Forest, in Arkansas. M.S. Thesis.

Experience

14-years of professional environmental consulting experience.

13-years of experience in all phases of environmental and ecological studies and permitting including project planning, field surveys, data analysis, report preparation, and coordination with public, state, and federal agencies.

14-years of experience in evaluating/delineating potential section 404 issues, delineating over 100 miles of streams and 100 acres of wetlands and other terrestrial habitats throughout South Eastern United States.

14-years of experience in endangered species, specializing in endangered bat species, surveying over 800,000 acres.

10-years of experience in preparing, implementing, designing over 20 miles of streams and 10 acres of wetlands and monitoring Compensatory Mitigation Plans.

Related Past and Current Projects

Western EcoSystems Technology, Inc. Gratiot County Wind Farm Facility. 2015. Manager and crew leader in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened Northern Long-eared bat (*Myotis septentrionalis*) within the 1,332 acres of forested habitat associated with the 69 turbine project area.

TRC Solutions. ET Rover Pipeline. 2015. Project manager in the inventory of bat species, establishing the presence or probable absence of

the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened Northern Long-eared bat (*Myotis septentrionalis*) along the 710 mile pipeline right of way in Ohio.

AECOM. Environmental Investigation: Town Creek Solar Project. 2015. Project manager in conducting a wetlands and habitat assessment for endangered species in relation to the construction of a proposed solar energy farm in Tipton County, Tennessee.

Natural Resource Group. Bluegrass Pipeline Project. 2013. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) along the 525 mile pipeline right of way in Kentucky, Ohio and West Virginia.

Middle Fork Development Corporation, Licking River, 2013. Project Manager responsible for preparing a Compensatory Mitigation Plan to offset approximately 6,500 linear feet of stream impacts.

Kinder Morgan. Millercoors Wetland Mitigation. 2011 – Present. Project team member assisting in the plan to provide a conceptual approach for the creation and monitoring of an off-site freshwater emergent wetland in response to the construction of a gas pipeline.

True Energy Coal Sales, Inc. Upper Shannon Branch Surface Mine, True Energy Coal Sales. 2009-Present. Project Manager who prepared a Section 404 and 401 of the Clean Water Act Permit Application to the United States Army Corps of Engineers for a proposed 247-acre surface coal mine. Other duties included preparing an Aquatic Enhancement Protection (AEPP).

Blue Eagle Mine, Mid Vol Coal Sales. 2012. Project Manager responsible for conducting a survey of federally listed endangered bat species within the 302.41 ac project boundary in order to establish the presence or probable absence of the

federally listed endangered Indiana bat (*Myotis sodalis*). An Indiana bat winter habitat Assessment and survey (deep mine portal assessment) was also conducted within the project area.

Barge, Waggoner, Sumner, & Cannon, Inc. Woodlawn Utility District (WUD) Treatment Plant. 2012. Project Manager who conducting an Indiana Bat habitat assessment within the 19.07 ac project boundary to characterize winter and summer habitat for the federally listed endangered Indiana bat (*Myotis sodalis*). Surveys and habitat assessments were also conducted for the Pink mucket (*Lampsilis abrupta*) and Short's bladderpod (*physaria globosa*)

Gress Engineering. GMAX 5 Seam Strip. 2012. Project Manager responsible for conducting a survey of federally listed endangered bat species within the 145 ac project boundary.

Civil and Environmental Consultants, Inc. Henrysburg-Spencer. 2012. Project manager who assisted CEC performing mist net surveys for federally listed endangered bat species.

EA Engineering. Delaware Water Gap. 2012. Project manager responsible for characterizing summer and winter Indiana bat (*Myotis sodalis*) habitats for two proposed transmission line Right of Ways within the 198.6 acre project area.

Applied Ecological Services. Tippecanoe Wind Project. 2012. Project manager surveying and radio tracking the federally endangered Indiana bat (*Myotis sodalis*) back to roost trees.

Palmer Engineering for the Tennessee Department of Transportation. I-69 Bat Survey. 2012. Project manager responsible for assisting in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the linear 65 mile long and approximately 1,000 feet wide project boundary.

Fort Drum Environmental Division, Fish and Wildlife Management Program. Fort Drum Bat Survey. 2012. Project manager performing an installation-wide survey of the approximate

43,000 ha Fort Drum Military Installation. Mist-net surveys and radio-tracking was used to document the spatial and temporal use and distribution of bats within the Fort Drum landscape.

Civil and Environmental Consultants, Inc. Bobcat and Canton Gas Line. 2012. Project manager responsible for assessing habitat along an approximate 13.7 acre section of a proposed gas line. Area was surveyed for presence or probable absence of threatened and/or endangered bat species, specifically the Indiana bat in the project area.

Summit Engineering. Big Branch Mine. 2012. Project manager responsible for surveying eighteen potential deep mine portals that were observed and assessed within the project area. A summer assessment was conducted for the potential to provide habitat for the Gray bat and a fall assessment was conducted for the potential to provide suitable winter habitat for the Indiana bat within the 1,228 acre project boundary.

Rockies Express Pipeline. Wetland and Stream Monitoring. 2012. Project management monitoring over 200 wetland restoration sites and 300 stream restoration sites.

Middle Fork Development Corporation, Licking River, 2012. Project Manager responsible for preparing a Compensatory Mitigation Plan to offset approximately 6,500 linear feet of stream impacts.

Western EcoSystems Technologies. Burr Oak. 2011. Project Manager responsible for assessing habitat and surveying approximately 2,500 acres for Indiana bats (*Myotis sodalis*). Other duties included coordination with regulatory agencies, data analysis, and report preparation. Indiana bats were captured on the project, which required additional studies, which include radio telemetry and radio tracking to determine home range and foraging patterns for Indiana bats in the Rochester, Illinois.

Western EcoSystems Technologies. Apple Blossom and Harvest Wind Bat Surveys.



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2011 Project Manager responsible for assessing habitat and surveying approximately 4,000 acres for Indiana bats (*Myotis sodalis*) in Caseville, Michigan. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Civil & Environmental Consultants, Inc. North & West Star Bat Surveys. 2011. Project Manager, assessing habitat and surveying approximately 2,000 acres for Indiana bats (*Myotis sodalis*) in Steubenville, Ohio. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Green Tree Consulting. Totten Ridge Bat Survey. 2011. Project Manager responsible for assessing habitat and surveying approximately 174 acres for Indiana bats (*Myotis sodalis*) in McDowell County, West Virginia. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Met Resources. Pinnacle Bat Survey. 2011. Project Manager responsible for assessing habitat and surveying approximately 2,500 acres for Indiana bats (*Myotis sodalis*) in West Virginia. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Met Resources. Puncheoncamp II Bat Survey. 2011. Project Manager responsible for assessing habitat and surveying approximately 1,000 acres for Indiana bats (*Myotis sodalis*) in McDowell, West Virginia. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Gress Engineering. Stateline Bat Survey. 2011. Project Manager, assessing habitat and surveying approximately 1,000 acres for Indiana bats (*Myotis sodalis*) in McDowell, West Virginia. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Civil & Environmental Consultants, Inc. Harbor Project Bat Survey. 2011. Project Manager responsible for assessing habitat and surveying approximately 500 acres for Indiana bats (*Myotis sodalis*) in Wetzel County, West Virginia. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Barge, Waggoner, Sumner, & Cannon, Inc. Ross Hollow Bat Survey. 2011. Project Manager responsible for assessing habitat and surveying approximately 200 acres for Indiana bats (*Myotis sodalis*) in New Johnsonville, Tennessee. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Western EcoSystems Technologies. Alexis Wind Resources Bat Survey. 2011. Project Manager responsible for overseeing telemetry tasks to track Indiana bats (*Myotis sodalis*) in and around the project area in Galesburg, Illinois. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Rockies Express Pipeline. Wetland and Stream Monitoring. 2011. Project management monitoring over 200 wetland restoration sites and 300 stream restoration sites

Middle Fork Development Corporation, Licking River, 2011. Project Manager responsible for preparing a Compensatory Mitigation Plan to offset approximately 6,500 linear feet of stream impacts.

Rockies Express Pipeline. Miller Coors Wetland Mitigation Project. 2010. Project Manager responsible for design oversight developing, constructing, and monitoring a 5 ac wetland creation and 1000-ft stream enhancement project in Ohio

EA Engineering. R.C. Byrd PAD Endangered Species Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory

using mist netting to establish the presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

EA Engineering. Meldahl Endangered Species Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting for a proposed transmission corridor for the Meldahl Hydroelectric Project to establish presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season.

Gress Engineering. Hills Fuel Cross Brook Tipple Benthic Data Analysis. 2010. Project Manager surveying for benthic macroinvertebrates. Duties included project oversight, report preparation, coordination with regulatory agencies

Western Ecosystems Technologies. Wells County Indiana Endangered Species Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting to establish the presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Western Ecosystems Technologies. Midland Wind Endangered Bat Survey. 2010. Project Manager responsible for conducting a bat survey of 123 ac with seven mist net sites in accordance with guidelines established in the Indiana Bat, Revised Recovery Plan to establish presence or probable absence of Indiana bats and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Applied Ecological Services. Bellevue Wind Farm Endangered Species Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting to establish the presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Western Ecosystems Technologies. Prairie Mills Endangered Species Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting to establish the presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Gress Engineering. Imboden Mine Endangered Species Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting to establish the presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Western Ecosystems Technologies. Deer Run Endangered Species Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting to establish the presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Western Ecosystems Technologies. Tri-County Endangered Species Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting to establish

the presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

True Line, Inc. Easter Ridge Endangered Species Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting to establish the presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Gress Engineering. Spice Creek Strip Mine. 2010. Project Manager responsible for conducting a portal assessment to evaluate the potential to provide suitable winter habitat for Indiana bats and to conduct a winter survey to establish the presence or probable absence of Indiana bats. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Western Ecosystems Technologies. Randolph County Bats Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting to establish the presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

True Line, Inc. Totten Ridge Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting to establish the presence or probably absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Rockies Express Pipeline. Wetland and Stream Monitoring. 2010. Project management monitoring over 200 wetland restoration sites and 300 stream restoration sites

Middle Fork Development Corporation. Licking River. 2010. Project Manager responsible for preparing a Compensatory Mitigation Plan to offset approximately 6,500 linear feet of stream impacts.

Southern Minerals. Honey Branch Deep Mine. 2010. As part of a permit application, jurisdictional waters of the U.S., benthic macroinvertebrates were assessed. Duties included project oversight, report preparation, coordination with regulatory agencies

Southern Minerals. Superior Deep Mine. 2010. As part of a permit application, jurisdictional waters of the U.S., benthic macroinvertebrates were assessed.

Boxley Aggregates. Mill Point PEP. 2010. Project Manager responsible for preparing a Protection and Enhancement Plan. Implementing avoidance and minimization measures to offset impacts.

Boxley Aggregates. Mill Point Indiana Bat Habitat Assessment. 2010. Project Manager responsible for conducting a site assessment for the proposed Mill Point Rock Quarry Expansion in Pocahontas County, West Virginia. Assessing for potential winter habitat for hibernating Indiana bats. Observations were based on the guidelines outlined by the United States Fish and Wildlife Services Draft Protocol for Assessing Abandoned Mines/Caves for Bat Use.

Met Resources, LLC. Puncheoncamp Branch Cultural Resources Report. 2010. Project Manager responsible for surveying 200 acres for Cultural and Archaeological resources.

Palmer Engineering Company. Mt. Sterling Bat Survey. 2010. Project Manager responsible for conducting a bat species inventory using mist netting to establish the presence or probably



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President/Ecologist

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absence of Indiana bats (*Myotis sodalis*) and to quantify the abundance and species composition of bats during the maternity season. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Louisville MSD. Broad Run Sewer Indiana Bat Assessment. 2010. Assessed approximately to assess the habitat in an approximate 1.75 mi Right of Way (ROW) with an approximate corridor area of 17.8-ac for the proposed Broad Run Interceptor sewer line in Jefferson County, Kentucky for its potential to provide summer habitat for Indiana bats (*Myotis sodalis*) and Gray bats (*Myotis grisescens*).

Rockies Express Pipeline (REX). 2009. Project manager responsible for assessing habitat along approximately 700 miles of a proposed pipeline right-of-way, traversing between Kansas City, Missouri and Wheeling, West Virginia. Once habitat was assessed and analyzed to determine if potential Indiana bat (*Myotis sodalis*) habitat was present, areas were surveyed for potential roost trees and then surveyed, via mist-netting to established presence or probable absence of Indiana bats. The right-of-way was also surveyed for the presence of raptor and migratory bird nests.

Southern Minerals. Meeting House Branch. CMP Construction. Project Manager responsible for preparing a Section 404 of the Clean Water Act Permit Application to the United States Army Corps of Engineers. As part of preparing this permit, jurisdictional waters of the U.S., endangered species, and water quality were assessed. Data from these assessments was used to prepare a Compensatory Mitigation Plan.

East Kentucky Power Cooperative, Inc., J.K. Smith Station Electric Generation Plant, Stream Mitigation Plan – Project Manager, preparing a Compensatory Mitigation Plan to offset approximately 75,000 linear feet of stream impacts and 5 acres of wetland impacts.

Middle Fork Development Corporation, Surface Coal Mining Operation 887-0169 - Project Manager, preparing a KPDES Permit Application to Department of Environmental Quality (DEQ) and a Section 404 and 401 of the Clean Water Act Permit Application to the United States Army Corps of Engineers and Kentucky Division of Water for a proposed 247-acre surface coal mine.

Rockies Express Pipeline (REX). 2008. Project manager responsible for assessing habitat along approximately 700 miles of a proposed pipeline right-of-way, traversing between Kansas City, Missouri and Wheeling, West Virginia. Once habitat was assessed and analyzed to determine if potential Indiana bat (*Myotis sodalis*) habitat was present, areas were surveyed for potential roost trees and then surveyed, via mist-netting to established presence or probable absence of Indiana bats. The right-of-way was also surveyed for the presence of raptor and migratory bird nests.

Palmer Engineering Inc. Lowe's Inc in Berea, Kentucky. 2007. Project Manager responsible for preparing a Section 404 of the Clean Water Act Permit Application to the United States Army Corps of Engineers. As part of preparing this permit, jurisdictional waters of the U.S., endangered species, and water quality were assessed. Data from these assessments was used to prepare a Compensatory Mitigation Plan, Cumulative Impact Analysis, No-Practical Alternative Analysis, and also assisted with conducting a Phase II site assessment in Berea, Kentucky.

Palmer Engineering Inc. Lowe's Inc in Louisville, Kentucky. 2007. Project Manager responsible for preparing a Section 404 of the Clean Water Act Permit Application to the United States Army Corps of Engineers. As part of preparing this permit, jurisdictional waters of the U.S., endangered species, and water quality were assessed.

Rockies Express Pipeline (REX). 2007. Project manager responsible for assessing habitat along

approximately 700 miles of a proposed pipeline right-of-way, traversing between Kansas City, Missouri and Wheeling, West Virginia. Once habitat was assessed and analyzed to determine if potential Indiana bat (*Myotis sodalis*) habitat was present, areas were surveyed for potential roost trees and then surveyed, via mist-netting to established presence or probable absence of Indiana bats. The right-of-way was also surveyed for the presence of raptor and migratory bird nests.

Invenergy and Western EcoSystems Technologies. Champaign County Wind Farm. 2009. Project Manager responsible for assessing habitat and surveying approximately 14,757 acres for Indiana bats (*Myotis sodalis*). Other duties included coordination with regulatory agencies, data analysis, and report preparation. Indiana bats were captured on the project, which required additional studies, which include radio telemetry and radio tracking to determine home range and foraging patterns for Indiana bats within Champaign County, Ohio.

Invenergy and Western EcoSystems Technologies. Hardin County Wind Farm. 2009. Project Manager responsible for assessing habitat and surveying approximately 33,825 acres for Indiana bats (*Myotis sodalis*) in Hardin County, Ohio. Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Sewer Line Development Project, Winchester Municipal Utilities, 2007-Present – Project Manager, preparing Section 404 of the Clean Water Act Permit Application to United States Army Corps of Engineers. As part of these permit applications, jurisdictional waters of the U.S., endangered species, and water quality were assessed. Data from these assessments was used to prepare a Compensatory Mitigation Plan, Cumulative Impact Analysis, No-Practical Alternative Analysis. Additional studies that were performed include a Social Economic Study and Cultural Resource Study.

Meadow Lake Wind Farm, White County, Indiana, Invenergy and Western EcoSystems Technologies, 2009 – Project Manager, assessing habitat and surveying approximately 28,624 acres for Indiana bats (*Myotis sodalis*). Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Bishop Hill Wind Farm, Henry County, Illinois, Invenergy and Western EcoSystems Technologies, 2009 – Project Manager, assessing habitat and surveying approximately 25,000 acres for Indiana bats (*Myotis sodalis*). Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

State Line Surface Mine, Mid-Vol Coal Sales and Gress Engineering, 2009-Present – preparing a Jurisdictional Determination, surveying six streams for benthic macroinvertebrates and 300 acres for cultural and archeological resources. Duties included project oversight, field surveying, data analysis, stream channel design, report preparation, coordination with regulatory agencies.

Clintwood I Surface Mine, Gress Engineering, 2009 - Project Manager, surveying two streams for benthic macroinvertebrates and 35 acres for endangered bat species. Duties included project oversight, report preparation, coordination with regulatory agencies.

Clintwood II Surface Mine, Gress Engineering, 2009 - Project Manager, surveying three streams for benthic macroinvertebrates and 30 acres for endangered bat species. Duties included project oversight, report preparation, coordination with regulatory agencies.

Dwale Surface Mine, Gress Engineering, Inc., 2009 - Project Manager surveying two streams for benthic macroinvertebrates. Duties included project oversight, report preparation, coordination with regulatory agencies.



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Dry Branch Surface Mine, Mid-Vol Coal Sales Inc., 2009 - Project Team Member, preparing a Jurisdictional Determination, surveying five streams for benthic macroinvertebrates and 1,365.7 acres for endangered bat species as well as cultural and archeological resources.

Red Hawk I Surface Mine, Mid-Vol Coal Sales Inc., 2009 - Project Manager survey approximately four streams for benthic macroinvertebrates. Duties included project oversight, report preparation, coordination with regulatory agencies.

Red Hawk II Surface Mine, Mid-Vol Coal Sales Inc., 2008 - 2009 - Project Manager, preparing a Jurisdictional Determination, surveying 10 streams for benthic macroinvertebrates and 474 acres for endangered bat species.

Keystone Pipeline, 2009 - Project Manager, assessing habitat along an approximate 500 mile section of a proposed pipeline right-of-way, traversing between Kansas City, Missouri and Patoka, Illinois. Areas were surveyed for potential Indiana bat (*Myotis sodalis*) roost trees and raptor and migratory bird nests.

Carr Fork Lake Stream Mitigation, Gress Engineering, Inc., 2009 - Project Manager surveying seven streams for fish and benthic macroinvertebrates to assess habitat quality for mitigation in the Carr Fork Lake area, Knott County, Kentucky.

Interstate Resources, Inc., Surface Coal Mining Operation 877-0198, 2008 - Present - Project Manager, preparing a KPDES Permit Application to Department of Environmental Quality (DEQ) and a Section 404 and 401 of the Clean Water Act Permit Application to the United States Army Corps of Engineers and Kentucky Division of Water for a proposed 247-acre surface coal mine.

Middle Fork Development Corporation, Surface Coal Mining Operation 887-0191, 2008 - Present - Project Manager, preparing a KPDES Permit Application to Department of Environmental Quality (DEQ) and a Section 404

and 401 of the Clean Water Act Permit Application to the United States Army Corps of Engineers and Kentucky Division of Water for a proposed 247-acre surface coal mine.

Lowe's Home Centers, Inc. Versailles, KY, for Lowe's, Inc., and Palmer Engineering Inc., 2007 - Project Manager, preparing a Section 404 of the Clean Water Act Permit Application to the United States Army Corps of Engineers. As part of preparing this permit, jurisdictional waters of the U.S., endangered species, and water quality were assessed. Data from these assessments was used to prepare a Compensatory Mitigation Plan, Cumulative Impact Analysis, and a No- Practical Alternative Analysis and also assisted with conducting a Phase II site assessment.

Terrapin Creek Wind Farm, Harrison and Newton Counties, Arkansas, BP Petroleum and Western EcoSystems Technologies, 2007-2008 - Project Manager, assessing habitat and surveying approximately 5,875 acres for Indiana bats (*Myotis sodalis*). Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Millseat Branch Stream Mitigation, Mid-Vol Coal Sales, Inc., 2008-Present - Project Manager, assessing aquatic and terrestrial habitat quality, developing stream channel design for five streams totaling approximately 3,000 feet, report preparation, data analysis, and agency coordination.

Big Four No. 2 Surface Mine, True Energy Coal Sales, Inc. 2009 to Present - Project Manager, preparing a KPDES Permit Application to Department of Environmental Quality (DEQ) and a Section 404 and 401 of the Clean Water Act Permit Application to the United States Army Corps of Engineers and Kentucky Division of Water for a proposed 247-acre surface coal mine.

Taylor Area Surface Mine, Linn Engineering, 2008 - Project Manager surveying 450 acres for jurisdictional waters of the United States. Duties included project oversight, field surveying, report



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preparation, coordination with regulatory agencies.

Etta-Mae Surface Mine, Linn Engineering, 2008 – Project Manager surveying 500 acres for jurisdictional waters of the United States. Duties included project oversight, field surveying, report preparation, coordination with regulatory agencies.

Raystown Lake Bat Survey, United States Army Corps of Engineers, 2007 – Project Manager, surveying approximately 29,000 acres for Indiana bats. Duties include project oversight, field surveying, data analysis, report preparation, and coordination with regulatory agencies.

Fyre Lake Golf Course, 2007 - Project Manager, assessing habitat and surveying approximately 275 acres for Indiana bats (*Myotis sodalis*). Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Big Elk Mining, LLC, 2006 – Project Manager, preparing a Section 404 and 401 of the Clean Water Act Permit Application to the United States Army Corps of Engineers and Kentucky Division of Water for a proposed 247-acre surface coal mine.

Surface Mine No. 1, Mine Rite Coal Sales, Keaton, Kentucky, 2006 - Project Manager, preparing a Section 404 and 401 of the Clean Water Act Permit Application to the United States Army Corps of Engineers and Kentucky Division of Water for a proposed 100-acre surface coal mine.

Boone North No. 3 Surface Mine, Raven Crest Contracting, LLC, Robinson Creek, Kentucky 2004-2006 – Project Manager surveying 192 acres for threatened and endangered bat species and preparing a Biological Assessment (BA); Duties included project oversight, field surveying, report preparation, coordination with regulatory agencies.

Surface Mine No. 2, Mine Rite Coal Sales, Keaton, Kentucky, 2006 - Project Manager, preparing a Section 404 and 401 of the Clean Water Act Permit Application to the United States

Army Corps of Engineers and Kentucky Division of Water for a proposed 100-acre surface coal mine.

Mitzer and Horn Area Surface Mine, Oxford Mining, Inc., 2007 – Project Manager surveying 209 acres for Threatened and endangered bat species. Duties included project oversight, field surveying, report preparation, coordination with regulatory agencies.

Page Area Surface Mine, Oxford Mining, Inc., 2008 – Project Manager surveying 954 acres for Threatened and endangered bat species. Duties included project oversight, field surveying, report preparation, coordination with regulatory agencies.

Dan and Pinnacle Mountain Wind Farm, Maryland, BHE Environmental, 2007 - Project Manager, assessing habitat and surveying approximately 25,000 acres for Indiana bats.

Chumney Surface Mine, Oxford Mining, Inc., 2007 – Project Manager surveying 311 acres for Threatened and endangered bat species. Duties included project oversight, field surveying, report preparation, coordination with regulatory agencies.

Surface Mine No. 1, Mine Rite Coal Sales, Keaton, Kentucky, 2006 - Project Manager, preparing a Section 404 and 401 of the Clean Water Act Permit Application to the United States Army Corps of Engineers and Kentucky Division of Water for a proposed 90-acre surface coal mine.

Glenco Hollow Surface Mine, Accurate Surveying, Charleston, West Virginia, 2006 – Project manager, preparing a Jurisdictional Determination and Compensatory Stream Mitigation Plan; duties included project oversight, field surveying, data analysis, stream channel design, report preparation and coordination with regulatory agencies.

Morgan County Surface Coal Mining Operation, Morgan County Coal, Inc. of Hatfield, Kentucky, 2004-2005 - Project Manager, preparing a KPDES Permit Application to



Jeremy L. Jackson
President/Ecologist

3945 Simpson Lane | Richmond, Kentucky 40475 | Phone: 859-623-0499 | Fax: 859-623-2676 | www.jacksongroupco.com

Department of Environmental Quality (DEQ) and a Section 404 and 401 of the Clean Water Act Permit Application to the United States Army Corps of Engineers and Kentucky Division of Water for a proposed 247-acre surface coal mine.

Spring Fork No. 1 Surface Mine, Accurate Surveying, Charleston, West Virginia, 2006 –

Project manager, preparing a Jurisdictional Determination and Compensatory Stream Mitigation Plan; duties included project oversight, field surveying, data analysis, stream channel design, report preparation and coordination with regulatory agencies.

Buffalo Ranger District, Ozark National Forest,

1999-2002 Project leader evaluating the effects of forest stand density, wildlife stand improvements, and prescribed burning on the roosting ecology of female northern long-eared bats (*Myotis septentrionalis*).

Buffalo Ranger District, Ozark National Forest,

1999-2002 Project leader evaluating the effects of forest stand density, wildlife stand improvements, and prescribed burning on bat assemblages.

Buffalo Ranger District, Arkansas Game and Fish Commission 1999-2003 –

Project team member investigating the swarming behavior of bats, and inventorying/monitoring of bat hibernacula.

Botanical Survey, Arkansas State University,

1999-2001 - Project leader evaluating the federally listed pond berry (*Lindera melissifolia*) distribution in the St. Francis Sunkenlands Wildlife Management Area, Arkansas.

Herpetological Survey, Arkansas State University, 1999-2001

Project team leader evaluating the distribution, diversity, and abundance of bats and Grotto salamander (*Typhlotriton spelaeus*) in various caves throughout the Buffalo Ranger District, Ozark National Forest

Herpetological Survey, Arkansas State University, 1999-2001

Project leader inventorying and evaluating herpetofauna distributions, Mississippi County, Arkansas

Poteau Ranger District, Ozark National Forest, Arkansas, U.S. Forest Service, 2002 –

Project member conducting a botanical and avian inventory for use in a Biological Evaluation.

Diamond Cave, Buffalo Ranger District, Ozark National Forest, 2001 –

Project leader evaluating the abundance and diversity of Gray bat (*Myotis grisescens*).

Sylamore Ranger District, Ozark National Forest, U.S. Forest Service, 1999 –

Project team member studying Habitat Suitability Indices (HSI) in restoring upland game habitat for Elk (*Cervus canadensis*).

Smoky Mountain National Park, Tennessee, Tennessee Technological University, 1999 –

Project team member evaluating species diversity and abundance of bats and investigating female Indiana bat (*Myotis sodalis*) maternity roost.



DEPARTMENT OF THE INTERIOR
 U.S. FISH & WILDLIFE SERVICE
 Endangered Species Permit Office
 1875 Century Boulevard, Suite 200
 Atlanta, GA 30345
 permitsR4ES@fws.gov

FEDERAL FISH AND WILDLIFE PERMIT

1 PERMITTEE

JACK (J.D.) D. WILHIDE
 dba JACKSON GROUP
 3945 SIMPLSON LANE
 RICHMOND, KY 40475
 U.S.A.

2 AUTHORITY-STATUTES
 16 USC 1539(a)
 16 USC 1533(d)

REGULATIONS
 50 CFR 17.22
 50 CFR 17.32

 50 CFR 13

3 NUMBER
 TE148282-3 **AMENDMENT**

4 RENEWABLE	5 MAY COPY
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO

6 EFFECTIVE 02/18/2016	7 EXPIRES 02/28/2021
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8 NAME AND TITLE OF PRINCIPAL OFFICER (If #1 is a business)

9. TYPE OF PERMIT
 NATIVE ENDANGERED & THREATENED SP. RECOVERY - E & T WILDLIFE

10 LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

Location: Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Illinois, Iowa, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Virginia, Vermont, West Virginia, Wisconsin, and Wyoming

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, TRIBAL, OR OTHER FEDERAL LAW.

C VALID FOR USE BY PERMITTEE NAMED ABOVE

C. Continued: the following individuals are authorized to conduct activities as authorized by this permit: Mr. Jack (J.D.) Wilhide.

Trained assistants not named on this permit may work on permitted bat activities under the direct and on-site supervision of the individuals named above. However, trained assistants may not work independently at a site. Trained assistants are individuals who are considered qualified by the permitted biologist(s) to select sampling sites, deploy sampling equipment and nets, and handle bats in the field.

D. Acceptance of this permit serves as evidence that the permittee understands and agrees 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 conduct the following take activities to gray bats (*Myotis grisescens*), Indiana bats (*Myotis sodalis*), northern long-eared bats (*Myotis septentrionalis*), Ozark big-eared bats (*Corynorhinus*

ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12 REPORTING REQUIREMENTS

Annual reports are due January 31 following each year the permit is effective.

ISSUED BY

TITLE

CHIEF, DIVISION OF ENVIRONMENTAL REVIEW

DATE

02/18/2016

townsendii ingens), Virginia big-eared bat (*Coryrhinus townsendii virginianus*): capture with mist nets, capture with harp traps, handle, measure, identify, band, attach radio-transmitters, wing-punch, light-tag, and enter hibernacula and summer roosts while conducting presence/absence surveys, studies to document habitat use, and population monitoring, as conditioned below.

F. The permitted activities described above require prior, site-specific approval from the USFWS Field Supervisor in the State(s) where the project will occur. Permittee shall notify the USFWS Field Supervisor for the State in which activities are proposed to occur at least 15 days prior to conducting any activities. Contact information is in Condition P., below. Your request for this site-specific approval must be in writing and must indicate:

F.1. The purpose and a description of the activities proposed (e.g., surveys, radio telemetry studies, etc.).

F.2. Location of proposed activities, including project site (legal description and lat/long), county, and state.

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

F.4. You may proceed with activities only upon receipt of written concurrence from the applicable USFWS Field Supervisor. *Your concurrence letter must be carried with this permit to authorize site-specific activities.*

G. Permittee shall adhere to the following conditions involving capture and handling of bats:

G.1. Federally listed bats may be captured (e.g., mist-nets and harp traps) following the protocol(s) provided by the USFWS, when available. Permittees must contact the USFWS FO in the State(s) in which activities are proposed to ensure correct protocol(s) are used. For example, the current Range-wide Indiana Bat Summer Survey Guidelines are available at:

<http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>. The monitoring interval for mist nets is once every 10 minutes. Harp traps must be continually monitored.

G.2. Captured bats may be held for a maximum of 30 minutes, unless injured. If an exception is required to this prohibition, permittee must receive prior written approval from the USFWS Field Supervisor for the state in which the activities are proposed to occur.

G.3. Permittees shall carry out non-intrusive measurements on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species specific data form provided by the USFWS (e.g., INDIANA BAT SURVEY AND BANDING DATA form). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Photographs of the identifying characteristics for each individual federally listed species captured are encouraged. The permittee may be requested to provide individual photographs after submittal of annual reporting data.

G.4. If bands are applied; they must be lipped metal bands having a unique identifier. Bands should be applied to the forearm of captured bats prior to release. No more than one band per bat may be used. Position the band on the wing so that when the bat is hanging upside down, the band numbers are right-side up. A single band should be placed on the right forearm of each male and the left forearm of each female bat.

G.5. Radio transmitters may be applied during spring, summer, and fall roosting and migration periods via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used,

especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least five days, or until the transmitter falls off, whichever occurs first.

G.6. No capture activities shall occur within 20 meters of a known or potential summer or winter roost site, either natural or artificial, of a federally listed bat. If an exception is required to this prohibition, permittee must receive prior written approval from the USFWS Field Supervisor for the State in which the activities are proposed to occur.

G.7. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at: <http://whitenosesyndrome.org/>

G.8. Caves, mines, or other suitable hibernation sites may be quietly searched in a manner that minimizes disturbance by utilizing the minimum number of people and time required to complete the survey. Surveys of known hibernacula conducted during the winter hibernation season shall follow the guidelines established in the recovery plans for each federally listed bat species with regards to how often a site may be visited and other species-specific requirements related to entering hibernaculum (for example, for Indiana bats, winter surveys should not be repeated more often than once every other year in any given hibernaculum), unless authorized by the appropriate Service Recovery Lead identified in Condition O (below).

Under no circumstances should multiple trips to the hibernation area occur within the same year without written approval of the USFWS Field Supervisor for the state in which activities are proposed.

Bats may be handled during winter surveys in order to collect band information and confirm the identification of listed species. When possible, bands should be read without touching the bat. Banded bats should only be handled if easily accessible and removal of the bat does not disturb a large number of additional bats and is unlikely to result in injury to the bat. Detailed photographs should be taken to document the presence of listed species in previously undocumented hibernaculum. Where hibernacula area and safety conditions allow, individuals entering hibernacula are recommended to utilize night vision goggles or red-filtered light and to remain in the site no more than 90 minutes to complete the work.

G.9. Surveys of gray bat maternity roosts and their other known summer roost sites shall be conducted by observing the bats with night vision equipment and/or infrared light sources (e.g., thermal infrared) as they emerge from their roosts to avoid any possible disturbance to these bats. At previously undocumented sites for these species, the accepted method to determine if they are present is to carefully and slowly enter the potential roost site to check for evidence of presence/use, such as visual observation of bats, significant quantities or a strong smell of guano, or the audible sounds produced by bats roosting at the site. As soon as any evidence is obtained that the roost site is being used by a federally listed bat species, survey team members shall immediately exit the roost site and make further observations from outside the entrance to the roost. All further observations shall be made from the entrance during the evening emergence.

H. Upon determination that endangered bats are present, permittee shall notify the following offices immediately (not to exceed 1 business day): the appropriate USFWS Regional Office (Condition N.), and the USFWS Field Office within the geographic location of study areas (Condition P.).

I. Permittee must carry a copy of this permit at all times when conducting the authorized activities. NOTE: This permit is limited to the above activities and identified species.

J. Issuance of this permit does not constitute permission to conduct these activities on National Wildlife Refuges or any other public or private lands; such permission must be obtained separately from the appropriate landowner or land manager before beginning these authorized activities. This permit, neither directly nor by implication,

grants the right of trespass.

K. The Service anticipates that no federally listed bats will be injured or killed as a result of permitted activities. In the event that any accidental injury or mortality occurs, all activities must cease and the injury or mortality reported immediately (not to exceed 1 business day) to the applicable office listed in condition N. and to the Lead Recovery Biologist for the species (Condition O). The USFWS will work with the permittee to determine the cause of injury or mortality and whether such could be avoided should activities be allowed to proceed. Dead or moribund bats may be retained for further study only with the written permission of the USFWS. Any bats that are not authorized for retention are to be chilled and promptly transferred to the USFWS for potential necropsy and/or for scientific or educational purposes.

Upon locating a dead, injured, or sick bat, or any other threatened or endangered species, under circumstances not addressed in this authorization, initial notification must be made immediately (not to exceed 1 business day) to the appropriate USFWS Office identified in Condition N., below, including a description of the circumstances, location information, and photo documentation. Notification should also be made at the same time to the appropriate USFWS Field Office identified in Condition P., below. Care should be taken in handling sick, injured, or dead specimens to ensure effective treatment or to preserve biological materials for later analysis. In conjunction with the care of sick or injured threatened or endangered species, and the preservation of biological materials from a dead animal, the permittee should take responsible steps to ensure that the site is not unnecessarily disturbed. Prior to collecting the specimen(s), you must photograph the specimen(s) to document the conditions in which they were found. You may preserve the specimen(s) by freezing them or other suitable method to allow scientific study. Disposition of collected specimen(s) shall be determined by the USFWS Field Office.

L. This permit is non-transferable.

M. Reports are due on January 31 following each year this permit is in effect. At a minimum, your report shall include:

M.1. The date, time, geographic locations (including datum and projection information).

M.2. All locations surveyed (regardless of whether federally listed bats were captured/observed).

M.3. Band numbers of all bats banded and all bats recovered/observed.

M.4. Information on any injuries and/or mortalities and disposition of specimens.

M.5. Location and characteristics of roost trees and bat colonies.

M.6. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.

M.7. Data shall be submitted for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data form provided by the USFWS (e.g., INDIANA BAT SURVEY AND BANDING DATA forms, the data collection forms found in the current Rangewide Indiana Bat Summer Survey Guidelines cited in Condition H.1., or other species-specific forms). Photographs of the identifying characteristics for each individual federally listed species captured are encouraged. The permittee may be requested to provide individual photographs after submittal of annual reporting data.

M.8. Copies of all site specific authorization letters required under Condition F.

IF NO ACTIVITIES OCCURRED OVER THE COURSE OF THE YEAR, INDICATION OF SUCH SHALL BE SUBMITTED AS AN ANNUAL REPORT.

N. 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, Portable Document Format, Rich Text Format, or other file format that is compatible with the receiving office.

N.1.

Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Midwest Region (Region 3)
Ecological Services - Endangered Species
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov

N.2.

Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southeast Region (Region 4)
1875 Century Boulevard, Suite 200
Atlanta, Georgia 30345-3301
(404/679-7097; fax 404/679-7081)
permitsR4ES@fws.gov

N.3.

Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(703/358-2402; fax 413/253-8482)
permitsR5ES@fws.gov <<mailto:permitsR5ES@fws.gov>>

N.4.

Regional Recovery Permits Coordinator & Assistant Regional Recovery Coordinator
U.S. Fish and Wildlife Service - Mountain-Prairie Region (Region 6)
Endangered Species Permits Office
Denver Federal Center, P.O. Box 25486
Denver, Colorado 80225-0489
(303/236-4212; fax 303/236-0027)
permitsR6ES@fws.gov

O. Additionally, based on the species, reports and publications shall be submitted to the following:

O.1. For activities/studies involving Indiana Bats:

Lori Pruitt, Recovery Lead
U.S. Fish and Wildlife Service
Indiana Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121

(812/334-4261 x1213; fax 812/334-4273)

O.2. For activities/studies involving Gray Bats:

Shauna Marquardt, Recovery Lead
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park De Ville Drive, Suite A
Columbia, Missouri 65203
(573/234-2132 x174; fax 573/234-2181)

O.3. For activities/studies involving Northern Long-eared Bats:

Jill Utrup, Recovery Lead
U.S. Fish and Wildlife Service
Twin Cities Ecological Services Field Office
4104 American Blvd. E
Bloomington, Minnesota 55425
(612/725-3548 x207; fax 612/725-3609)

O.4. For activities/studies involving Ozark Big-eared Bats:

Richard Stark, Recovery Lead
Oklahoma Field Office
U.S. Fish and Wildlife Service
9014 E. 21st St.
Tulsa, Oklahoma 74129-1428
(918) 382-4501

O.5. For activities/studies involving Virginia Big-eared Bats:

Barbara Douglas, Recovery Lead
U.S. Fish and Wildlife Service
West Virginia Field Office
694 Beverly Pike
Elkins, WV 26241
(304) 636-6586

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

P.1. For studies conducted in Alabama:

Field Supervisor
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, Alabama 36526-4419
(251) 441-5181

P.2. For studies conducted in Arkansas:

Field Supervisor
Arkansas Field Office

110 South Amity Road
Suite 300
Conway, Arkansas 72032-8975
(501) 513-4470

P.3. For studies conducted in Connecticut, Massachusetts, New Hampshire, Rhode Island and Vermont:

Field Supervisor
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541

P.4. For studies conducted in Delaware, District of Columbia, and Maryland:

Field Supervisor
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
(410) 573-4573

P.5. For studies conducted in North Florida:

Field Supervisor
North Florida Ecological Services Office
7915 Baymeadows Way
Suite 200
Jacksonville, FL 32256-7517
(904) 731-3336

P.6. For studies conducted in Georgia:

Field Supervisor
Georgia Field Office
105 Westpark Drive, Suite D
Athens, GA 30606-3175
(706) 613-9493; fax 706/613-6059

P.7. For studies conducted in Illinois:

P.7.a.
Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5807)

P.7.b.
Joe Kath

Endangered Species Coordinator
Illinois Department of Natural Resources
Division of Natural Heritage
One Natural Resource Way
Springfield, Illinois 62702-1271
(217/785-8764; fax 217/785-2438)

P.8. For studies conducted in Indiana:

P.8.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 x1213; fax 812/334-4273)

P.8.b.

Scott Johnson
Indiana Department of Natural Resources
5596 East State Road 46
Bloomington, Indiana 47401
(812/334-1137, ext. 3400)

P.9. For studies conducted in Iowa:

Kelly Poole
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
(515/281-8524)

p.10. For studies conducted in Kansas

Field Supervisor
Kansas Field Office
2609 Anderson Avenue
Manhattan, Kansas 66502

P.11. For studies conducted in Kentucky:

Field Supervisor
Frankfort Field Office
J C Watts Federal Bldg., Rm 265
330 West Broadway
Frankfort, KY 40601-8670

(502) 695-0468

P.12. For studies conducted in Michigan:

P.12.a.

**Barbara Hosler
Endangered Species Coordinator for Michigan
U.S. Fish and Wildlife Service
2651 Coolidge Road
East Lansing, Michigan 48823
(517/351-6326; fax 517/351-1443)**

P.12.b.

**Dan Kennedy
Endangered Species Coordinator
Michigan Department of Natural Resources
Wildlife Division
P.O. Box 30444
Lansing, Michigan 48909-7444
(517) 284-6194; fax 517/373-6705**

P.13. For studies conducted in Minnesota and Wisconsin:

P.13.a.

**Phil Delphey
Endangered Species Coordinator for Minnesota and Wisconsin
U.S. Fish and Wildlife Service
Ecological Services Field Office
4101 American Blvd E.
Bloomington, Minnesota 55425
(612/725-3548 x2206; fax 612/725-3609)**

P.13.b.

**Owen Boyle
Wisconsin Department of Natural Resources
101 S. Webster Street
Madison, Wisconsin 53707-7921
(608/266-5244)
Owen.Boyle@wisconsin.gov <mailto:Owen.Boyle@wisconsin.gov>**

P.13.c.

**Richard Baker
Minnesota Endangered Species Coordinator
Division of Ecological and Water Resources
Minnesota Department of Natural Resources
500 Lafayette Rd., Box 25
St. Paul, MN 55155
Phone: 651/259-5073
richard.baker@state.mn.us <mailto:richard.baker@dnr.state.mn.us>**

P.14. For studies conducted in Mississippi:

Field Supervisor
Mississippi Field Office
6578 Dogwood View Pkwy, Ste A
Jackson, MS 39213-7856
(601) 321-1122

P.15. For studies conducted in Missouri:

P.15.a.
Field Supervisor
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-2132
(573/234-2132; fax 573/234-2181)

P.15.b.
Scientific Collecting Permit Coordinator
Missouri Department of Conservation
Endangered Species and Natural History Division
2901 W. Truman Blvd., P.O. Box 180
Jefferson City, Missouri 65102-0180
(573/522-4115 ext. 3322; fax 573/751-4864)

p.16. For studies conducted in Montana

Field Supervisor
Montana Field Office
585 Shepard Way, Suite 1
Helena, Montana 59601

P.17. For studies conducted in New Jersey:

Field Supervisor
New Jersey Field Office
927 N. Main Street, Building D
Pleasantville, NJ 08232-1454
(609) 646-9310

P.18. For studies conducted in New York:

Field Supervisor
New York Field Office
3817 Luker Road
Cortland, NY 13045
(607) 753-9334

P.19. For studies conducted in North Carolina:

Field Supervisor

**Asheville Field Office
160 Zillicoa Street
Asheville, NC 28801-1082
(828) 258-3939**

p.20. For studies conducted in North Dakota:

**Field Supervisor
North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501**

P.21. For studies conducted in Ohio:

**P.21.a.
Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614/416-8993, x22; fax 614/416-8994)**

**P.21.b.
Endangered Species Coordinator
Ohio Department of Natural Resources
Division of Wildlife
2045 Morse Road, Building G
Columbus, Ohio 43229-6693
(614-265-6329; fax 614/262-1143)**

P.22. For studies conducted in Oklahoma:

**P.22.a.
Field Supervisor
Oklahoma Field Office
U.S. Fish and Wildlife Service
9014 E. 21st St.
Tulsa, Oklahoma 74129-1428
(918) 382-4501**

**P.22.b.
Todd Fagin
Oklahoma Natural Heritage Inventory
111 E. Chesapeake St.
Norman, OK 73019
405 325-4700 (Direct Line)
405 325-4042 (Oklahoma Biological Survey main office)
405 325-7702 (Fax)
tfagin@ou.edu <<mailto:tfagin@ou.edu>>**

P.22.c.

Oklahoma Department of Wildlife Conservation
Wildlife Division
1801 N. Lincoln Blvd.
Oklahoma City, Oklahoma 73105
405/990-7259; fax 405/521-4706

P.23. For studies conducted in Pennsylvania:

Field Supervisor
Pennsylvania Field Office
315 So. Allen Street, Suite 322
State College, PA 16801-4850
(814) 234-4090

P.24. For studies conducted in South Carolina:

P.24.a.
South Carolina Field Office
Thomas McCoy, Field Supervisor
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
(843) 727-4707 x227

P.24.b.
Mary Bunch
Biologist/Preserve Manager
South Carolina Department of Natural Resources
311 Natural Resources Drive
Clemson, SC 29631
(864) 654-6738 x15
Fax: (864) 654-9168

p.25.. For studies conducted in South Dakota

Field Supervisor
South Dakota Field Office
420 South Garfield Avenue, Suite 400
Pierre, South Dakota 57501

P.26. For studies conducted in Tennessee:

P.26 a.
Field Supervisor
Cookeville Field Office
U.S. Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501-4027
(931) 528-6481

P.26.b.
Brian Flock
Bat Coordinator
Tennessee Wildlife Resources Agency
P.O. Box 40747
Nashville, TN 37204
(615) 781-6569

P.27. For studies conducted in Virginia:

Field Supervisor
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061
(804) 693-6694

P.28. For studies conducted in West Virginia:

Field Supervisor
West Virginia Field Office
694 Beverly Pike
Elkins, WV 26241
(304) 636-6586

p.29. For studies conducted in Wyoming

Field Supervisor
Wyoming Field Office
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009

END

Education

BS, Wildlife Mang. 1979 Arkansas State University

MS, Biology, 1985 Arkansas State University

Specialty and Skill Areas

Bat Ecology

Ecology

Mammalogy

Wildlife Management

Aquatic Toxicology

Professional Affiliations

Northeast Bat Working Group

Midwest Bat Working Group

Southeastern Bat Diversity Network

Kentucky Bat Working Group

Arkansas Bat Working Group

Certifications

Certified Wildlife Biologist – The Wildlife Society

Permits

Federal Endangered Species Permit for: AL, AR, CT, DE, FL, GA, IL, IA, IN, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NH, NJ, NY, NC, ND, OH, OK, PA, RI, SC, SD, TN, VA, VT, WV, WI, and WY

State Scientific Collection Permit for Federally Protected Bat Species, in Illinois, Kentucky, Ohio, Michigan, North Carolina, and Tennessee.

Experience

26-years experience in wildlife ecology, specializing in bats.

26-years of experience in all phases of environmental and ecological studies including project planning, field surveys, data analysis, report preparation, and coordination with public, state, and federal agencies.

11-years of experience in environmental permitting.

11-years of experience in permitting for sections 401 and 404 of the Clean Water Act

Research

2000 – Present. Northern Long-eared Bat distribution records, habitat assessment and quantifying roost selection related to timber management in Arkansas.

2005 – Present. Northern Long-eared bat distribution in Appalachia.

Scholarly Publications

New Records and Notes on the Ecology of the Northern Long-Eared Bat (*Myotis septentrionalis*) in Arkansas. Sasse, D.B., M.J. Harvey, J.J. Jackson, T. Klotz, P.R. Moore, R.W. Perry, R.K. Redman, D.A. Saugey, T.S. Risch and J.D. Wilhide. 2014. *Journal of the Arkansas Academy of Science*, Vol. 68:170-173.

New Records of the Eastern Small-footed bat (*Myotis leibii*) in Arkansas. *Journal of the Arkansas Academy of Science.* Sasse, D.B.; T.S. Risch, D.A. Saugey; M.J. Harvey, J.D. Wilhide, R.K. Redman, J.J. Jackson, T. Klotz, and P.R. Moore. 2013. *Journal of the Arkansas Academy of Science*, Vol. 67:214-216.

Active Mining Recovery Opportunities: Boone North No. 3 Surface Mine. Proceeding of Protecting Threatened Bats at Coal Mines: J.D. Wilhide. 2010. A Technical Interactive Forum, Charleston, West Virginia. U.S. Dept. of Interior, Office of Surface Mining. Pp.131 - 141.

Roost and habitat use by bats in a Southern Bottomland Hardwood Forest. In Ecology and Management of Bottomland Hardwood Systems: The State of Our Understanding. Wilhide, J. D., S. M. Cochran, V. E. Hoffman, S. L. King, and V. R. McDaniel. 2005. L. H. Fredrickson, S. L. King, and R. M. Kaminski, editors. Univ. of Missouri-Columbia. Gaylord Memorial Laboratory Special Publication No. 10. Pp. 397 – 402.

A landowner's guide to bats and cave gates. Wilhide, J.D. and T.V. Ash. 2002. U.S. Fish and Wildlife publication. 36 pp.

Evaluating Mosquito Control Pesticides for Effect on Target and Nontarget Organisms. Milam, C.D., J.L. Farris, and J.D. Wilhide. 2000. *Archives of Environmental Contamination and Toxicology*, 39:324-328.

- Distribution of LeConte's free-tailed bat (Tadarida brasiliensis cynocephala) in Arkansas, with notes on reproduction and natural history*** Saugey, D. A., D. B. Sasse, J. D. Wilhide, Drew Reed, T. R. Jones, D. R. Heath, and D. R. England. 2001. Journal of the Arkansas Academy of Science, Vol 55.
- Population Structure and Movement Patterns of Alligator Snapping Turtles (Macrochelys temminckii) in Northeastern Arkansas.*** Trauth, S.E., J.D. Wilhide, and A. Holt. 1998. Chelonian Conservation and Biology. Vol.3 (1) pp.64-70.
- Telemetric Observations of Foraging Ozark Big-Eared Bats in Arkansas.*** 1998. Wilhide, J.D., V.R. McDaniel, M.J. Harvey, and D.R. White. Proceedings of the Arkansas Academy of Science, 52:113-116.
- Highland Pond Utilization by Bats in the Ozark National Forest, Arkansas.*** Wilhide, J.D., M.J. Harvey, V.R. McDaniel, and V.E. Hoffman. 1998. Proceedings of the Arkansas Academy of Science, 52:110-112.
- Arkansas Range Extension of the Seminole Bat (Laslurus seminolus).*** Wilhide, J.D., M. Brady Baker and David A. Saugey. 1998. Proceedings of the Arkansas Academy of Science, 52:140-141.
- A Review of the Distribution and Life History of the Wood Frog, Rana sylvatica (Anura: Ranidae), in North-central Arkansas.*** Trauth, Stanley E., Michael E. Cartwright, J.D. Wilhide, and David H. Jamieson. 1995. Bull. Chicago Herp. Soc. 30(3):46-51.
- A Battery-Powered Slide Impinger for Ultra-Low-Volume Droplet Sampling.*** Wilhide, J.D. and Patrick Daniel. 1995 J. Am. Mosq. Control Assoc. 11(4):
- The Ozark Hellbender, Cryptobranchus bishopi, in Arkansas: Distributional Survey for 1992.*** Trauth, Stanley E., J.D. Wilhide, and Patrick Daniel. 1993. Journal Bulletin of Chicago Herp. Society 28(4):81-85.
- Morphologic correlates of motility by the aflagellate spermatozoon of Marcostomum tubum.*** Newton, D.W., L.A. Mink, and J.D. Wilhide. 1986. Am. Zool. 26:113A.
- ### ***Related Past Projects***
- East Kentucky Power. JK Smith Station. 2016.*** Project manager on an endangered and sensitive species habitat environmental determination. Main duties included project planning and review meetings, field investigation, and report editing of document evaluating endangered and sensitive species habitats within the project boundary in Clark County, Kentucky.
- Shoener Environmental, Inc. Illinois Bat Migration Project. 2015.*** Project manager for all bat surveys, captures, and radio-transmitter applications for a research project studying the migration movements of Indiana bats (*Myotis sodalis*) and Northern Long-eared bats (*Myotis septentrionalis*) on a regional scale.
- Western EcoSystems Technology, Inc. Gratiot County Wind Farm Facility. 2015.*** Manager and crew leader in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened Northern Long-eared bat (*Myotis septentrionalis*) within the 1,332 acres of forested habitat associated with the 69 turbine project area.
- TRC Solutions. ET Rover Pipeline. 2015.*** Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened Northern Long-eared bat (*Myotis septentrionalis*) along the 710 mile pipeline right of way in Ohio.
- Shoener Environmental, Inc. 2015.*** Bat carcass identification from incidental impacts at Wind Facilities.
- Raven Crest Mining, LLC, Prichard Mining Company, Inc., & Penn Virginia Operating Co., LLC. Annual Bat Monitoring. 2015.*** Project manager in conducting acoustic surveys and bat roost box inspections, to determine the continued existence of Indiana bats (*Myotis sodalis*) and Northern Long-eared bats (*Myotis septentrionalis*) in the areas associated

with Boone North No. 3 Surface Mine and Four Mile Surface Mine. Project area was located in Boone and Kanawha Counties.

AECOM. 2015. Phase 1 Archeological Survey.

Survey team member on archeological survey in relation to the construction of a proposed solar energy farm in Tipton County, Tennessee.

AECOM. Environmental Investigation: Town Creek Solar Project. 2015.

Project manager in conducting a wetlands and habitat assessment for endangered species in relation to the construction of a proposed solar energy farm in Tipton County, Tennessee.

AECOM. Phase 1 Archeological Survey. 2015.

Survey team member on archeological survey in relation to the construction of a proposed White Oak Solar Farm in Burke County, Georgia.

AECOM. Phase 1 Archeological Survey. 2014.

Survey team member on archeological survey in relation to the construction of a proposed solar energy farm in Lauderdale County, Alabama.

AECOM. Environmental Investigation: NextEra Riverbend Solar Site. 2014.

Project manager in conducting a wetlands and habitat assessment for endangered species in relation to the construction of a proposed solar energy farm in Lauderdale County, Alabama.

Shoener Environmental, Inc. 2014. Bat carcass identification from incidental impacts at Wind Facilities.

Applied Ecological Services, Inc. Apple Blossom Wind Farm. 2014. Acoustic data review and interpretation of acoustic data and qualitative visual bat call identification.

United State Army Garrison, Redstone Arsenal. 2014. Analysis of acoustic data and qualitative visual bat call identification.

Applied Ecological Services, Inc. Meade Wind Park. 2014. Analysis of acoustic data and qualitative visual bat call identification.

Applied Ecological Services, Inc. Exelon Wind Incidental Carcass Identification. 2014. Bat carcass identification from incidental impacts at Exelon Wind Facility.

Columbia Gas. E-Loop Project. 2014. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana (*Myotis sodalis*) along the 125 mile pipeline right of way in Kentucky.

WEST, Inc. Hardin County Ohio Wind Project. 2014.

Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 36,047 acre project area.

Mark-West. East Fork I Shriver Pipeline Project. 2014.

Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) along the pipeline right of way in Ohio.

Natural Resource Group. Bluegrass Pipeline Project. 2013.

Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) along the 525 mile pipeline right of way in Kentucky, Ohio and West Virginia.

Coal Mac, Inc. Laurel Fork Surface Mine. 2013.

Project manager in conducting an acoustic bat survey using Anabat ultrasonic bat detectors in establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 450 acre project area in Logan County, West Virginia.

Black Wolf Mining Co. Red Hawk Surface 2013.

Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 123 acre project area in McDowell County, West Virginia.

Bluestone Coal Corp. Contour & Auger No. 1 Mine. 2013.

Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 358 acre project area in McDowell/Wyoming County, West Virginia.

Coal River Energy. Mine #9 Surface Mine.

2012. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 1,710 acre project area in Boone County, West Virginia.

Coal River Energy. Locust Fork Surface Mine.

2012. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 165.39 acre project area in Boone County, West Virginia.

Revelation Energy, LLC. 897-0534 NW Surface

Mine. 2012. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 224.54 acre project area in Perry County, Kentucky.

Revelation Energy, LLC. 898-0876 Surface Mine.

2012. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the <247.1 acre project area in Perry County, Kentucky.

Revelation Energy, LLC. Dusty Fork Surface

Mine. 2012. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 721 acre project area in Perry County, Kentucky.

Mine Rite Coal Co. Inc. Bat Survey, Project: 858-

0214 Amendment #. 2012. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 433.3 acre project area in Johnson County, Kentucky.

Eagle Mining, LLC. Synergy Surface Mine No. 2,

Amendment #1. . 2012. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within

the 385 acre project area in Boone County, West Virginia.

Alpha Natural Resources. Chilton Rider HWM.

2012. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 76 acre project area in Logan County, West Virginia.

Pocahontas Coal Company. Railroad Project. 2011.

Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) along the 21 km long and approximately 300 feet wide project boundary in Randolph Co., West Virginia.

Eagle Mining, LLC. Synergy Surface Mine No. 1.

2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 163 acre project area in Boone County, West Virginia.

Maple Coal Company. Sycamore South Extension.

2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 92.58 acre project area in Fayette County, West Virginia.

Coal Mac, Inc. Pine Creek No. 2 Surface Mine.

2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 840.69 acre project area in Logan County, West Virginia.

Pocahontas Coal Company. Devils Backbone Surface Mine. Raleigh County, West Virginia.

2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 98 acre project area.

Revelation Energy, LLC. Surface Mine PMC-1.

2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis*

sodalis) within the 723 acre project area in Buchanan County, Virginia.

Revelation Energy, LLC. Surface Mine PMC-2. 2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 1,110.28 acre project area in Buchanan County, Virginia.

Hampden Coal Company, Inc. Skillet Creek Project. 2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 461 acre project area in Mingo County, West Virginia.

Hampden Coal Company, Inc. No. 2 Gas Rider Deep Mine. 2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 41 acre project area in Mingo County, West Virginia.

Frasure Creek (Essar Minerals). Taylor Branch No. 2 Surface Mine. 2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 228.6 acre project area in Fayette County, West Virginia.

Frasure Creek. Open Fork No. 2 Surface Mine. 2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 120.1 acre project area in Boone County, West Virginia.

Meral, Inc. Blue Knob Surface Mine No. 1. 2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 120.1 acre project area in Greenbrier County, West Virginia.

Pocahontas Coal Company. Affinity Refuse Area. 2011. Project manager in the inventory of

bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 132.53 acre project area in Raleigh County, West Virginia.

Southern Minerals, Inc. Newhall Surface Mine No. 2. 2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 140 acre project area in McDowell County, West Virginia.

Little Ben Trucking. Atwell Branch Surface Mine. 2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 80 acre project area in McDowell County, West Virginia.

Pocahontas Coal Company. Roaring Creek Surface Mine. 2011. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 375 acre project area in Raleigh County, West Virginia.

Raven Crest Contracting, Inc. Monitoring Indiana Bats as part of an approved Protection and Enhancement Plan. 2006 – 2011. Project manager overseeing a five year monitoring plan established within the 2.5 mile diameter buffer zone surrounding an Indiana Bat (*Myotis sodalis*) maternity colony in Boone Co., West Virginia.

Argus Energy WV, LLC. Copley Trace No. 2 Surface Mine. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 20 acre project area in Logan Co., West Virginia.

Hutchinson Minerals, LLC. Hutchinson Branch Surface Mine. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 218.26 acre project area in Nicholas Co., West Virginia.

Keenan Minerals, LLC. Keenan Branch Surface Mine. 2010. Project manager in the inventory of bat

species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 20 acre project area in Nicholas Co., West Virginia.

Frasure Creek Mining, LLC. Beards Fork Contour Surface Mine. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 396.66 acre project area in Fayette Co., West Virginia.

Frasure Creek Mining, LLC. Coleman Branch Surface Mine. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 614.06 acre project area in Fayette Co., West Virginia.

Frasure Creek Mining, LLC. Falcon No. 2 Surface Mine. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 310.4 acre project area in Boone Co., West Virginia.

Hampden Coal Company, Inc. Buskirk Surface Mine. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 211.68 acre project area in Logan Co., West Virginia.

Hampden Coal Company, Inc. Donaldson Branch Refuse Area. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 57.6 acre project area in Mingo Co., West Virginia.

Hampden Coal Company, Inc. Harry's Branch Contour Surface Mine. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*)

within the 138 acre project area in Mingo Co., West Virginia.

Hampden Coal Company, Inc. Pounding Mill Surface Mine. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 45.66 acre project area in Logan Co., West Virginia.

United Coal Company. Tommy Creek Highwall No. 1 South & Devil's Fork Surface Mine. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 388.0 acre project area in Raleigh Co., West Virginia.

White Flame Energy, Inc. Millstone Branch Surface Mine. 2010. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 1,180 acre project area in Mingo Co., West Virginia.

Prichard Mining, LLC. Fourmile Fork Surface Mine Amendment No. 2 ES. 2010. Project manager in the development and implementation of the Protection and Enhancement Plan with Incidental Take Statement for the federally listed endangered Indiana bat (*Myotis sodalis*) within the 43.3 acre project area in Boone Co., West Virginia.

Brushy Fork, LLC. Brushy Fork Surface Mine. 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 206.7 acre project area in Harrison Co., West Virginia.

Callaway Natural Resources, LLC. Area D. 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 782.0 acre project area in Mingo Co., West Virginia.

Eagle Mining, LLC. Synergy No. 2 Surface Mine. 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the

federally listed endangered Indiana bat (*Myotis sodalis*) within the 883.6 acre project area in Boone County, West Virginia.

Cumberland Coal Resources, LP. Cumberland No. 1 Surface Mine. 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 230 acre project area in Greene Co. Pennsylvania.

Cumberland Coal Resources, LP. Cumberland No. 2 Surface Mine. 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 190 acre project area in Greene Co. Pennsylvania.

Emerald Coal Resources, LP. Emerald Refuse No. 3. 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 230 acre project area in Greene Co. Pennsylvania.

Foundation Mining, LLC. Refuse Site No. R1. 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 176.6 acre project area in Greene Co. Pennsylvania.

Frasure Creek Mining, LLC. Open Fork Surface Mine No. 2. 2009 Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 221.4 acre project area in Fayette Co., West Virginia.

ICG Beckley, LLC. Bay Hill Deep Mine (Refuse Expansion Area). 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 60 acre project area in Raleigh Co., West Virginia.

Premium Energy, LLC. Horsepen Surface Mine No. 1. 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 300 acre project area in Logan/Mingo Co., West Virginia.

Raven Crest Contracting, LLC. Boone North No. 3 Surface Mine (Amendment No. 2). 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 190 acre project area in Boone Co., West Virginia.

Rockspring Development, Inc. Freshwater Impoundment. 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 345.5 acre project area in Wayne Co., West Virginia.

Stollings Trucking Co., Inc. Surface Mines 4 & 5. 2009. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the <247.1 acre project area in Logan Co., West Virginia.

Frasure Creek Mining, LLC. Mulberry Branch Surface Mine. 2009 Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 1,300 acre project area in Fayette Co., West Virginia.

Frasure Creek Mining, LLC. Dempsey Branch Surface Mine. 2009. Project manager in the inventory of deep mine portals and assessment for bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 800 acre project area in Fayette Co., West Virginia.

Frasure Creek Mining, LLC. Mullberry Branch Surface Mine. 2009. Project manager in the inventory of deep mine portals and assessment for bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis*

sodalis) within the 1,300 acre project area in Fayette Co., West Virginia.

Raven Crest Contracting, LLC. Boone North No. 3 Surface Mine Amendment No. 2. 2009. Project manager in the development and implementation of the Protection and Enhancement Plan with Incidental Take Statement for the federally listed endangered Indiana bat (*Myotis sodalis*) within the <247.1 acre project area in Boone Co., West Virginia.

Premium Energy, Inc. Coon Knob Surface Mine No. 1. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 244 acre project area in Mingo Co., West Virginia.

Chafin Branch Coal Company. Skillet Creek Surface Mine. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 247.1 acre project area in Mingo Co., West Virginia.

FMC Services, Inc. No. 1 Surface Mine. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 160.56 acre project area in Fayette Co., West Virginia.

Frasure Creek Mining, LLC. Beards Fork Surface Mine. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 500 acre project area in Fayette Co., West Virginia.

Frasure Creek Mining, LLC. Deep Water / Falls Creek Surface Mine. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 1,769 acre project area in Fayette Co., West Virginia.

Frasure Creek Mining, LLC. Dempsey Branch Surface Mine. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 800 acre project area in Fayette Co., West Virginia.

Frasure Creek Mining, LLC. Falcon Surface Mine (Amendment No. 2). 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 111.6 acre project area in Boone Co., West Virginia.

Frasure Creek Mining, LLC. White Oak Extension. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 141 acre project area in Mingo Co., West Virginia.

Hampden Coal Company, Inc. Lower Pete's Branch Surface Mine – Phase 1. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 177.4 acre project area in Mingo Co., West Virginia.

Hampden Coal Company, Inc. Lower Pete's Branch Surface Mine – Phase 2. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 841.54 acre project area in Mingo Co., West Virginia.

Coreco, LLC. Coal Refuse Disposal Area No. 4. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 239.7 acre project area in Monongalia Co., West Virginia.

Meadow Fork Mining Company, LLC. Powermill Branch Surface Mine – Additional Area. 2008. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 184 acre project area in Wayne Co., West Virginia.

Catenary Coal Company. T Extension Project Area. 2007. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 91.55 acre project area in Boone Co., West Virginia.

Coal Mac, Inc. Tom's Branch Surface Mine. 2007. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 483 acre project area in Mingo Co., West Virginia.

Frasure Creek Mining, LLC. Turkey Creek Surface Mine. 2007. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 82.8 acre project area in Boone Co., West Virginia.

Catenary Coal Company. Moccasin North Surface Mine. 2007. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 185 acre project area in Kanawha Co., West Virginia.

Raven Crest Contracting, LLC. Boone North No. 5 Surface Mine. 2007. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 1046.1 acre project area in Boone Co., West Virginia.

Appalachian Fuels, LLC. North Fork Refuse Area. 2006. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 120 acre project area in Logan Co., West Virginia.

Argus Energy WV, LLC. East Fork South Surface Mine. 2006. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana

bat (*Myotis sodalis*) within the 68.10 acre project area in Wayne/Lincoln Co., West Virginia.

Argus Energy WV, LLC. Rollen Fork No. 2 Extension. 2006. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 35.40 acre project area in Wayne/Lincoln Co., West Virginia.

Argus Energy WV, LLC. Wiley Branch Surface Mine. 2006. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 30.80 acre project area in Wayne/Lincoln Co., West Virginia.

Coal Mac, Inc. Phoenix No. 5 Surface Mine. 2006. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the 494.20 acre project area in Logan/Mingo County, West Virginia.

Raven Crest Contracting, LLC. Boone North No. 3 Surface Mine. 2005. Team member in the bat species inventory and habitat utilization of headwater tributaries of Bull Creek, Boone County, West Virginia.

Boston Mountain Ranger District. Ozark National Forest. U.S. Forest Service. 2004. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) and Ozark Big-eared bat (*Corynorhinus townsendii ingens*).

Ozark-St. Francis National Forest. U.S. Forest Service. 2004. Project manager evaluating species diversity and abundance on Stumpy Point a 1,510 acre tract along the Mississippi River in eastern Arkansas.

Lake Greeson Project Area. U.S. Army Corps of Engineers. 2003. Project manager in evaluating the roosting ecology of the Southeastern Myotis, (*Myotis austroriparius*), and bat species composition in Southwest Arkansas with emphasis on the U.S. Army Corps of Engineers Lake Greeson Project Area.

Pea Ridge National Military Park. National Park Service. 2002. Project manager evaluating species

diversity and abundance on the Pea Ridge National Military Park in northwest Arkansas.

Caddo Ranger District. Ouachita National Forest. U.S. Forest Service. 2001. Project manager evaluating the use of artificial roost structures by bats in the Ouachita National Forest of Arkansas, Caddo Ranger District.

Fort Chaffee Military Reservation. United States Army. 2001. Project manager evaluating species diversity and abundance on the Ft. Chaffee Military Reservation in Arkansas.

Rex Hancock/Black Swamp Wildlife Management Area. Arkansas Game and Fish Commission. 2000. Project manager evaluating species diversity and abundance of bats in a bottomland hardwood forest.

Buffalo Ranger District. Ozark National Forest. U.S. Forest Service. 2000. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) and Ozark Big-eared bat (*Corynorhinus townsendii ingens*) in the Edgemon Creek area.

Delta National Forest. U.S. Forest Service. 2000. Project manager in studying the species composition and habitat use of bat populations in west central Mississippi.

Sylamore Ranger District. Ozark National Forest. U.S. Forest Service. 1999. Project manager studying Habitat Suitability Indices (HSI) in restoring upland game habitat for Elk (*Cervus canadensis*).

Smoky Mountain National Park, Tennessee, Tennessee Technological University, 1999. Project manager evaluating species diversity and abundance of bats and investigating female Indiana bat (*Myotis sodalis*) maternity roost.

Boston Mountain Ranger District. Ozark National Forest. U.S. Forest Service. 1998. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat

(*Myotis sodalis*) and Ozark Big-eared bat (*Corynorhinus townsendii ingens*) in the Rossen Hollow area.

White River National Wildlife Refuge. U.S. Fish and Wildlife Service. 1998. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*).

Buffalo Ranger District. Ozark National Forest. U.S. Forest Service. 1997. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*).

Sylamore Ranger District. Ozark National Forest. U.S. Forest Service. 1997. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*).

Sylamore Ranger District. Ozark National Forest. U.S. Forest Service. 1996. Project manager in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) using upland ponds and road ruts.

Arkansas Game and Fish Commission and Tennessee Technological University. 1995. Project manager conducting telemetry studies on habitat and foraging of Ozark Big-eared bats (*Corynorhinus townsendii ingens*) in caves located in north central Arkansas.

Arkansas Game and Fish Commission and Tennessee Technological University. 1994. Project manager conducting population assessments evaluating abundance of Ozark Big-eared bats (*Corynorhinus townsendii ingens*) in caves located in north central Arkansas.

Arkansas State University and Arkansas Game and Fish Commission. 1993 – 1990. Project manager conducting population assessments evaluating abundance of Little Brown Bats (*Myotis lucifugus*) found in houses in Newport, Arkansas.



DEPARTMENT OF THE INTERIOR
No Block# 6 address detected

FEDERAL FISH AND WILDLIFE PERMIT

1 PERMITTEE

KATHRYN ANN CUNNINGHAM
305 LINDENHURST DRIVE APT 3102
LEXINGTON, KY 40509
U.S.A.

2 AUTHORITY-STATUTES
16 USC 1539(a)
16 USC 1533(d)

REGULATIONS
50 CFR 17.22
50 CFR 17.32

50 CFR 17

3 NUMBER
TE48049B-0

4 RENEWABLE
 YES
 NO

5 MAY COPY
 YES
 NO

6 EFFECTIVE
02/24/2015

7 EXPIRES
02/24/2018

8 NAME AND TITLE OF PRINCIPAL OFFICER (If not a business)

9 TYPE OF PERMIT
NATIVE ENDANGERED & THREATENED SP. RECOVERY - E & T WILDLIFE

10 LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

See below

11 CONDITIONS AND AUTHORIZATIONS

A GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 17, 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, TRIBAL, OR OTHER FEDERAL LAW.

C VALID FOR USE BY PERMITTEE NAMED ABOVE.

Sec. 10 cont.

Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, West Virginia, Wisconsin, Wyoming

11. C. 1. The following individuals are authorized to conduct activities as authorized by this permit: Kathryn A. Cunningham

Trained assistants not named on this permit may work on permitted bat activities under the direct and on-site supervision of the individual named above. However, trained assistants may not work independently at a site. Trained assistants are individuals who are considered qualified by the permittee to select sampling sites, deploy sampling equipment and nets, and handle bats in the field. The permittee must remain present at each mist-net site while it is being operated.

ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12 REPORTING REQUIREMENTS

Annual reports due by January 31 following each year this permit is in effect

ISSUED BY

TITLE

CHIEF, DIVISION OF ENVIRONMENTAL REVIEW

DATE

02/24/2015

TE48049B-0

Roxanna Hinzman

Page: 1 of 14

Chief, Division of Environmental Review

D. Acceptance of this permit serves as evidence that the permittee understands and agrees 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 (enter hibernacula, capture with mist nets or harp traps, handle, identify, band, radio-tag, salvage) Indiana bats (*Myotis sodalis*) and Northern long-eared bats (*Myotis septentrionalis*) for presence/absence surveys and monitoring, as described in permittee's September 4, 2013, application and as conditioned below.

F. Activities at the following locations require written site-specific approval from the USFWS Field Supervisor in the State(s) where the project will occur (as outlined in Condition G):

F.1. Locations within Region 2 of the USFWS: Oklahoma

F.2. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin

F.3. Locations within Region 4 of the USEWS: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee

F.4. Locations within Region 5 of the USFWS: Connecticut, Delaware, Maryland, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia

F.5. Locations within Region 6 of the USFWS: Kansas, Montana, Nebraska, North Dakota, South Dakota, Wyoming

G. Permittee shall notify the USFWS Field Supervisor for the State in which activities are proposed to occur at least 15 days prior to conducting any activities. Contact information is in Condition P., below. Your request for this site-specific approval must be in writing and must indicate:

G.1. The purpose and a description of the activities proposed (e.g., surveys, radio telemetry studies, etc.).

G.2. Location of proposed activities, including project site (legal description and lat/long), county, and state.

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

G.4. You may proceed with activities only upon receipt of written concurrence from the applicable USFWS Field Supervisor. *Your concurrence letter must be carried with this permit to authorize site-specific activities.*

H. Permittee shall adhere to the following conditions involving capture and handling of bats:

H.1. Federally listed bats may be captured (e.g., mist-nets and harp traps) following the protocol(s) provided by the USFWS, when available. Permittees must contact the USFWS FO in the State(s) in which activities are proposed to ensure correct protocol(s) are used. For example, the current Range-wide Indiana Bat Summer Survey Guidelines are available at:

<http://www.fws.gov/midwest/angered/mammals/inha/inbasummersurveyguidance.html>. The monitoring interval for mist nets is once every 10 minutes. Harp traps must be continually monitored.

H.2. Captured bats may be held for a maximum of 30 minutes, unless injured. If an exception is required to this prohibition, permittee must receive prior written approval from the USFWS Field Supervisor for the state in which the activities are proposed to occur.

H.3. Permittees shall carry out non-intrusive measurements on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species specific data form provided by the USFWS (e.g., INDIANA BAT SURVEY AND BANDING DATA form). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Photographs of the identifying characteristics for each individual federally listed species captured are encouraged. The permittee may be requested to provide individual photographs after submittal of annual reporting data.

H.4. If bands are applied, they must be lipped metal bands having a unique identifier. Bands should be applied to the forearm of captured bats prior to release. No more than one band per bat may be used. Position the band on the wing so that when the bat is hanging upside down, the band numbers are right-side up. A single band should be placed on the right forearm of each male and the left forearm of each female bat.

H.5. Radio transmitters may be applied during spring, summer, and fall roosting and migration periods via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least five days or until the transmitter falls off, whichever occurs first.

H.6. No capture activities shall occur within 20 meters of a known or potential summer or winter roost site, either natural or artificial, of a federally listed bat. If an exception is required to this prohibition, permittee must receive prior written approval from the USFWS Field Supervisor for the State in which the activities are proposed to occur.

H.7. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at: <http://whitenosesyndrome.org/>

H.8. Caves, mines, or other suitable hibernation sites may be quietly searched in a manner that minimizes disturbance by utilizing the minimum number of people and time required to complete the survey. Surveys of known hibernacula conducted during the winter hibernation season shall follow the guidelines established in the recovery plans for each federally listed bat species with regards to how often a site may be visited and other species-specific requirements related to entering hibernaculum (for example, for Indiana bats, winter surveys should not be repeated more often than once every other year in any given hibernaculum), unless authorized by the appropriate Service Recovery Lead identified in Condition O (below).

Under no circumstances should multiple trips to the hibernation area occur within the same year without written approval of the USFWS Field Supervisor for the state in which activities are proposed.

Bats may be handled during winter surveys in order to collect band information and confirm the identification of listed species. When possible, bands should be read without touching the bat. Banded bats should only be handled if easily accessible and removal of the bat does not disturb a large number of additional bats and is unlikely to result in injury to the bat. Detailed photographs should be taken to document the presence of listed species in previously undocumented hibernaculum. Where hibernacula area and safety conditions allow, individuals entering hibernacula are recommended to utilize night vision goggles or red-filtered light and to remain in the site no more than 90 minutes to complete the work.

I. Upon determination that endangered bats are present, permittee shall notify the following offices immediately

(not to exceed 1 business day): the appropriate USFWS Regional Office (Condition N.), and the USFWS Field Office within the geographic location of study areas (Condition O.).

J. Permittee must carry a copy of this permit at all times when conducting the authorized activities. NOTE: This permit is limited to the above activities and identified species.

K. Issuance of this permit does not constitute permission to conduct these activities on National Wildlife Refuges or any other public or private lands; such permission must be obtained separately from the appropriate landowner or land manager before beginning these authorized activities. This permit, neither directly nor by implication, grants the right of trespass.

L. Accidental injury or mortality may not exceed one specimen. In the event that any accidental injury or mortality occurs, all activities must cease and the injury or mortality reported immediately (not to exceed 1 business day) to the applicable office listed in condition N. and to the Lead Recovery Biologist for the species (condition O). The USFWS will work with the permittee to determine the cause of injury or mortality and whether such could be avoided should activities be allowed to proceed. Dead or moribund bats may be retained for further study only with the written permission of the USFWS. Any bats that are not authorized for retention are to be chilled and promptly transferred to the USFWS for potential necropsy and/or for scientific or educational purposes.

Upon locating a dead, injured, or sick bat, or any other threatened or endangered species, under circumstances not addressed in this authorization, initial notification must be made immediately (not to exceed 1 business day) to the appropriate USFWS Office identified in condition N., below, including a description of the circumstances, location information, and photo documentation. Notification should also be made at the same time to the appropriate USFWS Field Office identified in condition P., below. Care should be taken in handling sick, injured, or dead specimens to ensure effective treatment or to preserve biological materials for later analysis. In conjunction with the care of sick or injured threatened or endangered species, and the preservation of biological materials from a dead animal, the permittee should take responsible steps to ensure that the site is not unnecessarily disturbed. Prior to collecting the specimen(s), you must photograph the specimen(s) to document the conditions in which they were found. You may preserve the specimen(s) by freezing them or other suitable method to allow scientific study. Disposition of collected specimen(s) shall be determined by the USFWS Field Office.

M. Reports are due on January 31 following each year this permit is in effect. At a minimum, your report shall include:

M.1. The date, time, geographic locations (including datum and projection information).

M.2. All locations surveyed (regardless of whether federally listed bats were captured/observed).

M.3. Band numbers of all bats banded and all bats recovered/observed.

M.4. Information on any injuries and/or mortalities and disposition of specimens.

M.5. Location and characteristics of roost trees and bat colonies.

M.6. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.

M.7. Data shall be submitted for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data form provided by the USFWS (e.g., INDIANA BAT SURVEY AND BANDING DATA forms, the data collection forms found in the current Rangewide Indiana Bat Summer Survey

Guidelines cited in Condition H.1., or other species-specific forms). Photographs of the identifying characteristics for each individual federally listed species captured are encouraged. The permittee may be requested to provide individual photographs after submittal of annual reporting data.

M.8. Copies of all site specific authorization letters required under Condition G.

If no activities occurred over the course of the year, indication of such shall be submitted as an annual report.

N. 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, Portable Document Format, Rich Text Format, or other file format that is compatible with the receiving office.

N.1.

Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southwest Region (Region 2)
500 Gold Ave., SW
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6665; fax 505/248-6788)
permitsR2ES@fws.gov

N.2.

Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Midwest Region (Region 3)
Ecological Services - Endangered Species
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov

N.3.

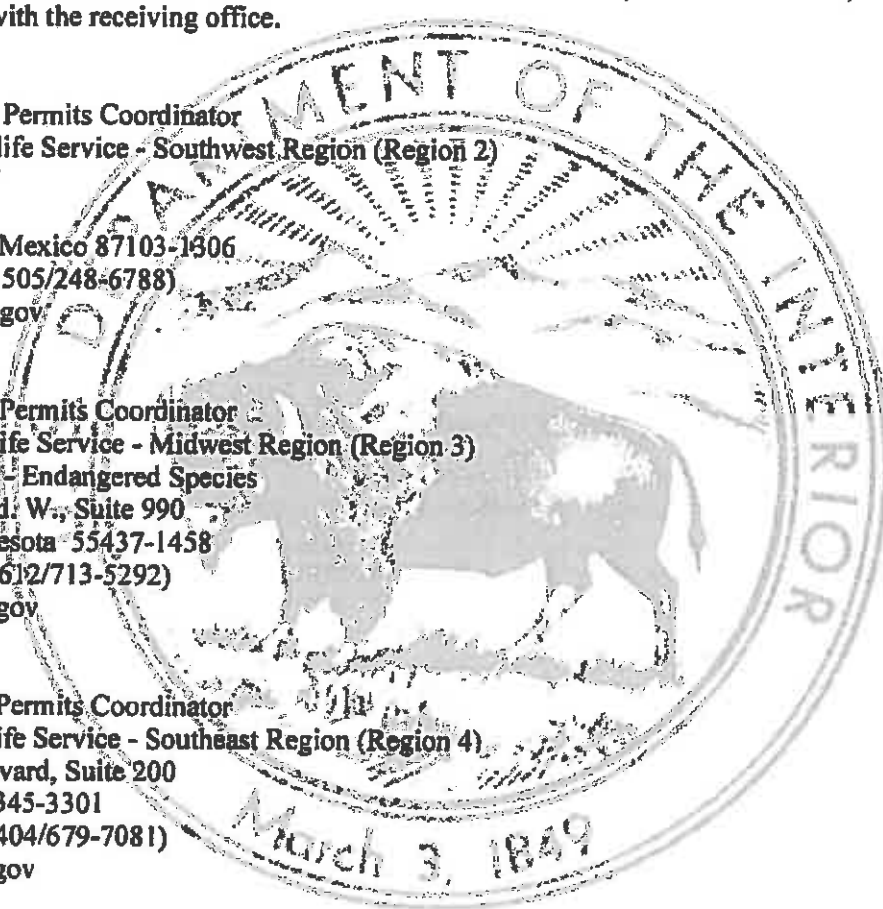
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southeast Region (Region 4)
1875 Century Boulevard, Suite 200
Atlanta, Georgia 30345-3301
(404/679-7101; fax 404/679-7081)
permitsR4ES@fws.gov

N.4.

Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(703/358-2402; fax 413/253-8482)
permitsR5ES@fws.gov <<mailto:permitsR5ES@fws.gov>>

N.5.

Regional Recovery Permits Coordinator & Assistant Regional Recovery Coordinator
U.S. Fish and Wildlife Service - Mountain-Prairie Region (Region 6)
Endangered Species Permits Office
Denver Federal Center, P.O. Box 25486



Denver, Colorado 80225-0489
(303/236-4212; fax 303/236-0027)
permitsR6ES@fws.gov

O. Additionally, based on species, reports and publications shall be submitted to the following:

O.1. For Studies involving Indiana Bats:

Lori Pruitt, Recovery Lead
U.S. Fish and Wildlife Service
Indiana Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x1213; fax 812/334-4273)

O.2. For Studies involving Northern Long-eared Bats:

Jill Utrup, Recovery Lead
U.S. Fish and Wildlife Service
Twin Cities Ecological Services Field Office
4104 American Blvd E
Bloomington, Minnesota 55425
(612/725-3548 x207; fax 612/725-3609)

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

P.1. For studies conducted in Alabama:

Field Supervisor
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, Alabama 36526-4419
(251) 441-5181

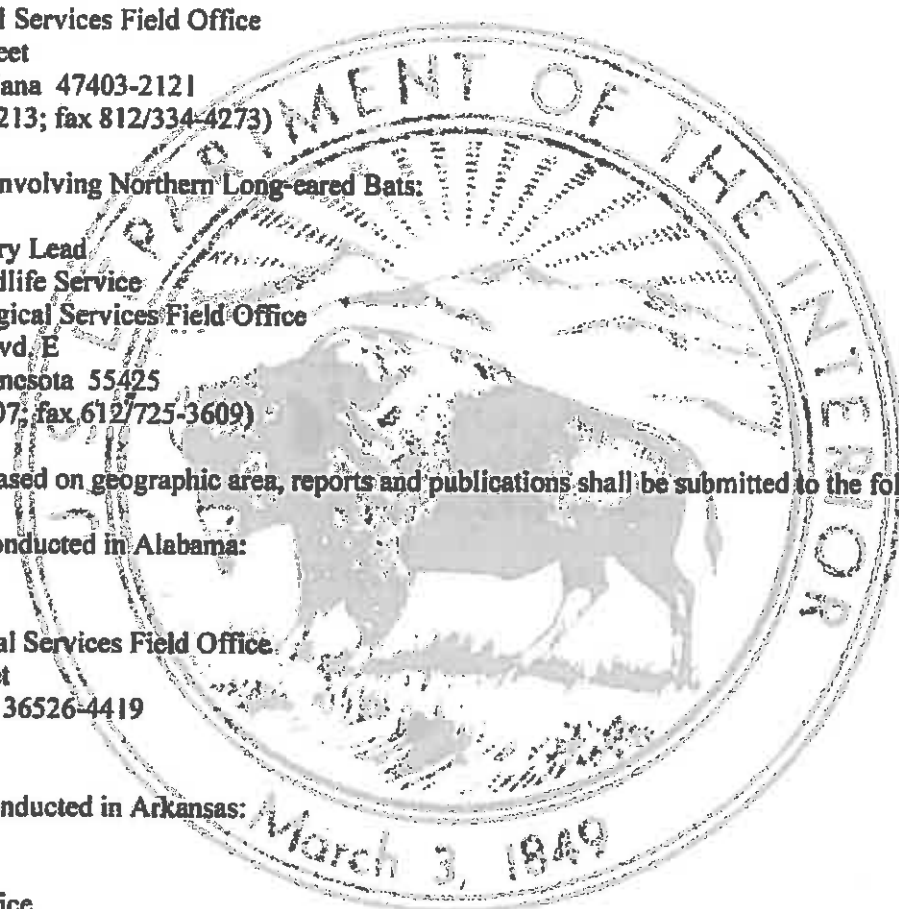
P.2. For studies conducted in Arkansas:

Field Supervisor
Arkansas Field Office
110 South Amity Road
Suite 300
Conway, Arkansas 72032-8975
(501) 513-4470

P.3. For studies conducted in Connecticut, Massachusetts, New Hampshire, Rhode Island and Vermont:

Field Supervisor
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541

P.4. For studies conducted in Delaware and Maryland:



Field Supervisor
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
(410) 573-4573

P.5. For studies conducted in North Florida:

Field Supervisor
North Florida Ecological Services Office
7915 Baymeadows Way
Suite 200
Jacksonville, FL 32256-7517
(904) 731-3336

P.6. For studies conducted in Georgia:

Field Supervisor
Georgia Field Office
105 Westpark Drive, Suite D
Athens, GA 30606-3175
(706) 613-9493; fax 706/613-6059

P.7. For studies conducted in Illinois:

P.7.a.
Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5807)

P.7.b.
Joe Kath
Endangered Species Coordinator
Illinois Department of Natural Resources
Division of Natural Heritage
One Natural Resource Way
Springfield, Illinois 62702-1271
(217/785-8764; fax 217/785-2438)

P.8. For studies conducted in Indiana:

P.8.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 x1213; fax 812/334-4273)

P.8.b.
Scott Johnson
Indiana Department of Natural Resources
5596 East State Road 46
Bloomington, Indiana 47401
(812/334-1137, ext. 3400)

P.9. For studies conducted in Iowa:

P.9.a.
Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5807)

P.9.b.
Kelly Poole
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
(515/281-8524)

P.10. For studies conducted in Kansas:

Field Supervisor
Kansas Field Office
2609 Anderson Avenue
Manhattan, Kansas 68502
785/539-3474; fax 785/539-8567

P.11. For studies conducted in Kentucky:

Field Supervisor
Frankfort Field Office
J C Watts Federal Bldg., Rm 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0468

P.12. For studies conducted in Louisiana:

Field Supervisor
Louisiana Ecological Services



646 Cajundome Blvd., Suite 400
Lafayette, La. 70506
Phone 337.291.3100
Fax 337.291.3139

P. 13. For studies conducted in Maine:

Field Supervisors
Maine Field Office
U.S. Fish and Wildlife Service
17 Godfrey Drive, Suite 2
Orono, ME 04473
Phone: 207-866-3344

P.14. For studies conducted in Maryland:

Field Supervisor
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
(410) 573-4573

P.15. For studies conducted in Michigan:

P.15.a.
Barbara Hosler
Endangered Species Coordinator for Michigan
U.S. Fish and Wildlife Service
2651 Coolidge Road
East Lansing, Michigan 48823
(517/351-6326; fax 517/351-1443)

P.15.b.
Dan Kennedy
Endangered Species Coordinator
Michigan Department of Natural Resources
Wildlife Division
P.O. Box 30444
Lansing, Michigan 48909-7444
(517) 284-6194; fax 517/373-6705

P.16. For studies conducted in Minnesota and Wisconsin:

P.16.a.
Phil Delphey
Endangered Species Coordinator for Minnesota and Wisconsin
U.S. Fish and Wildlife Service
Ecological Services Field Office
4101 American Blvd E.
Bloomington, Minnesota 55425
(612/725-3548 x2206; fax 612/725-3609)



P.16.b.

Owen Boyle
Wisconsin Department of Natural Resources
101 S. Webster Street
Madison, Wisconsin 53707-7921
(608/266-5244)
Owen.Boyle@wisconsin.gov <<mailto:Owen.Boyle@wisconsin.gov>>

P.16.c.

Richard Baker
Minnesota Endangered Species Coordinator
Division of Ecological and Water Resources
Minnesota Department of Natural Resources
500 Lafayette Rd., Box 25
St. Paul, MN 55155
Phone: 651/259-5073
richard.baker@state.mn.us <<mailto:richard.baker@dnr.state.mn.us>>

P.17. For studies conducted in Mississippi:

Field Supervisor
Mississippi Field Office
6578 Dogwood View Pkwy Ste A
Jackson, MS 39213-7856
(601) 321-1122

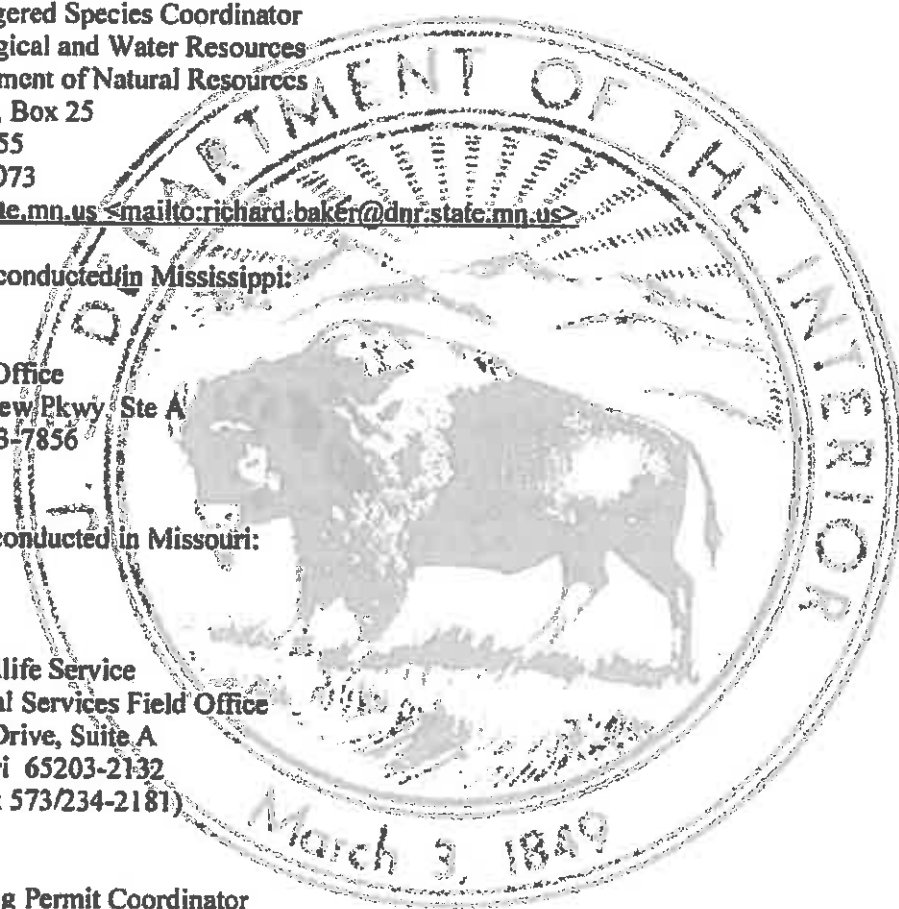
P.18. For studies conducted in Missouri:

P.18.a.
Field Supervisor
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-2132
(573/234-2132; fax 573/234-2181)

P.18.b.
Scientific Collecting Permit Coordinator
Missouri Department of Conservation
Endangered Species and Natural History Division
2901 W. Truman Blvd., P.O. Box 180
Jefferson City, Missouri 65102-0180
(573/522-4115 ext. 3322; fax 573/751-4864)

P.19. For studies conducted in Montana:

Project Leader
585 Shepard Way
Helena, Montana 59601
Telephone: 406-449-5225
Fax: 406-449-5339



P.20. For studies conducted in Nebraska:

**Assistant Field Supervisor
9325 South Alda Road
Wood River, NE 68883
Fax:(308) 384-8835
Phone: (308) 382-6468**

P.21. For studies conducted in New Jersey:

**Field Supervisor
New Jersey Field Office
927 N. Main Street, Building D
Pleasantville, NJ 08232-1454
(609) 646-9310**

P.22. For studies conducted in New York:

**Field Supervisor
New York Field Office
3817 Luker Road
Cortland, NY 13045
(607) 753-9334**

P.23. For studies conducted in North Carolina:

**Field Supervisor
Asheville Field Office
160 Zillicoa Street
Asheville, NC 28801-1082
(828) 258-3939**

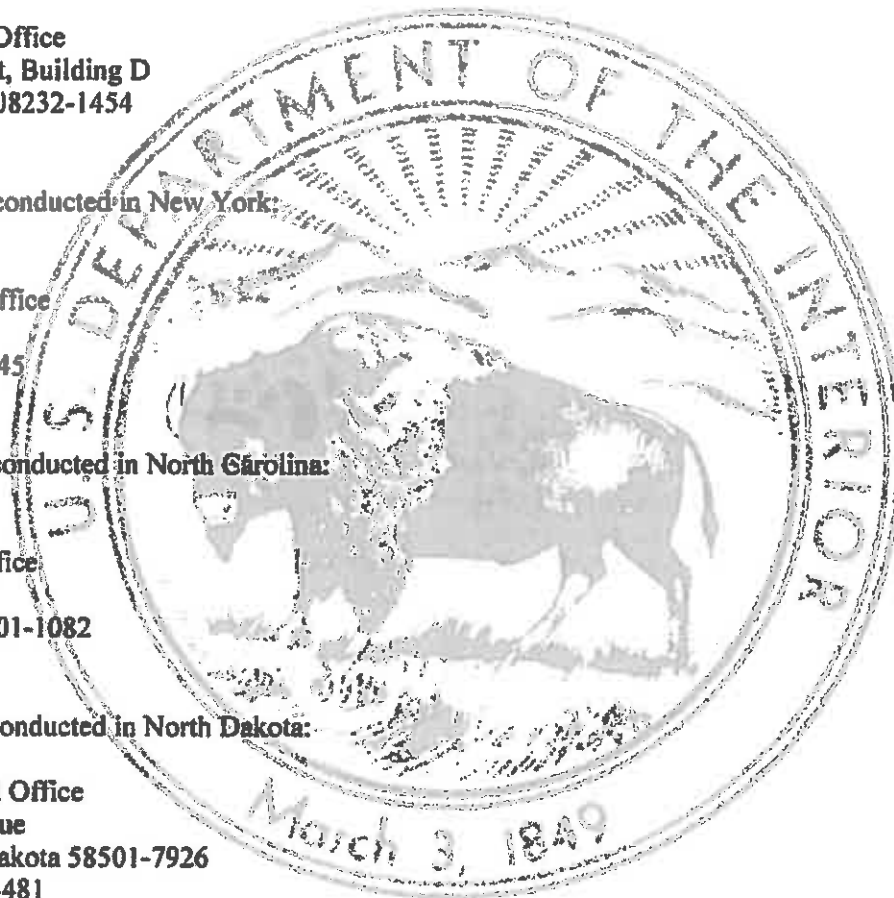
P.24. For studies conducted in North Dakota:

**North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926
Phone: (701) 250-4481
Fax: (701) 355-8513**

P.25. For studies conducted in Ohio:

**P.25.a.
Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614/416-8993, x22; fax 614/416-8994)**

**P.25.b.
Endangered Species Coordinator**



Ohio Department of Natural Resources
Division of Wildlife
2045 Morse Road, Building G
Columbus, Ohio 43229-6693
(614-265-6329; fax 614/262-1143)

P.26. For studies conducted in Oklahoma:

P.26.a.
Field Supervisor
Oklahoma Field Office
U.S. Fish and Wildlife Service
9014 E. 21st St.
Tulsa, Oklahoma 74129-1428
(918) 382-4501

P.26.b.
Todd Fagin
Oklahoma Natural Heritage Inventory
111 E. Chesapeake St.
Norman, OK 73019
405 325-4700 (Direct Line)
405 325-4042 (Oklahoma Biological Survey main office)
405 325-7702 (Fax)
tfagin@ou.edu <<mailto:tfagin@ou.edu>>

P.26.c.
Oklahoma Department of Wildlife Conservation
Wildlife Division
1801 N. Lincoln Blvd.
Oklahoma City, Oklahoma 73105
405/990-7259; fax 405/521-4706

P.27. For studies conducted in Pennsylvania:

Field Supervisor
Pennsylvania Field Office
315 So. Allen Street, Suite 322
State College, PA 16801-4850
(814) 234-4090

P.28. For studies conducted in South Carolina:

P. 28.a.
South Carolina Field Office
Thomas McCoy, Acting Field Supervisor
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
(843) 727-4707 x227

P. 28.b.
Mary Bunch



Biologist/Preserve Manager
South Carolina Department of Natural Resources
311 Natural Resources Drive
Clemson, SC 29631
(864) 654-6738 x15
Fax: (864) 654-9168

P.29. For studies conducted in South Dakota:

South Dakota Ecological Services Field Office
420 S. Garfield Avenue,
Suite 400
Pierre, SD 57501-5408
Phone (605) 224-8693
FAX 605-224-9974

P.30. For studies conducted in Tennessee:

P. 30 a.
Field Supervisor
Cookeville Field Office
U.S. Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501-4027
(931) 528-6481

P. 30.b.
Brian Flock
Bat Coordinator
Tennessee Wildlife Resources Agency
P.O. Box 40747
Nashville, TN 37204
(615) 781-6569

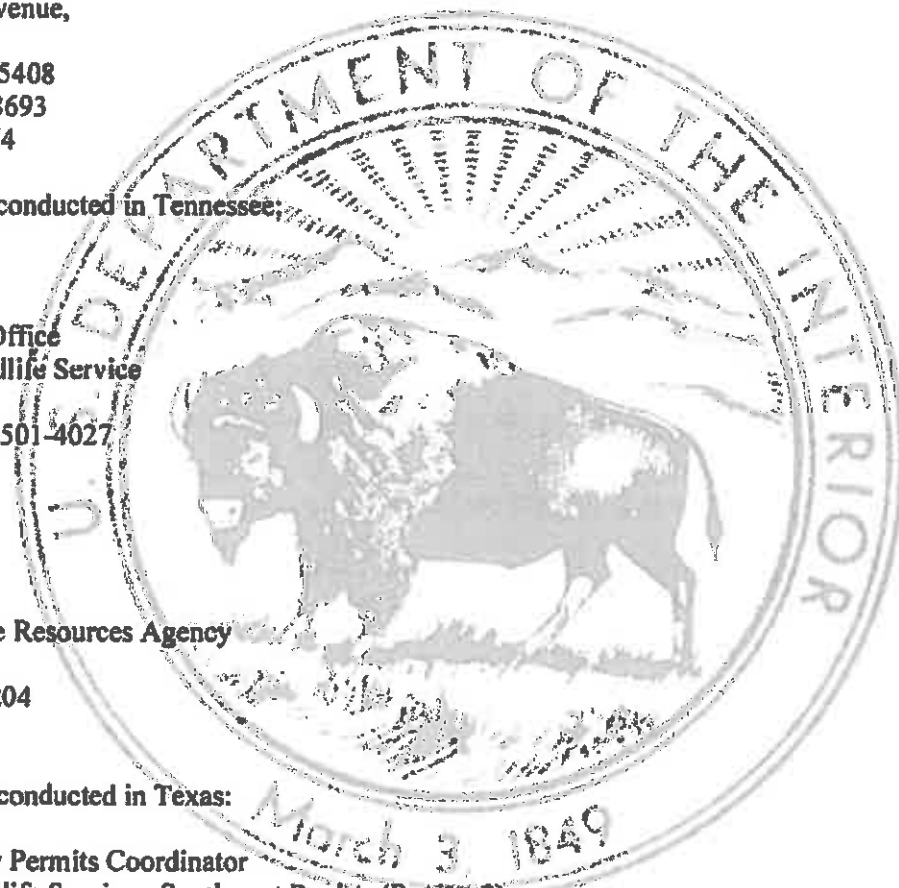
P. 31. For studies conducted in Texas:

Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southwest Region (Region 2)
500 Gold Ave., SW
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6665; fax 505/248-6788)

P.32. For studies conducted in Virginia:

Field Supervisor
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061
(804) 693-6694

P.33. For studies conducted in West Virginia:



Field Supervisor
West Virginia Field Office
694 Beverly Pike
Elkins, WV 26241
(304) 636-6586

P. 34. For studies conducted in Wyoming:

Ecological Services Wyoming Field Office
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009
Tel: (307) 772-2374
Fax: (307)772-2358



Education

BS, Fisheries & Wildlife, concentration in Wildlife,
2006, North Carolina State University

MS, Wildlife & Fisheries, still in progress West
Virginia University

Specialty and Skill Areas

Endangered Species, specializing in Indiana Bats
Acoustic monitoring
Radio-telemetry
Mammalian and avian monitoring
Mist-netting bats and birds
Geographic Information Systems (GIS)
Invasive floral species removal, both aquatic and
terrestrial

Professional Affiliations

The Wildlife Society
Southeastern Bat Diversity Network
Northeast Bat Working Group
Midwest Bat Working Group
Kentucky Bat Working Group
Bat Conservation International
Xi Sigma Pi (the National Forestry Society)

Certifications and Training

Acoustic Techniques and Acoustic Analysis
Training
Basic Wildland Fire Certification
Dispatch Recorder Certification
SSI Certified Open Water
PADI Certified Advanced Open Water

Permits

Federal Collection Permit for Endangered Species
Indiana and Northern Long-Eared bats in AL, AR,
CT, DE, FL, GA, IL, IN, IO, KS, KY, LA, ME, MD,
MA, MI, MN, MS, MO, MT, NE, NH, NJ, NY, NC,
ND, OH, OK, PA, RI, SC, SD, TN, TX, VT, VA, WV,
WI, and WY.

State Scientific Collection Permit for Endangered
Species in MI and TN (2016)

Qualified Bat Surveyor (PA)

Experience

7 years of bat mist netting present/probable absent
surveys and population inventories within project
areas

7 years of various experience in wildlife and
environmental projects performing wildlife field
surveys, data analysis, GIS mapping, coordination
between federal, state, and local agencies, and
report preparation

6 years of experience mist-netting for endangered
species, specializing in endangered Indiana bats
(*Myotis sodalis*), surveying over 24,000 acres

3 years of experience using radiotelemetry, using
both terrestrial and aerial radiotelemetry to
locate Indiana bats (*Myotis sodalis*) and Northern
Long-eared bats (*Myotis septentrionalis*)

2 years of experience targeting federally threatened
species, specializing in threatened Northern Long-
eared bats (*Myotis septentrionalis*).

2 years of experience following federal guidelines
for acoustic monitoring.

1 year of experience mist-netting and banding birds

Papers and Presentations

Cunningham, K.A., J.E. Curry, T.C. Newman, J.D.
Wilhide. 2016. Bat versus and: the struggle
continues. 21st Annual Meeting of the
Southeastern Bat Diversity Network and 27th
Annual Colloquium on the Conservation of
Mammals in the Southeastern US, Guntersville,
Alabama.

Jackson, J.L. and K.A. Cunningham. 2015.
Comparison of traditional data collection versus
digital data collection. Northeastern Bat Working
Group 2015 Annual Meeting, South Portland,
Maine.

Jackson, J.L. and K.A. Cunningham. 2014. Digital
data management for bat field work. The 6th
Annual Midwest Bat Working Group Meeting,
Terre Haute, Indiana.

Jackson, J.L. and K.A. Cunningham. 2014. Digital data management for bat field work. The 19th Annual Meeting of the Southeastern Bat Diversity Network and the 24th Colloquium on Conservation of Mammals in the Southeastern United States, Nacogdoches, Texas.

DePerno, C.S., N. Peterson, C.E. Moorman, K.A. Cunningham, J.P. Milrad, J.D. Riddle, and T. Steelman. 2010. Hunting and non-hunting college student's perceptions of wildlife and each other. Annual Meeting of the North Carolina Chapter of The Wildlife Society, Eastern 4-H Environmental Education Conference, Columbia, North Carolina.

Peterson, M.N., C.S. DePerno, C.E. Moorman, K.A. Cunningham, J.P. Milrad, J.D. Riddle, T.A. Steelman. 2009. Hunting and non-hunting college student's perceptions of wildlife and each other. Proceedings of the Annual conference of the Southeastern Association of Fish and Wildlife Agencies. 63: 47-53.

Cunningham, K.A., J.B. Johnson, C.A. Dobony, J.W. Edwards, W.M. Ford, and J.L. Rodrigue. 2009. Roost tree selection by Indiana bats (*Myotis sodalis*) on Fort Drum Military Installation, New York. 2009. 19th Colloquium on the Conservation of Mammals in the Southeastern US and the 14th Annual Meeting of the Southeastern Bat Diversity Network. Conference, Arkansas State University Convocation Center, Jonesboro, Arkansas.

Cunningham, K.A., J.P. Milrad, J.D. Riddle, and C.S. DePerno. 2006. Perceptions of hunting and how hunters and nonhunters view each other among North Carolina State University college students. The 15th Annual North Carolina State University Undergraduate Research Symposium. McKimmon Center, North Carolina State University, Raleigh, North Carolina.

Related Current and Past Projects

EA Engineering. RC Bryd Locks and Dam. 2016. Project member on an Indiana bat and northern long-eared bat habitat assessment and portal survey in Mason County, West Virginia and Gallia County, Ohio

East Kentucky Power. JK Smith Station. 2016. Project member on an environmental determination. Main duties included report preparation and writing for a document evaluating T&E species within the project boundary in Clark County, Kentucky.

Barge Waggoner Sumner & Cannon, Inc. Sweetwater Road. 2015. Crew Leader on a road expansion project, performed a presence/probable absence survey for threatened and endangered bat species, with special emphasis on Indiana bats (*Myotis sodalis*) and Northern Long-eared bats (*Myotis septentrionalis*) in Monroe County, Tennessee.

Western EcoSystems Technologies, Inc. Meadow Lake V Wind Farm. 2015. Crew Leader on a proposed wind farm expansion project, performed a presence/probable absence survey for threatened and endangered bat species, with special emphasis on Indiana bats and Northern Long-eared bats (*Myotis septentrionalis*) in White County, Tennessee.

Western EcoSystems Technologies, Inc. Gratiot County Wind Farm. 2015. Crew Leader on a proposed wind farm expansion project, performed a presence/probable absence survey for threatened and endangered bat species, with special emphasis on Indiana bats (*Myotis sodalis*) and Northern Long-eared bats (*Myotis septentrionalis*) in Gratiot County, Michigan.

TRC Solutions. ET Rover Pipeline. 2015. Crew Leader on the inventory of bat species, establishing the presence/probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened Northern Long-eared bat (*Myotis septentrionalis*) along the 710 mile pipeline right-of-way in Ohio.

Shoener Environmental. Buffalo Mountain. 2015. Crew Leader on a survey for a post-construction wind farm project to monitor the presence/probable absence of Indiana bats (*Myotis sodalis*) and Northern Long-eared bats

(*Myotis septentrionalis*) in Anderson County, Tennessee.

AECOM. Town Creek Solar Site. 2015. Crew Member that performed a habitat and wetland assessment on an approximate 230 ha project to determine if any suitable roosting habitat was present for the federally listed endangered Indiana bat (*Myotis sodalis*) or the federally threatened Northern long-eared bat (*M. septentrionalis*) on a proposed solar site.

AECOM. Town Creek Solar Site Phase I. 2015. Crew Member on an archeological survey in relation to the construction of a proposed White Oak Solar Farm in Tipton County, Tennessee.

AECOM. White Oak Solar Farm Phase I. 2015. Crew Member on an archeological survey in relation to the construction of the proposed White Oak Solar Farm in Burke County, Georgia.

Advanced Restoration Technologies, LLC. Area 51. 2015. Crew member, performed a jurisdictional determination on a proposed mine site.

Aquila. Chiro App. 2015. Project Manager responsible for the deployment of the Chiro Application, creating the notification of availability, and was available to answer any questions users may have had about the application. Additional duties included providing tutorials for the product and marketing.

AECOM. Riverbend Solar Site Phase I. 2014. Crew Member that performed on an archeological survey in relation to the construction of a proposed solar site in Lauderdale County, Alabama.

AECOM. Riverbend Solar Site. 2014. Crew Member, performed a habitat assessment on an approximate 260 ha project to determine if suitable roosting habitat was present for the federally listed endangered Indiana bat (*Myotis sodalis*) for a proposed solar site.

TRC Solutions. KCAB Biological Assessment. 2014. Project team member in the assessment of benthic macroinvertebrate and fish communities in Elijahs and Gunpowder Creeks in Boon County, Kentucky on behalf of the Kenton County Airport Board. Both stream assessments were performed in accordance with the current protocols set forth by the Kentucky Division of Water.

Western EcoSystems Technologies, Inc. Sandpiper Pipeline. 2014. Crew Leader that conducted presence/probable absence surveys for the proposed federally listed endangered northern long-eared bat (*Myotis septentrionalis*). Acoustic monitoring, mist-netting, and radiotelemetry was used to survey the bat along an approximate 590 mile proposed pipeline throughout Minnesota.

Aquila. Chiro App. 2014. Project Member that worked on the development of a multi-platform digital device. Main duties included field testing the device and creating specifications for the application

Meade and Hunt. Cell Tower Habitat Assessment. 2013. Project team member that conducted a survey to determine potential roost tree habitat utilized by the federally listed endangered bat species Indiana bat (*Myotis sodalis*) within the project boundary in Carter County, Kentucky.

Aquila. Chiro App. 2013. Project Member that worked on the development of a multi-platform digital device. Main duties included research and data management of information to be used for the development of the application.

True Line. Red Hawk Mine. 2013. Crew Leader that conducted a survey for federally listed endangered bat species within the 123 acre project boundary to establish presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) in McDowell County, West Virginia.

Civil and Environmental Consultants. Bluegrass Pipeline. 2013. Crew Leader that conducted surveys for federally listed endangered bat species within the project boundary to

establish presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) across Kentucky and West Virginia.

New River Engineering. Bluestone Auger Mine No. 1. 2013. Crew Leader that conducted a survey for federally listed endangered bat species within the 358 acre project boundary to establish presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) in McDowell and Wyoming Counties, West Virginia.

West Virginia University. Fort Drum Military Installation Cantonment Area Indiana Bat Research Project. 2009. Research assistant conducting summer surveys for federally listed endangered bat species within the 11,120 ha project boundary to establish presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*). All Indiana bats were placed with radio transmitters and tracked to day roosts and a maternity colony and nightly tracked foraging habitat. DNA samples of northern long-eared bats (*Myotis septentrionalis*) were collected and all bats captured were banded. Both terrestrial and aerial telemetry was used. Responsible for training, coordinating with law enforcement, and preparing reports sent to onsite biologists.

West Virginia University. Fort Drum Military Installation Cantonment Area Indiana Bat Research Project. 2008. Research assistant conducting summer and fall surveys for federally listed endangered bat species within the 11,120 ha project boundary to establish presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*). All Indiana bats were placed with radio transmitters and tracked to day roosts and a maternity colony and nightly tracked foraging habitat. DNA samples of northern long-eared bats (*Myotis septentrionalis*) were collected and all bats captured were banded. Both terrestrial and aerial telemetry was used. Additionally, all roost trees, including ones found by other

crews, were located, recorded, and a sample plot was analyzed to look at Indiana bat roost tree selection across a landscape. Responsible for training, coordinating with law enforcement, and preparing reports sent to onsite biologists.

USDA Forest Service. Land Between the Lakes Buffalo Round Up. 2008. Wildlife Apprentice involved with the annual buffalo roundup in a 100 acre enclosure. Duties included a coordinated effort corralling them into a shoot in order for a veterinarian to examine them in Stewart County, Tennessee.

USDA Forest Service. Land Between the Lakes Open Fields Monitoring Project. 2008. Wildlife Apprentice who was responsible for the implementation of a pilot program monitoring the insecticide dispersal in cropland and prairie fields throughout the 170,000 acre Land Between the Lakes National Recreation Area in Lyon and Trigg County, Kentucky and Stewart County, Tennessee.

USDA Forest Service. Land Between the Lakes Indiana Bat Survey. 2007. Wildlife Apprentice involved in an Indiana bat (*Myotis sodalis*) presence/probable absence survey prior to a timber harvest in Trigg County, Kentucky.

USDA Forest Service. Land Between the Lakes Avian Studies. 2007. Wildlife Apprentice involved with multiple avian studies across Land Between the Lakes. This includes monitoring and tracking bald eagles found throughout the project area, duties of which included monitoring observed flying eagles and locating and describing nests found. Additionally, bird point counts were performed throughout the 170,000 acre National Recreation Area in Lyon and Trigg County, Kentucky and Stewart County, Tennessee.

USDA Forest Service. Land Between the Lakes Open Fields Monitoring Project. 2008. Wildlife Apprentice who was responsible for the implementation of a pilot program monitoring the insecticide dispersal in cropland and prairie fields throughout the 170,000 acre Land Between the Lakes National Recreation Area in Lyon and Trigg County, Kentucky and Stewart County, Tennessee.

US Army Corps of Engineers. Franklin Falls Dam. 2006. Wildlife Intern that conducted bat population inventory surveys across the 3,900 acre project area surrounding the Merrimack River basin using mist netting in Merrimack County, New Hampshire.

US Army Corps of Engineers. Surry Mountain Lake. 2006. Wildlife Intern that conducted bat population inventory surveys across the approximate 1,600 acre project located in the Upper Connecticut River Basin using mist netting in Cheshire County, New Hampshire. All bats were banded.

US Army Corps of Engineers. Otter Brook Lake. 2006. Wildlife Intern that conducted bat population inventory surveys across the 458 acre project located in the Upper Connecticut River Basin using mist netting in Cheshire County, New Hampshire. All bats were banded.

US Army Corps of Engineers. Union Village Dam. 2006. Wildlife Intern that conducted bat population inventory surveys across the approximate 800 acre project located in the Upper Connecticut River Basin using mist netting in Orange County, Vermont. All bats were banded.

US Army Corps of Engineers. Ball Mountain Lake. 2006. Wildlife Intern that conducted bat population inventory surveys across the 969 acre project located in the Upper Connecticut River Basin using mist netting in Windham County, Vermont. All bats were banded.

US Army Corps of Engineers. Townshend Lake. 2006. Wildlife Intern that conducted bat population inventory surveys across the 1,010 acre project located in the Upper Connecticut River Basin using mist netting in Windham County, Vermont. All bats were banded.

US Army Corps of Engineers. North Springfield Lake. 2006. Wildlife Intern that conducted bat population inventory surveys across the 1,361 acre project located in the Upper Connecticut River Basin using mist

netting in Windsor County, Vermont. All bats were banded.

US Army Corps of Engineers. North Hartland Lake. 2006. Wildlife Intern that conducted bat population inventory surveys across the 1,700 acre project located in the Upper Connecticut River Basin using mist netting in Windsor County, Vermont. All bats were banded.

Education

BS, Agriculture Science, 2002 Austin Peay State University

MS, Biology, 2007
Arkansas State University

Specialty and Skill Areas

Terrestrial Ecology
Endangered Species, Specializing in Endangered Bat Species
Cave Surveys, Mapping, and Bio-monitoring
Mammalian, Ornithological, Herpetological, and Botanical Surveying and Bio-monitoring

Professional Affiliations

The National Wildlife Society
Southeastern Bat Diversity Network
Tennessee Bat Working Group

Permits

Federal Scientific Collection Permit for Endangered Species

State Scientific Collection Permit in Arkansas, Kentucky, and Minnesota.

Publications

Medlin, R. E. Jr., T. S. Risch, K. F. Gaines, M. B. Connior. *Submitted*. Responses of Bats to Forest Fragmentation in the Mississippi River Alluvial Valley.

M. B. Connior, A. A. Kershen, R. E. Medlin Jr., D. A. Elrod, D. B. Sasse, and T. S. Risch. *Accepted*. Distribution and Habitat Attributes of an Endemic Subspecies of Pocket Gopher. *Southwestern Naturalist* 2010.

Medlin, R. E. Jr. and T. S. Risch. 2008. Habitat associations of bottomland bats, with focus on Rafinesque's big-eared bat and the southeastern myotis. *American Midland Naturalist* 160:400-412.

Medlin, R. E. Jr. 2008. State of the Environment: Belize. *Electronic Journal of Integrated Biology*:

Arkansas State University.

<http://ejt.astate.edu/electronicjournal/Articles.htm>

Medlin, R. E. Jr, S. C. Brandebura, H. B. Fokidis, and T. S. Risch. 2006. Distribution of Arkansas's bottomland bats. *Journal of the Arkansas Academy of Science* 60:189-191.

Brandebura, S. C., R. E. Jr Medlin, and T. S. Risch. 2006. New evidence for maternity colonies of the Indiana bat in the delta of Arkansas. *Journal of the Arkansas Academy of Science* 60:169-170.

Experience

8-years of professional environmental consulting experience.

9-years of experience in endangered species, specializing in endangered bat species.

Related Past and Current Projects

Barge Waggoner Sumner & Cannon, Inc. Sweetwater Road. 2015. Crew Leader on a road expansion project, performed a presence/probable absence survey for threatened and endangered bat species, with special emphasis on Indiana bats (*Myotis sodalis*) and Northern Long-eared bats (*Myotis septentrionalis*) in Monroe County, Tennessee.

Barge Waggoner Sumner & Cannon, Inc. SIA Road Serving Beretta. 2015. Crew Leader on a road expansion project, performed a presence/probable absence survey for threatened and endangered bat species, with special emphasis on Indiana bats (*Myotis sodalis*) and Northern Long-eared bats (*Myotis septentrionalis*) in Sumner County, Tennessee.

Barge Waggoner Sumner & Cannon, Inc. Chattanooga Crossings. 2015. Crew Leader on a road expansion project, performed a presence/probable absence survey for threatened and endangered bat species, with special emphasis on Indiana bats (*Myotis sodalis*) and

Northern Long-eared bats (*Myotis septentrionalis*) in Hamilton County, Tennessee.

TRC Solutions. ET Rover Pipeline. 2015. Crew Leader on the inventory of bat species, establishing the presence/probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) and threatened Northern Long-eared bat (*Myotis septentrionalis*) along the 710 mile pipeline right-of-way in Ohio.

Hardin County Ohio Wind Project, Ohio. 2014. Crew Leader, inventorying bat species, establishing the presence or probable absence of the federally listed endangered Indiana bats (*Myotis sodalis*) within the 36,047 acre project area.

Sandpiper, West, Minnesota. 2014. Crew Leader, conducting acoustic surveys for proposed federally listed endangered northern long-eared bat (*Myotis septentrionalis*) along an approximate 590 mile proposed pipeline.

Natural Resource Group. Bluegrass Pipeline Project. 2013. Project team member in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) along the 525 mile pipeline right of way in Kentucky, Ohio and West Virginia.

Tippecanoe Wind Project, Applied Ecological Services 2012. Project team member, surveying and radio tracking the federally endangered Indiana bat (*Myotis sodalis*) back to roost trees.

I-69 Bat Survey, Palmer Engineering for the Tennessee Department of Transportation 2012. Project team member, assisting in the inventory of bat species, establishing the presence or probable absence of the federally listed endangered Indiana bat (*Myotis sodalis*) within the linear 65 mile long and approximately 1,000 feet wide project boundary.

Fort Drum Bat Survey, Fort Drum Environmental Division, Fish and Wildlife Management Program 2012. Project team member, performing an installation-wide survey

of the approximate 43,000 ha Fort Drum Military Installation. Mist-net surveys and radio-tracking was used to document the spatial and temporal use and distribution of bats within the Fort Drum landscape.

Big Branch Mine, Summit Engineering 2012. Project team member, eighteen potential deep mine portals were observed and assessed within the project area. A summer assessment was conducted for the potential to provide habitat for the Gray bat and a fall assessment was conducted for the potential to provide suitable winter habitat for the Indiana bat within the 1,228 acre project boundary.

Burr Oak, Rochester, IL, Western EcoSystems Technologies, 2011. Project team member, assessing habitat and surveying approximately 2,500 acres for Indiana bats (*Myotis sodalis*). Other duties included coordination with regulatory agencies, data analysis, and report preparation. Indiana bats were captured on the project, which required additional studies, which include radio telemetry and radio tracking to determine home range and foraging patterns for Indiana bats in this area.

Apple Blossom and Harvest Wind Bat Surveys, Caseville, MI, Western EcoSystems Technologies, 2011. Project team member, assessing habitat and surveying approximately 4,000 acres for Indiana bats (*Myotis sodalis*). Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Totten Ridge Bat Survey, McDowell County, WV, Green Tree Consulting, 2011. Project team member, assessing habitat and surveying approximately 174 acres for Indiana bats (*Myotis sodalis*). Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Pinnacle Bat Survey, West Virginia, Met Resources, 2011. Project team member, assessing habitat and surveying approximately

3945 Simpson Lane | Richmond, Kentucky 40475 | Phone: 859-623-0499 | Fax: 859-623-2676 | www.jacksongroupco.com

2,500 acres for Indiana bats (*Myotis sodalis*). Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Puncheoncamp II Bat Survey, McDowell, WV, Met Resources, 2011. Project team member, assessing habitat and surveying approximately 1,000 acres for Indiana bats (*Myotis sodalis*). Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Stateline Bat Survey, McDowell County, WV, Gress Engineering, 2011. Project team member, assessing habitat and surveying approximately

1,000 acres for Indiana bats (*Myotis sodalis*). Additional duties included coordination with regulatory agencies, data analysis, and report preparation.

Kala R. Davis

Summary

Ms. Davis has over 7 years in the wildlife field and 2+ years in the oil and gas industry. She has assisted in industrial consulting, private consulting, and general public education for many different species throughout the east coast. Ms. Davis has personally worked with large and small exotic and endangered species, as well as keystone species and domestic animals. Ms. Davis is a 2013 graduate of California University of PA with a Bachelor of Science in Wildlife and Fisheries Biology.

Experience

06/2013 to Present Blue Mountain, Inc. Burton, WV

Lead Wildlife Biologist- Environmental

- Project Management for Endangered bat species habitat and conservation management as well as critical habitat assessments.
- Long-term monitoring of conservation measures and placement of conservation measures.
- Responsible for correspondence between multiple agencies and clients
- State and Federal permitting for well pads, pipelines, and roads
- Wetland and Stream delineations and monitoring
- Water quality and infiltration testing
- GIS Technician and Data processing
- Field Surveys in remote locations
- Helicopter Photography

5/2015 to 8/2015 Bat Conservation and Management Carlisle, PA

Wildlife Consultant Technician

- Summer mist-net surveys for endangered bat species on the east coast
- Radio tracking individuals of interest to their roost sites.
- Roost site assessments for long-term and short-term roosts.
- Critical Habitat assessment

3/2007 to 4/2013 Pennsylvania Game Commission Allenwood, PA

Volunteer Data Collector

- EHD necrosis samples in whitetail deer
- Black bear den searched and cub data
- Radio Tracking and collaring
- Game check Stations and population control harvests
- Public relations and youth field days

2/2011 to 10/2011 Nemaocolin Woodlands Spa and Resort Farmington, PA

Wildlife Academy Intern- Zookeeper

- Exotic and Domestic animal care and husbandry
- Public relations and tours
- Dietary and medical responsibilities for all species
- In charge of animal enrichment and enclosure care
- Western Horseback trail tours, dog sledding tours, and exotic animal training

Education

8/2009 to 5/2013

California University of PA

California, PA

Bachelor of Science

- Environmental Science: Wildlife and Fisheries Biology

Training and Certifications

- MSHA and annual refreshers- July 2013
- OSHA 10-hr - Aug. 2013
- Richard Chin 36Hr Wetland Delineation Training- Aug. 2013
- Richard Chin 16Hr Environmental Permitting- Aug. 2013
- Swamp School 40Hr Wetland Delineation Course- Sept. 2013
- Swamp School 16Hr Connectivity of Streams- Dec. 2013
- Bat Conservation Management Field School Portal, AZ - May 2014
- PEC Safe lands License - Sept. 2014
- Bat Conservation Management Field School Mammoth Cave National Park, KY- Sept. 2014
- Swamp School 3Hr Update to 2015 rulings- Aug. 2015
- Wildlife Society Animal Trapping 9hr Workshop- Oct. 2015
- Grant writing workshop - Sept. 2015

References

References are available upon request.

ENDANGERED SPECIES CONSERVATION SERVICES



Location:
Doddridge County, West
Virginia

Client:
CNX Gas Company, LLC

Dates:
April 2014 to April 2015

Present Status:
Under Monitoring Plan

Project Type:
Habitat Report and
Placement of
Conservation Measures

Major Project Elements:
Habitat Assessment,
Conservation Measures
Placement

OXFD-Field



BMI was contracted by CNX to design two shale gas well pads and an impoundment, provide all environmental work, and endangered bat species work for a 2-mile buffer area encompassing 11 project sites.

A total of six habitat studies were performed by BMI. The information from all 11 project sites

were combined and BMI permitted a conservation plan for the combined area.

A total of 148 acres were put aside for a conservation easement, installation of West Virginia's first oil and gas supported bat condo, multiple bat boxes, bat bark and tree girdling was implemented as part of the conservation plan. A multi-year monitoring plan is currently being implemented. Also, three of the project area's erosion and sediment control plans were updated for mussel buffers.



Location:

Jefferson and Lewis Counties,
New York

Client:

Department of Defense
Fort Drum

Dates:

May 2011 – August 2012

Present Status:

Complete

Project Type:

Bat Survey

Major Project Elements:

Mist-netting
Ground Radio Tracking
Aerial Radio Tracking
Habitat Assessments
White-Nose Syndrome
Assessments (WNS)

Bat Species Inventory of the Fort Drum Military Installation

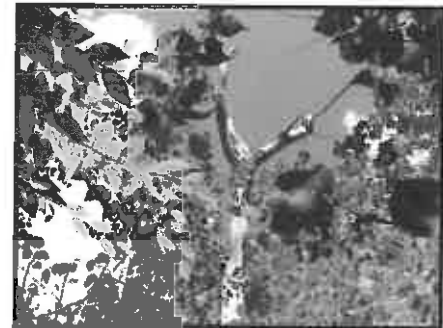
The primary objective of this project was to use mist-net surveys and radio-tracking to document the spatial and temporal use and distribution of bats within the Fort Drum landscape. White-Nose Syndrome (WNS) pattern and distribution within and among bat species was also evaluated across the Installation.



Thirty pre-determined net sites distributed across the Fort Drum installation were surveyed twice during the season totaling 240 net-nights. The first period occurred between 15 June 2011 and 10 July 2011, generally

before pups are volant; the second period occurred between 17 July 2011 and 12 August 2011 when pups are volant. Mist-netting followed guidelines set forth by the USFWS and the Indiana Bat Recovery Team to survey summer habitat for the presence/absence of the federally endangered Indiana bat.

Survey efforts resulted in 437 bats, comprised of seven of the nine known bat species for New York were captured during the summer of 2011. Eastern small-footed bat (*M. leibii*) and eastern pipistrelle bat (*Perimyotis subflavus*) were not recorded during the survey. The three most common species captured were big brown bats, eastern red bats and little brown bats. Big brown bats comprised 83% of bats captured; whereas hoary bats, silver-haired bat, northern long-eared bats, and Indiana bats only composed one percent of captures.



Radio tracking efforts resulted in tracking 20 bats, including one Indiana bat, three little brown bats, one silver-haired bat, and 15 big brown bats to 28 roosts. Bats were tracked to nine (32%) red maples, four (14%) human made structure, four (14%) red oaks, three (11%) sugar maples, and two (7%) American beech.

Location:
TN and KY

Client Information:
Amie Lehman
Plexus Scientific Corp
Office: (931) 627-0830
amelia.k.lehman.ctr@mail.mil

Dates:
June – July 2015

Present Status:
Complete

Project Type:
Presence/absence bat survey

Project Management:
Plexus Scientific Corp.

Team Members:
Plexus Scientific Corp.
Jackson Group

Major Project Elements:
Mist-Net Survey

Fort Campbell Bat Survey

Jackson Group worked with Plexus Scientific Corp. as a subcontractor to inventory bat species within the Fort Campbell military reservation. Surveys were done all across the 102,000 acre military installation. The goal of the survey was to determine



presence/probable absence of federally listed threatened and endangered bat species, specifically northern long-eared bats (*Myotis septentrionalis*) and Indiana bats (*M. sodalis*).

All surveys followed the United States Fish and Wildlife Service (USFWS) most recent guidelines, the *2015 Range-Wide Indiana Bat Summer Survey Guidelines, April 2015* and were conducted by federally permitted biologists by the USFWS to preform surveys on Indiana bats and northern long-eared bats.



There are sixteen (16) species that can be found in Tennessee; six (6) species of which were represented in surveys done on Fort Campbell: big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), gray bat (*M.*

griseus), little brown bat (*M. lucifugus*), tri-colored bat (*Perimyotis subflavus*), and evening bat (*Nycticeius humeralis*). All bats were released after morphometric data was collected.

Location:

Gratiot County, Michigan

Client Information:

Rhett Good
Research Biologist
Western EcoSystems
Technology, Inc. (WEST)
408 West 6th Street
Bloomington, Indiana 47404
Office: (812) 339-1756
rgood@west-inc.com

Dates:

June – August 2015

Present Status:

Complete

Project Type:

Bat Survey

Project Management:

Jeremy Jackson

Team Members:

Jackson Group

Major Project Elements:

Mist-Net Surveys

Gratiot County Wind Farm Bat Survey

Jackson Group was contracted by Western EcoSystems Technology, Inc. of Bloomington, Indiana to complete surveys designed to determine if northern long-eared bats (*Myotis septentrionalis*) were present or probably



absent within the Gratiot County Wind Energy Facility. An 800 meter (0.5 mile) radius buffer surrounding each turbine was used to define the project area.

All surveys were conducted by biologists permitted by the United States Fish and Wildlife Service (USFWS) to conduct northern long-eared bat surveys. Biologists followed the USFWS 2015 *Range-Wide Indiana Bat Summer Survey Guidelines, April 2015* and the *Northern Long-Eared Bat Interim Conference and Planning Guidance, January 2014* to conduct all surveys. Work was done in coordination with the USFWS East Lansing Field Office.



Sixteen (16) sites were located within the project area for netting. Forty-two (42) individual bats representing two (2) species were captured during this survey: big brown bat (*Eptesicus fuscus*) (88%, n = 37) and



Bat Survey

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eastern red bat (*Lasiurus borealis*) (12%, n = 5). This project was completed on time and within budget.

Location:
Ohio

Client Information
TRC Solutions

Dates:
June – August 2015

Present Status:
Complete

Project Type:
Bat Linear Survey

Project Management:
JD Wilhide

Team Members:
Jackson Group
Ecological Solutions

Major Project Elements:
Mist-Net Survey
Radiotelemetry
Emergence Counts

Rover Pipeline

Jackson Group was contracted by TRC Solutions, out of Gahanna, Ohio, to manage an approximate 230 mile section of the Rover Pipeline going through Ohio.

The main objective of this project was to conduct presence or probable absence surveys of federally endangered and threatened Indiana bat (*Myotis sodalis*) and northern long-eared bat (*M. septentrionalis*). Jackson Group was responsible for mist-netting (and corresponding acoustic surveys, radiotelemetry, and emergence counts, where applicable) in forested areas along the proposed pipeline route across Ohio.



All surveying was conducted by biologists federally permitted by the United States Fish and Wildlife Service (USFWS) to handle both Indiana and northern long-eared bats. All proper protocols for surveying bats were followed, including the *2015 Range-Wide Indiana*

Bat Summer Survey Guidelines and National White-Nose Decontamination Protocol-Version 06.25.2012.

A major component of the Rover Pipeline was coordinating with all other agencies and companies involved in order to complete the surveying on time. Jackson Group successfully managed multiple subcontractor companies, as well working with state and federal agencies, local law enforcement, and landowners on a regular basis.