



July 17, 2015

John Taucher
PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning & Habitat Protection
2001 Elmerton Avenue
Harrisburg, PA 17110

**Subject: PGC ID Number: 201312180001
Request for a No Impact Determination
Sunoco Pipeline, L.P. - Pennsylvania Pipeline Project (Previously Part of
the Mariner East 2 Pipeline Project)**

Dear Mr. Taucher:

Tetra Tech, Inc. (Tetra Tech) has been retained by Sunoco Pipeline, L.P. (SPLP) to conduct environmental field surveys and permitting services for the proposed Pennsylvania Pipeline Project (PPP) formerly part of the Mariner East 2 Pipeline Project (ME2). On behalf of SPLP, Tetra Tech is requesting a no impact determination from the Pennsylvania Game Commission (PGC) for the PPP.

A Large Project Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Request including a large project form, project description, and preliminary project USGS topographic mapping was initially provided to the PGC under the preliminary project name "Mariner East 2 Pipeline - Trans-Pennsylvania" on December 12, 2013. We received a response letter dated March 14, 2014 from PGC. That letter is included for reference as Attachment 1. The Mariner East 2 Project was originally going to encompass all of the project activities within the state of Pennsylvania (PA). After field activities began, the project was split into two separate and independent projects; the Ohio Pipeline Project (OPP) and the PPP. Initially, a 20-inch diameter pipeline would be installed within a 50-foot-wide right-of-way (ROW) from Houston, PA to Marcus Hook, PA (306 miles) and a second, up to 20-inch diameter pipeline, would be installed in the same ROW. The second line is proposed to be installed from SPLP's Delmont Station, Westmoreland County, Pennsylvania to the Marcus Hook facility, paralleling the initial line for approximately 255 miles. (Attachment 2).

PGC indicated that the following species or resources of concern were located within the vicinity of the Mariner East 2 Project: bald eagle (*Haliaeetus leucocephalus*), Indiana bat (*Myotis sodalis*), Allegheny woodrat (*Neotoma magister*), Eastern small-footed bat (*Myotis leibii*), Northern Harrier (*Circus cyaneus*), Northern long-eared bat (*Myotis septentrionalis*), silver-haired bat (*Lasionycteris noctivagans*), bald eagle (*Haliaeetus leucocephalus*), potential bat hibernacula, and wetlands located within the requested review area along the Little Conemaugh River, the Raystown Branch Juniata River, Marsh Creek, and Middle Creek.

Tetra Tech

661 Anderson Drive, Foster Plaza VII, Pittsburgh, PA 15220
Tel 412.921.7090 Fax 412.921.7090 www.tetrattech.com



PGC has removed the bald eagle from the state-listed threatened and endangered species list. Tetra Tech has directly coordinated with the US Fish and Wildlife Service (USFWS) regarding the bald eagle and will work within the framework of the USFWS's National Bald Eagle Management Guidelines.

The PPP does cross the Little Conemaugh River, the Raystown Branch Juniata River, Marsh Creek, and Middle Creek areas. SPLP has maintained an avoidance and minimization strategy for the entire Project to reduce or avoid impacts to wetlands. Therefore, impacts to these resources would be minimized to the maximum extent practical. PGC mentions that portions of the ME2 are located within State Game Lands. Sunoco is coordinating with PGC Land Management for areas of this project that cross State Game Lands. All appropriate license agreements will be obtained for public land crossing and conditions of those agreements followed.

PGC provided the location of a Northern Harrier Restriction Area (Attachment 3) and requested all site preparation, construction, reclamation, and future maintenance mowing be avoided between April 15 and August 31 to minimize potential impacts to Northern harriers and their habitat during the breeding and nesting season. Additionally, a seed mix was requested to be used post construction to ensure the establishment of beneficial herbaceous habitat for grassland species. The area to be disturbed is only a small portion, approximately 12.65 acres, of the restriction area, and other than roadways crosses all privately held lands. The majority of the areas crossed are currently pasture or agriculture and the land owner has control over what is planted. Mowing would occur on an as needed basis and be limited to where the line passes through forested habitats. SPLP feels that given the limited and temporary disturbance of construction, current land use of the area, and the nature of the easement agreements, that commitment to a seed mix restoration requirement is not practical. Also given the limited and temporary duration of construction and operational maintenance that will occur in this area, construction and mowing during the recommended restriction periods would also not adversely impact the species.

PGC noted that comments on the Indiana bat are deferred to USFWS. PGC also requested that winter tree clearing occur between November 1st and March 31st to minimize impacts to Northern long-eared bats and silver-haired bats. Tetra Tech understands that, as of May 1, 2015, PGC defers comment on the Northern long-eared bat to USFWS. Tetra Tech is coordinating with the USFWS regarding the Indiana bat and Northern long-eared bat and will submit an Indiana and Northern long-eared Bat Conservation Plan for the PPP. This coordination will ensure the project does not adversely impact these two species.

SPLP through coordination with the USFWS was provided two areas that would require tree clearing timing restrictions on the PPP due to the projects location within identified Indiana bat swarming areas (Attachment 4). Those areas are identified on maps provided in Attachment 4. In these areas the USFWS recommended tree clearing timing window of November 15 to March 31. To also provide protection to the silver-haired bat, SPLP will only clear trees in these areas between November 15 and March 31, as recommended by the PGC. That commitment will be presented on project plans and on the line list.

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Outside of the swarming areas, SPLP has initiated surveys for the Indiana bat through mist netting surveys in accordance with the 2014 and 2015 Range-Wide Indiana Bat Summer Survey Guidelines and as outlined in the 2014 and 2015 survey conditions listed under the PGC Special Use Permit issued for the Project. These mist net surveys also survey for other bat species that use similar habitats and share similar life histories, such as the silver-haired bat and Northern long-eared bat. One silver-haired bat was captured in Indiana County during these surveys and is provided on Attachment 5. PGC has been provided the location in the Bat Measurement and Capture Data Form submittal and in the *2014 Summer Mist Net and Fall Portal Survey Summary Report* (December 2014). The location is 1,300 feet from the nearest project area (Attachment 5). Surveys continued into 2015, however no additional silver-haired bats have been located and that result will be reported within the 2015 report. Based on these results, removing the timing restriction on the remainder of the project areas that occur outside the defined swarming areas in regards to the silver-haired would not result in an impact to this species.

PGC indicated that abandoned mine features were present within the project area of ME2. PA Department of Environmental Protection's (PADEP) *Abandoned Mine Land (AML) Inventory Points* database was reviewed for the potential presence of abandoned mine features within PPP. Any mine features within the project area were evaluated for potential hibernacula and assessed per the *PGC Protocol for Assessing Bat Use of Potential Hibernacula*. No potential hibernacula were identified within PPP per the previously submitted 2014 summary report. Based on this result, the PPP is not expected to impact previously undiscovered bat hibernacula.

PGC provided details on areas to be surveyed for Eastern small-footed bat and Allegheny woodrat habitat. These surveys have been completed for the areas initially provided by PGC as well as additional areas along the re-route south of Altoona. Attached for your reference is the final report (Attachment 6) which includes a summary of the survey areas and activities as well as identified Allegheny woodrat potential activity centers (PACs) and activity centers (ACs) and potential Eastern small-footed bat habitat. The majority of the identified PACs, ACs, and Eastern small-footed bat habitat areas are being avoided by the Project and many of these areas occur along an existing SPLP pipeline corridor that the PPP is following. SPLP proposes to restore any identified Allegheny woodrat ACs and identified Eastern small-footed bat habitat to preexisting conditions as much as practical to ensure safe installation and operation of the project. Therefore, impacts to these species are expected to be minor and temporary.

On behalf of SPLP, Tetra Tech would like to request the PGC review of and concurrence with our no impacts determination for the Northern harrier, silver-haired bat, small-footed bat, potential bat hibernacula, and the Allegheny woodrat. Thank you for your assistance in this matter. If you have any questions regarding this request, please feel free to contact me at 412.921.8167 or preston.smith@tetrattech.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Smith', with a long horizontal flourish extending to the right.

Preston R. Smith
Manager, Wetlands and Ecological Services Department



Attachments:

- Pennsylvania Pipeline Project Maps
- PA Game Commission PNDI Response Package
- Northern Harrier Restriction Area Figure
- Indiana Bat Swarming Areas Figure
- Silver-haired Bat Capture Location Figure
- Allegheny Woodrat and Eastern Small-Footed Bat Survey Report

CC: Chris Embry, Sunoco Logistics
Matt Gordon, Sunoco Logistics
Brad Schaffer, Tetra Tech
Sandy Lare, Tetra Tech
File 112IC05958

ATTACHMENT 1

ATTACHMENT 2

ATTACHMENT 3

ATTACHMENT 4

ATTACHMENT 5

ATTACHMENT 6

ATTACHMENT 1



Division of Environmental
Planning and Habitat
Protection
717-783-5957

COMMONWEALTH OF PENNSYLVANIA
Pennsylvania Game Commission

2001 ELMERTON AVENUE
HARRISBURG, PA 17110-9797

*"To manage all wild birds, mammals and their habitats
for current and future generations."*

ADMINISTRATIVE BUREAUS:

ADMINISTRATION.....717-787-5670
HUMAN RESOURCES.....717-787-7836
FISCAL MANAGEMENT.....717-787-7314
CONTRACTS AND
PROCUREMENT.....717-787-6594
LICENSING.....717-787-2084
OFFICE SERVICES.....717-787-2116
WILDLIFE MANAGEMENT.....717-787-5529
INFORMATION & EDUCATION.....717-787-6286
WILDLIFE PROTECTION.....717-783-6526
WILDLIFE HABITAT
MANAGEMENT.....717-787-6818
REAL ESTATE DIVISION.....717-787-6568
AUTOMATED TECHNOLOGY
SERVICES.....717-787-4076

www.pgc.state.pa.us

March 14, 2014

PGC ID Number: 201312180001

Mr. Preston Smith
Tetra Tech
661 Anderson Drive, Foster Plaza
Pittsburgh, Pa 15220
preston.smith@tetrattech.com

Re: Sunoco Pipeline, LP – Pennsylvania Pipeline Project
State Game Lands Nos. 46, 52, 71, 118, 147, 153, 198, 220, and 276
Large Project PNDI Review
Washington, Westmoreland, Indiana, Cambria, Blair, Huntingdon, Perry, Cumberland, Lebanon,
Lancaster, Berks, and Chester Counties, PA

Dear Mr. Smith,

Thank you for submitting your Pennsylvania Natural Diversity Inventory (PNDI) Large Project Environmental Review request. The Pennsylvania Game Commission (PGC) screened this project, including the requested 1500-foot buffer, for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

Potential Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. The PGC has received and thoroughly reviewed the information that you provided to this office as well as PNDI data, and has determined that potential impacts to threatened, endangered, and species of special concern may be associated with your project. Therefore, additional measures are necessary to avoid potential impacts to the species listed below:

Scientific Name	Common Name	PA Status	Federal Status
<i>Myotis sodalis</i>	Indiana Bat	ENDANGERED	ENDANGERED
<i>Neotoma magister</i>	Allegheny Woodrat	THREATENED	
<i>Myotis leibii</i>	Eastern Small-footed Bat	THREATENED	
<i>Circus cyaneus</i>	Northern Harrier	THREATENED	
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	SPECIAL CONCERN	
<i>Lasionycteris noctivagans</i>	Silver-haired Bat	SPECIAL CONCERN	
<i>Haliaeetus leucocephalus</i>	Bald Eagle		

Next Steps

Indiana Bat

Indiana bats are a federally listed endangered species under the jurisdiction of the U.S. Fish and Wildlife Service. As a result, our agency defers comments on potential impacts to Indiana bats to the U.S. Fish and Wildlife Service.

Allegheny Woodrat

The PGC has identified portions of the proposed project where potential Allegheny woodrat habitat may exist, and could be impacted by the proposed project. The PGC is requesting that Allegheny woodrat surveys be completed within the Allegheny Woodrat Survey Areas (see Maps 1-7 attached). The surveys should be completed by a qualified biologist and follow protocols found in the attached *PGC Allegheny Woodrat* guidance document. Please be sure that the following information, at a minimum, is provided for further review and comment by the PGC:

- a 1:24,000 scale copy of a USGS topo map and a GIS shapefile illustrating the locations (i.e. points) of all woodrat activity centers and potential activity centers, as well as the limits (i.e. polygons) of all woodrat habitat sites (central point locations with average width and length measurements will not be accepted to illustrate the habitat sites)
- color photographs, keyed to a location and orientation map, of any woodrat habitat sites, activity centers, potential activity centers, or woodrat sign that are identified during the surveys
- a Woodrat Habitat Site Survey form for each habitat site identified during the survey

The survey report should be submitted to the PGC no later than December 31st of the year it is completed.

Eastern Small-footed Bat

The PGC has identified portions of the project where potential eastern small-footed bat day roost habitat may exist, and could be impacted by the proposed project. The PGC is requesting that all potential eastern small-footed bat day roost habitat be assessed and delineated by a qualified biologist within the Small-footed Bat Survey Areas (see Maps 1-7 attached). Please be sure that the following information, at a minimum, is provided for further review and comment by the PGC:

- a 1:24,000 scale copy of a USGS topo map and a GIS shapefile illustrating the limits of all potential small-footed bat day roost habitat that is identified
- a GIS shapefile illustrating the proposed limits of tree clearing throughout the Small-footed Bat Survey Area
- a GIS shapefile illustrating the proposed limits of earthwork, including any proposed grubbing or erosion and sedimentation pollution controls, throughout the Small-footed Bat Survey Area
- representative color photographs of all surface rock encountered during the assessment and delineation regardless of whether the rock is considered to be potential eastern small-footed bat day roost habitat or not (numerous photos for each area of surface rock are strongly recommended)

- a narrative or table detailing the following information for each area of surface rock that is encountered during the assessment and delineation to support or refute the rock's potential as eastern small-footed bat day roost habitat:
 - the estimated canopy cover over the rock
 - anticipated solar exposure of the rock
 - amount and size of crevices available for roost sites
 - presence of organic material, soil, or water within those crevices
 - other details as necessary that cannot be adequately conveyed via the photos provided
- a narrative detailing the reason(s) for any surface rock encountered not being considered potential small-footed myotis day roost habitat;
- and a photo location and orientation map for all photos provided.

The survey report should be submitted to the PGC no later than December 31st of the year it is completed.

Northern Harrier

The PGC is requesting that all site preparation, construction, reclamation, and future maintenance mowing within the Northern Harrier Restriction Area (see Map 8 attached) avoid the period between April 15 and August 31 to minimize potential impacts to northern harriers and their habitat during the breeding and nesting season.

The PGC is also recommending that Sunoco use the following seed mix within this section of the project area to ensure the establishment of beneficial herbaceous habitat for grassland species post-construction.

Species	Common Name	Seed/Acre	Percent Live Seed
<i>Avena sativa – spring planting</i>	annual oats	30lb	
<i>Lolium multiflorum- fall planting</i>	annual ryegrass	10lb	
<i>Schizachyrium scoparium</i>	little bluestem	4 lbs	10-67
<i>Sorghastrum nutans</i>	indian-grass	2 lbs	10-50
<i>Bouteloua curtipendula</i>	side-oats grama	1 lb	5-25
<i>Panicum virgatum</i>	switchgrass	1 lb	10-12
<i>Rudbeckia triloba plus another*</i>	black-eyed susan	¼ lb	1-5, each
<i>Coreopsis tripteris</i>	tall tickseed	1 oz	1-5
<i>Chasmanthium latifolium</i>	sea-oats	1lb	1-30
Straw Mulch – NO HAY			

Furthermore, when plans are developed illustrating the specific location and extent of any proposed permanent facilities (e.g. access roads, extra work spaces, launcher/receiver sites, meter sites, compressor stations, etc.) within this section of the project area, please provide a copy of those plans to this office for further review and written comment so that any permanent impacts to northern harriers can be considered. Every effort should be made to avoid and minimize permanent impacts to northern harrier habitat as these plans are developed, and depending on the nature and extent of any such impacts, habitat assessments, species surveys and/or mitigation may be necessary.

Northern Long-eared Bats and Silver-haired Bats

Northern long-eared bats and silver-haired bats are species of special concern, and therefore, not target species for additional surveys. However, because of their ecological significance, all trees or dead snags greater than 5 inches in diameter at breast height that need to be harvested to facilitate the project (including any access roads or off-ROW work spaces) should be cut between November 1st and March 31st.

Bald Eagle

In January 2014, the PGC Board of Commissioners approved the removal of bald eagles from the state-listed endangered and threatened list. This status change will be reflected in an upcoming edition of the Pennsylvania Bulletin. Bald eagles are now classified as a Pennsylvania “protected” species. As the name implies, bald eagle will continue to enjoy protections provided by the Federal Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and the Lacey Act. As a result, the PGC defers comments on potential impacts to bald eagles to the U.S. Fish and Wildlife Service.

The Bald and Golden Eagle Protection Act protects eagles from various forms of take, including disturbance. Please refer to the U.S. Fish and Wildlife Service's National Bald Eagle Management Guidelines (<http://www.fws.gov/migratorybirds/baldeagle.htm>) for specific measures that should be taken to ensure bald eagles are not disturbed. If you have questions about when and how to obtain a federal permit because you believe your proposed project will disturb bald eagles, and you are not able to implement measures to avoid disturbance, please contact the Fish and Wildlife Service's Pennsylvania Field Office at 814-234-4090.

For additional information on bald eagles and bald eagle nest etiquette refer to the “Bald Eagle Watching in Pennsylvania” link on the PGC’s website (www.pgc.state.pa.us), under the Wildlife tab and then by clicking on Birding and Bird Conservation.

Wetlands

National Wetland Inventory Mapping (NWI) and/or aerial photos suggest that wetlands are located within the requested review area along the Little Conemaugh River, the Raystown Branch Juniata River, Marsh Creek, and Middle Creek. The PGC is requesting that the final project avoid, or at least minimize to the greatest practical extent, any adverse impacts to these resources and their associated wildlife habitat.

Potential Bat Hibernacula

In addition, the PA Department of Environmental Protection’s *Abandoned Mine Land (AML) Inventory Points* from www.pasda.psu.edu indicates abandoned mine features within the requested review area. These mine features have the potential to connect to abandoned deep mine workings that can serve as hibernacula for a variety of cave bat species. These AML openings and any undocumented openings and caves located along the proposed alignment and within the review buffer must be assessed following the attached *PGC Protocol for Assessing Bat Use of Potential Hibernacula*. Any features having potential as bat hibernacula will need to be surveyed to determine the presence or absence of bat species. A special use permit will need to be obtained by the consultant in order to conduct such surveys that involve the handling of bats.

State Game Lands

Portions of the proposed project are located on State Game Lands Nos. 46, 52, 71, 118, 147, 198, and 276 and adjacent to State Game Lands Nos. 153 and 220. Please contact Mr. Travis Anderson, Southwest Region Land Management Supervisor, at 724-238-9523 to discuss and coordinate the project on SGL 153 and 276, Mr. Robert Einodshofer, Southcentral Region Land Management Supervisor, at 814-643-1831 to discuss and coordinate the project on SGL 71, 118, 147, and 198, and Mr. Bruce Metz, Southeast Region Land Management Supervisor, at 610-926-3136 to discuss and coordinate the project on SGL 46, 52, and 220.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to the PGC at the following address as an "Update" (including an updated PNDI receipt, project narrative and accurate map):

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning & Habitat Protection
2001 Elmerton Avenue
Harrisburg, PA 17110-9797

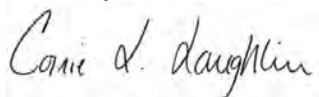
If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements by the PGC for an additional 2 years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Please be sure to include the above-referenced PGC ID Number on any future correspondence with the PGC regarding this project.

If you have any questions regarding this letter, or any future review requests for this or any other projects, please contact John Taucher at 717-787-4250, extension 3632 or via e-mail at jotaucher@pa.gov.

Sincerely,



Corrie Laughlin
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3634
Fax: 717-787-6957
e-Mail: claughlin@pa.gov

A PNHP Partner



CLL/jwt

Enclosures:

- Project Overview Map
- Maps 1-8
- PGC Allegheny Woodrat guidance document
- PGC Protocol for Assessing Bat Use of Potential Hibernacula

cc: W. Anderson

Myers

Grohol

Trusso

Vreeland

Morgan

T. Anderson

Einodshofer

Metz

DuBrock

Brauning

Butchkoski

Turner

Gross

Barber

DiMatteo

Havens

Taucher

Librandi Mumma

Ms. Jennifer Siani, U.S. Fish and Wildlife Service

Ms. Pamela Shellenberger, U.S. Fish and Wildlife Service

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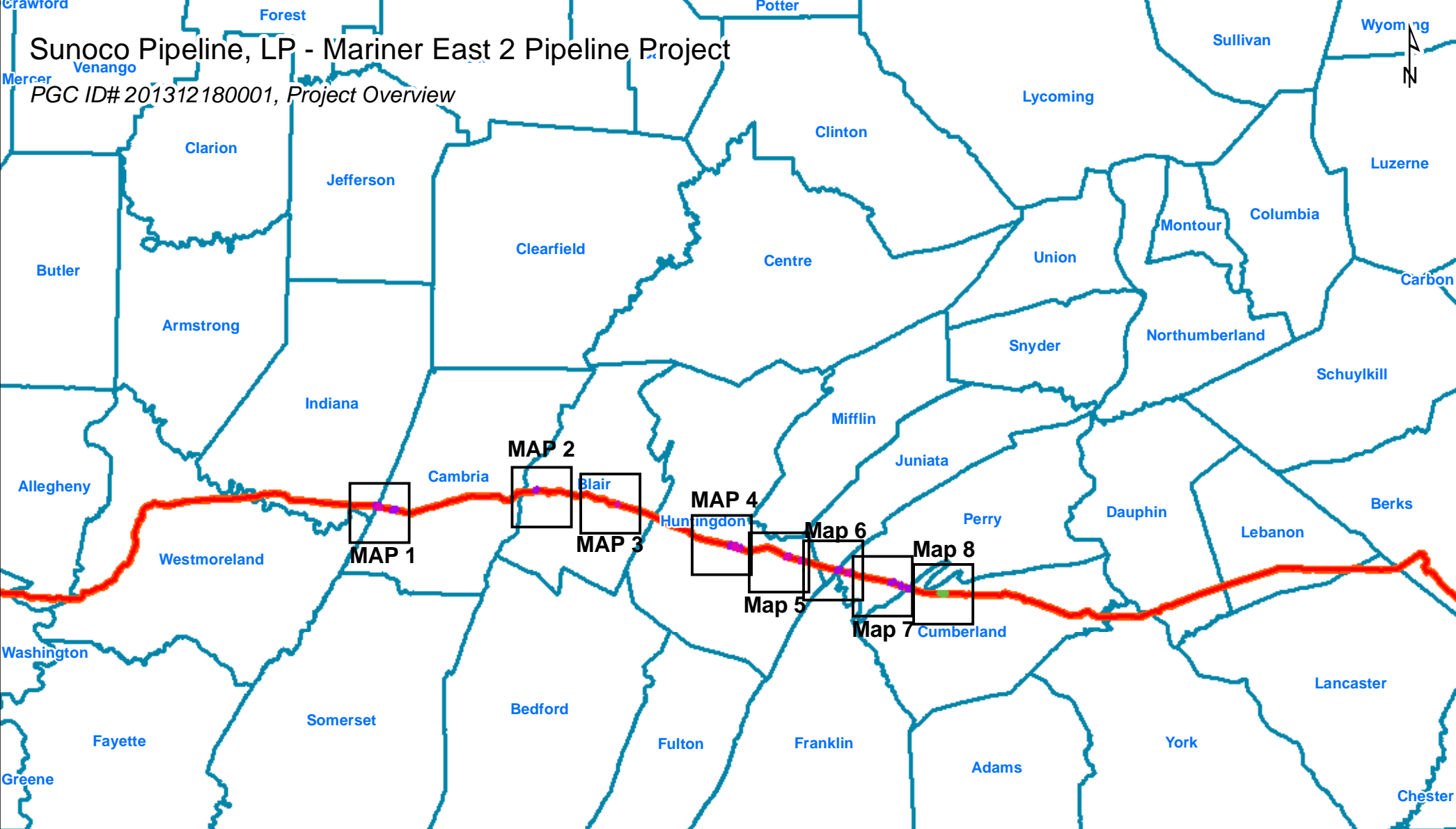
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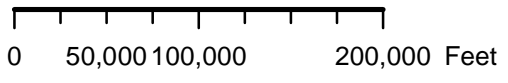
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Sunoco Pipeline, LP - Mariner East 2 Pipeline Project

PGC ID# 201312180001, Project Overview

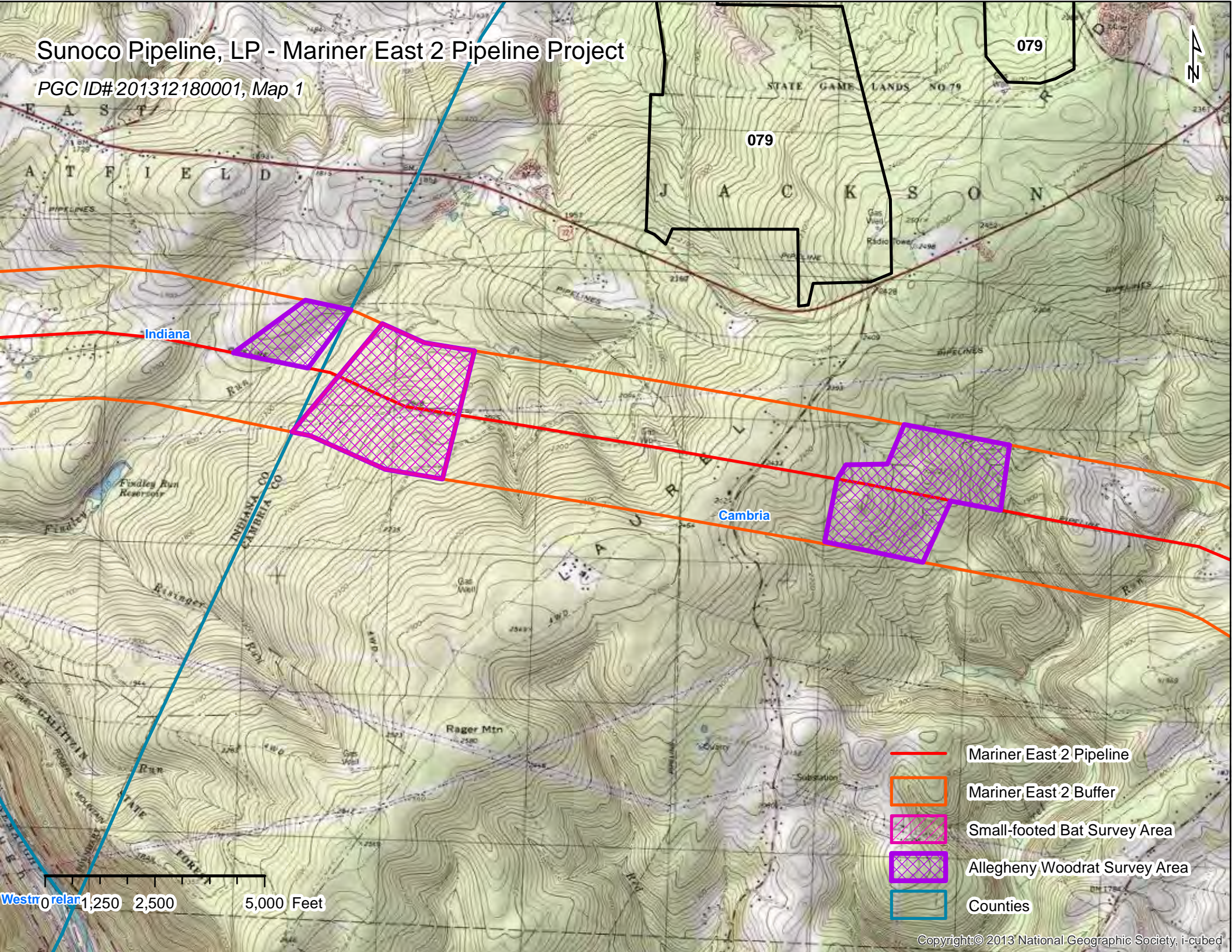


-  Mariner East 2 Pipeline
-  Mariner East 2 Buffer
-  Small-footed Bat Survey Area
-  Allegheny Woodrat Survey Area
-  Northern Harrier Restriction Area
-  Counties








Sunoco Pipeline, LP - Mariner East 2 Pipeline Project

PGC ID# 201312180001, Map 1



Indiana

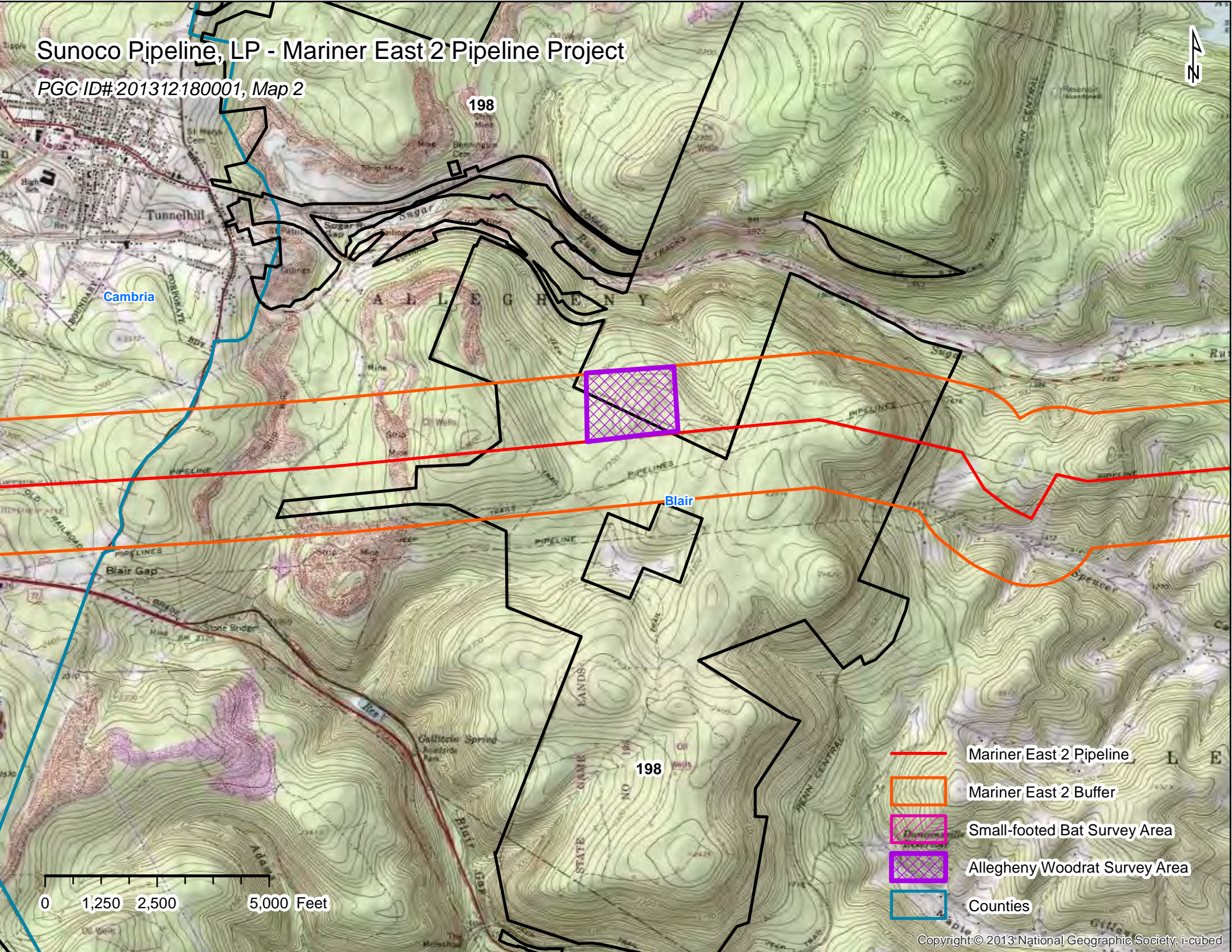
Cambria


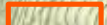

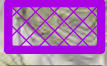

-  Mariner East 2 Pipeline
-  Mariner East 2 Buffer
-  Small-footed Bat Survey Area
-  Allegheny Woodrat Survey Area
-  Counties

Westmar 0 1,250 2,500 5,000 Feet

Sunoco Pipeline, LP - Mariner East 2 Pipeline Project

PGC ID# 201312180001, Map 2

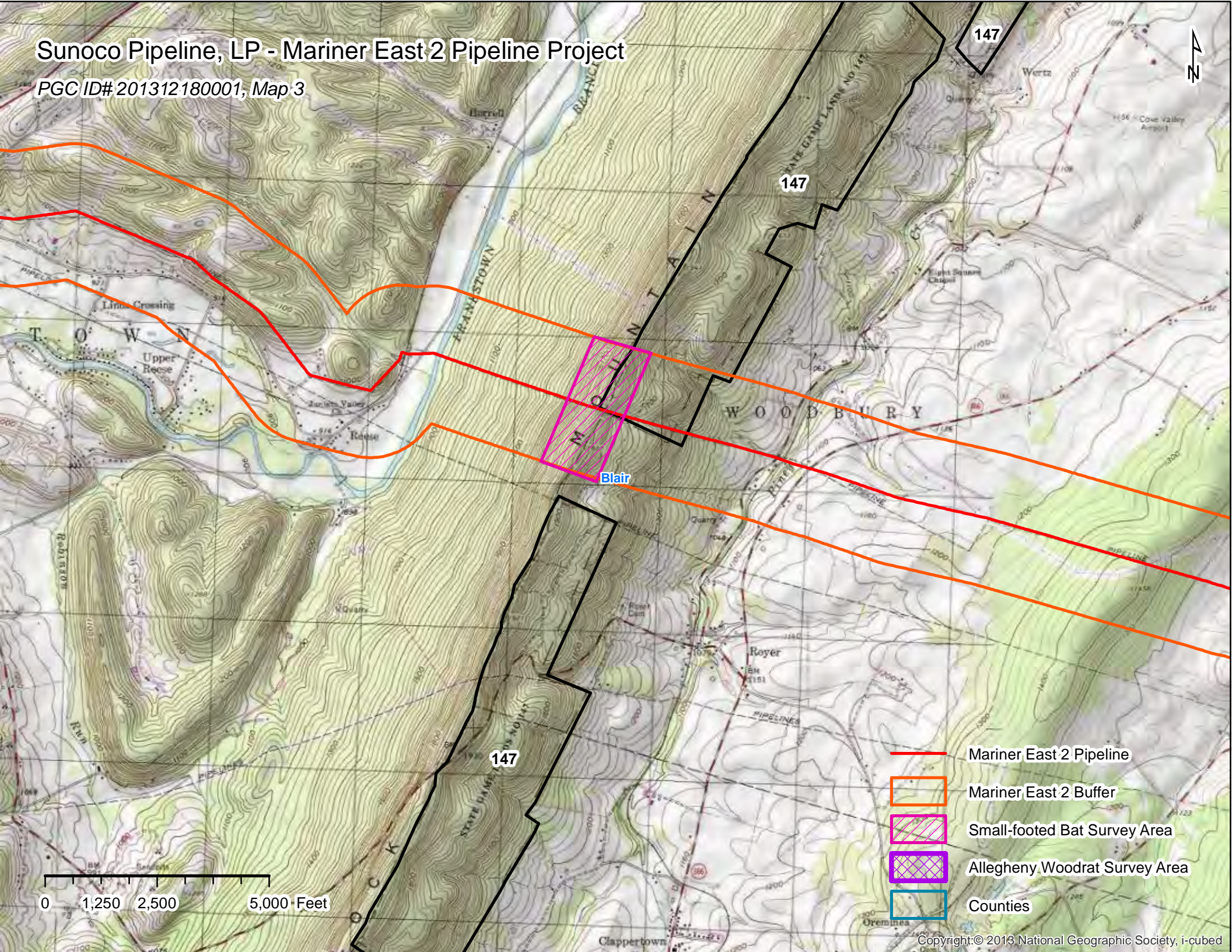







-  Mariner East 2 Pipeline
-  Mariner East 2 Buffer
-  Small-footed Bat Survey Area
-  Allegheny Woodrat Survey Area
-  Counties

0 1,250 2,500 5,000 Feet

Sunoco Pipeline, LP - Mariner East 2 Pipeline Project

PGC ID# 201312180001, Map 3

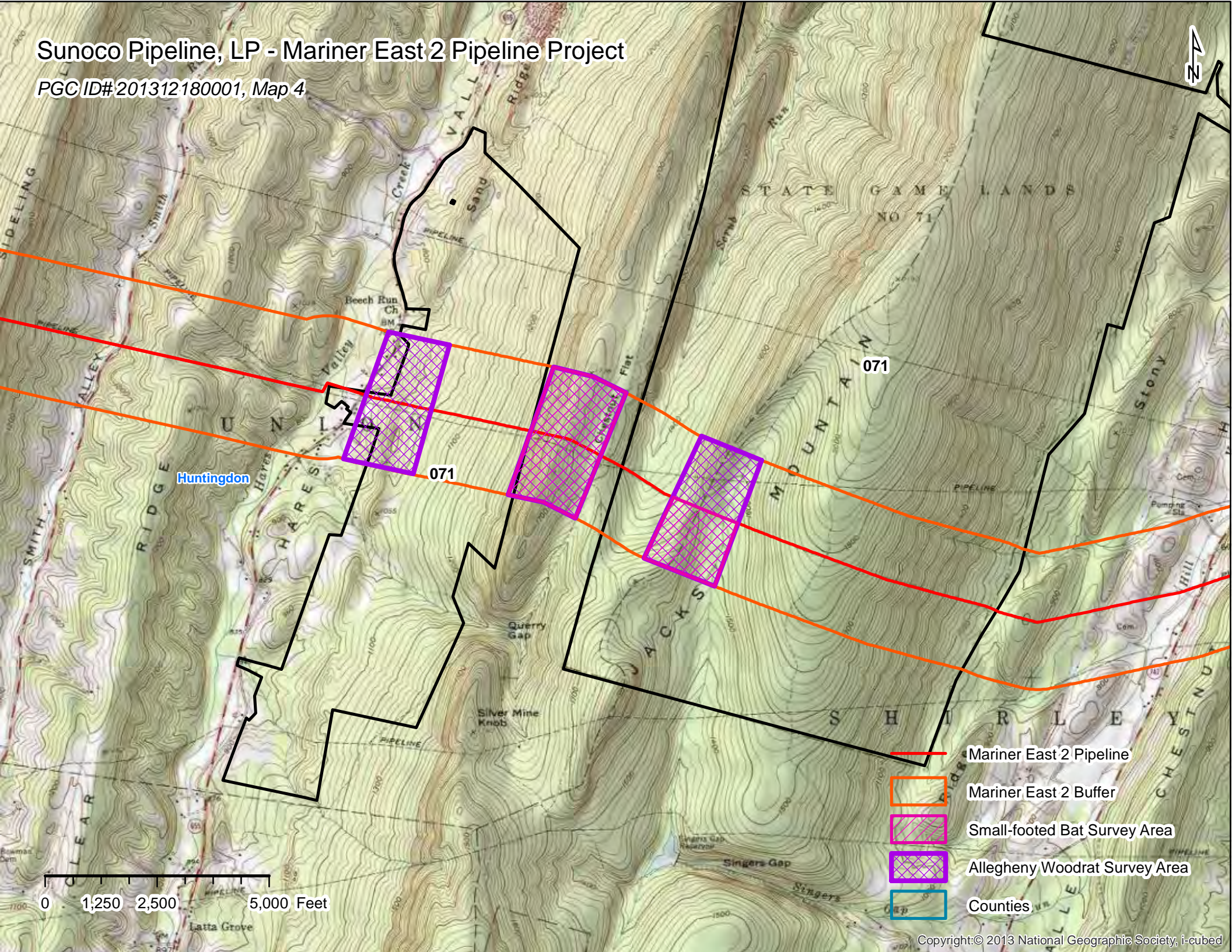


-  Mariner East 2 Pipeline
-  Mariner East 2 Buffer
-  Small-footed Bat Survey Area
-  Allegheny Woodrat Survey Area
-  Counties

0 1,250 2,500 5,000 Feet

Sunoco Pipeline, LP - Mariner East 2 Pipeline Project

PGC ID# 201312180001, Map 4



Huntingdon

071

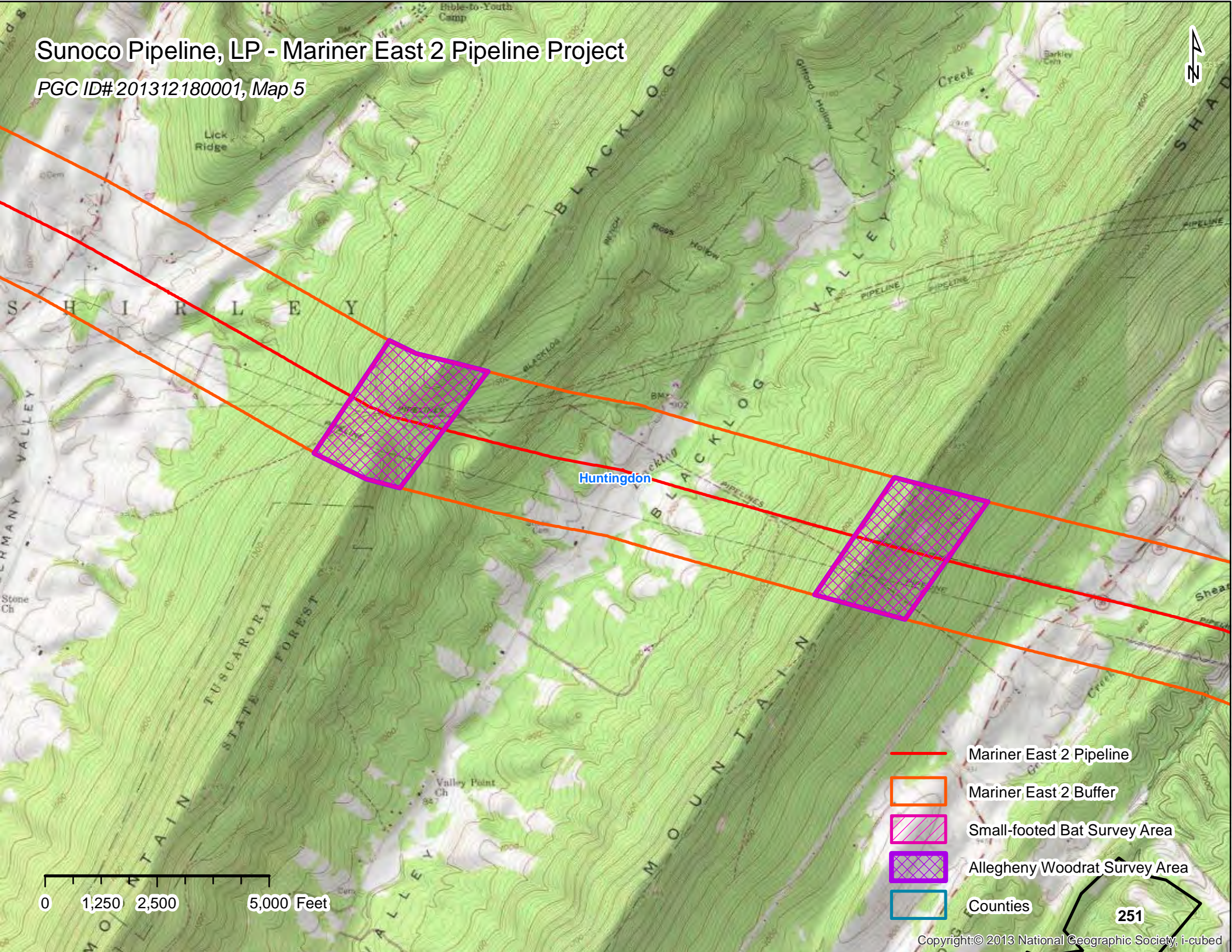
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- Mariner East 2 Pipeline
- Mariner East 2 Buffer
- Small-footed Bat Survey Area
- Allegheny Woodrat Survey Area
- Counties

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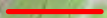




Sunoco Pipeline, LP - Mariner East 2 Pipeline Project

PGC ID# 201312180001, Map 5



Huntingdon

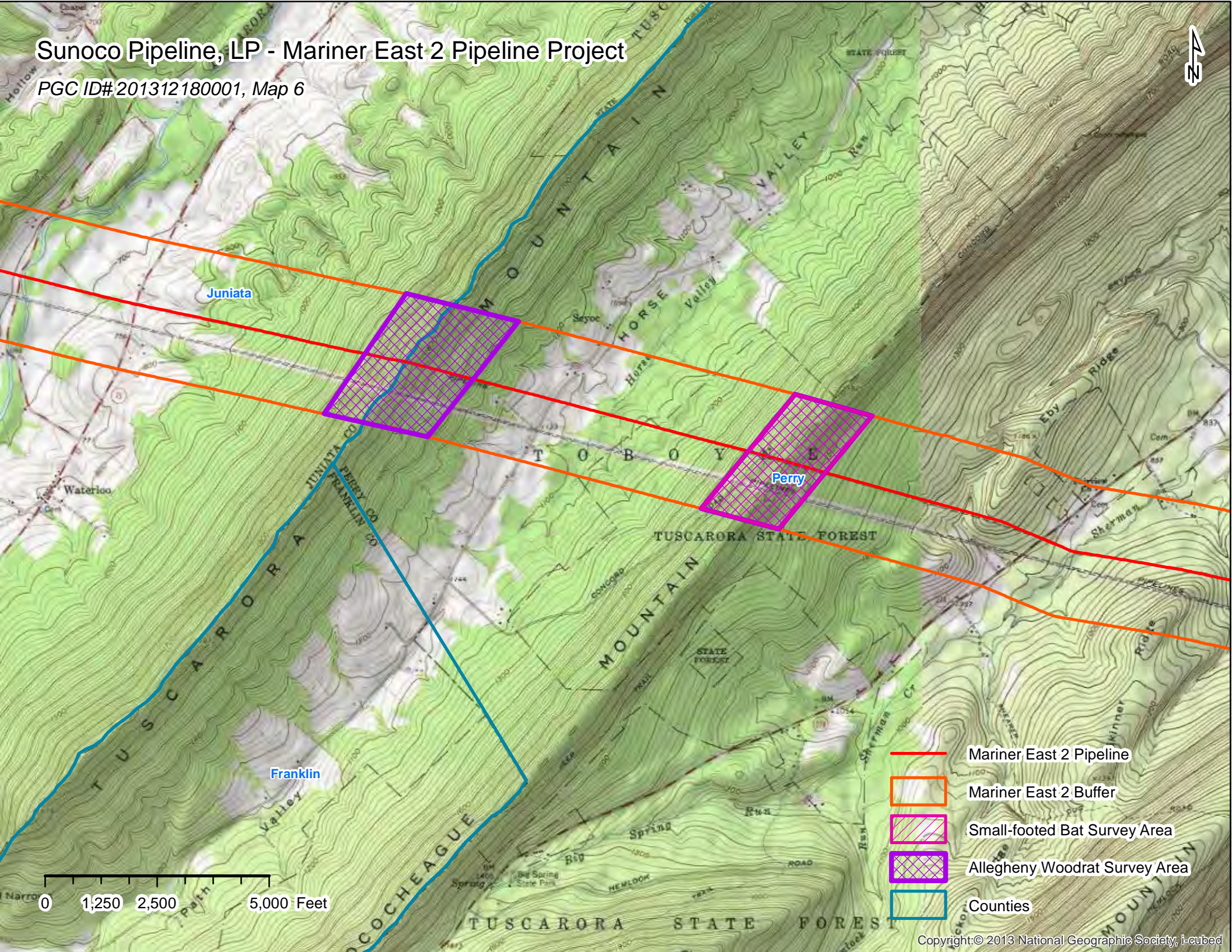
0 1,250 2,500 5,000 Feet

-  Mariner East 2 Pipeline
-  Mariner East 2 Buffer
-  Small-footed Bat Survey Area
-  Allegheny Woodrat Survey Area
-  Counties

251

Sunoco Pipeline, LP - Mariner East 2 Pipeline Project






PGC ID# 201312180001, Map 6



Juniata

Perry

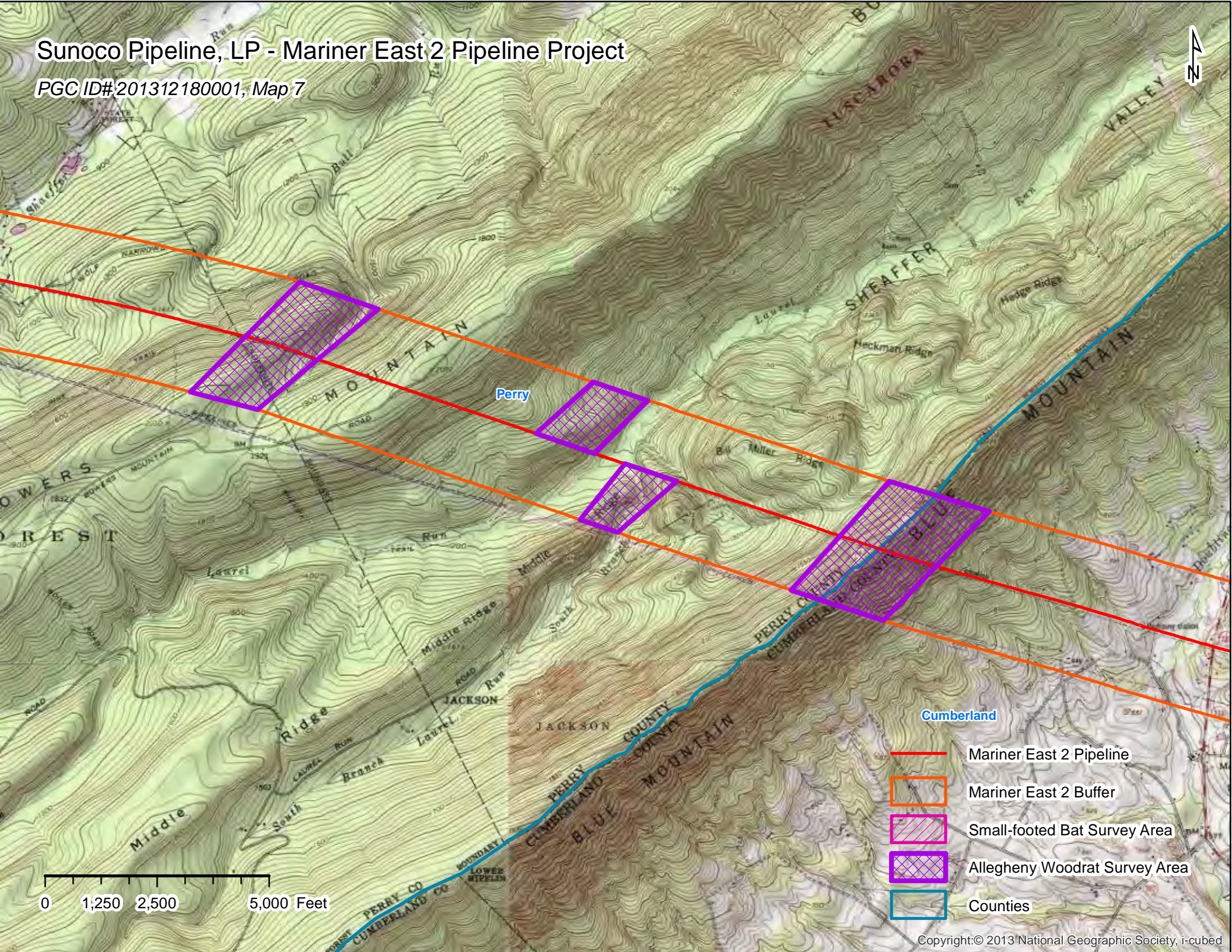
Franklin






-  Mariner East 2 Pipeline
-  Mariner East 2 Buffer
-  Small-footed Bat Survey Area
-  Allegheny Woodrat Survey Area
-  Counties

0 1,250 2,500 5,000 Feet

Sunoco Pipeline, LP - Mariner East 2 Pipeline Project

PGC ID#201312180001, Map 7

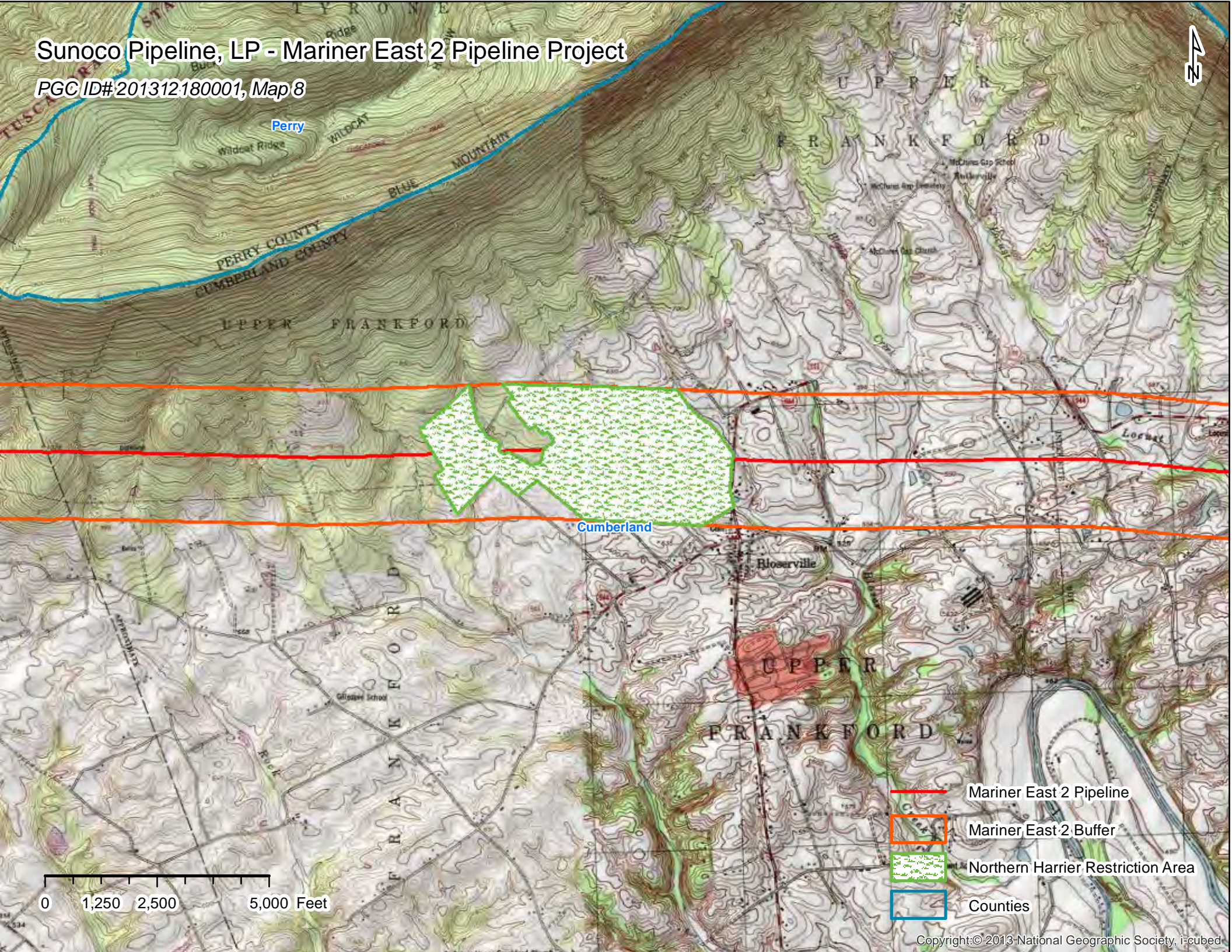


-  Mariner East 2 Pipeline
-  Mariner East 2 Buffer
-  Small-footed Bat Survey Area
-  Allegheny Woodrat Survey Area
-  Counties

0 1,250 2,500 5,000 Feet

Sunoco Pipeline, LP - Mariner East 2 Pipeline Project

PGC ID#201312180001, Map 8



Perry





PERRY COUNTY
CUMBERLAND COUNTY

UPPER FRANKFORD

UPPER
FRANKFORD

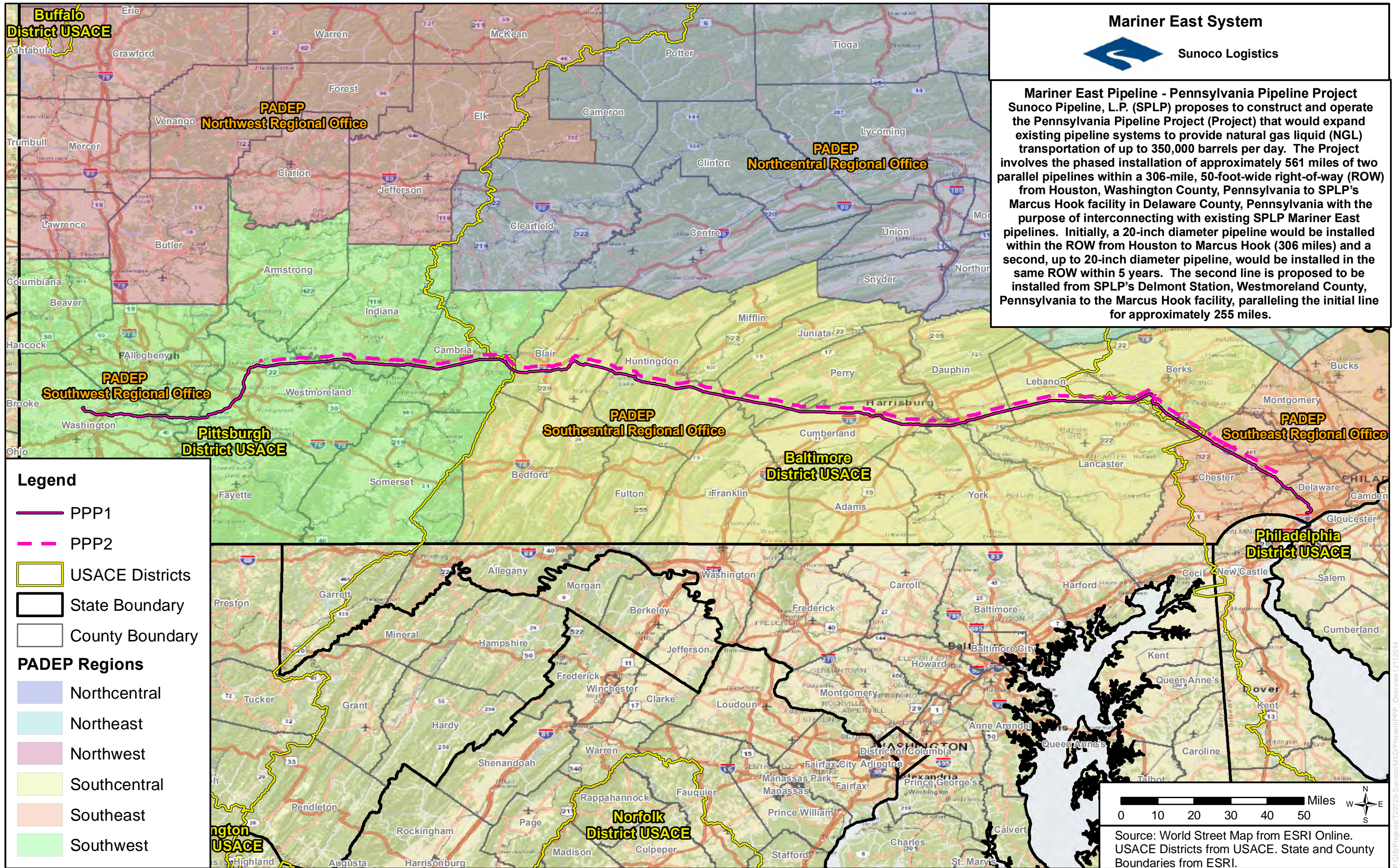
Cumberland

UPPER
FRANKFORD

-  Mariner East 2 Pipeline
-  Mariner East 2 Buffer
-  Northern Harrier Restriction Area
-  Counties

0 1,250 2,500 5,000 Feet

ATTACHMENT 2



Mariner East System



Sunoco Logistics

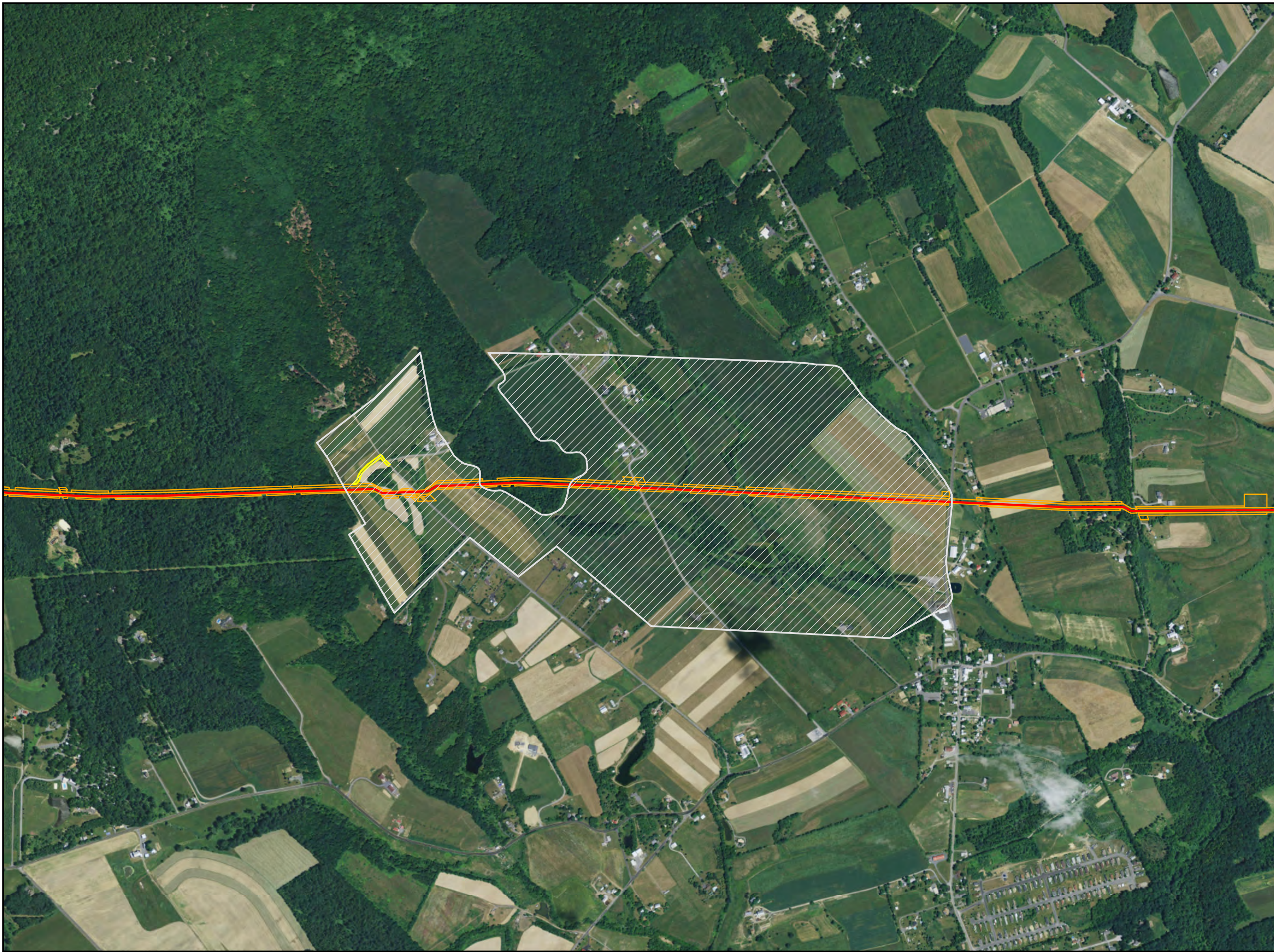
Mariner East Pipeline - Pennsylvania Pipeline Project
 Sunoco Pipeline, L.P. (SPLP) proposes to construct and operate the Pennsylvania Pipeline Project (Project) that would expand existing pipeline systems to provide natural gas liquid (NGL) transportation of up to 350,000 barrels per day. The Project involves the phased installation of approximately 561 miles of two parallel pipelines within a 306-mile, 50-foot-wide right-of-way (ROW) from Houston, Washington County, Pennsylvania to SPLP's Marcus Hook facility in Delaware County, Pennsylvania with the purpose of interconnecting with existing SPLP Mariner East pipelines. Initially, a 20-inch diameter pipeline would be installed within the ROW from Houston to Marcus Hook (306 miles) and a second, up to 20-inch diameter pipeline, would be installed in the same ROW within 5 years. The second line is proposed to be installed from SPLP's Delmont Station, Westmoreland County, Pennsylvania to the Marcus Hook facility, paralleling the initial line for approximately 255 miles.




- Legend**
- PPP1
 - - - PPP2
 - USACE Districts
 - State Boundary
 - County Boundary
- PADEP Regions**
- Northcentral
 - Northeast
 - Northwest
 - Southcentral
 - Southeast
 - Southwest

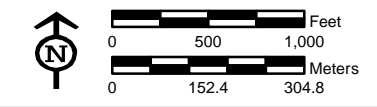
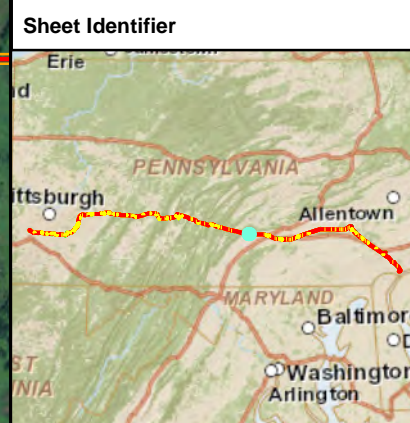
0 10 20 30 40 50 Miles

Source: World Street Map from ESRI Online.
 USACE Districts from USACE. State and County Boundaries from ESRI.

ATTACHMENT 3



- Legend**
-  Northern Harrier Restriction Area
 -  Access Road
 -  Alignment Centerline
 -  Limit of Disturbance
 -  ATWS



**ATTACHMENT 3
NORTHERN HARRIER
RESTRICTION AREA
PENNSYLVANIA PIPELINE PROJECT
JUNE 26, 2015 ALIGNMENT
SUNOCO LOGISTICS, L.P.
CUMBERLAND COUNTY, PENNSYLVANIA**



Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).

ATTACHMENT 4

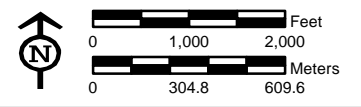
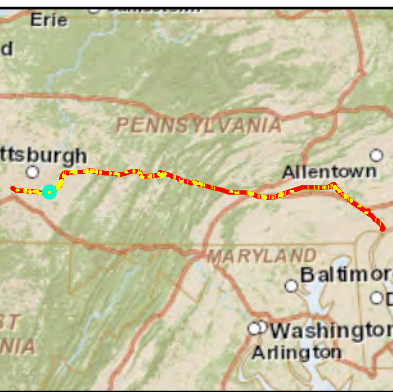


- Legend**
- Indiana Bat Hibernacula
 - Swarming Radius
 - Access Road
 - Alignment Centerline

End
 Lat: 40.240652
 Lon: -79.738126

Start
 Lat: 40.217333
 Lon: -79.826166

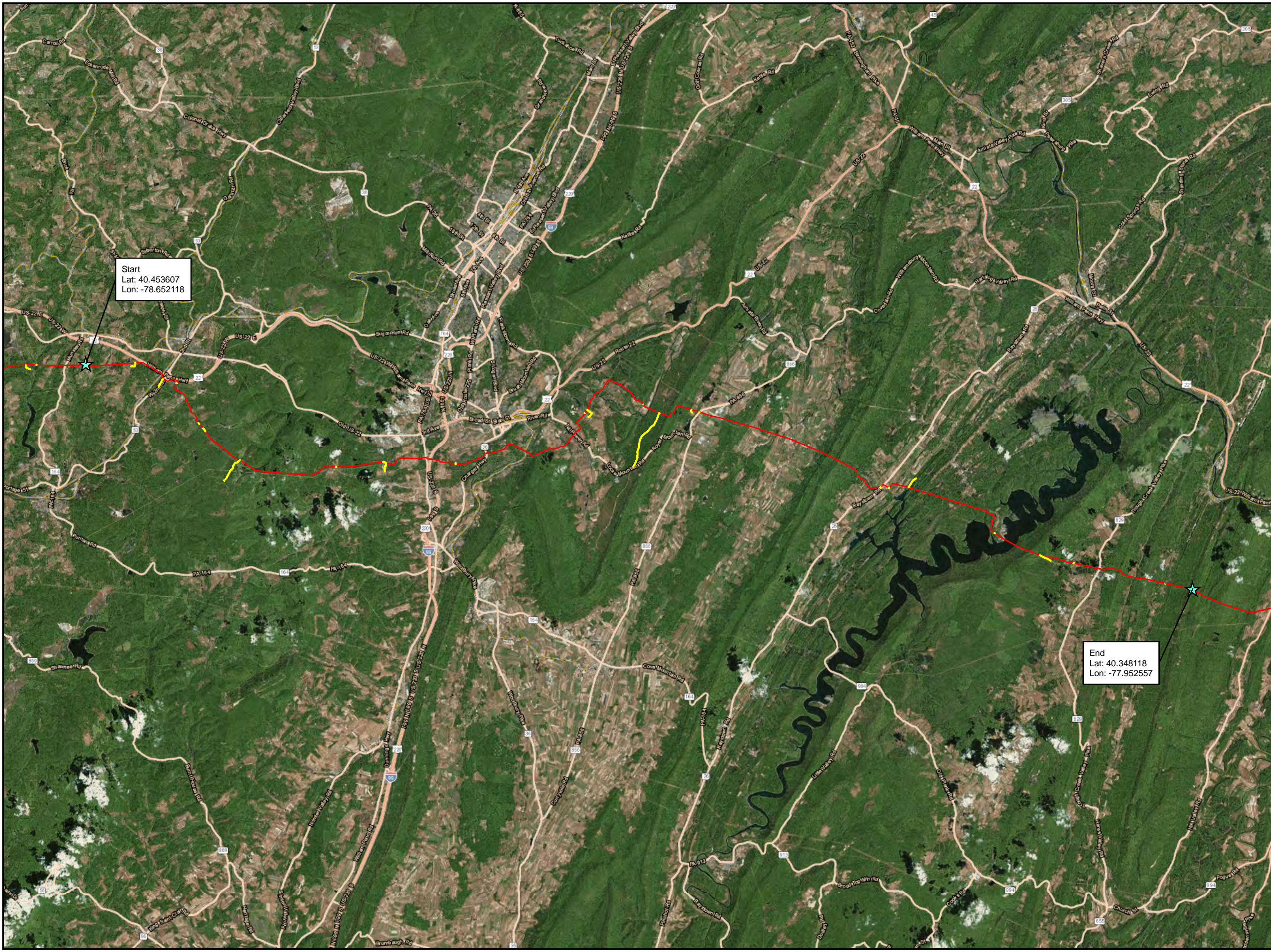
Sheet Identifier



**ATTACHMENT 4-1
 INDIANA BAT HIBERNACULA
 SWARMING AREA
 PENNSYLVANIA PIPELINE PROJECT
 JUNE 26, 2015 ALIGNMENT
 SUNOCO LOGISTICS, L.P.
 AL & WM COUNTIES, PENNSYLVANIA**

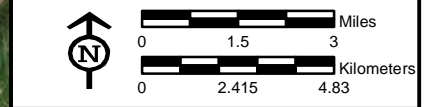
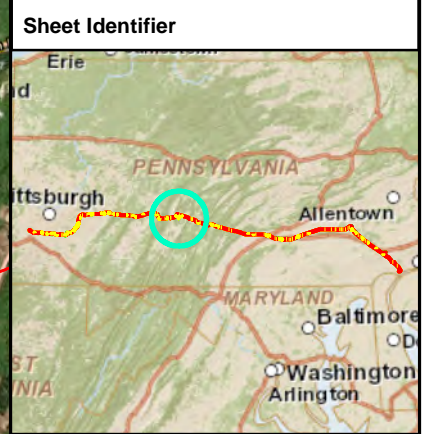


Notes:
 1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).



Legend

- Indiana Bat Hibernacula Swarming Radius
- Access Road
- Alignment Centerline



**ATTACHMENT 4-2
INDIANA BAT HIBERNACULA
SWARMING AREA
PENNSYLVANIA PIPELINE PROJECT
JUNE 26, 2015 ALIGNMENT
SUNOCO LOGISTICS, L.P.
CA, BL & HU COUNTIES, PENNSYLVANIA**



Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).

FGH-P\GIS\SUNOCO\MARINER_EAST_2\MXD\PENNSYLVANIA_INDIANABATSWARMING_AREA_07151515_GIS

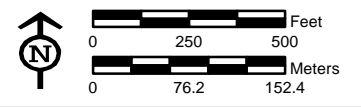
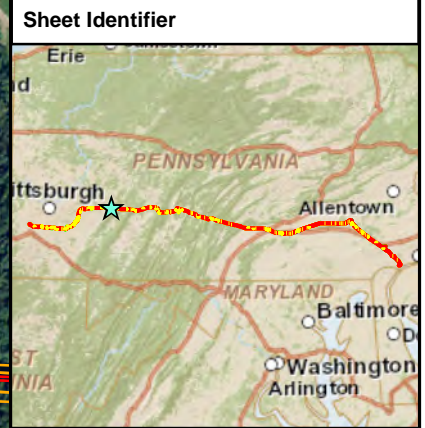
ATTACHMENT 5



Silver-Haired Bat
Lasionycteris noctivagans
 Lat: 40.4445000
 Lon: -79.1957778

1315.70 ft

- Legend**
- ★ Silver-Haired Bat Location
 - Access Road
 - Alignment Centerline
 - Limit of Disturbance
 - ATWS



**ATTACHMENT 5
 SILVER-HAIRED BAT LOCATION**

PENNSYLVANIA PIPELINE PROJECT
 JUNE 26, 2015 ALIGNMENT
 SUNOCO LOGISTICS, L.P.
 INDIANA COUNTY, PENNSYLVANIA



Notes:
 1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).

PGH_PACIS\SUNOCO\MARINER_EAST_2\MXD\PENNSYLVANIA_SILVERHAIRBAT.MXD 07/15/15 GIS

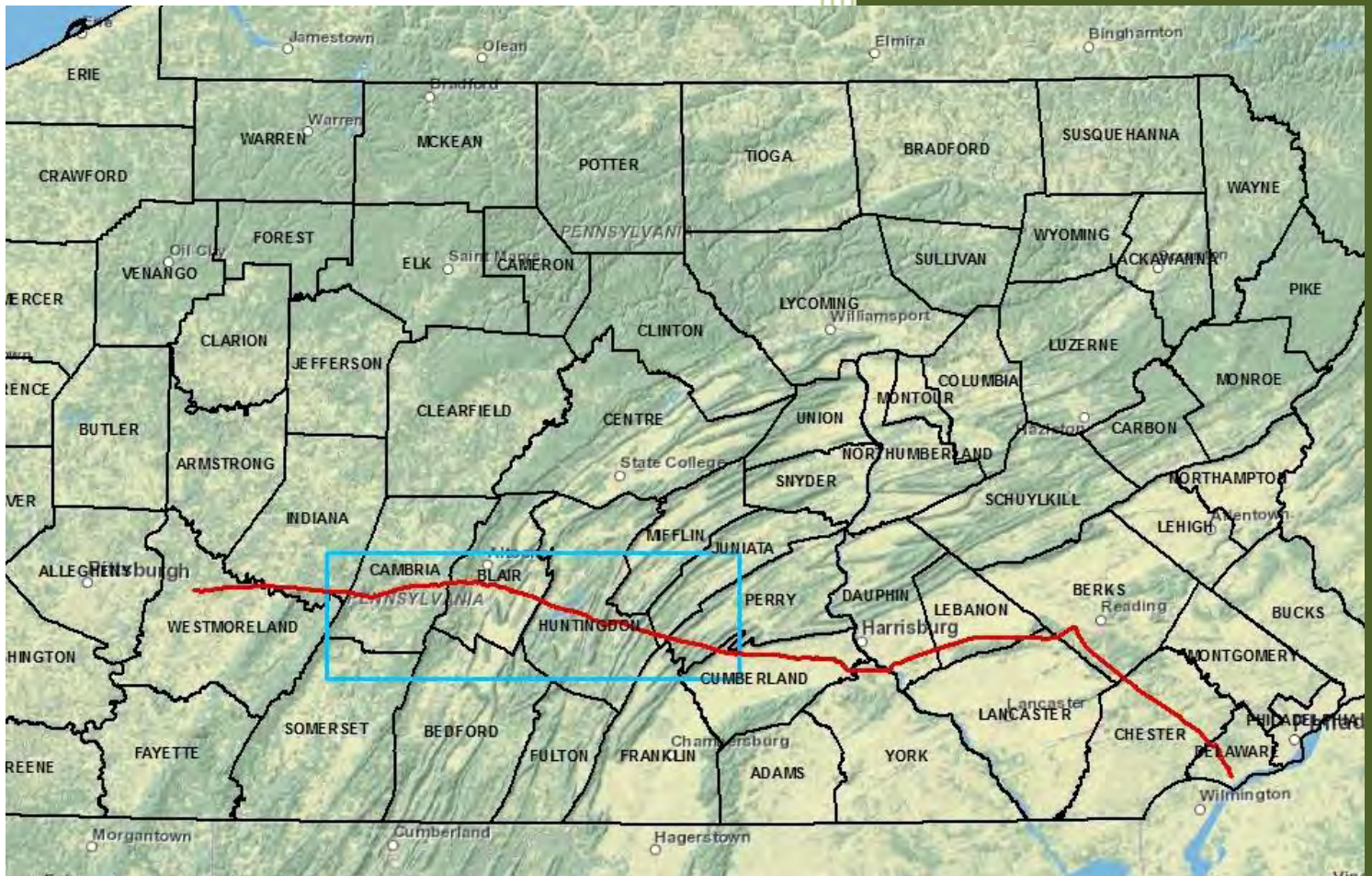
ATTACHMENT 6

Allegheny Woodrat and Eastern Small-footed Bat Habitat Survey Report

Pennsylvania Pipeline Project

for

Sunoco Pipeline, LP



Prepared By:

Wildlife Specialists, LLC

2785 Hills Creek Rd.

Wellsboro, PA 16901

570-376-2255

www.wildlife-specialists.com

May 2015





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Executive Summary

This report is submitted to Sunoco Pipeline, LP (Sunoco) for habitat surveys for Allegheny woodrat (*Neotoma magister*—PA Threatened) and Eastern small-footed bat (*Myotis leibii*—PA Threatened) at the proposed Pennsylvania Pipeline Project. Following a Pennsylvania Natural Diversity Inventory (PNDI) Large Project review (PGC ID Number: 201312180001, Dated March 14, 2014—App. I), the Pennsylvania Game Commission (PGC) identified a potential impact from this project on these species and requested surveys for habitat within 17 areas (10 woodrat only, 1 small-footed bat only and 6 woodrat and small-footed bat) along the proposed pipeline corridor located within parts of Indiana, Cambria, Blair, Huntingdon, Perry, and Cumberland Counties in Pennsylvania. In addition, Wildlife Specialists surveyed for woodrat and small-footed bat habitat along the Altoona Bypass portion of the proposed pipeline.

Between June 23 and July 24, 2014 and April 15-28, 2015, Wildlife Specialists, LLC conducted surveys for suitable Allegheny woodrat and Eastern small-footed bat habitat in the above-mentioned areas identified by PGC, including a 200-meter buffer on the proposed/potential limits of disturbance (LOD). Wildlife Specialists, LLC followed the PGC NEOTOMA MAGISTER (=NEMA) HABITAT SITE SURVEY CODE MANUAL (Revision Date 02/20/2009). Habitat within the survey areas varied from mature deciduous forest with high canopy closure and various rocky habitat types to large open talus slopes.

Suitable woodrat habitat was found within all of the completed habitat areas with 4 of the 17 containing evidence of occupation by woodrats within the past five years. Evidence of woodrat occupation included new and old midden-caches, latrines and nests. All of the completed areas contained suitable small-footed bat roosting habitat, and one small-footed bat was observed flying out from under a rock along the pipeline right-of-way on Shade Mountain. In addition, two potential woodrat habitat areas (Altoona Bypass 1 & Altoona Bypass 2) and numerous potential small-footed bat roosting habitat was observed along the Altoona Bypass portion of the proposed pipeline.

Introduction

Sunoco is in the planning and routing stage for its proposed Pennsylvania Pipeline Project (Project), a natural gas pipeline that would stretch from Westmoreland County in western Pennsylvania to Delaware County in the east. Wildlife Specialists, LLC was contracted to complete surveys for suitable rocky habitat for Allegheny woodrat (*Neotoma magister*—PA Threatened) and/or Eastern small-footed bat (*Myotis leibii*—PA Threatened) within 17 areas along the proposed Project corridor that were identified by PGC in their March 14, 2014 Pennsylvania Natural Diversity Inventory (PNDI) Large Project review response (PGC ID Number: 201403110501) (App. I). The Allegheny woodrat and Eastern small-footed bat survey areas were concentrated in the mountainous areas of Indiana, Cambria, Blair, Huntingdon, Perry, and Cumberland Counties crossing through the *Allegheny Mountain* and *Allegheny Front Sections* of the *Appalachian Plateaus Physiographic Province* and the *Appalachian Mountain Section of the Ridge and Valley Physiographic Province* (Figs. 1 & 2). In addition, due to subsequent route changes, Wildlife Specialists was also asked to complete surveys along the entire Altoona Bypass portion of the proposed pipeline. We conducted surveys following PGC protocols and guidance between June 23 and July 24, 2014 and April 15-28, 2015.

Although species surveys were conducted concurrently and there is much overlap between the potential woodrat and small-footed bat habitat, this document is divided into separate reports for each species. Each report is organized by survey area and findings beginning at the westernmost survey area for each species (Laurel Ridge 2 for woodrats and Laurel Ridge 3 for small-footed bats) and proceeding to the easternmost survey area for each species (Blue Mountain for woodrats and Conococheague Mountain for small-footed bats).

Survey Goals

The goal of these surveys was to search the areas identified through Environmental Review along the proposed Project for potential *Neotoma magister* habitat and *Myotis leibii* summer roosting habitat to document any such occurrences so that impacts to these resources can be avoided, minimized, or mitigated for in accordance with requirements of the Pennsylvania Game Commission.



Figure 1. Location of Sunoco's proposed Pennsylvania Pipeline Project (east end), Indiana, Cambria, and Blair Counties, Pennsylvania, showing the locations of Allegheny woodrat (*Neotoma magister*) and Eastern small-footed bat (*Myotis leibii*) survey areas.



Figure 2. Location of Sunoco's proposed Pennsylvania Pipeline Project (west end), Huntingdon, Perry, and Cumberland Counties, Pennsylvania, showing locations of Allegheny woodrat (*Neotoma magister*) and Eastern small-footed bat (*Myotis leibii*) survey areas.

Allegheny Woodrat Habitat Survey Report

The Pennsylvania Game Commission identified 16 areas of concern for Allegheny woodrats along the proposed Project (Table 1). These survey areas are predominantly mature forested ridge/valley-side habitats within the Ridge and Valley Province (n=14) or Appalachian Plateaus Province (n=4). In addition to these requested habitat areas, Wildlife Specialists was also contracted to survey the Altoona Bypass portion of the proposed pipeline. All of the completed survey areas contained suitable woodrat habitat as well as two areas along the Altoona Bypass survey corridor portion of the proposed pipeline. Of the total areas surveyed, four contained evidence of occupation by woodrats within the past 5 years.

Table 1. Summary of Allegheny woodrat (*Neotoma magister*) survey areas along Sunoco’s proposed Pennsylvania Pipeline Project, identified in the Pennsylvania Game Commission’s Large Project Environmental Review response letter, dated March 14, 2014.

Survey Area ID	County	Physiographic Province^a	Woodrat Conservation Management Unit
Laurel Ridge 2	Indiana	AMAP	Chestnut/Laurel Ridges (CRLR)
Laurel Ridge 3	Cambria	AMAP	Chestnut/Laurel Ridges (CRLR)
Laurel Ridge 1	Cambria	AMAP	Chestnut/Laurel Ridges (CRLR)
Altoona Bypass 1	Blair	AFAP	Allegheny Front West (ALFW)
Altoona Bypass 2	Blair	AFAP	Allegheny Front West (ALFW)
Jacks Mountain 1	Huntingdon	APRV	Allegheny Front East (ALFE)
Jacks Mountain 2	Huntingdon	APRV	Allegheny Front East (ALFE)
Jacks Mountain 3	Huntingdon	APRV	Allegheny Front East (ALFE)
Blacklog Mountain	Huntingdon	APRV	Blacklog Mountain (BLAC)
Shade Mountain	Huntingdon	APRV	Raystown Branch (RAYS)
Tuscarora Mountain	Perry	APRV	Tuscarora/Blue Mts. (TUBL)
Conococheague Mountain	Perry	APRV	Tuscarora/Blue Mts. (TUBL)
Bowers Mountain 1	Perry	APRV	Tuscarora/Blue Mts. (TUBL)
Bowers Mountain 2	Perry	APRV	Tuscarora/Blue Mts. (TUBL)
Middle Ridge	Perry	APRV	Tuscarora/Blue Mts. (TUBL)
Blue Mountain	Perry, Cumberland	APRV	Tuscarora/Blue Mts. (TUBL)

^a AMAP = Allegheny Mountain Section of Appalachian Plateau Physiographic Province

AFAP = Allegheny Front Section of Appalachian Plateau Physiographic Province

APRV = Appalachian Mountain Section of Ridge and Valley Physiographic Province

Survey Methods and Findings

We conducted Allegheny woodrat surveys following the guidance of the PGC's NEOTOMA MAGISTER (=NEMA) HABITAT SITE SURVEY CODE MANUAL (Revision Date 02/20/2009). We completed ALLEGHENY NEMA HABITAT SITE SURVEY (FORM PGC 4150 wdrat) for any occurrence of suitable habitat (App. II). We searched rock habitat features for woodrat latrine (toilet) sites, food caches, and nests. Allegheny woodrat *Activity Centers* (AC's) or *Potential Activity Centers* (PACs), as defined in the NEOTOMA MAGISTER (=NEMA) HABITAT SITE SURVEY CODE MANUAL, were GPS'd and any observed woodrat sign was recorded. Digital photographs were taken of all ACs and PACs as well as representative habitat throughout the survey area (App. III). ACs and PACs are numbered to coincide with the survey area and row on page 3 of the corresponding data form (FORM PGC 4150 wdrat-App. II). Detailed information on topographic and vegetative characteristics of each survey area and potential habitat was also recorded.

Laurel Ridge 2

The Laurel Ridge 2 survey area is a 34.5 ac (13.9 ha) area of mostly mature forest. The site is located on the south-east facing side of Laurel Ridge. The survey corridor is approximately 0.75mi (1.2 km) north of the Findley Run Reservoir with central coordinates at 78°57'27.1"W, 40°25'51.2"N. Elevations within the site range from approximately 1,660ft – 1,680ft (506m-512m) above mean sea level. The survey area is found within the Chestnut/Laurel Ridges (CRLR) Woodrat Conservation Management Unit. Tree and sapling species include black birch (*Betula lenta*), chestnut oak (*Quercus montana*), red maple (*Acer rubrum*), and hemlock (*Tsuga canadensis*). The understory is dominated by greenbriar (*Smilax rotundifolia*), lowbush blueberry (*Vaccinium angustifolium*, *V. pallidum*), black huckleberry (*Gaylussacia baccata*), scrub oak (*Quercus ilicifolia*), rhododendron (*Rhododendron* ssp.), bracken fern (*Pteridium gloditsch*), woodfern (*Dryopteris* spp.), hay-scented fern (*Dennstaedtia punctilobula*), sedges (*Carex* ssp.) and grasses. Canopy cover throughout most of the survey area was 75% or greater.

Findings

A small portion of the Laurel Ridge 2 site (2.8 ac) was considered potential woodrat habitat. The habitat was comprised of outcrops with deep crevices (2-5m) with numerous overhangs, crevices, and "caves" (App. III, Photo Map 1). One PAC was identified based on overall quality of rocky habitat; however no sign of woodrat presence was observed (Fig. 3).

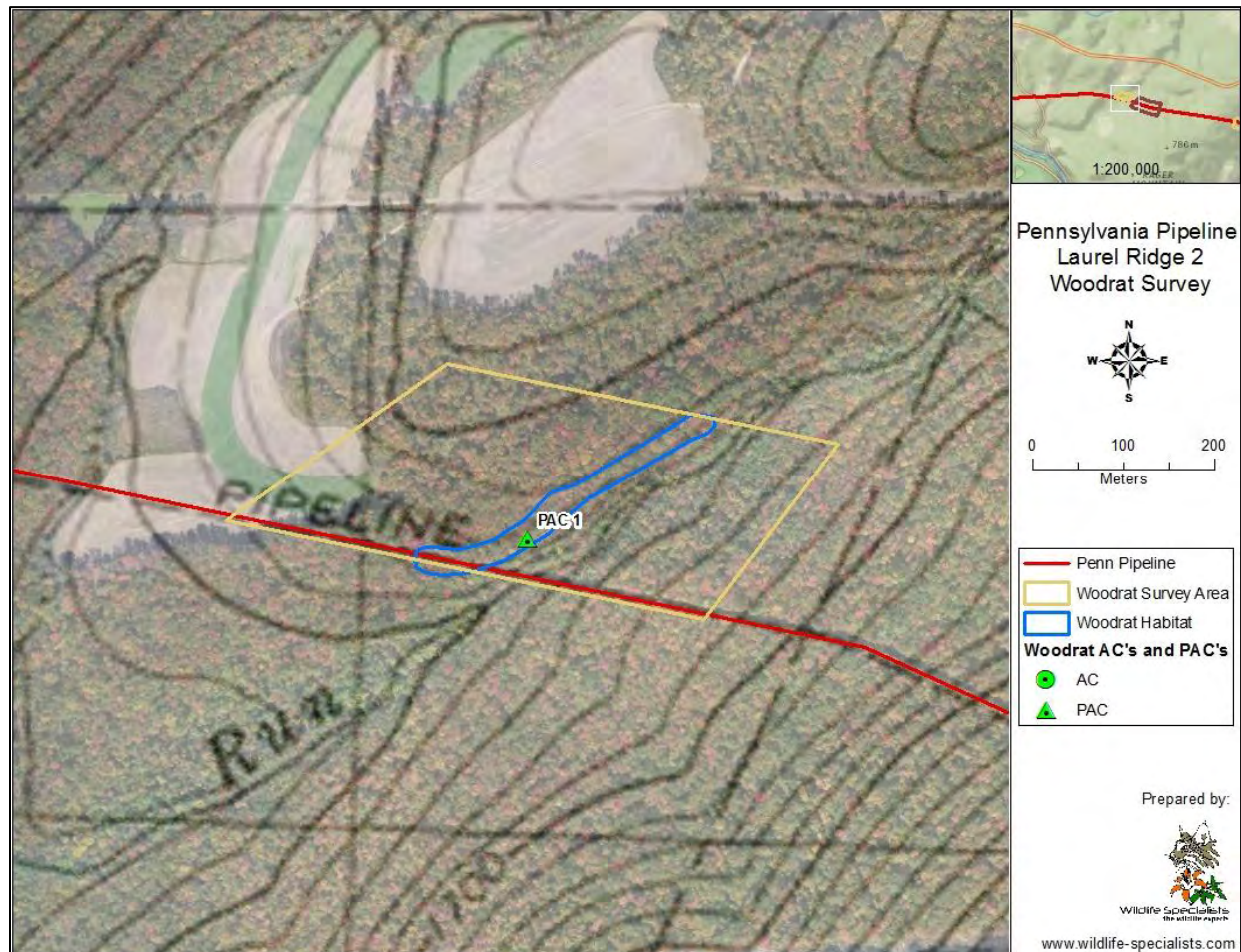


Figure 3. Location of rocky habitats, and Allegheny woodrat Potential Activity Centers (PACs) at the Laurel Ridge 2 survey area along the proposed Pennsylvania Pipeline Project, East Wheatfield Twp., Indiana County Pennsylvania, July, 2014.

Laurel Ridge 3

The Laurel Ridge 3 survey area is 120 ac (48 ha) of mostly mature forest located on the north facing side of Laurel Ridge. The survey corridor is approximately 1.3 km south of US Route 22 with central coordinates at 78°56'49.93"W, 40°25'39.77"N. Elevations within the site range from approximately 1,800ft – 2,140ft above mean sea level. The survey area is found within the Chestnut/Laurel Ridges (CRLR) Woodrat Conservation Management Unit. Tree and sapling species include black birch, red (*Quercus rubra*) and chestnut oak, red maple, sugar maple, hemlock, sassafras (*Sassafras albidum*), black cherry (*Prunus serotina*), black gum (*Nyssa sylvatica*), yellow birch (*Betula allegheniensis*), and white ash (*Fraxinus americana*). The understory is dominated by lowbush blueberry, black huckleberry, witch-hazel (*Hamamelis virginiana*), greenbriar, rhododendron, striped maple (*Acer pensylvanicum*), blackberry (*Rubus allegheniensis*), mountain laurel (*Kalmia latifolia*), wood fern, hay-scented fern,

bracken fern, teaberry (*Gaultheria procumbens*), sedges and grasses. Canopy cover throughout most of the survey area was 75% or greater, except for the small portion of survey area within the power line right-of-way (ROW).

Findings

Approximately 16 ac (6 ha) of the Laurel Ridge 3 survey area was considered potential woodrat habitat. Much of the habitat was considered high potential, and comprised of large boulders and outcrops with deep crevices (App. III, Photo Maps 2-3). Primary rocky habitat types consisted of outcrops and cliffs (2-7m) with numerous overhangs and crevices, and talus (1-5m) with deep interstices. Flora found on the site produce ideal food sources of hard and soft mast. Four PACs were identified based on overall quality of rocky habitat; however no sign of woodrat presence was observed (Fig. 4).

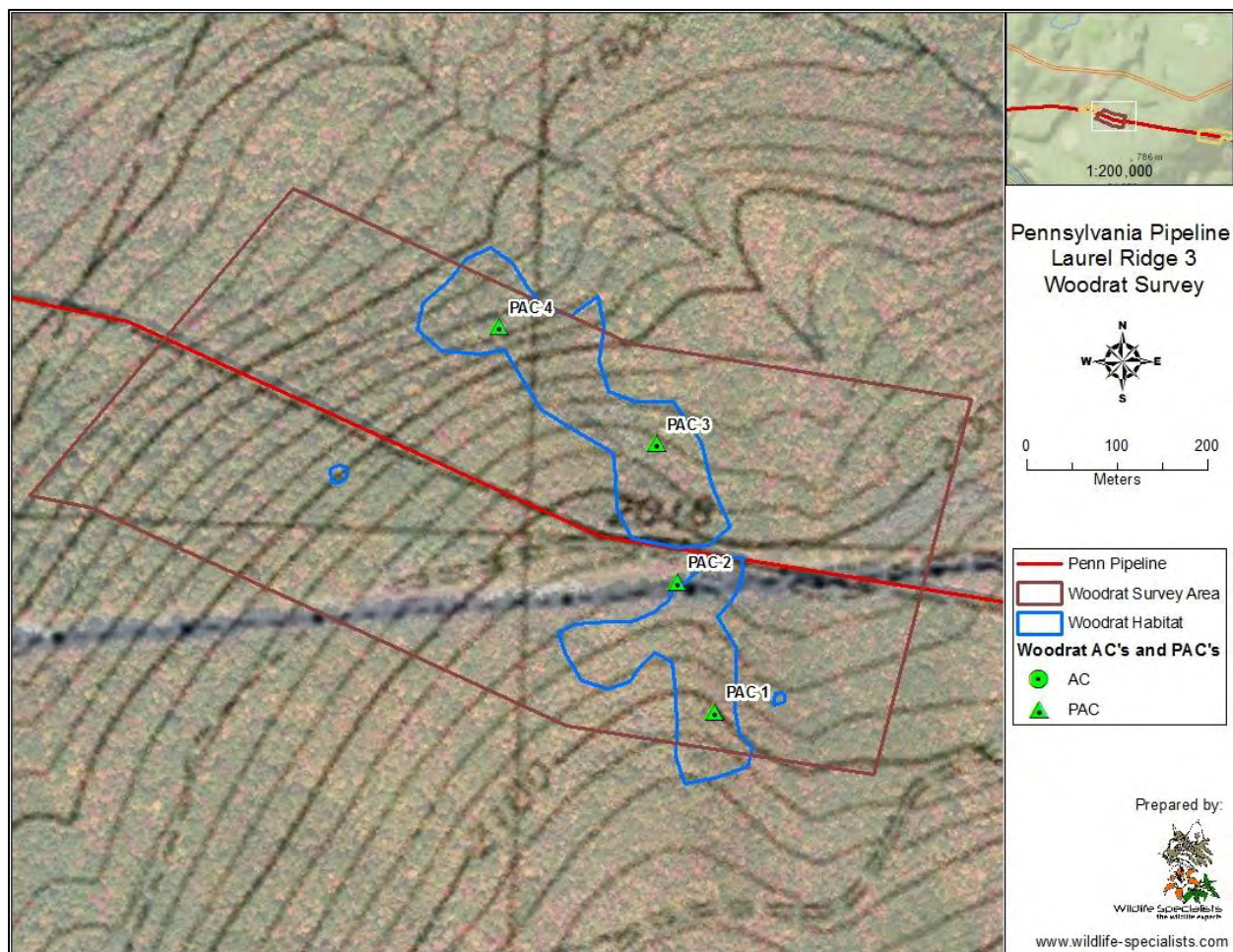


Figure 4. Locations of rocky habitats, and Allegheny woodrat Potential Activity Centers (PACs) at the Laurel Ridge 3 survey area along the proposed Pennsylvania Pipeline Project, Jackson Twp., Cambria County Pennsylvania, July, 2014.

Laurel Ridge 1

The Laurel Ridge 1 survey area is 123 ac (49 ha) of mostly mature forest located on the southeast facing side of Laurel Ridge. The survey corridor is approximately 1.4 km south of US Route 22 with central coordinates at 78°54'18.58"W, 40°25'20.97"N. Elevations within the site range from approximately 1990ft – 2,280ft above mean sea level. The survey area is found within the Chestnut/Laurel Ridges (CRLR) Woodrat Conservation Management Unit. Tree species include black birch, red oak, red maple, and sugar maple. The understory is dominated by witch-hazel, mountain laurel, woodfern, hay-scented fern, greenbriar, blackberry, striped maple, and teaberry. The survey area was intersected by the pipeline corridor and bordered a dirt road to the east. The survey area also contained two deer enclosure fences. Canopy cover throughout most of the survey area was 85% or greater.

Findings

Approximately 15.5 ac (6 ha) of the Laurel Ridge 1 survey area was considered potential woodrat habitat. Much of the habitat was comprised of large boulders and outcrops with deep crevices and considered high potential (App. III, Photo Maps 4-5). Primary rocky habitat types consisted of outcrops and cliffs (2-7m) with numerous overhangs, crevices, and “caves”; and talus (1-5+m) with deep interstices. Flora found on the site produce ideal food sources of hard and soft mast. Four (4) PACs were identified based on overall quality of rocky habitat; however no sign of woodrat presence was observed (Fig. 5).

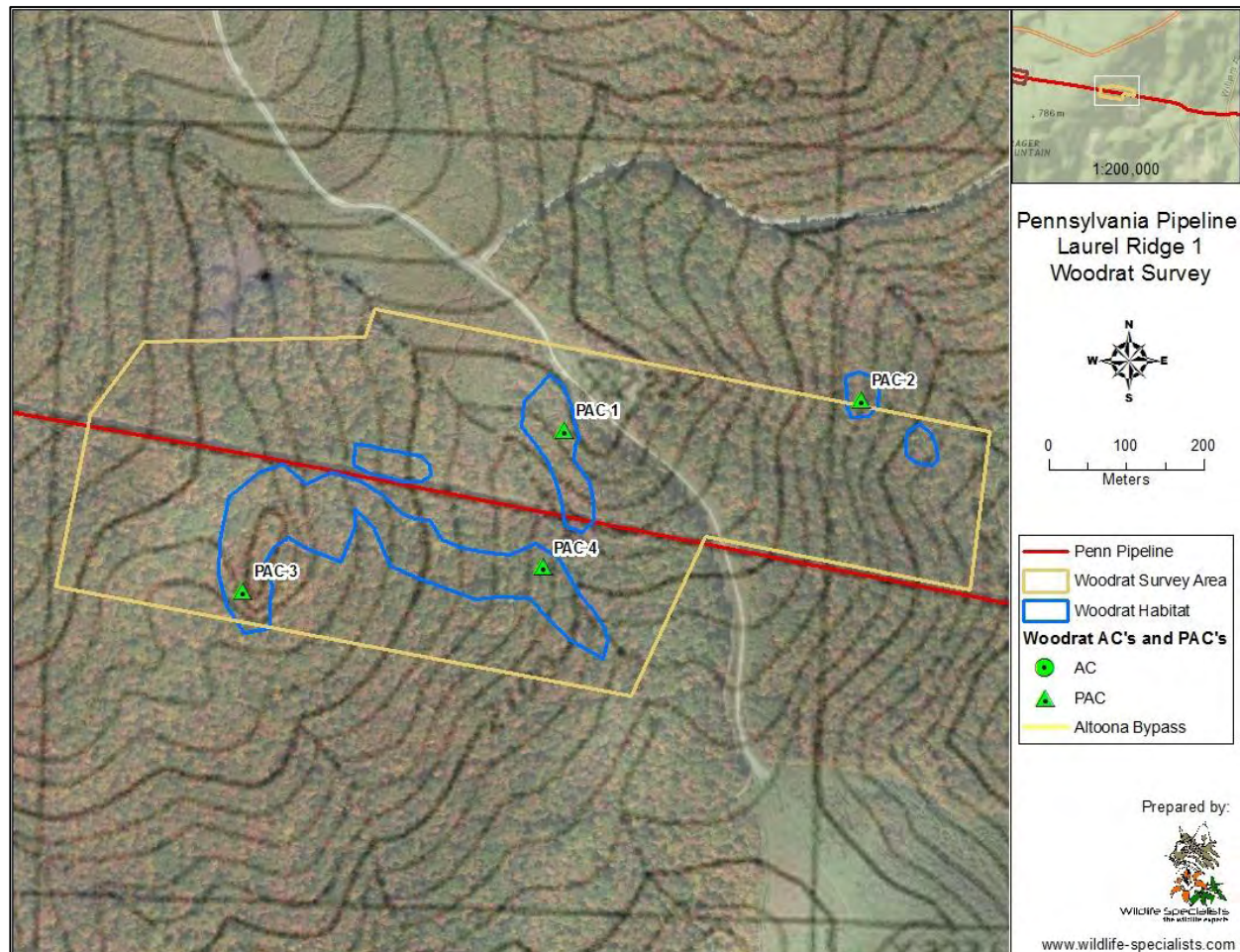


Figure 5. Locations of rocky habitats and Allegheny woodrat Potential Activity Centers (PACs) at the Laurel Ridge 1 survey area along the proposed *Pennsylvania Pipeline Project*, Jackson Twp., Cambria County, Pennsylvania, July, 2014.

Altoona Bypass

The Altoona Bypass survey area is a 17.4mi long corridor of a variety of mostly mountainous forestland and agricultural areas north and south of and including existing pipeline and power line corridors. Approximate coordinates of the Altoona Bypass are 41°26'40.741"N , 78°35'56.516"W (west end) and 40°26'52.046"N, 78°19'17.613"W (east end). Elevations within the site range from approximately 900ft – 2,640ft above mean sea level.

Findings

Altoona Bypass 1

The Altoona Bypass 1 habitat area (Fig. 6) is 0.12 ac of mostly mature forest adjacent to and north of the pipeline corridor. The site is located on the steep east facing side of a tributary of Dry Run. The habitat area is approximately 1.8 km west of the town of Foot of Ten with central coordinates at 78°29'4.06"W, 40°24'18.91"N. Elevations within the site range from approximately 1,500ft – 1,520ft above mean sea level. The habitat area is found within the Allegheny Front West (ALFW) Woodrat Conservation Management Unit. Tree and sapling species include black cherry, red oak, red maple, and white ash. The understory is dominated by Virginia creeper (*Parthenocissus quinquefolia*), lowbush blueberry, grape vine (*Vitis* spp.), woodfern, polypody fern (*Polypodium virginianum*), greenbriar, white wood aster (*Eurybia divaricata*), false solomon's seal (*Maianthemum racemosum*), goldenrod (*Solidago* spp.), grass species, and hay-scented fern. Canopy cover was 100% throughout most of the habitat area.

Surface rock consisted mainly of shaded rock outcrops that ranged in size from 1-3 m in height with few “caves” or crevices (App. III, Photo Map 6). Due to the lack of sun exposure and the relatively few crevices or deep interstices, the Altoona Bypass 1 habitat area was considered low potential woodrat habitat.

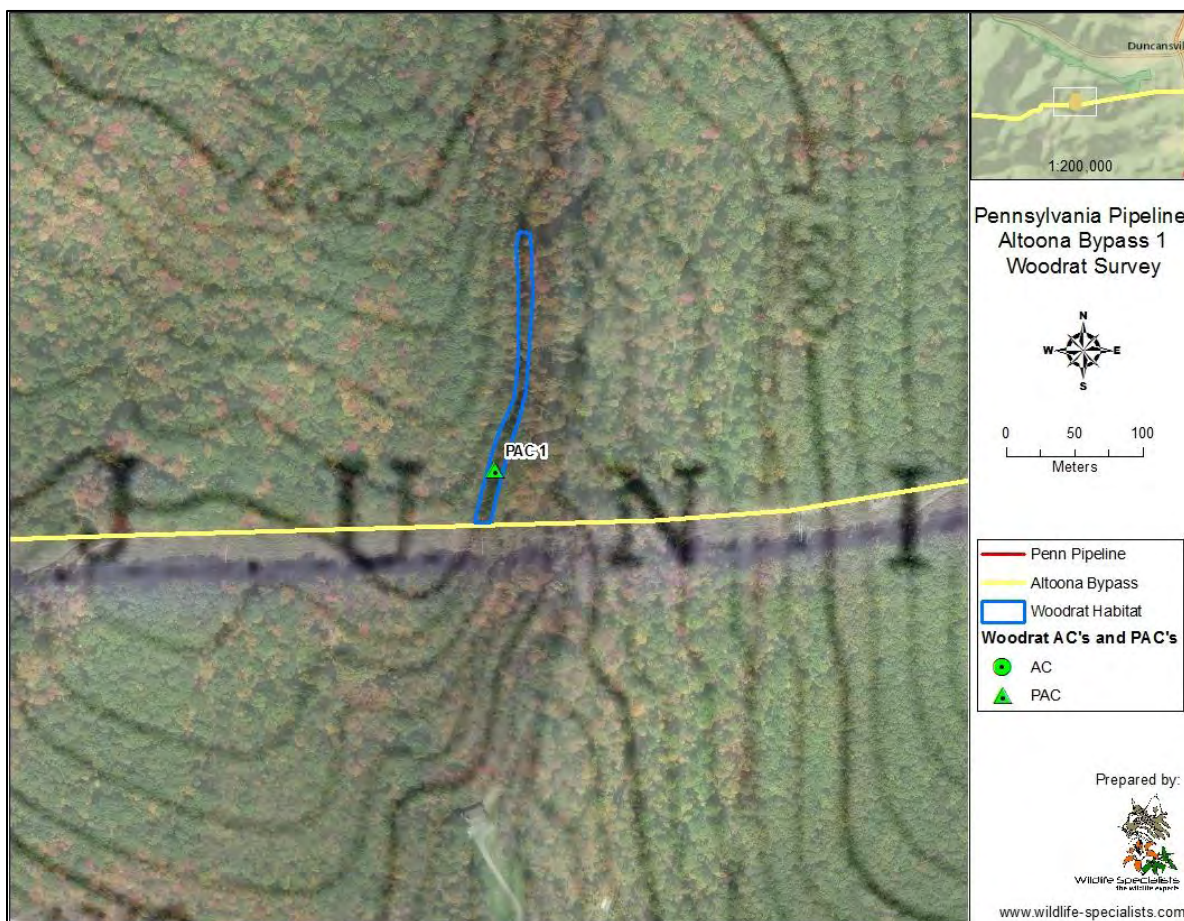


Figure 6. Locations of rocky habitat and Allegheny woodrat Potential Activity Centers (PACs) at the Altoona Bypass 1 habitat area along the proposed Pennsylvania Pipeline Project, Blair Twp., Blair County, Pennsylvania, July, 2014.

Altoona Bypass 2

The Altoona Bypass 2 habitat area is a 0.4 ac area of mostly mature forest adjacent to the pipeline corridor and located on a north northeast facing point of Catfish Ridge (Fig. 7). The habitat area is approximately 0.9 km south of the town of Duncansville with central coordinates at 78°24'37.97"W, 40°24'29.86"N. Elevations within the site range from approximately 1,340ft – 1,380ft above mean sea level. The habitat area is found within the Allegheny Front West (ALFW) Woodrat Conservation Management Unit. Tree and sapling species include red maple and American basswood (*Tilia americana*). The understory is dominated by Virginia creeper, tartarian honeysuckle (*Lonicera tatarica*), poison ivy (*Toxicodendron radicans*), white baneberry (*Actaea pachypoda*) and grasses. Canopy cover throughout most of the habitat area was 100%.

Surface rock consisted of shaded boulders with few “caves” or crevices and was considered low potential woodrat habitat. The size of the boulders was generally 0.5 to 3m in diameter (App. III, Photo Map 6).

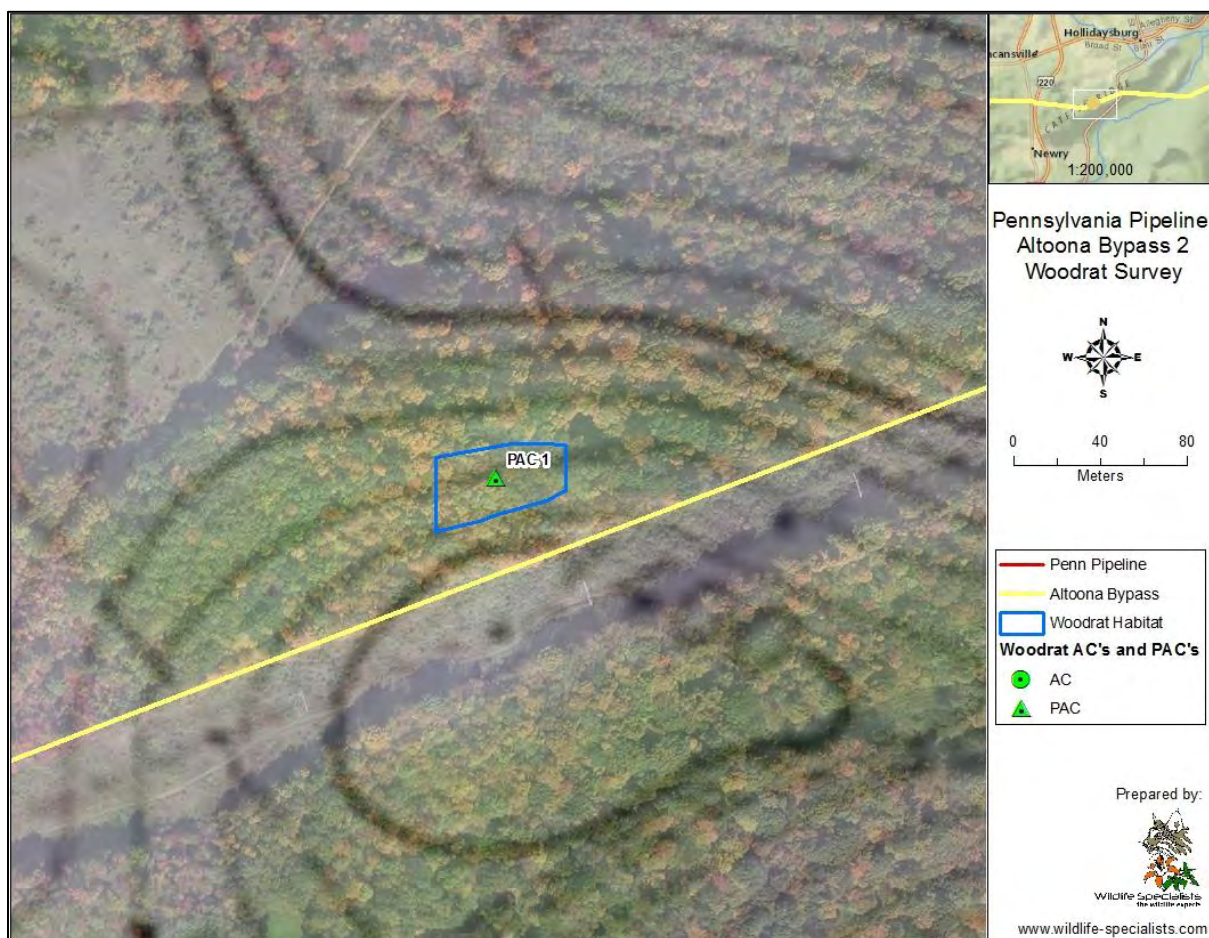


Figure 7. Locations of rocky habitat and Allegheny woodrat Potential Activity Centers (PACs) at the Altoona Bypass 2 habitat area along the proposed *Pennsylvania Pipeline Project*, Juniata Twp., Blair County, Pennsylvania, July, 2014.

Jacks Mountain 1

The Jack's Mountain 1 survey area is a 64 ac (25 ha) area of mostly mature forest, with two pipeline corridors running through it. The site is located on the steep west facing side of Jack's Mountain. The survey corridor is approximately 0.2 km east of Route 655 with central coordinates at 77°58'0.86"W, 40°21'0.97"N. Elevations within the site range from approximately 820ft – 940ft above mean sea level. The survey area is found within the Allegheny Front East (ALFE) Woodrat Conservation Management Unit. Tree and sapling species include black birch, red oak, chestnut oak, red maple, white oak (*Quercus alba*), sugar maple, and white pine (*Pinus strobus*). The understory is dominated by saplings of tree species, striped maple, greenbriar, lowbush blueberry, woodfern and polypody fern. The survey area was bordered to the north by a logging operation. Canopy cover throughout most of the survey area was 85% or greater.

Findings

A 10.3 ac (4 ha) area of the Jack's Mountain 1 survey area was considered potential woodrat habitat (App. III, Photo Map 7). The habitat was considered high potential because of the presence of large boulders and outcrops with deep crevices. Primary rocky habitat types consisted of outcrops and cliffs (2-5m) with numerous overhangs, crevices, and "caves"; and talus (1-5m) with deep interstices. Flora found on the site produce ideal food sources of hard and soft mast. Three (3) Potential Activity Centers were identified based on overall quality of rocky habitat; however no sign of woodrat presence was observed (Fig. 8).

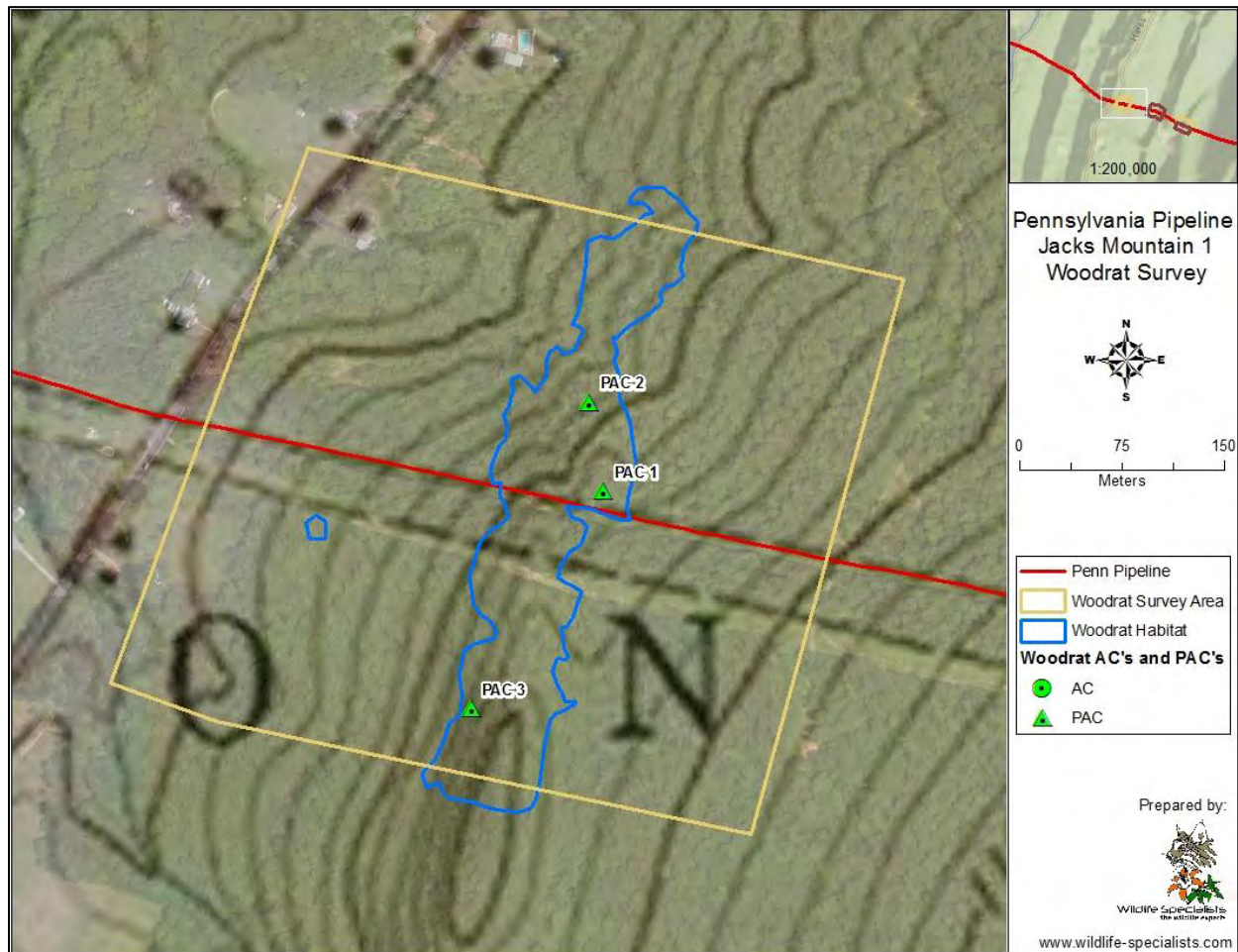


Figure 8. Locations of rocky habitats and Allegheny woodrat Potential Activity Centers (PACs) at the Jacks Mountain 1 survey area along the proposed *Pennsylvania Pipeline Project*, Union Twp., Huntingdon County Pennsylvania, July, 2014.

Jacks Mountain 2

The Jack's Mountain 2 survey area is a 71 ac (28 ha) area of mostly mature forest, with a pipeline corridor running through it. The site is located on the steep west facing side of Jacks Mountain. The survey corridor is approximately 1.1 km east of Route 655 with central coordinates at 77°57'19.28"W, 40°20'50.23"N. Elevations within the site range from approximately 1,300ft – 1,660ft above mean sea level. The survey area is found within the Allegheny Front East (ALFE) Woodrat Conservation Management Unit. Tree and sapling species include black birch, red oak, chestnut oak, red maple, and sugar maple. The understory is dominated by grape vine, blackberry and striped maple. Rocky habitat consisting of shaded and exposed boulders covered most of the survey corridor. Canopy cover throughout most of the survey area was 50%.

Findings

A 7 ac (2 ha) section of the Jacks Mountain 2 survey area was considered potential woodrat habitat. Primary rocky habitat types consisted of shaded and exposed boulders and slabs (1-3m) with numerous overhangs, crevices, and “caves”. Flora found on the site produce ideal food sources of hard and soft mast. Four (4) Potential Activity Centers were identified within the survey area based on overall quality of rocky habitat (Fig. 9). One Activity Center that contained an old midden-cache was found just northwest of the survey area. The midden-cache was found under a large slab surrounded by boulders and talus and contained acorns and Virginia creeper vines (App. III, Photo Maps 8-9).

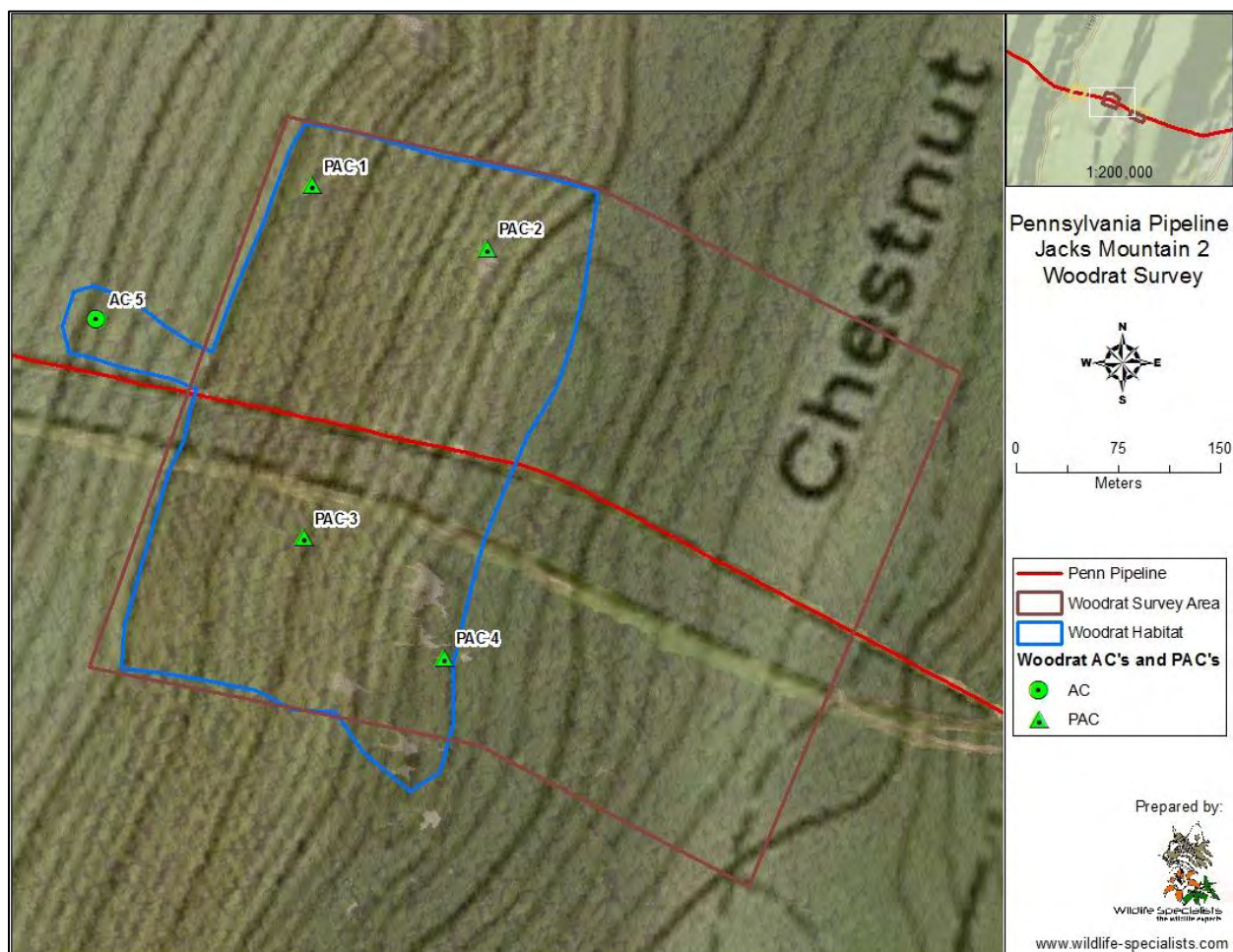


Figure 9. Locations of rocky habitats and Activity Centers (ACs) and Potential Activity Centers (PACs) at the Jacks Mountain 2 survey area along the proposed *Pennsylvania Pipeline Project*, Union Twp., Huntingdon County Pennsylvania, July, 2014.

Jacks Mountain 3

The Jack's Mountain 3 survey area is a 69 ac (27 ha) area of mostly mature forest located on the steep south facing side of Jack's Mountain. The survey corridor is approximately 2.4 km east of Route 655 with central coordinates at 77°56'34.47"W, 40°20'37.07"N. Elevations within the site range from approximately 1560ft – 1,640ft above mean sea level. The survey area is found within the Allegheny Front East (ALFE) Woodrat Conservation Management Unit and a small portion of the survey area appeared to be enhanced for woodrat habitat. Tree and sapling species include black birch, red oak, chestnut oak, red maple, and white pine. The understory is dominated by Virginia creeper, blackberry, grape vine, mountain laurel, and polypody fern. Canopy cover in approximately half of the survey area was 60%, with the remaining portions being 90% or greater.

Findings

A 13.8 ac (5 ha) section of the Jack's Mountain 3 survey area was considered high potential woodrat habitat (App. III, Photo Maps 10-11). Primary rocky habitat types consisted of shaded and open boulders (1-5m) with numerous overhangs, crevices, and "caves" and flora found on the site produce ideal food sources of hard and soft mast. Four (4) activity centers (Fig. 10) were identified that contained either an old cache, latrine, or nest. Three food caches, one toilet, and three nests were located within the survey area (App. III). Caches were found in talus consisting of 1-5m blocks and contained ferns, seeds and sticks. No fresh sign of woodrat presence was observed, but food caches and the toilet seemed to be active within the last year.

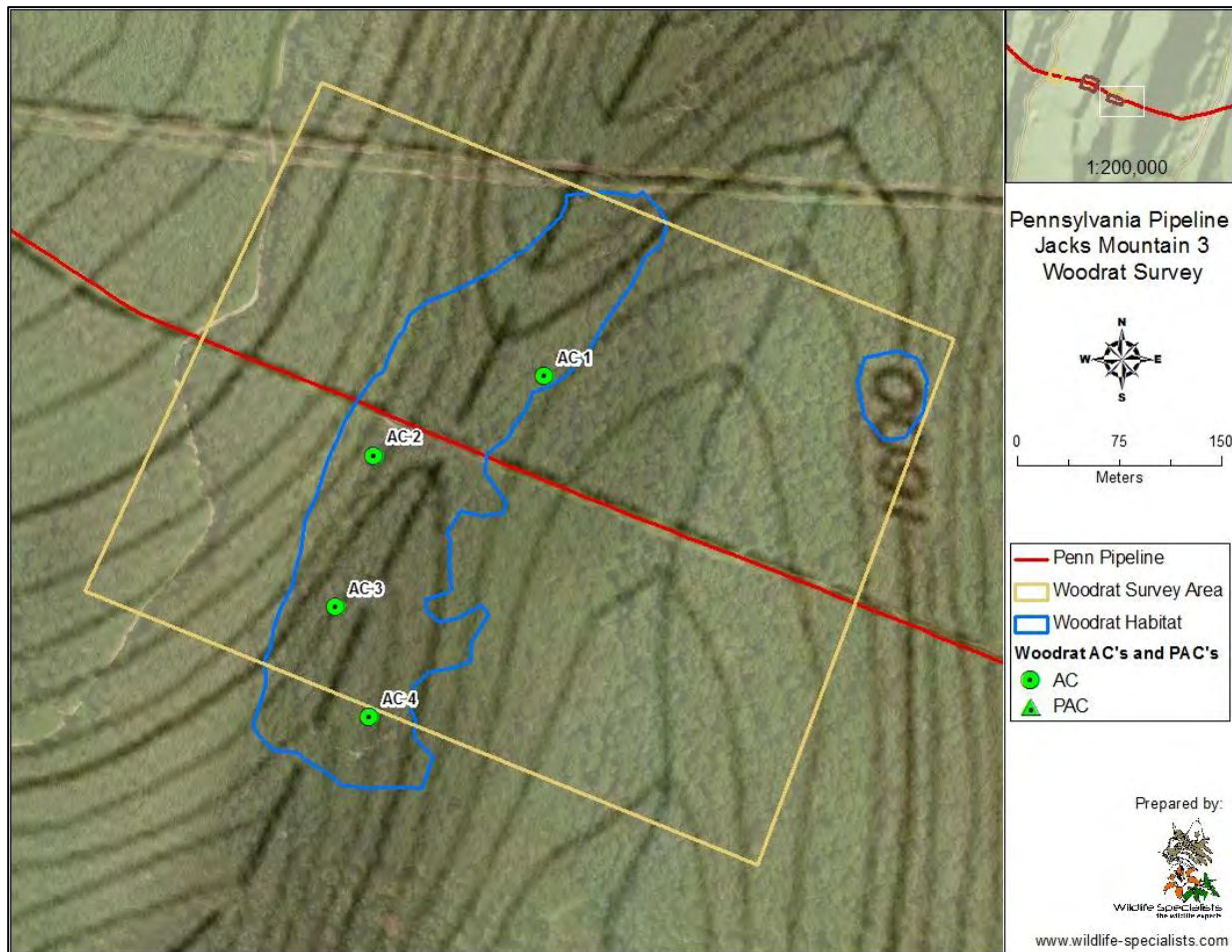


Figure 10. Rocky habitats and Allegheny woodrat Activity Centers (ACs) at the proposed Pennsylvania Pipeline Project, Jacks Mountain 3 survey area, Union and Shirley Twps., Huntingdon County Pennsylvania, July, 2014.

Blacklog Mountain

The Blacklog Mountain survey area is a 97 ac (39 ha) area of mostly mature forest located on the steep south and north facing sides of Blacklog Mountain. The survey corridor is approximately 8.6 km southeast of the town of Mt. Union with central coordinates at 77°48'34.07"W, 40°19'22.59"N. Elevations within the site range from approximately 1,300ft – 1,650ft above mean sea level. The survey area is found within the Blacklog Mountain (BLAC) Woodrat Conservation Management Unit. Tree and sapling species include black birch, red oak, red maple, sassafras, witch-hazel, chestnut oak, and white pine. The understory contains Virginia creeper, greenbriar, blackberry, polypody and marginal wood fern, grapevine, grasses, black raspberry (*Rubus occidentalis*), and mountain laurel. Canopy cover averaged 80% throughout the survey area except for the pipeline corridor and the area along Blacklog

Mountain Road.

Findings

Thirty-seven acres (14 ha) of the survey area was considered high potential woodrat habitat and comprised of large boulders with deep crevices (App. III, Photo Maps 12-14). Eight (8) PACs were identified based on the overall quality of rocky habitat (Fig. 10). One AC (Fig. 11) containing an old food cache with an accordion-style folded fern was found within a large pile of boulders and slabs, but no fresh sign of woodrat presence was observed.

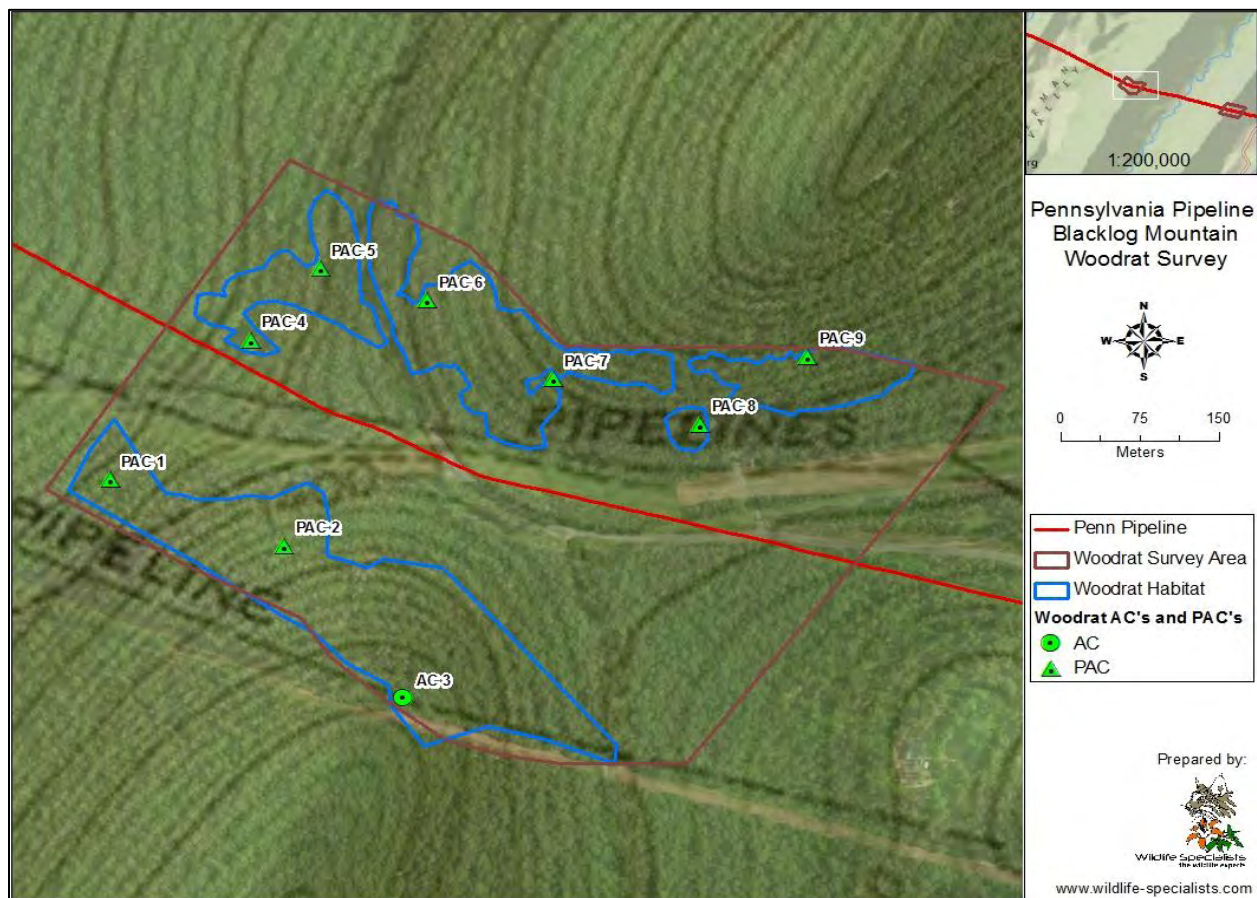


Figure 11. Rocky habitats and Allegheny woodrat Activity Centers (ACs) and Potential Activity Centers (PACs) at the proposed *Pennsylvania Pipeline Project* Blacklog Mountain survey area Shirley Twp., Huntingdon Co, Pennsylvania, July, 2014.

Shade Mountain

The Shade Mountain survey area is a 94 ac (38 ha) area of mostly mature forest located primarily on the steep east and somewhat on the west facing side of Shade Mountain. The survey corridor is

approximately 7.2 km southwest of the town of Cross Keys with central coordinates at 77°46'5.87"W, 40°19'1.93"N. Elevations within the site range from approximately 940ft – 1,780ft above mean sea level. The survey area is found within the Raystown Branch (RAS) Woodrat Conservation Management Unit. Tree and sapling species include black birch, red oak, red maple, sassafras, witch-hazel, tulip poplar (*Liriodendron tulipifera*), and basswood. The understory contains Virginia creeper, greenbriar, blackberry, polypody and marginal wood fern, striped maple, grape vine, grasses, white baneberry, and poison ivy. Canopy cover ranged from 0% within the many open talus slides to 100% in forested areas. Rocky habitat consisting primarily of open and shaded talus covered much of the southeastern portion of the survey corridor.

Findings

Fifty-six acres (22 ha) of the survey area was considered high potential woodrat habitat, and was comprised of large boulders and talus with deep crevices suitable for woodrat nesting habitat (App. III, Photo Maps 15-16). Habitat was located within shaded boulders and within large open talus slides. Primary rocky habitat types consisted primarily of shaded and open boulders and talus (1-5m) with numerous overhangs, crevices, and “caves”. Flora found on the site produces ideal food sources of hard and soft mast. Five (5) PAC’S were identified based on quality of rocky habitat; however no sign of woodrat presence was observed (Fig. 12).

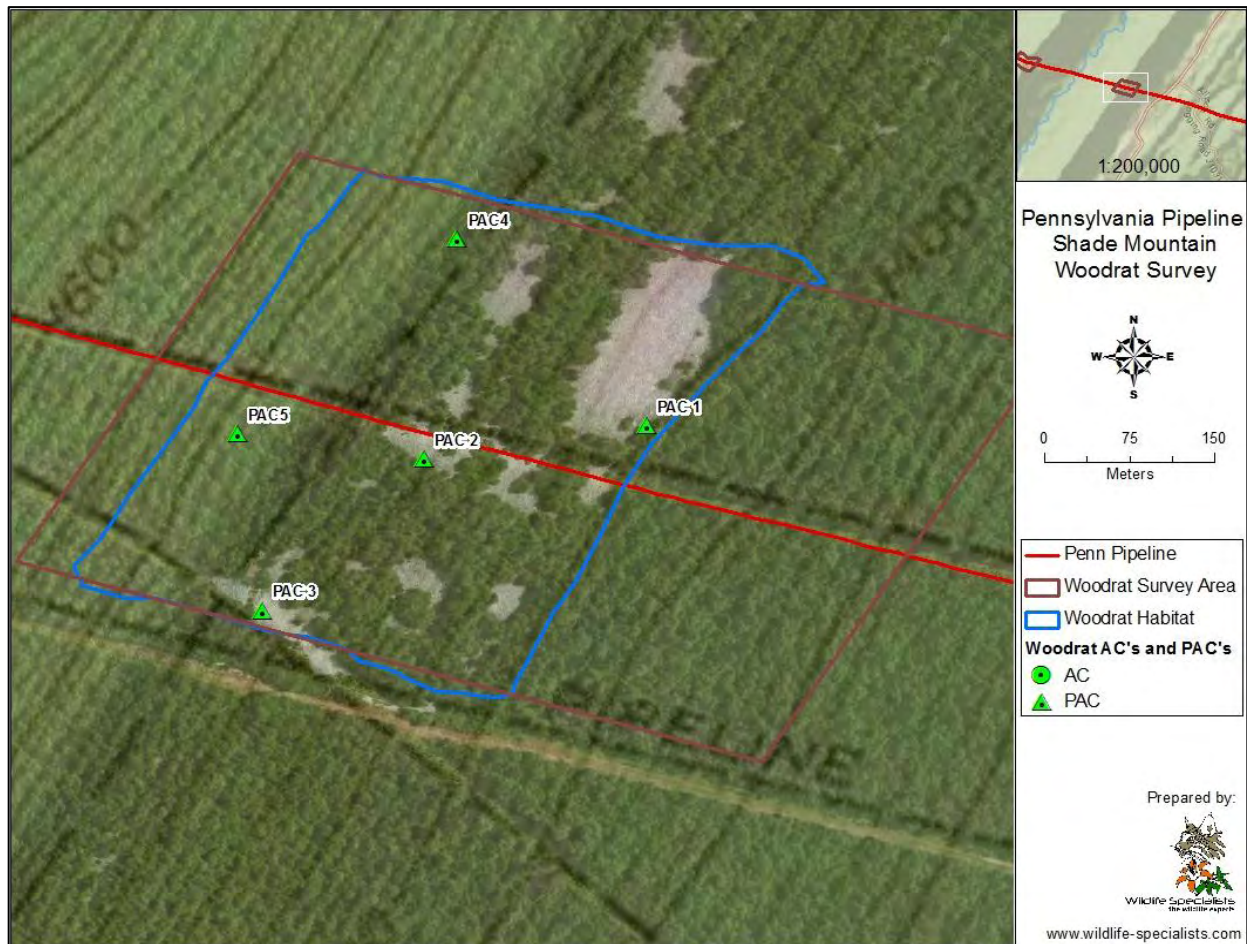


Figure 12. Rocky habitats and Allegheny woodrat Potential Activity Centers (PACs) at the proposed *Pennsylvania Pipeline Project*, Shade Mountain survey area, Shirley and Tell Twps., Huntingdon Co, Pennsylvania, July, 2014.

Tuscarora Mountain

The Tuscarora Mountain survey area is a 106 ac (42 ha) area of mostly mature deciduous forest located primarily on the steep southeast and northwest facing sides of Tuscarora Mountain (App. III, Photo Map 17-18). The survey corridor is approximately 8.2 km southwest of the town of New Germantown with central coordinates at 77°39'55.27"W, 40°17'45.42"N. Elevations within the site range from approximately 1,400ft – 1,920ft above mean sea level. The survey area is found within the Tuscarora/Blue Mts. (TUBL) Woodrat Conservation Management Unit. An existing pipeline ROW crosses the entire length of the survey area. Tree and sapling species include black birch, red oak, white oak, chestnut oak, red maple, striped maple, sassafras, witch-hazel, tulip poplar, and mostly degraded eastern hemlocks. The understory contains mountain laurel, Virginia creeper, greenbriar, Allegheny blackberry, hayscented fern, marginal wood fern, striped maple, and grasses. Canopy cover ranged

from 0% within the existing pipeline ROW to 90% in the forested area. Rocky habitat comprised of shaded boulders and talus covered much of the southeastern portion of the survey corridor.

Findings

Thirty-four (34) acres (13 ha) of the survey area on the steep southeast facing slope was considered potential woodrat habitat, and was comprised of large boulders and talus with deep crevices suitable for woodrat nesting. Habitat was located within shaded boulders and talus slides. Primary rocky habitat types consisted of shaded and exposed boulders and talus slabs (1-5m) with overhangs, crevices, and “caves”. Flora found on the site produce food sources of hard and soft mast. Five PACs were identified based on quality of rocky habitat (Fig. 13); however, no sign of woodrat presence was observed.

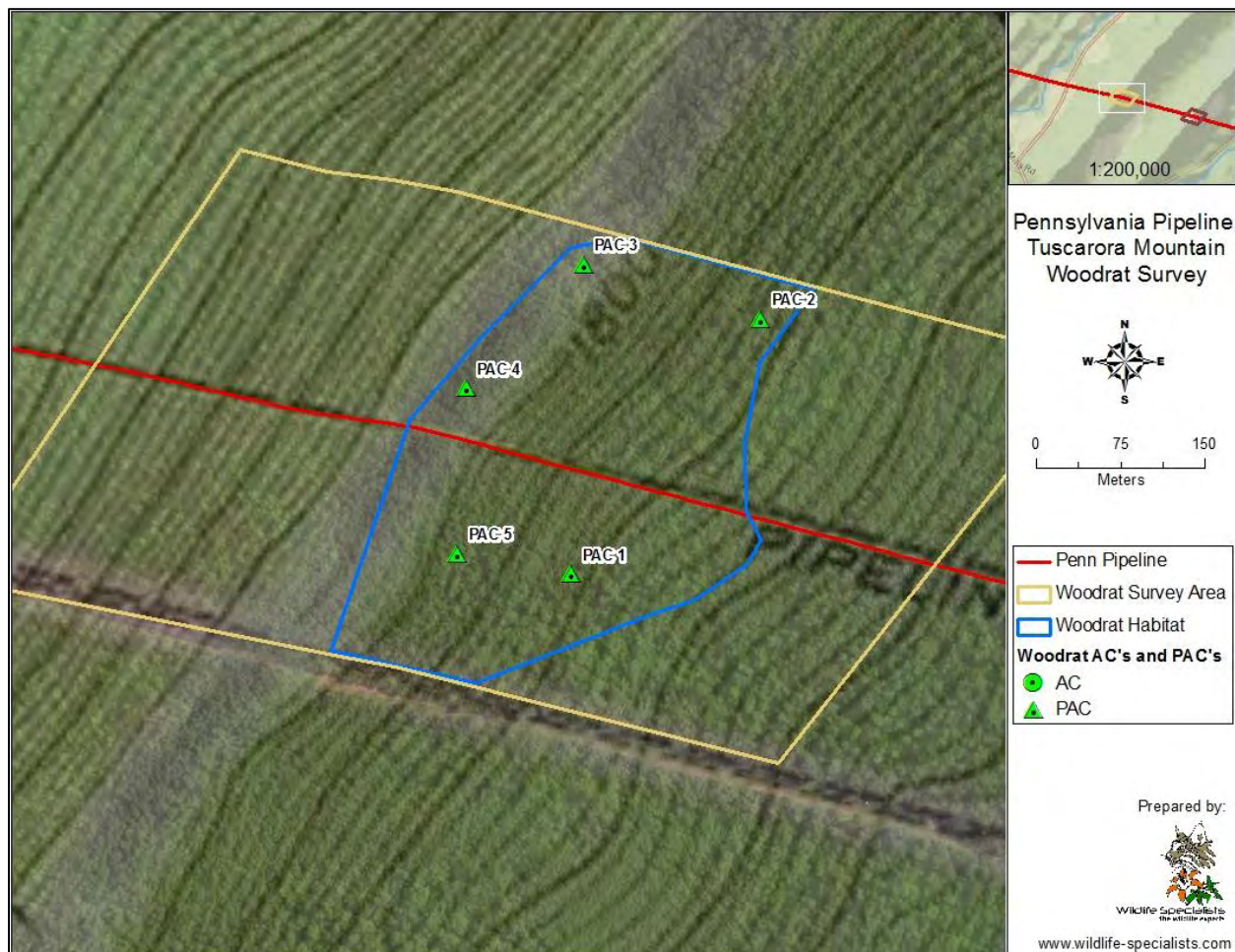


Figure 13. Rocky habitats and Allegheny woodrat Potential Activity Centers (PACs) at the proposed *Pennsylvania Pipeline Project*, Tuscarora Mountain survey area, Lack and Toboyne Twps., Juniata and Perry Counties, Pennsylvania, July, 2014.

Conococheague Mountain

The Conococheague Mountain survey area is a 59 ac (24 ha) area of primarily mature deciduous forest located on the moderate northwest facing and steep southeast facing slopes of Conococheague Mountain. The survey corridor is approximately 0.5 km north and 7.0 km east of Blairs Mills with central coordinates at 40°17'23.659"N, 77°38'88.071". Elevations within the site range from 1,440ft - 1,840ft above mean sea level. The survey area is found within the Tuscarora/Blue Mts. (TUBL) Woodrat Conservation Management Unit. The site consists of mostly mature deciduous forest and mixed forest with a well-developed understory throughout most of the survey area. An existing pipeline right-of-way crosses the entire vertical length and Concord Road crosses the entire horizontal width of the survey area.

The majority of the southeast facing slope was covered with talus and boulders with particularly dense rock at the higher elevations and slightly more scattered rock at lower elevations. Some scattered boulders and associated talus were present within and south of the ROW on the northwest facing slope. Canopy cover ranged from 0-30% within the pipeline ROW and small open areas to 75 to 90% throughout the rest of the survey area. Dominant overstory species included red and chestnut oak, red maple, and black birch. Shrub and herbaceous species included mountain laurel, witch hazel, green briar, blackberry, low-bush blueberry, grapevine, goldenrod, ferns and grasses.

Findings

Most of the survey area, particularly the southeast facing slope, was considered excellent potential woodrat habitat (App. III, Photo Map 19 & 20). The entire slope is covered with piled boulders and talus ranging in size from 1-5 meters with some larger float blocks up to 10 meters. Numerous interstices and deep crevices are present throughout the rocky habitat. Seven PACs were chosen based on the size and presence of rock and crevices, though PACs could have been placed in many locations along the southeast facing slope based on the overall quality of the rocky habitat (Fig. 14). Canopy cover over the selected PACs ranged from 70-80%. Flora found on the site produce food sources of hard and soft mast, however no sign of woodrat presence was observed.

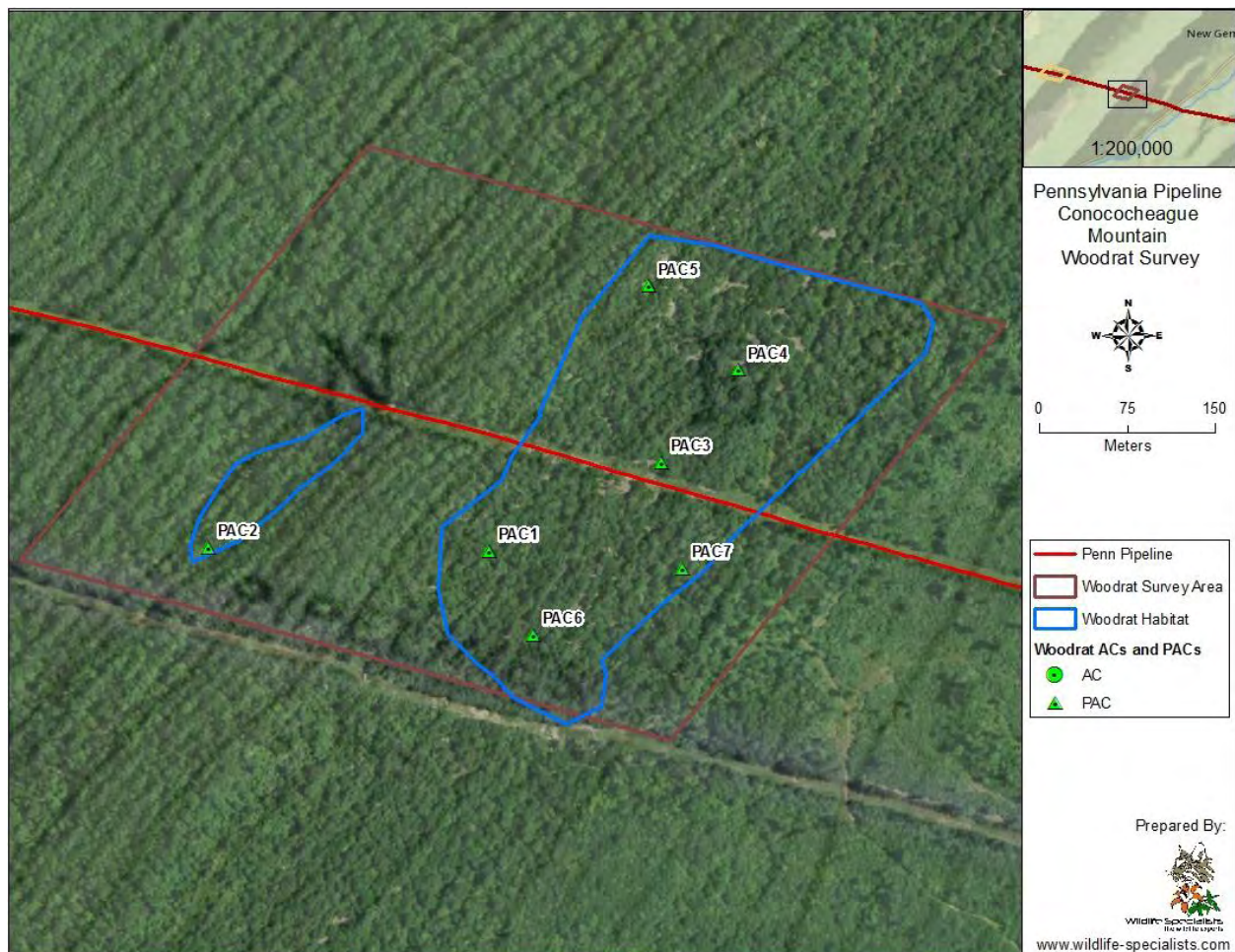


Figure 14. Rocky habitats and Allegheny woodrat Potential Activity Centers (PACs) at the proposed *Pennsylvania Pipeline Project*, Conococheague Mountain survey area, Toboyne Twp., Perry County, Pennsylvania, April, 2015.

Bowers Mountain 2

The Bowers Mountain 2 survey area is a 30 ac (12 ha) area of primarily mature deciduous forest located on the steep southeast and northwest facing sides of Bowers Mountain. The survey corridor is approximately 27.8 km northwest of the city of Carlisle with central coordinates at 40°16'10.69"N, 77°31'2.95"W. Elevations within the site range from approximately 1,500ft – 1,990ft above mean sea level. The survey area is found within the Tuscarora/Blue Mts. (TUBL) Woodrat Conservation Management Unit. The site consists of mostly mature deciduous forest and mixed forest with a well-developed understory in some areas and sparse understory elsewhere. An existing pipeline right-of-way crosses the entire vertical length of the survey area. A fairly expansive area of rocky habitat including open and shaded surface and subsurface talus of varying size exists throughout most of the central portion of the survey area. Overstory canopy cover ranged from 10 to 75%. Talus was particularly

dense on the steep southeast facing slope in the eastern portion of the survey area. Dominant rock types were open talus (1-5m) with several small overhangs, crevices and small caves. Other rock habitat included some small areas of bare rock talus with moderately deep interstices. Dominant overstory species include black birch, red maple, red oak, chestnut oak, sugar maple, witch-hazel, and eastern hemlock. Understory and herbaceous species include mountain laurel, Virginia creeper, woodfern, sweet fern, New York fern, hay-scented fern and a scattering of flowering plants.

Findings

A 40.9 ac (16 ha) portion of the Bowers Mountain 2 survey area was considered excellent potential woodrat habitat (App. III, Photo Map 21). The best potential woodrat habitat area was concentrated on the steeper southeast facing slope in the higher elevations of the survey area at approximately 1,620ft (493.78m) to 1,940ft (591.31m) of elevation above mean sea level and was approximately 287m long by 612m wide. Primary rocky habitat types were talus (1-5m) with deep and shallow interstices. Two ACs were identified that contained either fresh or old caches or latrines (Fig. 15). Five food caches and three toilets were located within the survey area (App. III). Caches were found in talus consisting of 1-5m blocks and contained leaves, ferns, acorns, fungi and sticks. Flora found on the site produces ideal food sources of hard and soft mast. In addition, 5 Potential Activity Centers based on overall quality of rocky habitat were identified (Fig. 15). The PACs primarily consisted of 1-5m talus with deep interstices. Canopy cover throughout most of the potential woodrat habitat area was 10-70%. The remainder of the survey area to the southeast and northwest consisted of small and scattered talus with shallow crevices and areas of non-rock habitat.

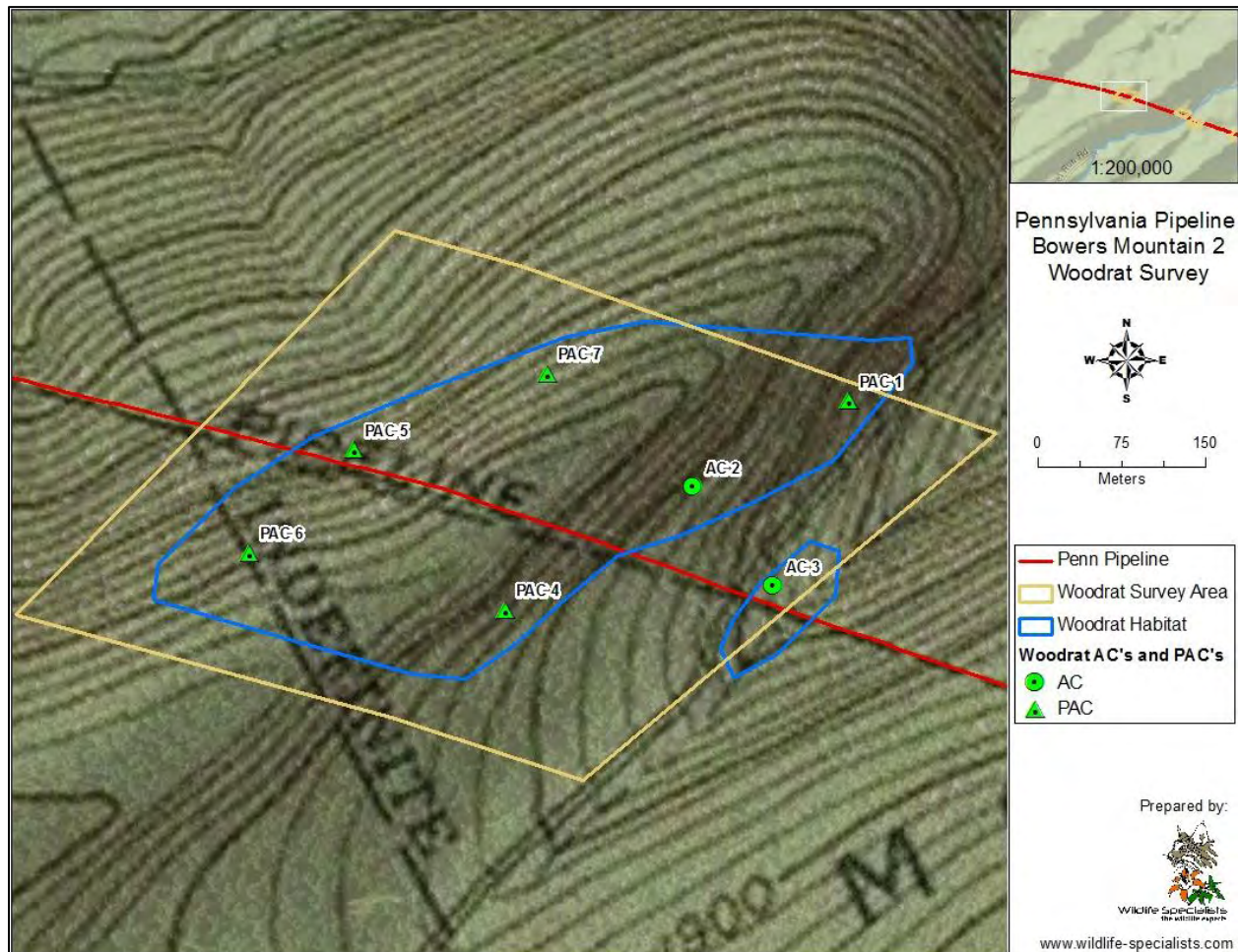


Figure 15. Rocky habitats and Allegheny woodrat Activity Centers (ACs) and Potential Activity Centers (PACs) at the proposed Pennsylvania Pipeline Project Bowers Mountain 2 survey area, Toboyne and Jackson Twps., Perry Co., Pennsylvania, July, 2014.

Bowers Mountain 1

The Bowers Mountain 1 survey area is a 23 ac (9 ha) area of mature and regenerating deciduous forest located on the steep southeast facing slope near the base of Bowers Mountain. The survey area is approximately 9.5 km south and 2.4 km east of Andersonburg with central coordinates at 40°15'50.767"N, 77°29'39.145"W. Elevations within the site range from approximately 1,150ft – 1,450ft above mean sea level. The survey area is found within the Tuscarora/Blue Mts. (TUBL) Woodrat Conservation Management Unit. The site consists of mature deciduous forest on the steep slope in the bottom half of the survey area and the gentle slope in the top quarter of the survey area with regenerating forest with little to no overstory cover in between. Understory is mostly sparse except near the top of the steep slope and within the regenerating portion of the survey area. Dominant overstory species consisted of red and chestnut oak, red maple, and black birch with some hickory. Shrub and

understory species consisted of witch hazel, black birch, mountain laurel, blackberry, and blueberry. Canopy cover ranged from 0% in regenerating areas to 50-90% throughout the rest of the survey area. Rocky habitat was limited to a row of talus and boulders on the gentle slope near the top of the survey area and one small outcrop with associated talus at the top of the steep slope.

Findings

A small line of boulders/talus and one smaller outcrop were considered marginal woodrat habitat (Fig. 16). The line of boulders and talus is located on the gentle slope between approximately 1,360ft and 1,380ft elevation under 50% to 75% canopy cover. Primary rocky habitat types consisted of talus 1-3m with shallow and deep interstices (App III; Photo Map 22). The small outcrop is less than 3 meters high and located at approximately 1,350ft elevation under 25% canopy cover. Good food sources of hard and soft mass were found at the site. We identified 3 PACs based on overall quality of rocky habitat but found no evidence of occupation by woodrats.

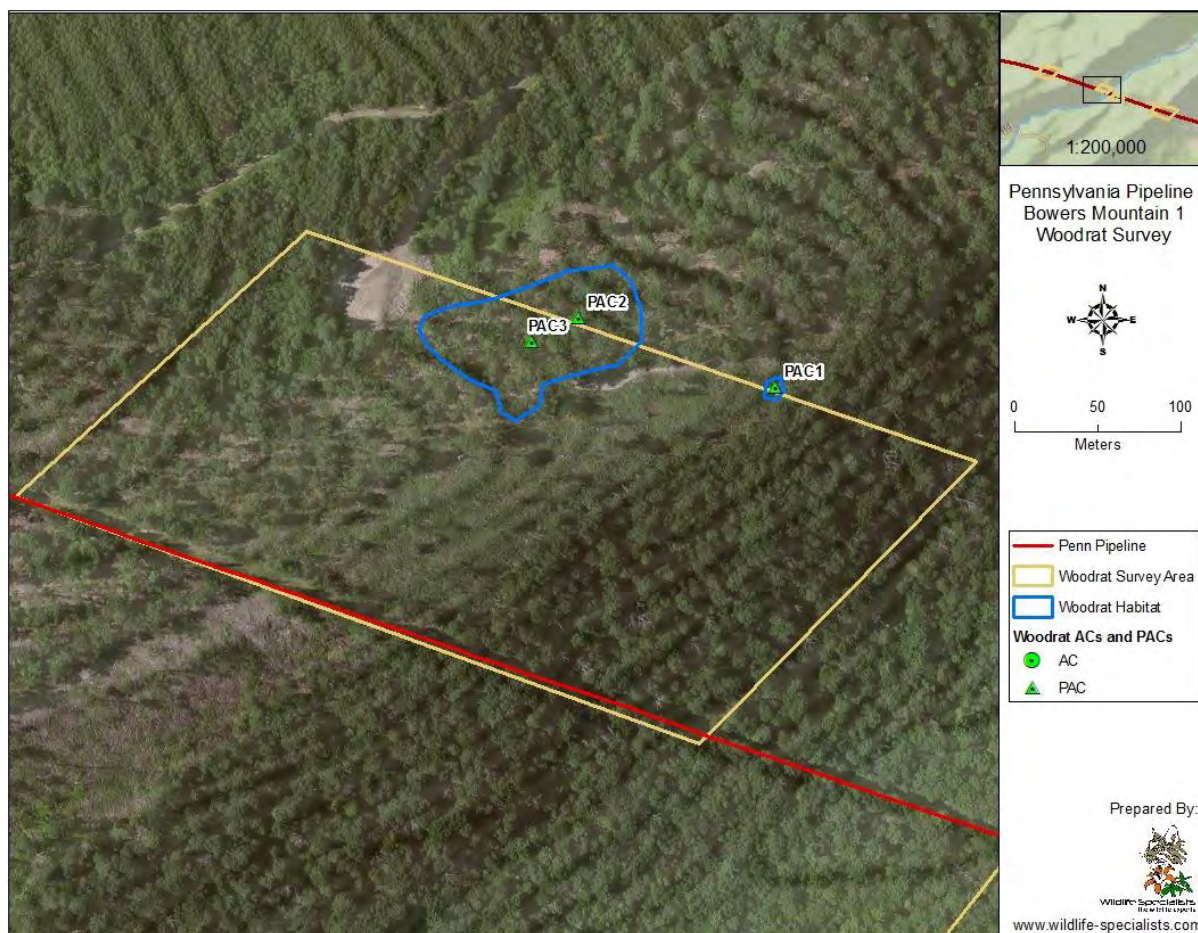


Figure 16. Rocky habitats and Allegheny woodrat Potential Activity Centers (PACs) at the proposed *Pennsylvania Pipeline Project*, Bowers Mountain 1 survey area, Lack and Jackson Twps., Perry County, Pennsylvania, April 2015.

Middle Ridge

The Middle Ridge Survey area is a 21 ac (8 ha) area of mixed forest located at the base of Middle Ridge. The survey area is approximately 9.8 km south and 2.0 km west of Andersonburg with central coordinates at 40°15'39.316"N, 77°29'21.167"W. Elevations within the site range from approximately 1,000ft to 1,300ft above mean sea level. The survey area is found within the Tuscarora/Blue Mts (TUBL) Woodrat Conservation Management Unit. The site consists of mature mixed forest with little understory. Dominant overstory species consisted of eastern hemlock, white pine, red and chestnut oaks, red maple, and black birch. Shrub and herbaceous species included black and red raspberry, green briar, mountain laurel, colt's foot, trailing arbutus, and Canada mayflower. Canopy cover ranged from 50-75%. Rocky habitat consisted of talus 1-5 meters with deep interstices and some larger float blocks 10+ meters with numerous overhangs, crevices, and caves.

Findings

A 5.6 ac (2.3 ha) area of the Middle Ridge survey area was considered potential woodrat habitat (App. III, Photo Map 23 & 24). Primary rocky habitat types consisted of talus and boulders (1-5m) and talus (1-5m) with deep interstices and some float blocks (+10m) with numerous overhangs, crevices, and "caves" Flora found on the site produce ideal food sources of hard and soft mast. Seven (7) PACs were identified based on overall quality of rocky habitat; however no sign of woodrat presence was observed (Fig. 17).

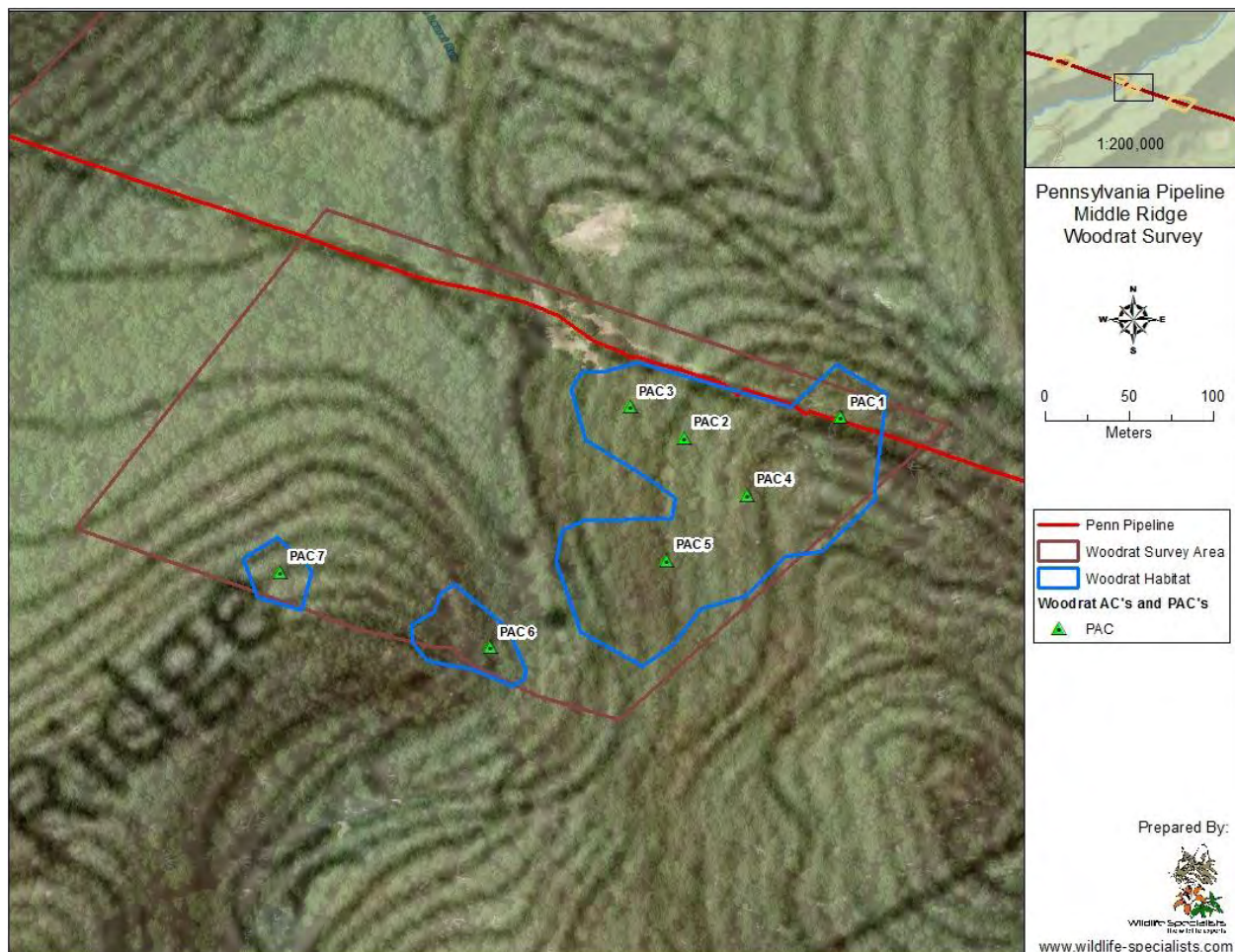


Figure 17. Rocky habitats and Allegheny woodrat Potential Activity Centers (PACs) at the proposed *Pennsylvania Pipeline Project*, Middle Ridge survey area, Jackson Twp., Perry County, Pennsylvania, April 2015.

Blue Mountain

The Blue Mountain survey area is a 100 ac (40 ha) area of mature and regenerating deciduous forest located on the steep southeast and northwest facing sides of Blue Mountain. The survey corridor is approximately 2.2 km northwest of the village of McCrea with central coordinates at 77°28'11.56"W, 40°15'24.85"N. Elevations within the site range from approximately 1,130ft – 1,780ft above mean sea level. The survey area is found within the Tuscarora/Blue Mts. (TUBL) Woodrat Conservation Management Unit. The site consists of mature and pole stage second growth deciduous forest and mixed forest with a well-developed understory in some areas and sparse understory elsewhere. An existing pipeline right-of-way crosses the entire vertical length of the survey area. Fairly expansive areas of rocky habitat including surface and subsurface talus of varying size, and a few small outcrops exist throughout much of the southeastern portion of the survey area. Rocky terrain was primarily shaded by

an approximate 85% overstory canopy. The surface rock transitioned from smaller scattered scree and talus in the southeastern portion of the survey area at lower elevations to fairly dense talus rock in the northwestern portion of the survey area at higher elevations. Dominant rock types were talus (1-3m) partially embedded or covered with humus and leaves, and small outcrops with several small overhangs, crevices and small caves. Other rock habitat included some small areas of bare rock talus with moderately deep interstices. Dominant overstory species include red oak, chestnut oak, black birch, red maple, sugar maple, witch-hazel, sassafras and striped maple. Understory and herbaceous species include striped maple, mountain laurel, Virginia creeper, gooseberry, grapevine, lowbush blueberry, black huckleberry, various brambles (*Rubus* spp.), teaberry, seedlings and saplings of overstory species, and greenbriar, as well as woodfern (*Dryopteris* spp.), hay-scented fern and Japanese stiltgrass.

Findings

A 27.45 ac (11.11 ha) portion of the Blue Mountain survey area was considered marginal potential woodrat habitat (App. III, Photo Map 25). The potential woodrat habitat area was concentrated on the steeper slope in the higher elevations of the survey area at approximately 1,500ft (457.20m) to 1,700ft (518.16m) of elevation above mean sea level and was approximately 350m long by 370m wide. Primary rocky habitat types were talus (1-5m) with deep interstices; and small (<3m) outcrops with few overhangs, crevices, and “caves”. We found no evidence of woodrat occupation (no food caches or toilets were observed). We identified 3 PACs based on overall quality of rocky habitat (Fig. 18). The PACs primarily consisted of 1-3m talus with deep interstices. Canopy cover throughout most of the potential woodrat habitat area was 80% or greater with a few areas under a reduced canopy of approximately 60% cover. The remainder of the survey area to the southeast and northwest consisted of small and scattered talus with shallow crevices and areas of non-rock habitat.

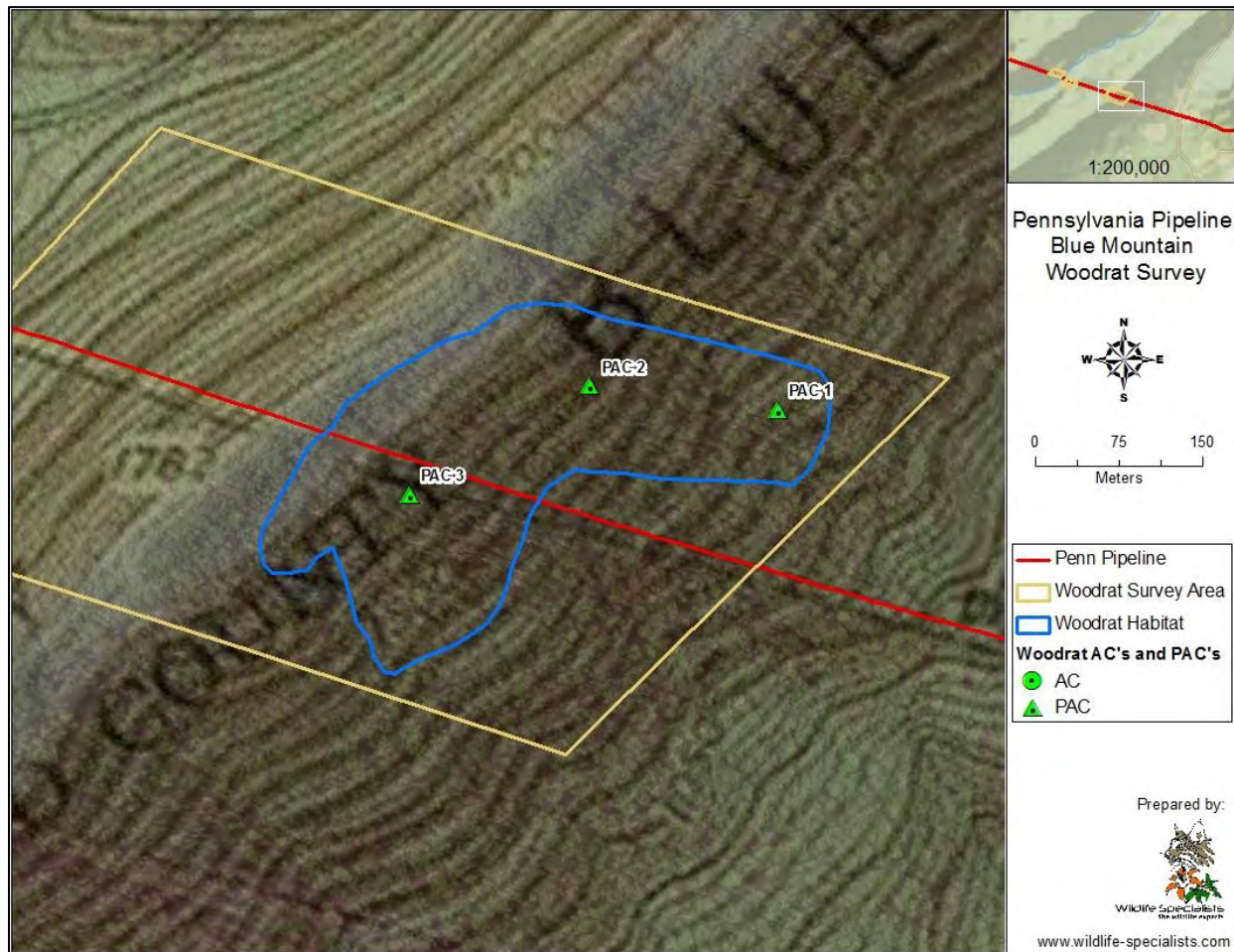


Figure 18. Rocky habitats and Allegheny woodrat Potential Activity Centers (PACs) at the proposed *Pennsylvania Pipeline Project* Blue Mountain survey area, Jackson and lower Mifflin Twps., Perry and Cumberland Counties, Pennsylvania, July, 2014.

Eastern Small-footed Bat Summer Roost Habitat Survey Report

The Pennsylvania Game Commission identified seven (7) areas of concern for Eastern Small-footed Bat along the proposed *Pennsylvania Pipeline Project* (Table 2). In addition, Wildlife Specialists surveyed the entire Altoona Bypass portion of the proposed pipeline. These survey areas are predominantly mature or regenerating forested ridge/valley-side habitats within the Ridge and Valley Province (n=6) or Appalachian Plateaus Province (n=2). Of the 7 Eastern Small-footed Bat survey areas identified by PGC, one was not completed (Conococheague) due to lack of property access and one did not contain any habitat (Lock Mountain) in the area that was surveyed. Note that a portion of the Lock Mountain survey area (western portion) was not completed in an area that is no longer in consideration for Project routing and due to lack of property access. Habitat was observed at all of the remaining survey areas as well as along the Altoona Bypass.

Table 2. Summary of Eastern small-footed bat (*Myotis leibii*) survey areas and findings along Sunoco’s proposed *Pennsylvania Pipeline Project*, identified in the Pennsylvania Game Commission’s Large Project Environmental Review response letter, dated March 14, 2014.

Survey Area ID	County	Physiographic Province^a	Potential Habitat (Yes/No)
Laurel Ridge 3	Cambria	AMAP	Yes
Altoona Bypass	Blair	AFAP	Yes
Lock Mountain	Blair	AMRV	No (Not Completed)
Jacks Mountain 2	Huntingdon	AMRV	Yes
Jacks Mountain 3	Huntingdon	AMRV	Yes
Blacklog Mountain	Huntingdon	AMRV	Yes
Shade Mountain	Huntingdon	AMRV	Yes
Conococheague Mountain	Perry	AMRV	Yes (Not Completed)

^a AMAP = Allegheny Mountain Section of Appalachian Plateau Physiographic Province

AFAP = Allegheny Front Section of Appalachian Plateau Physiographic Province

AMRV = Appalachian Mountain Section of Ridge and Valley Physiographic Province

Survey Methods and Findings

It should be noted that use of summer habitats by *Myotis leibii* is generally considered to be poorly understood at this time, with few supporting publications or affirmed conclusions to enable detailed assessment. Additionally, no formal species habitat assessment protocols have been implemented at the federal or state level. Thus, the assessment of potential habitat for this species relies heavily on the documented findings of others (e.g., Johnson et al. 2008; Johnson et al. 2011), interpretation of species-specific considerations, and best professional judgment.

We assessed potential summer roosting habitat for *Myotis leibii* through a walk over of the site to observe habitat characteristics and species-specific considerations. Habitat assessment was focused more toward talus/scree and rock outcrops that provide relatively stable and permanent shelter structure. Evaluation of features providing potential habitat included factors affecting protection and

shelter, and thermal regulation. Factors evaluated that affect thermal regulation included solar aspect and exposure/canopy cover. Consideration was also given to proximity of water and potential foraging areas. Through evaluation of the referenced factors and considerations, and using best professional judgment, a subjective assessment of the potential habitat to serve as summer roosting habitat for the Eastern small-footed bat was made.

Laurel Ridge 3

The Laurel Ridge 3 survey area is 120 ac (49 ha) of mostly mature forest located on the north facing side of Laurel Ridge (Fig. 19). The survey corridor is approximately 1.3 km south of US Route 22 with central coordinates at 78°56'49.93"W, 40°25'39.77"N. Elevations within the site range from approximately 1,800ft – 2,140ft above mean sea level. Tree and sapling species include black birch (*Betula lenta*), red (*Quercus rubra*) and chestnut (*Q. montana*) oak, red maple (*Acer rubrum*), sugar maple (*A. saccharum*), hemlock (*Tsuga canadensis*), sassafras (*Sassafras albidum*), black cherry (*Prunus serotina*), black gum (*Nyssa sylvatica*), yellow birch (*Betula allegheniensis*), and white ash (*Fraxinus americana*). The understory is dominated by lowbush blueberry (*Vaccinium angustifolium*, *V. pallidum*), black huckleberry (*Gaylussacia baccata*), witch-hazel (*Hamamelis virginiana*), greenbriar (*Smilax rotundifolia*), rhododendron (*Rhododendron* ssp.), striped maple (*A. pensylvanicum*), blackberry (*Rubus allegheniensis*), mountain laurel (*Kalmia latifolia*), wood fern (*Dryopteris* spp.), hay-scented fern (*Dennstaedtia punctilobula*), bracken fern (*Pteridium gleditsch*), teaberry (*Gaultheria procumbens*), sedges (*Carex* spp.) and grasses. Canopy cover throughout most of the survey area was 75% or greater, except for the small portion of survey area within the power line right-of-way.

Findings

The rock located within the power line and pipeline right-of-way (ROW) and a small area of exposed outcrops north of the power line (1.1 ac) was considered high quality Eastern Small-footed Bat roosting habitat (0% canopy cover). Surface rock consisted of boulders, outcrops, rock slabs and talus 1 to 5m in diameter with many small crevices that could be utilized by bats for summer roosting (App. IV, Photo Map 1). Other rocky portions of the survey area were not considered daytime roost habitats due to high canopy closure (App. IV, Photo Map 2).

Table 3. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Laurel Ridge 3 survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
LR-ESFB-1	1	40	5	few	small-medium	Y	Boulders and rock slabs along edge of existing pipeline ROW with crevices
LR-ESFB-2	1	35	6	moderate	Small-medium	Y	Boulders and rock slabs along edge of existing pipeline ROW with crevices
LR-ESFB-3	1	35	6	few	large	Y	Rock slab along edge of pipeline ROW with tapering large crevice

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
LR-ESFB-4	1	30	7	few	small	Y	Rock piles and slabs along edge of pipeline and power line ROW
LR-ESFB-5	1	30-50	6-8	many	small-large	Y	Powerline ROW lined with numerous 3-4 ft rock slabs in large piles
LR-ESFB-6	1	20-50	6-8	many	small-large	Y	Powerline ROW lined with numerous 3-4 ft rock slabs in large piles
LR-ESFB-7	1	45	5	few	small-medium	Y	Pipeline ROW with scattered rock slabs and boulders along edge
LR-ESFB-8	1	20-40	5-7	few	Small-medium	Y	Flat slab rocks on top of large outcrops with flat tops that receive direct sun

^a **Few, Moderate, Many**

^b **Small—(1/4-3/4-inch), Medium—(3/4-2-inch), Large—(>2-inch)**

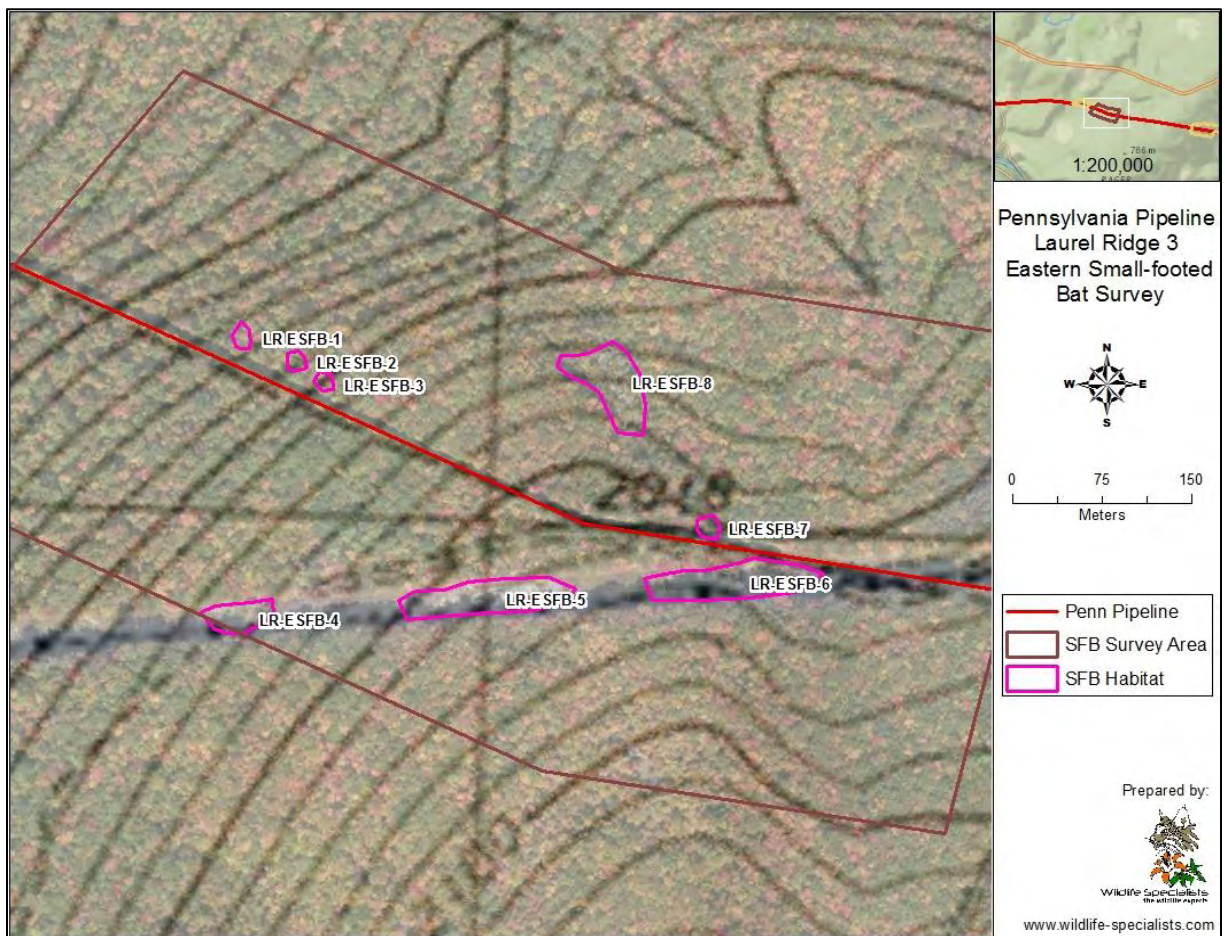


Figure 19. Locations of potential Eastern small-footed bat summer roosting habitat at the Laurel Ridge 3 survey area along the proposed Pennsylvania Pipeline Project, Jackson Twp., Cambria County, Pennsylvania, July 2014.

Altoona Bypass

The Altoona Bypass survey area is a 17.4mi long corridor of a variety of mostly forestland and agricultural areas north and south of, and including the pipeline corridor (Figs. 20-27). Approximate coordinates of the bypass are at 41°26'40.741"N , 78°35'56.516"W (west end) and 40°26'52.046"N, 78°19'17.613"W (east end). Elevations within the site range from approximately 900ft – 2,640ft above mean sea level.

Findings

A total of 54 habitat polygons were identified along the Altoona Bypass. For organizational purposes these habitat polygons were grouped into 8 different habitat areas (AB-ESFB-1 through AB-ESFB-8) based on location. The majority of the habitat was located within an existing pipeline ROW corridor with canopy cover ranging from 0-30%. Specific descriptions of each habitat can be found in Tables 4-11 and Photo Maps 3-8.

AB-ESFB-01

Table 4. Descriptive characteristics of Eastern small-footed bat (*Myotis leibii*) potential summer roosting habitat at the Altoona Bypass survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
AB-ESFB-1a	3	5	8+	few	small	N	Row of boulders in pipeline ROW going across pipeline
AB-ESFB-1b	3	5	8+	few	small	N	Row of boulders in pipeline ROW going across pipeline
AB-ESFB-1c	3	5	8+	few	small	N	Row of boulders in pipeline ROW going across pipeline
AB-ESFB-1d	3	30	8	few	large	N	Row of boulders in pipeline ROW, south edge of pipeline
AB-ESFB-1e	3	5	8+	few	small	N	Row of boulders in pipeline ROW going across pipeline
AB-ESFB-1f	3	30	8	many	large	N	Bed of scree in pipeline ROW, north edge of pipeline

^a **Few, Moderate, Many**

^b **Small**—(1/4-3/4-inch), **Medium**—(3/4-2-inch), **Large**—(>2-inch)

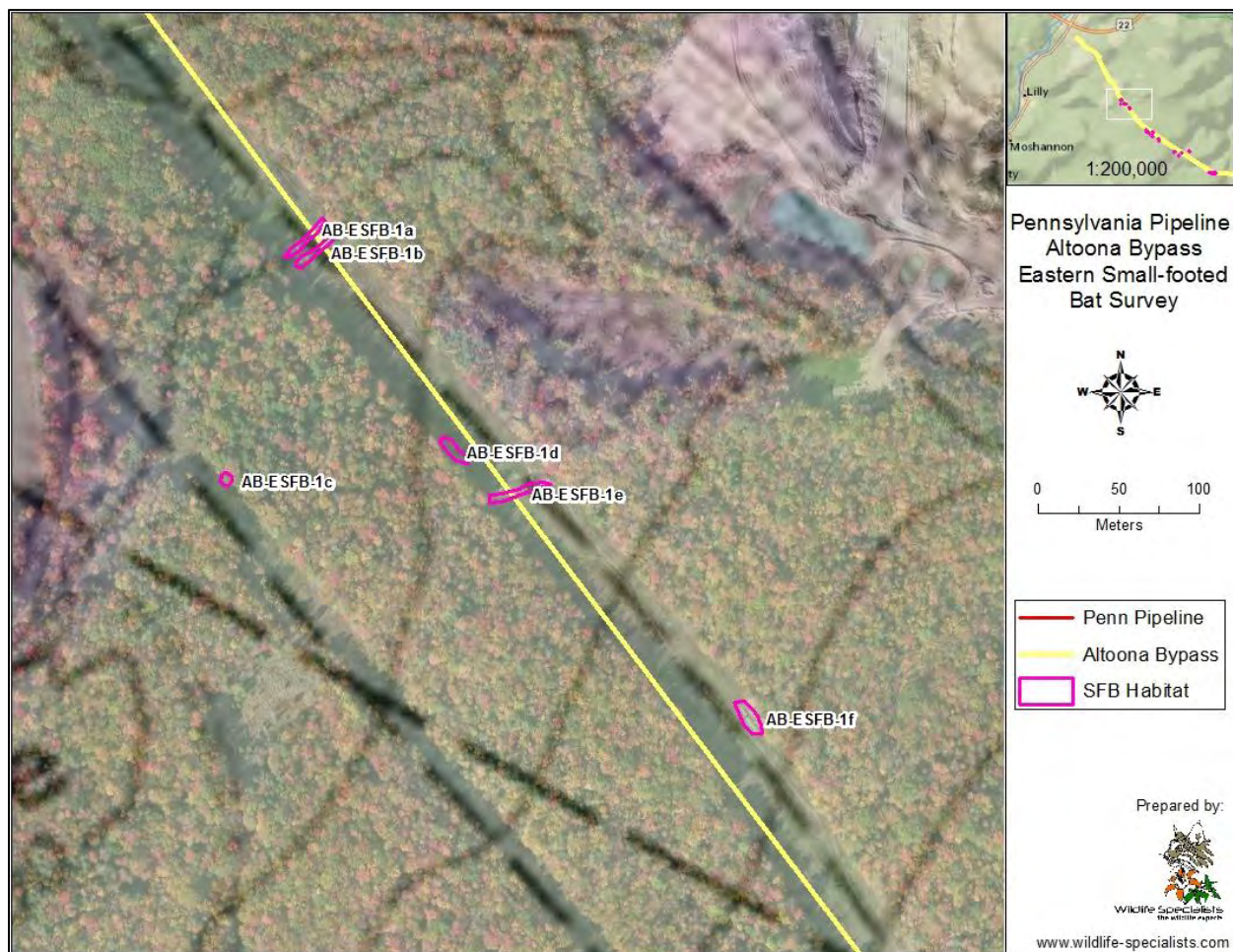


Figure 20. Locations of potential Eastern small-footed bat summer roosting habitat at the Altoona Bypass survey area along the proposed *Pennsylvania Pipeline Project*, Cresson Twp., Cambria County, Pennsylvania, July 2014.

AB-ESFB-02

Table 5. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Altoona Bypass survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
AB-ESFB-2a	3	5	8+	Few	small-medium	N	Row of boulders in pipeline ROW crossing pipeline
AB-ESFB-2b	4	5	8+	Few	small-medium	N	Row of boulders in pipeline ROW crossing pipeline
AB-ESFB-2c	4	35	7	Few	small-medium	N	Boulders and rock slabs along south edge of existing pipeline ROW



Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
AB-ESFB-2d	4	30	8	Few	small-medium	N	Boulders and rock slabs along north edge of existing pipeline
AB-ESFB-2e	4	35	7	Few	small-medium	N	Boulders and rock slabs along south edge of existing pipeline ROW
AB-ESFB-2f	4	30	8	Few	small-medium	N	Boulders and rock slabs along north edge of existing pipeline ROW
AB-ESFB-2g	3	30	8	Few	small-medium	N	Boulders and rock slabs along north edge of existing pipeline ROW
AB-ESFB-2h	4	35	7	Few	small-medium	N	Boulders and rock slabs along south edge of existing pipeline ROW
AB-ESFB-2i	4	35	7	Few	small-medium	N	Boulders and rock slabs along south edge of existing pipeline ROW
AB-ESFB-2j	4	5	8+	Few	small-medium	N	Row of boulders in pipeline ROW crossing pipeline
AB-ESFB-2k	4	5	8+	Few	small-medium	N	Row of boulders in pipeline ROW crossing pipeline

^a **Few, Moderate, Many**

^b **Small—(1/4-3/4-inch), Medium—(3/4-2-inch), Large—(>2-inch)**

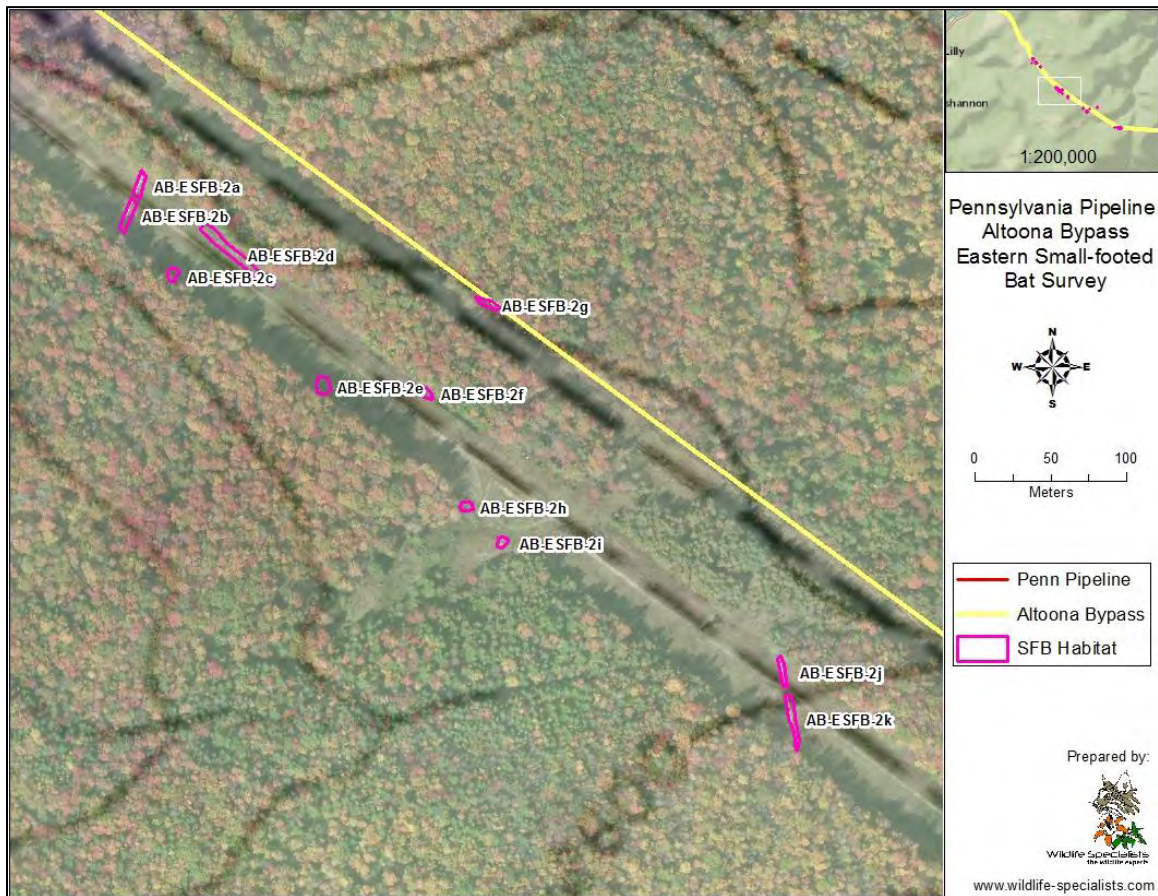


Figure 21. Locations of potential Eastern small-footed bat summer roosting habitat at the Altoona Bypass survey area along the proposed *Pennsylvania Pipeline Project*, Washington Twp., Cambria County, Pennsylvania, July 2014.

AB-ESFB-03

Table 6. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Altoona Bypass survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
AB-ESFB-3a	4	5	8+	Few	Small-Medium	Y	Row of boulders in pipeline ROW going across pipeline
AB-ESFB-3b	4	45	7-8	Few	Small-Medium	Y	Boulders and rock slabs along south edge of existing pipeline ROW
AB-ESFB-3c	5	25	8+	Few	Small-Medium	Y	Boulders and rock slabs along north edge of existing pipeline ROW
AB-ESFB-3d	5	30	8	Few	Large	N	Row of boulders in pipeline ROW on north edge of pipeline

^a Few, Moderate, Many

^b Small—(1/4-3/4-inch), Medium—(3/4-2-inch), Large—(>2-inch)

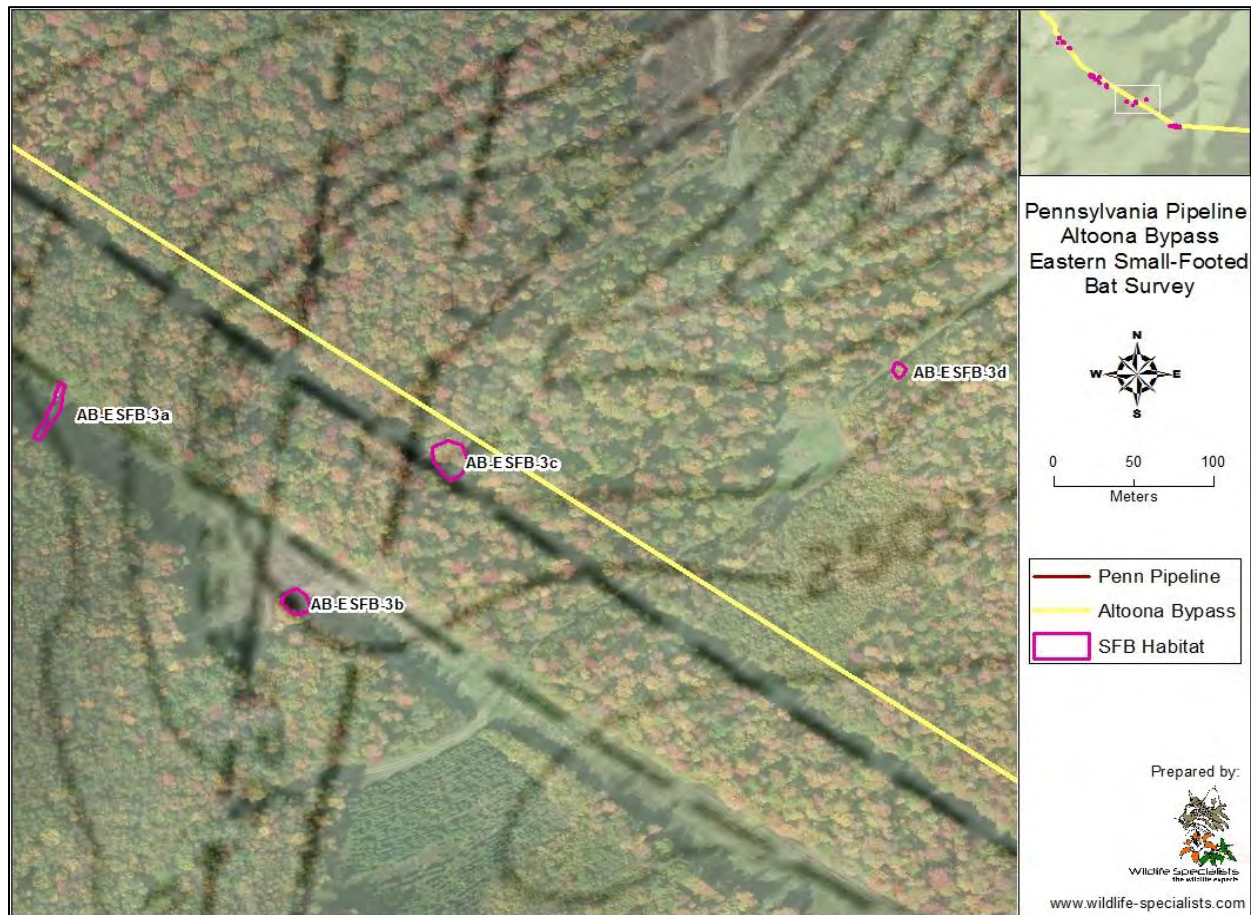


Figure 22. Locations of potential Eastern small-footed bat summer roosting habitat at the Altoona Bypass survey area along the proposed *Pennsylvania Pipeline Project*, Washington Twp., Cambria County, Pennsylvania, July 2014.

AB-ESFB-04

Table 7. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Altoona Bypass survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
AB-ESFB-4a	5	10	8+	few	medium-large	Y	Small boulders and rock slabs along north edge of existing power line
AB-ESFB-4b	5	10	8+	many	medium-large	Y	Boulders and rock slabs along north edge of existing power line ROW
AB-ESFB-4c	5	10	8+	many	medium-large	Y	Boulders and rock slabs along north edge of existing power line ROW
AB-ESFB-4d	5	10	8+	many	medium-large	Y	Boulders and rock slabs along north edge of existing power line ROW

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
AB-ESFB-4e	5	10	8+	few	small-medium	Y	Boulders and rock slabs along north edge of existing power line ROW
AB-ESFB-4f	5	0	8+	many	small-large	Y	Boulders and rock slab piles along north edge of existing power line

^a **Few, Moderate, Many**

^b **Small**—(1/4-3/4-inch), **Medium**—(3/4-2-inch), **Large**—(>2-inch)

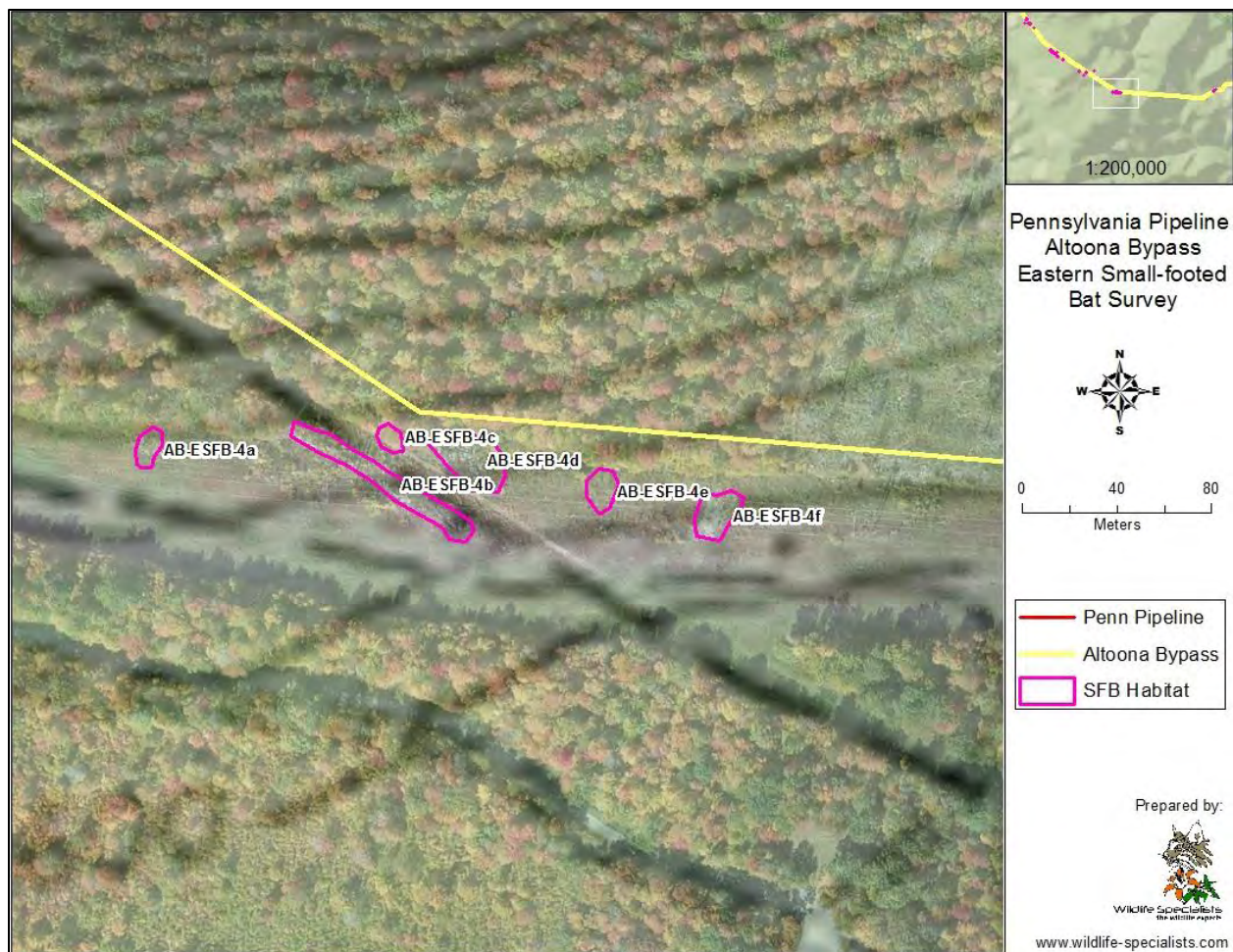


Figure 23. Locations of potential Eastern small-footed bat summer roosting habitat at the Altoona Bypass survey area along the proposed Pennsylvania Pipeline Project, Juniata Twp., Blair County, Pennsylvania, July 2014.

AB-ESFB-05

Table 8. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Altoona Bypass survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
AB-ESFB-5a	6	0	13	many	small	N	Rock slab pile on ROW comprised of small, 10-12 inch flat slabs
AB-ESFB-5b	6	0	13	many	small-medium	N	Boulders and rock slabs with crevices on existing pipeline ROW

^a **Few, Moderate, Many**

^b **Small**—(1/4-3/4-inch), **Medium**—(3/4-2-inch), **Large**—(>2-inch)



Figure 24. Locations of potential Eastern small-footed bat summer roosting habitat at the Altoona Bypass survey area along the proposed *Pennsylvania Pipeline Project*, Juniata Twp., Blair County, Pennsylvania, July 2014.

AB-ESFB-06

Table 9. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Altoona Bypass survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
AB-ESFB-6a	6	15	8+	few	small	Y	Scattered 1-2 ft boulders with crevices on north side of ROW
AB-ESFB-6b	6	15	8+	few	small	Y	Boulders and slabs 2-5 ft in diameter on north side of ROW
AB-ESFB-6c	6	25	8	many	small-medium	N	Pile of 1-4 ft boulders and slabs on south side of pipeline ROW
AB-ESFB-6d	6	25	8	many	small-medium	N	Pile of 1-4 ft boulders and slabs on south side of pipeline ROW
AB-ESFB-6e	6	25	8	few	small	Y	Scattered 1-3 ft boulders with crevices on south side of ROW

^a **Few, Moderate, Many**

^b **Small**—(1/4-3/4-inch), **Medium**—(3/4-2-inch), **Large**—(>2-inch)

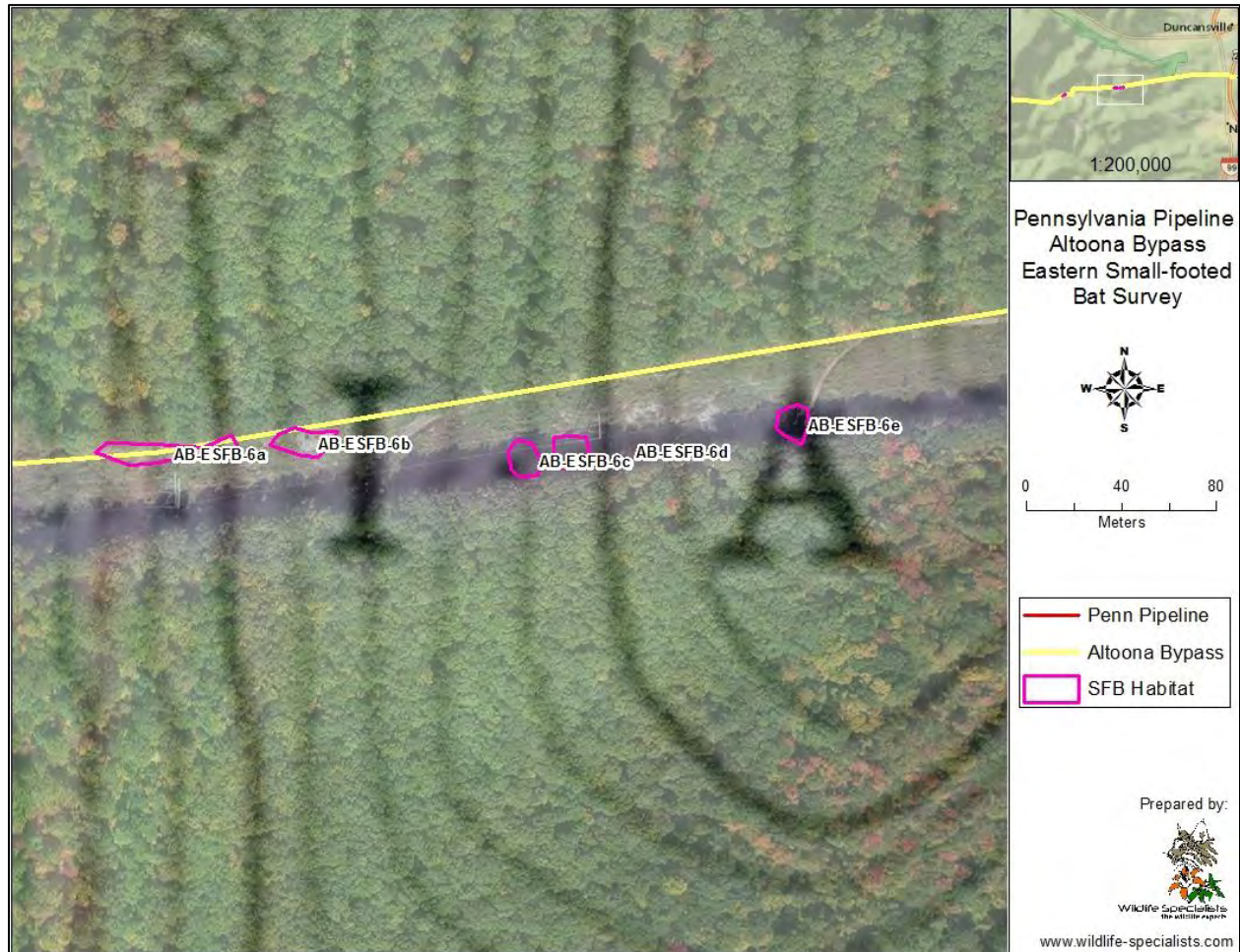


Figure 25. Locations of potential Eastern small-footed bat summer roosting habitat at the Altoona Bypass survey area along the proposed Pennsylvania Pipeline Project, Washington Twp., Blair County Pennsylvania, July 2014.

AB-ESFB-07

Table 10. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Altoona Bypass survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
AB-ESFB-7a	7	25	8+	Few	Small	Y	Rock slab pile on south side of ROW comprised of small slabs
AB-ESFB-7b	7	50	7	Few	Small	Y	Boulders and rock slabs with crevices on north side of ROW

^a Few, Moderate, Many

^b Small—(1/4-3/4-inch), Medium—(3/4-2-inch), Large—(>2-inch)

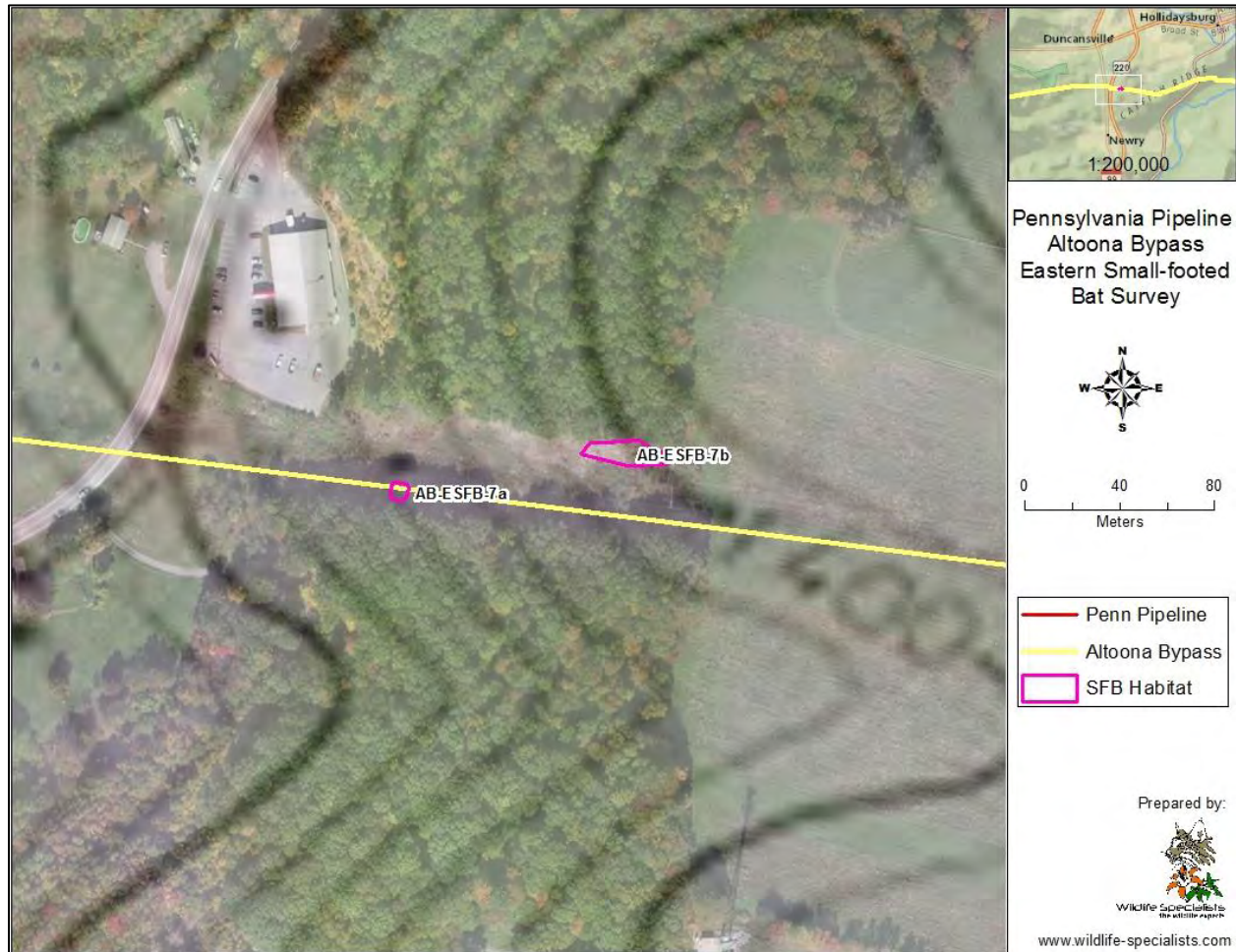


Figure 26. Locations of potential Eastern small-footed bat summer roosting habitat at the Altoona Bypass survey area along the proposed Pennsylvania Pipeline Project, Blair Twp., Blair County Pennsylvania, July 2014.

AB-ESFB-08

Table 11. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Altoona Bypass survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
AB-ESFB-8a	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8b	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8c	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8d	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8e	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8f	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW 1 to 4 ft diameter rocks and crevices
AB-ESFB-8g	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8h	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW 1 to 4 ft diameter rocks and crevices
AB-ESFB-8i	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8j	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8k	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8l	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8m	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8n	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8o	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8p	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices
AB-ESFB-8q	8	5	8+	Many	Small-Large	Y	Rock slab piles on power line ROW, 1 to 4 ft diameter rocks and crevices

^a Few, Moderate, Many

^b Small—(1/4-3/4-inch), Medium—(3/4-2-inch), Large—(>2-inch)

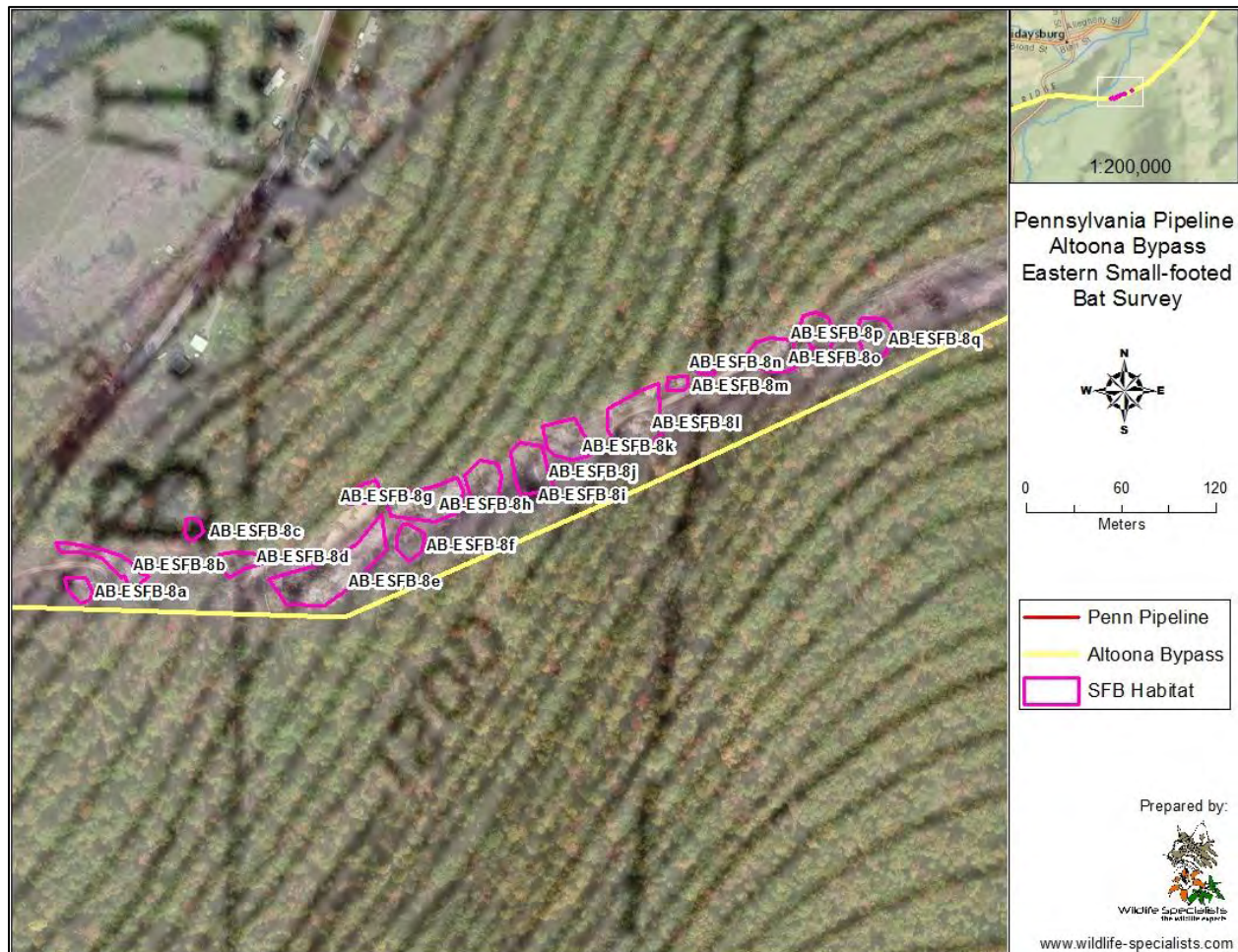


Figure 27. Locations of potential Eastern small-footed bat summer roosting habitat at the Altoona Bypass survey area along the proposed Pennsylvania Pipeline Project, Blair and Frankstown Twps., Blair County, Pennsylvania, July 2014.

Lock Mountain 1 & 2

The Lock Mountain survey area is a 23 ac (9 ha) area and the Lock Mountain 2 survey area is a 319 ac (129 ha) area both consisting of mature and regenerating deciduous and mixed forest located on the steep southeast and northwest facing sides of Lock Mountain (Fig. 28). The survey areas primarily focused on the proposed limits of disturbance (LOD) and a 300 foot buffer surrounding the LOD. The survey corridors are approximately 8.1 km and 7.6 km northeast of the town of Hollidaysburg with central coordinates at 78°16'54.72"W, 40°26'10.83"N (Lock Mountain 1) and 78°17'24.94"W, 40°25'56.42"N (Lock Mountain 2). Elevations within the site range from approximately 1,922ft – 900ft above mean sea level. Most of the survey area is crossed by an existing pipeline ROW. A cabin and a game lands road are also located within the Lock Mountain 2 survey area. The site consists of mature and pole stage second growth deciduous forest and mixed forest with a well-developed understory in

some areas and sparse understory elsewhere. Tree and sapling species include black birch, red oak, white pine, pitch pine, tulip poplar, white oak, black cherry, basswood, tree-of-heaven, sassafras, chestnut oak, red maple, sugar maple, striped maple and witch-hazel. Understory and herbaceous species include striped maple, mountain laurel, Virginia creeper, gooseberry, grapevine, crown vetch, various brambles (*Rubus* spp.), teaberry, seedlings and saplings of overstory species; greenbriar, deer tongue, woodfern (*Dryopteris* spp.), hay-scented fern, christmas fern, switch grass and Japanese stiltgrass. Canopy cover ranged from 15% within the existing pipeline ROW and open talus slides to 90% within the forested areas. A large amount of rocky habitat consisting of open (exposed to direct sunlight) and shaded talus and scree, and open and shaded outcrops and boulders covered much of the central portion of the Lock Mountain 2 survey corridor; especially near the crest of the steep northwest facing slope.

Findings

Some scattered rocky habitat consisting of outcrops, boulders and talus covered small portions of the southeastern portion of the Lock Mountain 1 survey corridor but was too shaded to be considered suitable habitat (Photo Map 9). In the Lock Mountain 2 survey area, a combined 2.6 acres (8 habitat polygons) consisted of open rocky features, some of which were considered prime small-footed bat habitat (0-25% canopy cover) for summer roosting (Table 12, Fig. 28, Photo Map 23 & 24). The best habitat consisted of several small to medium sized open talus/scree slides as well as talus and boulders (1-4ft across) along the existing pipeline right-of-way. Canopy cover ranged from 50% near the edges of the habitat polygons to 0% within the central portions of the larger talus slides. Many small to large crevices were present within all the habitat polygons. Sparse amounts of organic material consisting primarily of dried leaf litter, duff and soil can be observed within some of the crevices. The rock habitats will receive approximately 4-8 hours of direct sunlight. The boulders and talus observed in the wooded portions of the survey area were considered to be too shaded (80-90% canopy cover) to be utilized for summer roosting

Table 12. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Lock Mountain 2 survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
LM2-ESFB-1	23	35-40	4	Few	Small-Large	Y	Scattered boulders and talus next to pipeline ROW, 1 to 6 ft diameter
LM2-ESFB-2	23	35-40	4	Few	Small-Large	Y	Scattered boulders and talus next to pipeline ROW, 1 to 6 ft diameter
LM2-ESFB-3	23	35-40	4	Few	Small-Large	Y	Scattered boulders and talus on pipeline ROW, 1 to 4 ft diameter
LM2-ESFB-4	23	35-40	4	Few	Small-Large	Y	Scattered boulders and talus on pipeline ROW, 1 to 5 ft diameter
LM2-ESFB-5	23	25	6	Many	Small-Large	Y	Talus/scree slide on pipeline ROW, 1 to 4 ft diameter rocks
LM2-ESFB-6	24	15	6-7	Many	Small-Large	Y	Talus/scree slide on pipeline ROW, 1 to 4 ft diameter rocks
LM2-ESFB-7	24	15	6-7	Many	Small-Large	Y	Talus/scree slide south of pipeline ROW, 1 to 4 ft diameter rocks
LM2-ESFB-8	24	15	6-7	Many	Small-Large	Y	Talus/scree slide on pipeline ROW, 1 to 4 ft diameter rocks

^a **Few, Moderate, Many**

^b **Small**—(1/4-3/4-inch), **Medium**—(3/4-2-inch), **Large**—(>2-inch)

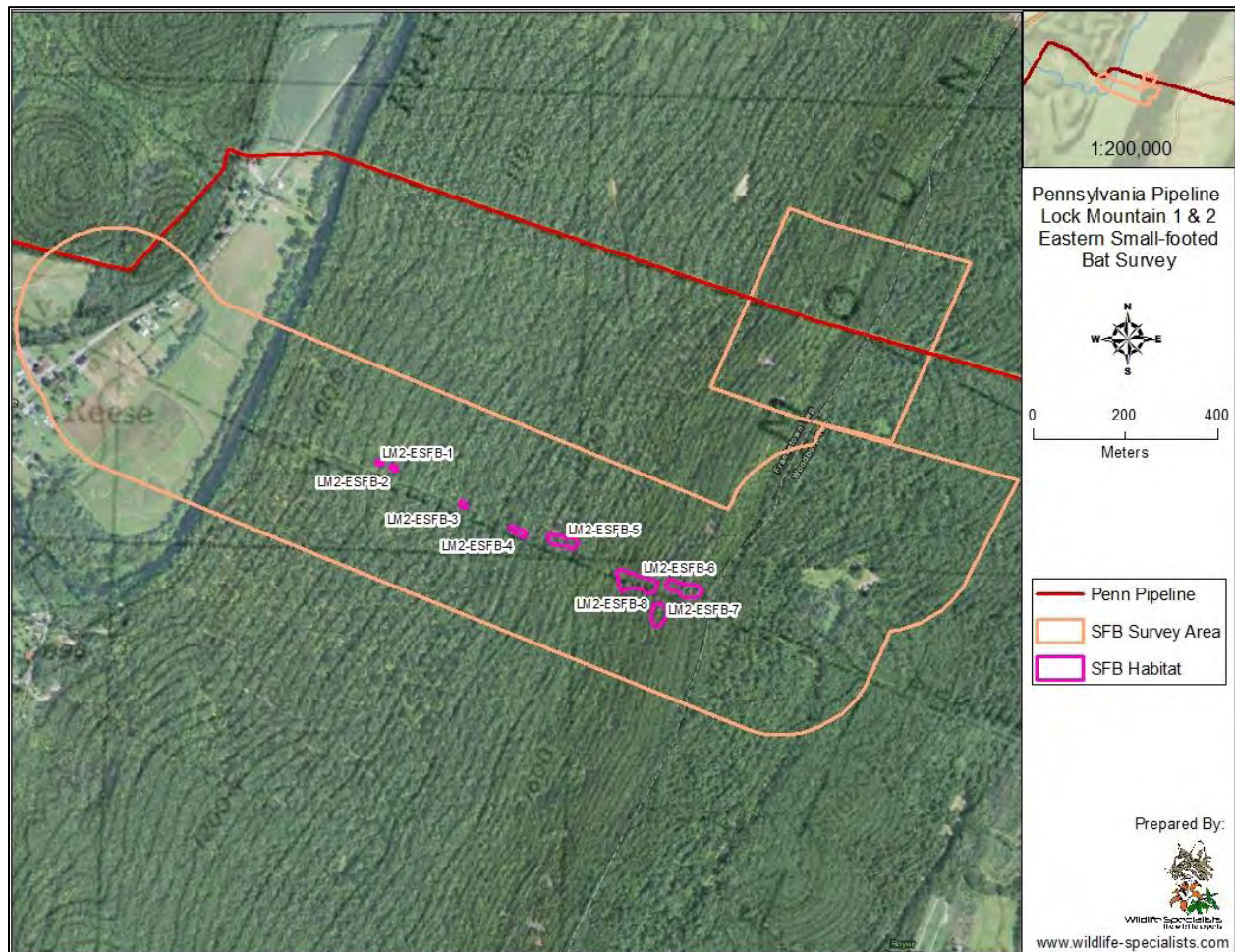


Figure 28. Lock Mountain 1 & 2 survey areas along the proposed *Pennsylvania Pipeline Project*, Frankstown and Woodbury Twps., Blair County, Pennsylvania, July 2014.

Jacks Mountain 2

The Jack's Mountain 2 survey area is a 71 ac (29 ha) area of mostly mature forest, with a pipeline corridor running through it. The site is located on the steep west facing side of Jack's Mountain. The survey corridor is approximately 1.1 km east of Route 655 with central coordinates at 77°57'19.28"W, 40°20'50.23"N. Elevations within the site range from approximately 1,300ft – 1,660ft above mean sea level. Tree and sapling species include black birch, red oak, chestnut oak, red maple, and sugar maple. The understory is dominated by grape vine, blackberry and striped maple. Rocky habitat consisting of shaded and exposed boulders covered most of the survey corridor. Canopy cover throughout most of the survey area was 50% with the exception of the pipeline right-of-way and open talus slides.

Findings

A combined 3.5 acres (12 habitat polygons) consisted of open rocky features and was considered prime habitat (0% canopy cover) by bats for summer roosting (Table 13, Fig. 29, Photo Maps 10-11). The habitat consisted of several small open talus slides as well as talus and boulders (1-3m across) along the existing pipeline right-of-way. Canopy cover ranged from 50% near the edges of the habitat polygons to 0% within the larger talus slides. Many small to large crevices were present within all the habitat polygons. Sparse amounts of organic material consisting primarily of dried leaf litter, duff and soil can be observed within some of the crevices. The rock habitats will receive approximately 4-8 hours of direct sunlight. The boulders and talus observed in the wooded portions of the survey area was considered to be too shaded (80-90% canopy cover) to be utilized for summer roosting (Appendix IV, Photo Map 12).

Table 13. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Jacks Mountain 2 survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
JM2-ESFB-1 &	10, 11	30-50	4-6	many	small-large	N	Piled talus and 1-4m boulders along existing pipeline ROW
JM2-ESFB-3	10	20-50	4-6	many	large	N	Small talus slide with 1-4m boulders on side of mountain at ~ 1580ft
JM2-ESFB-4	10	0-50	4-8	many	large	N	Large talus slide on side of mountain at ~ 1760ft, boulders 1-3m
JM2-ESFB-5	10	30-60	4	many	small-large	Y	Small pile of 1-3m boulders on top of mountain
JM2-ESFB-6	11	0-20	8	many	medium-large	Y	Open talus slide near mtn. top with 1-3m boulders and tapering crevices
JM2-ESFB-7	11	5	8+	many	medium-large	Y	Large open talus slide with 1-3m diameter boulders and slabs
JM2-ESFB-8	10	10	8+	many	medium-large	Y	Large open talus slide with 1-4m diameter boulders near mtn. top
JM2-ESFB-9	10	11	8+	many	medium-large	Y	Large open talus slide with 1-4m diameter boulders and crevices
JM2-ESFB-10	10	11	8+	many	medium-large	Y	Large open talus slide with 1-4m diameter boulders and crevices
JM2-ESFB-11	10	11	8+	many	medium-large	Y	Large open talus slide with 1-4m diameter boulders and crevices
JM2-ESFB-12	10	11	8+	many	medium-large	Y	Large open talus slide with 1-4m diameter boulders and crevices

^a **Few, Moderate, Many**

^b **Small**—(1/4-3/4-inch), **Medium**—(3/4-2-inch), **Large**—(>2-inch)

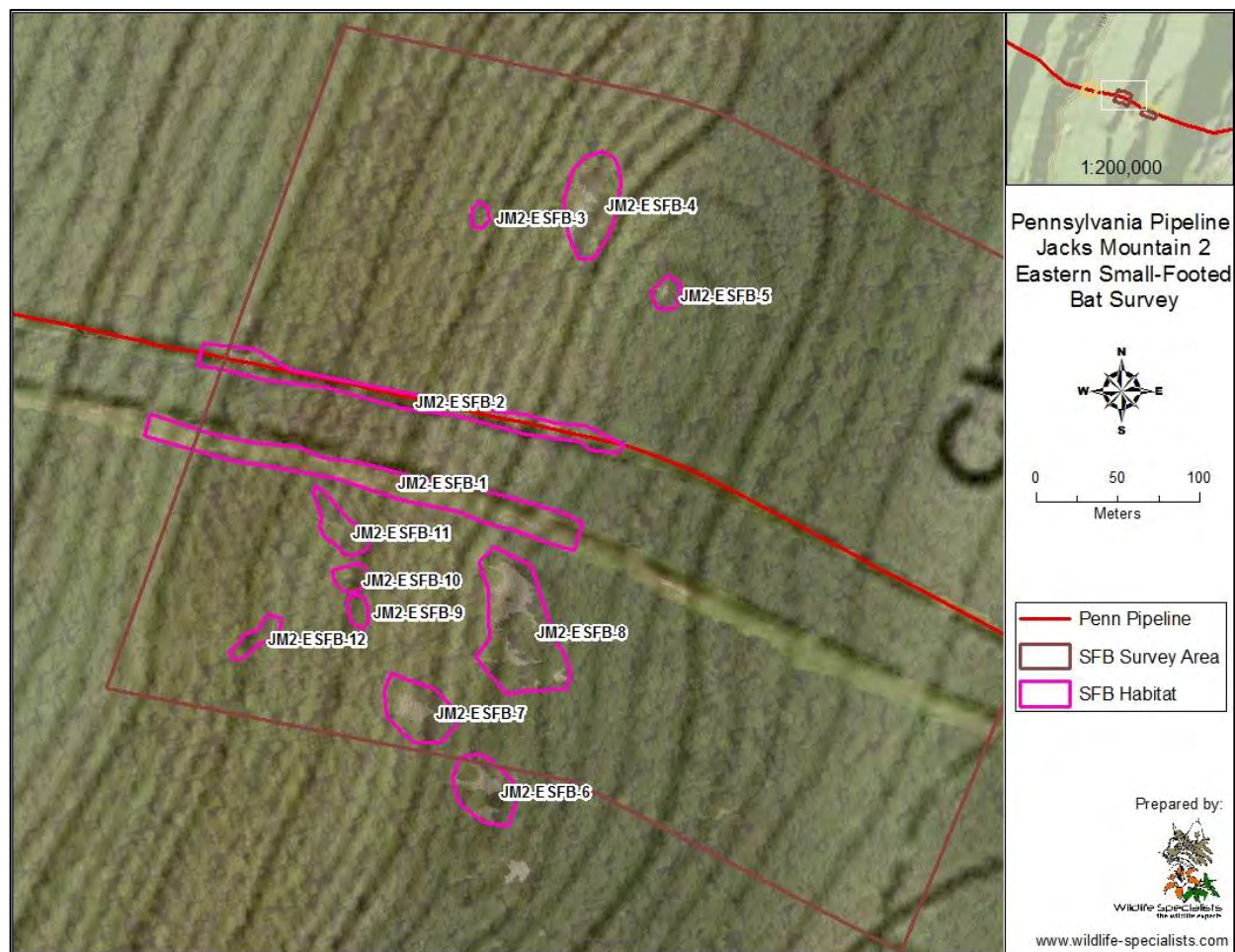


Figure 29. Locations of potential Eastern small-footed bat summer roosting habitat at the Altoona Bypass survey area along the proposed Pennsylvania Pipeline Project, Union Twp., Huntingdon County Pennsylvania, July 2014.

Jacks Mountain 3

The Jack's Mountain 3 survey area is a 69 ac (28 ha) area of mostly mature forest located on the steep south facing side of Jack's Mountain (Fig. 30). The survey corridor is approximately 2.4 km east of Route 655 with central coordinates at 77°56'34.47"W, 40°20'37.07"N. Elevations within the site range from approximately 1,560ft – 1,640ft above mean sea level. Tree and sapling species include black birch, red oak, chestnut oak, red maple, and white pine. The understory is dominated by Virginia creeper, blackberry, grape vine, mountain laurel, and polypody fern. Canopy cover in approximately half of the survey area was 60%, with the remaining portions being 90% or greater.

Findings

Potential Eastern Small-footed Bat habitat was identified within the Jack’s Mountain 3 survey area (Fig. 30, Table 14, Appendix IV, Photo Map 13). An area of 0.09 ha (0.22 ac) of the rock features that were observed within the survey corridor had low canopy cover, and were considered prime habitat for summer roosting by bats. The habitat consisted of several small open talus slides as well as talus and boulders (1-3m across) along the existing pipeline right-of-way. Canopy cover ranged from 50% near the edges of the habitat polygons to 0% within the larger talus slides. Many small to large crevices were present within all the habitat polygons. Sparse amounts of organic material consisting primarily of dried leaf litter, duff and soil can be observed within some of the crevices. The rock habitats will receive approximately 4-8 hours of direct sunlight. The boulders and talus observed in the wooded portions of the survey area were considered to be too shaded (80-90% canopy cover) to be utilized for summer roosting (Appendix IV, Photo Map 14).

Table 14. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Jacks Mountain 3 survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
JM3-ESFB-1	13	20	7-8	many	Medium-large	Y	Talus slide on slope with 1-3m boulders and tapering crevices
JM3-ESFB-2	13	35	6-8	many	Medium-large	Y	Talus slide on side of mountain with 1-4m boulders and tapering crevices
JM3-ESFB-3	13	25	8	many	small-large	Y	Talus with some large crevices and boulders on northwest slope
JM3-ESFB-4	13	20-50	6-8	many	small-large	N	Talus slide on side of mountain at ~ 1,560 ft
JM3-ESFB-5	13	50	6	moderate	small-large	Y	Talus within the existing pipeline ROW
JM3-ESFB-6	13	50	6	few	small	Y	Small talus within the pipeline ROW

^a Few, Moderate, Many

^b Small—(1/4-3/4-inch), Medium—(3/4-2-inch), Large—(>2-inch)

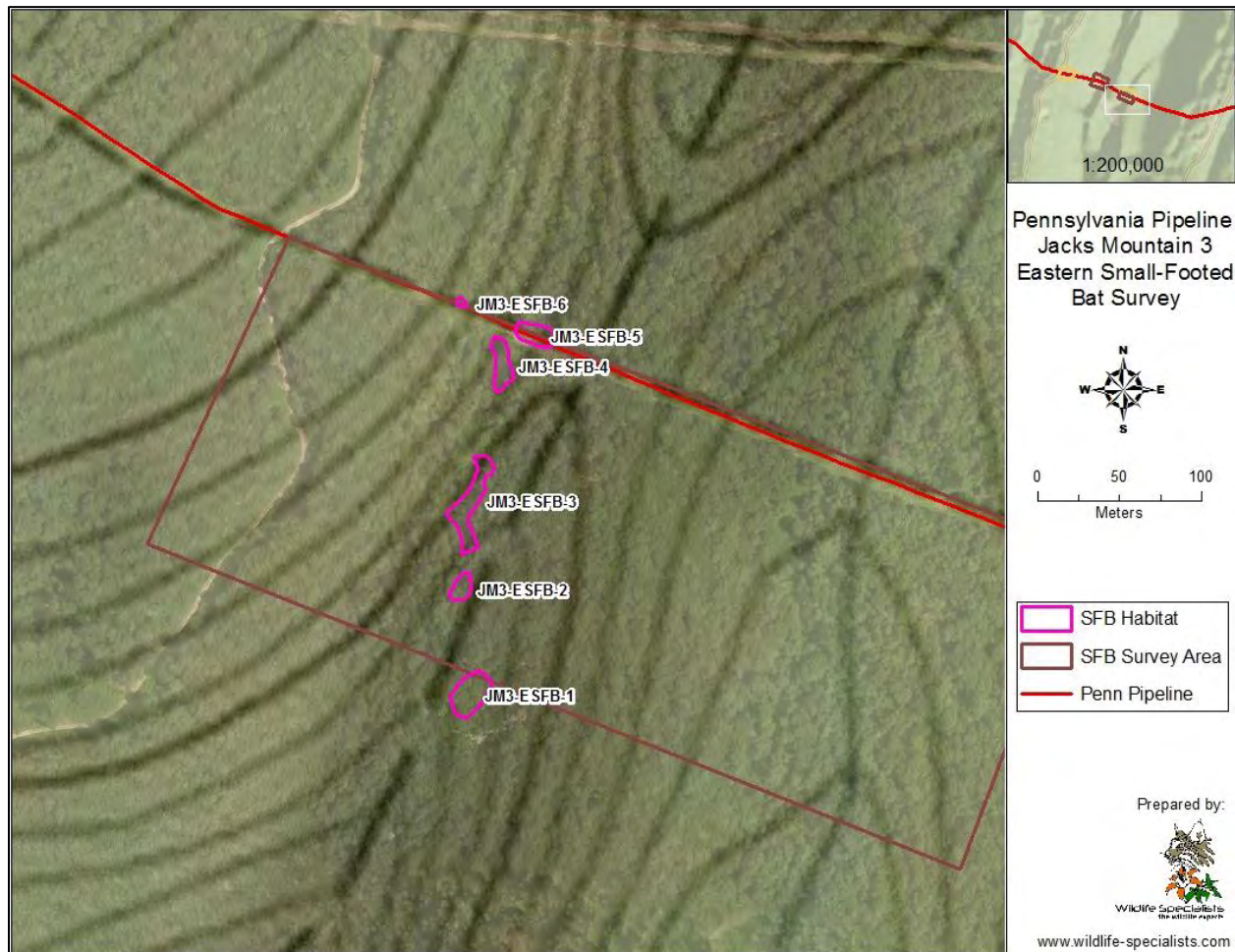


Figure 30. Locations of potential Eastern small-footed bat summer roosting habitat at the Jacks Mountain 3 survey area along the proposed *Pennsylvania Pipeline Project*, Union and Shirley Twps., Huntingdon County Pennsylvania, July 2014.

Blacklog Mountain

The Blacklog Mountain survey area is a 97 ac (39 ha) area of mostly mature forest located on the steep south and north facing sides of Blacklog Mountain (Fig. 31). The survey corridor is approximately 8.6 km southeast of the town of Mt. Union with central coordinates at 77°48'34.07"W, 40°19'22.59"N. Elevations within the site range from approximately 1,300ft – 1,650ft above mean sea level. Tree and sapling species include black birch, red oak, red maple, sassafras, witch-hazel, chestnut oak, and white pine. The understory contains Virginia creeper, greenbriar, blackberry, polypody and marginal wood fern, grapevine, grasses, black raspberry (*Rubus occidentalis*), and mountain laurel. Canopy cover averaged 80% throughout the survey area except with the pipeline corridor and along Blacklog Mountain Road.

Findings

Three (3) areas of potential small-footed bat roosting habitat were located (Fig. 31, Table 15, Appendix IV; Photo Map 15). The combined areas measured approximately 800 square feet. Rock was free of canopy cover and had deep crevices. The potential roosting habitat was comprised of small to large rock piles along the edges of an existing pipeline ROW with boulders averaging 1-3m in diameter. Sparse amounts of organic material consisting primarily of dried leaf litter, duff and soil can be observed within some of the crevices. The rock habitats will receive approximately seven (7) hours of direct sunlight. Medium sized crevices were identified within the boulder piles. The boulders and talus observed in the wooded portions of the survey area were considered to be too shaded (80-90% canopy cover) to be utilized for summer roosting (Appendix IV, Photo Map 16).

Table 15. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Blacklog Mountain survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
BM-ESFB-1	15	30-40	7	moderate	medium	N	Piled boulders along pipeline ROW
BM-ESFB-2	15	30	7	moderate	medium	Y	Pipeline ROW, some soil between rocks when line was back-filled
BM-ESFB-3	15	30	7	few	medium	Y	Pipeline ROW, some soil between rocks when line was back-filled

^a **Few, Moderate, Many**

^b **Small**—(1/4-3/4-inch), **Medium**—(3/4-2-inch), **Large**—(>2-inch)

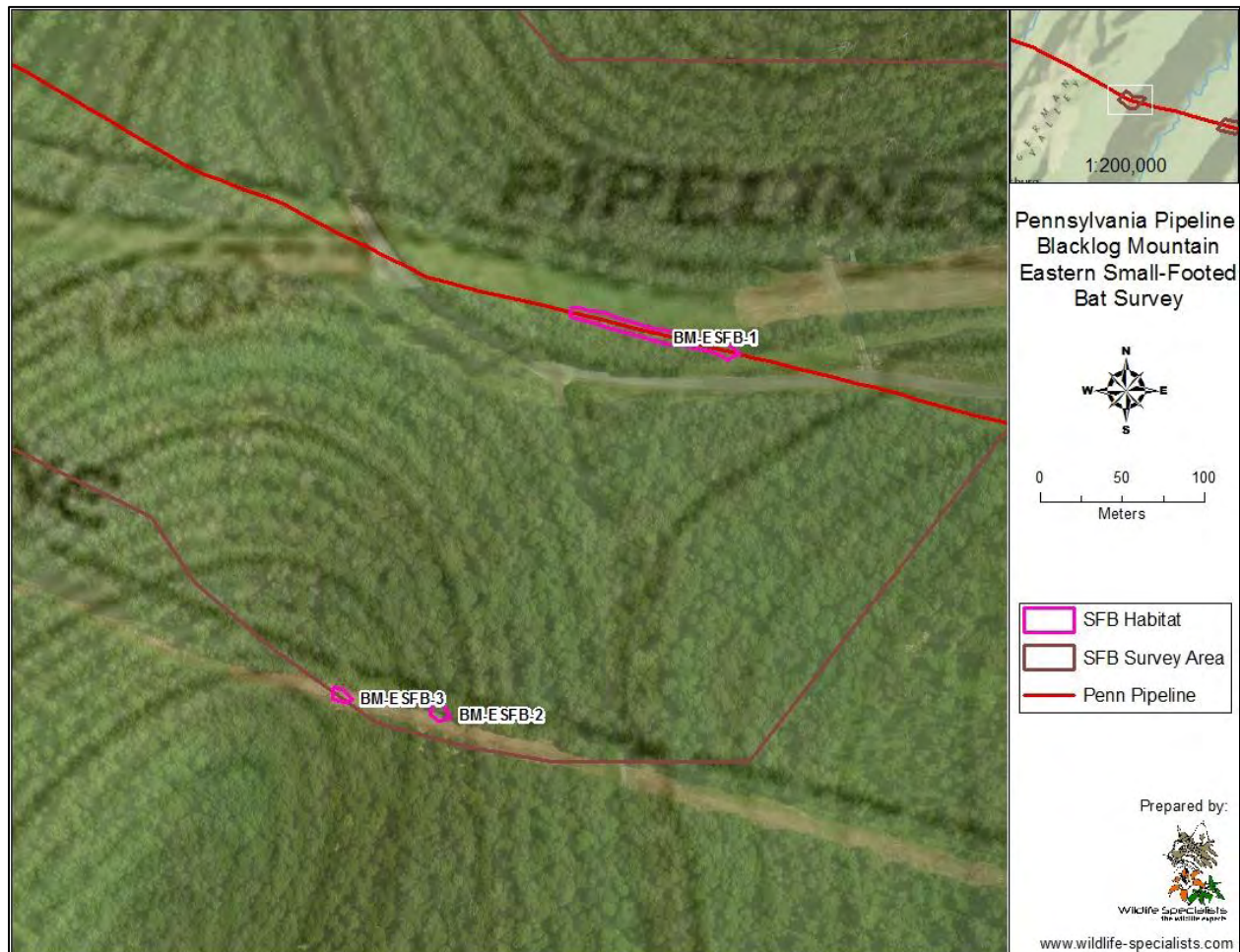


Figure 31. Locations of potential Eastern small-footed bat summer roosting habitat at the Blacklog Mountain survey area along the proposed Pennsylvania Pipeline Project, Shirley Twp., Huntingdon County Pennsylvania, July 2014.

Shade Mountain

The Shade Mountain survey area is a 94 ac (38 ha) area of mostly mature forest located primarily on the steep east and somewhat on the west facing side of Shade Mountain (Fig. 32). The survey corridor is approximately 7.2 km southwest of the town of Cross Keys with central coordinates at 77°46'5.87"W, 40°19'1.93"N. Elevations within the site range from approximately 940ft – 1,780ft above mean sea level. Tree and sapling species include black birch, red oak, red maple, sassafras, witch-hazel, tulip poplar (*Liriodendron tulipifera*), and basswood. The understory contains Virginia creeper, greenbriar, blackberry, polypody and marginal wood fern, striped maple, grape vine, grasses, white baneberry, and poison ivy. Canopy cover ranged from 0% within the many open talus slides to 100% in forested areas.

Findings

Many areas of high potential Eastern Small-footed Bat roosting habitat were located (Table 16, Appendix IV, Photo Maps 17-18). The combined areas measured 5.13 ha (12.7 ac), approximately 13.35% of the entire survey area. Rock was free of canopy cover and had deep crevices, ideal for small-footed bat summer roosting. The habitat consisted of several small to extremely large open talus slides as well as talus and boulders (1-5m across) along the existing pipeline right-of-way and beyond. Canopy cover ranged from 50% near the edges of the habitat polygons to 0% within the larger talus slides. Many small to large crevices were present within all the habitat polygons. Sparse amounts of organic material consisting primarily of dried leaf litter, duff and soil can be observed within some of the crevices. The rock habitats will receive approximately 4-8+ hours of direct sunlight. The boulders and talus observed in the wooded portions of the survey area were considered to be too shaded (80-90% canopy cover) to be utilized for summer roosting (Appendix IV, Photo Map 19).

Table 16. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Shade Mountain survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices^a	Size of Crevices^b	Organic Mat, Soil, Water (Y/N)	Comments
SM-ESFB-1	18	30	5-7	many	medium-large	Y	Piled talus and 1-3m boulders along existing pipeline ROW
SM-ESFB-2	18	30	5-7	many	medium-large	Y	Piled talus and 1-3m boulders along existing pipeline
SM-ESFB-3	18	5	8+	many	medium-large	Y	Large open talus slide on side of mountain with 1-3 m boulders
SM-ESFB-4	18	10	8+	many	medium-large	Y	Large open talus slide on side of mountain, boulders 1-3m
SM-ESFB-5	18	20	8+	many	medium-large	Y	Open talus slide on side of mountain, boulders 1-3m with many crevices
SM-ESFB-6	18	5	8+	many	medium-large	Y	Open talus slide with 1-3m diameter boulders and slabs
SM-ESFB-7	18	5	8+	many	medium-large	Y	Large open talus slide with 1-4m diameter boulders and crevices
SM-ESFB-8	18	15	8+	many	medium-large	Y	Large open talus slide with 1-4m diameter boulders and crevices
SM-ESFB-9	17, 18	5	8+	many	medium-large	Y	Large open talus side with 1-4m boulders on side of mountain
SM-ESFB-10	18	5	8+	many	medium-large	Y	Large open talus slide with 1-4m boulders on side of mountain
SM-ESFB-11	18	5	8+	many	medium-large	Y	Large open talus slide on side of mountain, boulders 1-4m
SM-ESFB-12	18	5	8+	many	medium-large	Y	Large open talus slide on side of mountain with 1-4m boulders



Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
SM-ESFB-13	17	25	7	many	small-large	Y	Piled talus and 1-3m boulders along existing pipeline ROW
SM-ESFB-14	17	25	7	many	small-large	Y	Piled talus and 1-3m boulders along existing pipeline ROW
SM-ESFB-15	18	25	7+	many	small-large	Y	Piled talus and 1-3m boulders along existing pipeline ROW
SM-ESFB-16	18	20	7+	many	medium-large	Y	Open talus slide with 1-3m diameter boulders and crevices near mtn. top
SM-ESFB-17	17	2	8+	many	medium-large	Y	Large open talus slide with 1-3m boulders and crevices on mtn. side
SM-ESFB-18	17	15	8+	many	medium-large	Y	Open talus slide with 1-3m diameter boulders and numerous crevices
SM-ESFB-19	18	15	8+	many	medium-large	Y	Open talus slide with 1-3m diameter boulders and crevices on mtn. side
SM-ESFB-20	17	2	8+	many	medium-large	Y	Expansive open talus slide with 1-5m boulders and numerous crevices

^a **Few, Moderate, Many**

^b **Small**—(1/4-3/4-inch), **Medium**—(3/4-2-inch), **Large**—(>2-inch)

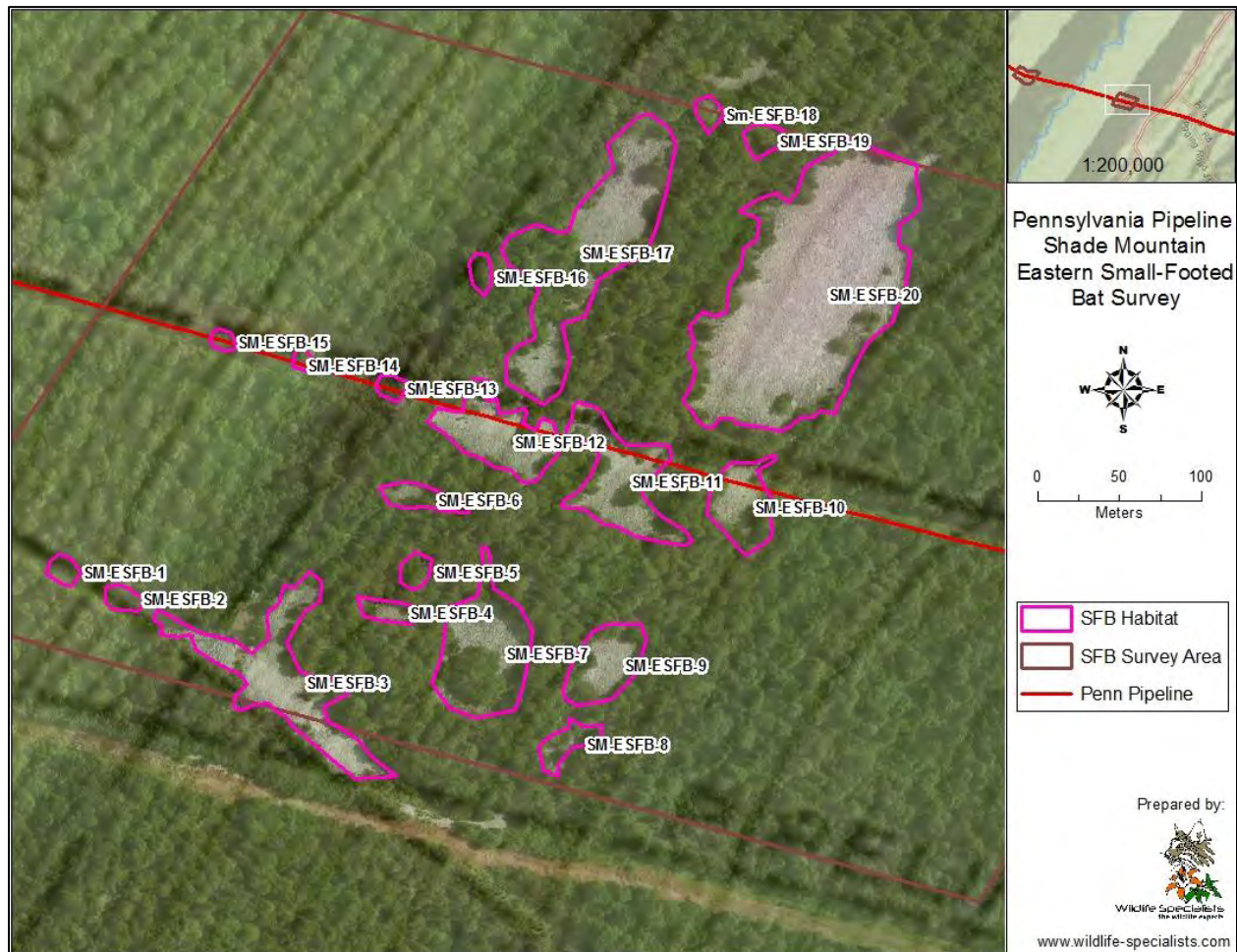


Figure 32. Locations of potential Eastern small-footed bat summer roosting habitat at the Shade Mountain survey area along the proposed Pennsylvania Pipeline Project, Shirley and Tell Twps., Huntingdon County, Pennsylvania, July 2014.

Conococheague Mountain

The Conococheague Mountain survey area is a 59 ac (24 ha) area of primarily mature deciduous forest located on the moderate northwest facing and steep southeast facing slopes of Conococheague Mountain (Fig. 33). The survey corridor is approximately 0.5 km north and 7.0 km east of Blairs Mills with central coordinates at 40°17'23.659"N, 77°38'88.071". Elevations within the site range from 1,440ft - 1,840ft above mean sea level. The site consists of mostly mature deciduous forest and mixed forest with a well-developed understory throughout most of the survey area. An existing pipeline right-of-way crosses the entire vertical length and Concord Road crosses the entire horizontal width of the survey area.

The majority of the southeast facing slope was covered with talus and boulders with particularly dense rock at the higher elevations and slightly more scattered rock at lower elevations. Some scattered

boulders and associated talus were present within and south of the ROW on the northwest facing slope. Canopy cover ranged from 0-50% within the pipeline ROW and small open areas to 75 to 90% throughout the rest of the survey area. Dominant overstory species included red and chestnut oak, red maple, and black birch. Shrub and herbaceous species included mountain laurel, witch hazel, green briar, blackberry, low-bush blueberry, grapevine, goldenrod, ferns and grasses.

Findings

Most of the survey area particularly the southeast facing slope was covered with dense boulders and talus ranging in size from 1-5 meters with some larger float blocks up to 10 meters. Numerous small to large interstices and deep crevices are present throughout the rocky habitat. Fourteen (14) areas with sufficient sun exposure to be considered potential small-footed bat roosting habitat were located within the survey area (Fig. 33, Table 17, Appendix IV; Photo Map 20 & 21). Organic material consisting primarily of dried leaf litter, duff and soil was observed within some of the crevices. Sun exposure ranges from 4 hours in the smaller areas to 8+ hours within the large open area on the ROW. The boulders and talus observed throughout the rest of the survey area was considered to be too shaded (75-90% canopy cover) to be utilized for summer roosting (Appendix IV, Photo Map 22).

Table 17. Descriptive characteristics of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat at the Conococheague Mountain survey area.

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
SFB-Con-1	20	30-50	4-5	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks
SFB-Con-2	20	0-20	8+	Many	Small-Large	Y	Dense boulder/talus slide on ROW, 10 ft diameter and smaller rocks
SFB-Con-3	20	30-50	4-5	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks
SFB-Con-4	20	30-50	4-5	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks
SFB-Con-5	20	30-50	4-5	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks
SFB-Con-6	21	30-50	4-5	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks
SFB-Con-7	21	30-50	4-5	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks
SFB-Con-8	21	20-50	4-6	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks
SFB-Con-9	21	30-50	4-5	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks
SFB-Con-10	20	30-50	4-5	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks

Habitat ID	Photo Map	Canopy Cover (%)	Solar Exposure (Hr)	# of Crevices ^a	Size of Crevices ^b	Organic Mat, Soil, Water (Y/N)	Comments
SFB-Con-11	21	20-50	4-6	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 5ft and smaller rocks
SFB-Con-12	21	20-50	4-6	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks
SFB-Con-13	21	20-50	4-6	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks
SFB-Con-14	21	30-50	4-6	Many	Small-Large	Y	Dense boulder/talus slide in small opening, 8ft and smaller rocks

^a **Few, Moderate, Many**

^b **Small—(1/4-3/4-inch), Medium—(3/4-2-inch), Large—(>2-inch)**

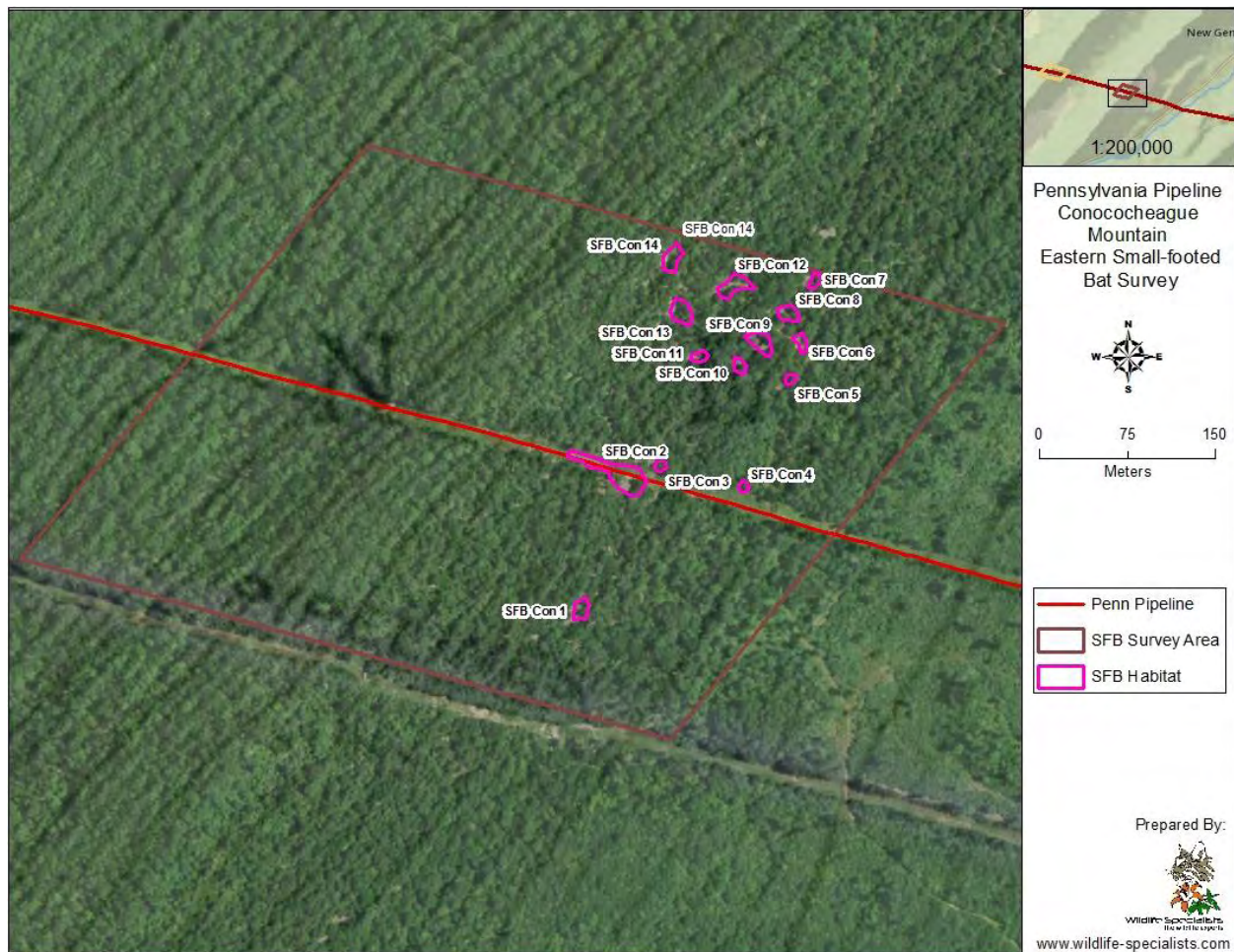


Figure 33. Locations of potential Eastern small-footed bat summer roosting habitat at the Conococheague Mountain survey area along the proposed Pennsylvania Pipeline Project, Toboyne Twp., Perry County, Pennsylvania, April 2015.

Appendix I. The Pennsylvania Game Commission’s Pennsylvania Natural Diversity Inventory (PNDI) Large Project Environmental Review response for Sunoco’s proposed Pennsylvania Pipeline Project.



Division of Environmental
 Planning and Habitat
 Protection
 717-783-5957

COMMONWEALTH OF PENNSYLVANIA
Pennsylvania Game Commission

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 for current and future generations.”*

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March 14, 2014

PGC ID Number: 201312180001

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preston.smith@tetrattech.com

Re: Sunoco Pipeline, LP – Pennsylvania Pipeline Project
 State Game Lands Nos. 46, 52, 71, 118, 147, 153, 198, 220, and 276
 Large Project PNDI Review
 Washington, Westmoreland, Indiana, Cambria, Blair, Huntingdon, Perry, Cumberland, Lebanon,
 Lancaster, Berks, and Chester Counties, PA

Dear Mr. Smith,

Thank you for submitting your Pennsylvania Natural Diversity Inventory (PNDI) Large Project Environmental Review request. The Pennsylvania Game Commission (PGC) screened this project, including the requested 1500-foot buffer, for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

Potential Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. The PGC has received and thoroughly reviewed the information that you provided to this office as well as PNDI data, and has determined that potential impacts to threatened, endangered, and species of special concern may be associated with your project. Therefore, additional measures are necessary to avoid potential impacts to the species listed below:

Scientific Name	Common Name	PA Status	Federal Status
<i>Myotis sodalis</i>	Indiana Bat	ENDANGERED	ENDANGERED
<i>Neotoma magister</i>	Allegheny Woodrat	THREATENED	
<i>Myotis leibii</i>	Eastern Small-footed Bat	THREATENED	
<i>Circus cyaneus</i>	Northern Harrier	THREATENED	
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	SPECIAL CONCERN	
<i>Lasionycteris noctivagans</i>	Silver-haired Bat	SPECIAL CONCERN	
<i>Haliaeetus leucocephalus</i>	Bald Eagle		

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Next Steps

Indiana Bat

Indiana bats are a federally listed endangered species under the jurisdiction of the U.S. Fish and Wildlife Service. As a result, our agency defers comments on potential impacts to Indiana bats to the U.S. Fish and Wildlife Service.

Allegheny Woodrat

The PGC has identified portions of the proposed project where potential Allegheny woodrat habitat may exist, and could be impacted by the proposed project. The PGC is requesting that Allegheny woodrat surveys be completed within the Allegheny Woodrat Survey Areas (see Maps 1-7 attached). The surveys should be completed by a qualified biologist and follow protocols found in the attached *PGC Allegheny Woodrat* guidance document. Please be sure that the following information, at a minimum, is provided for further review and comment by the PGC:

- a 1:24,000 scale copy of a USGS topo map and a GIS shapefile illustrating the locations (i.e. points) of all woodrat activity centers and potential activity centers, as well as the limits (i.e. polygons) of all woodrat habitat sites (central point locations with average width and length measurements will not be accepted to illustrate the habitat sites)
- color photographs, keyed to a location and orientation map, of any woodrat habitat sites, activity centers, potential activity centers, or woodrat sign that are identified during the surveys
- a Woodrat Habitat Site Survey form for each habitat site identified during the survey

The survey report should be submitted to the PGC no later than December 31st of the year it is completed.

Eastern Small-footed Bat

The PGC has identified portions of the project where potential eastern small-footed bat day roost habitat may exist, and could be impacted by the proposed project. The PGC is requesting that all potential eastern small-footed bat day roost habitat be assessed and delineated by a qualified biologist within the Small-footed Bat Survey Areas (see Maps 1-7 attached). Please be sure that the following information, at a minimum, is provided for further review and comment by the PGC:

- a 1:24,000 scale copy of a USGS topo map and a GIS shapefile illustrating the limits of all potential small-footed bat day roost habitat that is identified
- a GIS shapefile illustrating the proposed limits of tree clearing throughout the Small-footed Bat Survey Areas
- a GIS shapefile illustrating the proposed limits of earthwork, including any proposed grubbing or erosion and sedimentation pollution controls, throughout the Small-footed Bat Survey Areas
- representative color photographs of all surface rock encountered during the assessment and delineation regardless of whether the rock is considered to be potential eastern small-footed bat day roost habitat or not (numerous photos for each area of surface rock are strongly recommended)

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- a narrative or table detailing the following information for each area of surface rock that is encountered during the assessment and delineation to support or refute the rock's potential as eastern small-footed bat day roost habitat:
 - the estimated canopy cover over the rock
 - anticipated solar exposure of the rock
 - amount and size of crevices available for roost sites
 - presence of organic material, soil, or water within those crevices
 - other details as necessary that cannot be adequately conveyed via the photos provided
- a narrative detailing the reason(s) for any surface rock encountered not being considered potential small-footed myotis day roost habitat;
- and a photo location and orientation map for all photos provided.

The survey report should be submitted to the PGC no later than December 31st of the year it is completed.

Northern Harrier

The PGC is requesting that all site preparation, construction, reclamation, and future maintenance mowing within the Northern Harrier Restriction Area (see Map 8 attached) avoid the period between April 15 and August 31 to minimize potential impacts to northern harriers and their habitat during the breeding and nesting season.

The PGC is also recommending that Sunoco use the following seed mix within this section of the project area to ensure the establishment of beneficial herbaceous habitat for grassland species post-construction.

Species	Common Name	Seed/Acre	Percent Live Seed
<i>Avena sativa</i> – spring planting	annual oats	30lb	
<i>Lolium multiflorum</i> - fall planting	annual ryegrass	10lb	
<i>Schizachyrium scoparium</i>	little bluestem	4 lbs	10-67
<i>Sorghastrum nutans</i>	indian-grass	2 lbs	10-50
<i>Bouteloua curtipendula</i>	side-oats grama	1 lb	5-25
<i>Panicum virgatum</i>	switchgrass	1 lb	10-12
<i>Rudbeckia triloba</i> plus another*	black-eyed susan	¼ lb	1-5, each
<i>Coreopsis tripteris</i>	tall tickseed	1 oz	1-5
<i>Chasmanthium latifolium</i>	sea-oats	1lb	1-30
Straw Mulch – NO HAY			

Furthermore, when plans are developed illustrating the specific location and extent of any proposed permanent facilities (e.g. access roads, extra work spaces, launcher/receiver sites, meter sites, compressor stations, etc.) within this section of the project area, please provide a copy of those plans to this office for further review and written comment so that any permanent impacts to northern harriers can be considered. Every effort should be made to avoid and minimize permanent impacts to northern harrier habitat as these plans are developed, and depending on the nature and extent of any such impacts, habitat assessments, species surveys and/or mitigation may be necessary.

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Northern Long-eared Bats and Silver-haired Bats

Northern long-eared bats and silver-haired bats are species of special concern, and therefore, not target species for additional surveys. However, because of their ecological significance, all trees or dead snags greater than 5 inches in diameter at breast height that need to be harvested to facilitate the project (including any access roads or off-ROW work spaces) should be cut between November 1st and March 31st.

Bald Eagle

In January 2014, the PGC Board of Commissioners approved the removal of bald eagles from the state-listed endangered and threatened list. This status change will be reflected in an upcoming edition of the Pennsylvania Bulletin. Bald eagles are now classified as a Pennsylvania "protected" species. As the name implies, bald eagle will continue to enjoy protections provided by the Federal Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and the Lacey Act. As a result, the PGC defers comments on potential impacts to bald eagles to the U.S. Fish and Wildlife Service.

The Bald and Golden Eagle Protection Act protects eagles from various forms of take, including disturbance. Please refer to the U.S. Fish and Wildlife Service's National Bald Eagle Management Guidelines (<http://www.fws.gov/migrator/birds/baldeagle.htm>) for specific measures that should be taken to ensure bald eagles are not disturbed. If you have questions about when and how to obtain a federal permit because you believe your proposed project will disturb bald eagles, and you are not able to implement measures to avoid disturbance, please contact the Fish and Wildlife Service's Pennsylvania Field Office at 814-234-4090.

For additional information on bald eagles and bald eagle nest etiquette refer to the "Bald Eagle Watching in Pennsylvania" link on the PGC's website (www.pgc.state.pa.us), under the Wildlife tab and then by clicking on Birding and Bird Conservation.

Wetlands

National Wetland Inventory Mapping (NWI) and/or aerial photos suggest that wetlands are located within the requested review area along the Little Conemaugh River, the Raystown Branch Juniata River, Marsh Creek, and Middle Creek. The PGC is requesting that the final project avoid, or at least minimize to the greatest practical extent, any adverse impacts to these resources and their associated wildlife habitat.

Potential Bat Hibernacula

In addition, the PA Department of Environmental Protection's *Abandoned Mine Land (AML) Inventory Points* from www.pasda.psu.edu indicates abandoned mine features within the requested review area. These mine features have the potential to connect to abandoned deep mine workings that can serve as hibernacula for a variety of cave bat species. These AML openings and any undocumented openings and caves located along the proposed alignment and within the review buffer must be assessed following the attached *PGC Protocol for Assessing Bat Use of Potential Hibernacula*. Any features having potential as bat hibernacula will need to be surveyed to determine the presence or absence of bat species. A special use permit will need to be obtained by the consultant in order to conduct such surveys that involve the handling of bats.

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State Game Lands

Portions of the proposed project are located on State Game Lands Nos. 46, 52, 71, 118, 147, 198, and 276 and adjacent to State Game Lands Nos. 153 and 220. Please contact Mr. Travis Anderson, Southwest Region Land Management Supervisor, at 724-238-9523 to discuss and coordinate the project on SGL 153 and 276, Mr. Robert Einodshofer, Southcentral Region Land Management Supervisor, at 814-643-1831 to discuss and coordinate the project on SGL 71, 118, 147, and 198, and Mr. Bruce Metz, Southeast Region Land Management Supervisor, at 610-926-3136 to discuss and coordinate the project on SGL 46, 52, and 220.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to the PGC at the following address as an "Update" (including an updated PNDI receipt, project narrative and accurate map):

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning & Habitat Protection
2001 Elmerton Avenue
Harrisburg, PA 17110-9797

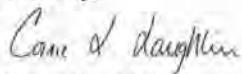
If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements by the PGC for an additional 2 years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Please be sure to include the above-referenced PGC ID Number on any future correspondence with the PGC regarding this project.

If you have any questions regarding this letter, or any future review requests for this or any other projects, please contact John Taucher at 717-787-4250, extension 3632 or via e-mail at jotaucher@pa.gov.

Sincerely,



Corrie Laughlin
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3634
Fax: 717-787-6957
e-Mail: claughlin@pa.gov

Mr. Preston Smith

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March 14, 2014

A PNHP Partner



Pennsylvania Natural Heritage Program

CLL/jwt

Enclosures:

Project Overview Map
Maps 1-8
PGC Allegheny Woodrat guidance document
PGC Protocol for Assessing Bat Use of Potential Hibernacula

cc: W. Anderson
Myers
Grohol
Trusso
Vreeland
Morgan
T. Anderson
Einodshofer
Metz
DuBrock
Brauning
Butchkoski
Turner
Gross
Barber
DiMatteo
Havens
Taucher
Librandi Mumma
Ms. Jennifer Siani, U.S. Fish and Wildlife Service
Ms. Pamela Shellenberger, U.S. Fish and Wildlife Service
H:\OIL&GAS_PNDI_Reviews\Statewide & Multi-Region Projects
F:\OILGASMINERALSS\46
F:\OILGASMINERALSS\52
F:\OILGASMINERALSS\71
F:\OILGASMINERALSS\118
F:\OILGASMINERALSS\147
F:\OILGASMINERALSS\153
F:\OILGASMINERALSS\198
F:\OILGASMINERALSS\220
F:\OILGASMINERALSS\276



Appendix II. ALLEGHENY NEMA HABITAT SITE SURVEY (FORM PGC 4150 wdrat) forms for Sunoco's proposed Pennsylvania Pipeline Project, Cambria, Blair, Huntingdon, Perry, and Cumberland Counties, Pennsylvania, June 23-July 24, 2014.

FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Laurel Ridge 2 Trap-site Number: _____ Date: 6/25/2014

Ownership (circle one): Public, Private, Both Access (Name, Address Telephone): _____

Location: _____ N or 5.1km S and _____ E or 4.0 W of: Vintondale

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km - 2km; >2km

Surveyors: Stan Boder, Brian Benner, Phil Dunning, Dave Scopaz, Justin Collins

Effort: # of surveyors x survey minutes = 120 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): CRLR Habitat Site Code (if known): _____

County: Indiana Quadrangle: Vintondale Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 5 Average Width: _____ Width range: 337

Activity Extent (m): Longest Length: _____ Average Width: _____ Width range: _____
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 25 ' 51.2 " & Longitude W78 ° 57 ' 27.1 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1660 to 1680 Slope Range (%): 25 to 30

Aspects (degrees): southerly aspects: _____ % _____ ° northerly aspects: _____ % _____ °
(135°-225°) (315°-45°)
easterly aspects: 120 % 100 ° westerly aspects: _____ % _____ °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge/valley side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

- 1) Code # 312 % 100
- 2) Code # _____ % _____
- 3) Code # _____ % _____
- 4) Code # _____ % _____

Geological formation: Allegheny

Nearest mapped water: Name: Findley Run Distance to: 31 m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 5 Two-digit Habitat Disturbance code: 1E 3D 5C

Anderson Level III cover code on site: 415 and adjacent to site: 415

Tree canopy coverage overtop Habitat Site: 75 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): _____

Black Birch, Red Maple, Hemlock, Chestnut Oak

Shrub, Vine and Briar (Rubus) Species: Green Briar, Low bush blueberry, Huckleberry, Scrub oak,
Rhododendron

Herbaceous Species: Marginal Wood Fern, Hay scented fern, Bracken fern, sedges and grasses

General Description of Surrounding Habitat (>100m & <500m): Mature mixed forest,

Pipeline crosses the habitat.

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

9 rattlesnakes nearby on powerline



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	N40 25'49.48"	W78 57'29.56"	0	0	0	0	0	0	312	75
2										
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23										
24										
25										
TOTAL =										



FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	
Hard Mast	
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	
Raccoon Feces	



FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Laurel Ridge 3 Trap-site Number: _____ Date: 6/25/2014

Ownership (circle one): Public, Private, Both Access (Name, Address Telephone): _____

Location: _____ N or ^{5.5km} S and _____ E or ^{3.2km} W of: Vintondale

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km - 2km; >2km

Surveyors: Stan Boder, Brian Benner, Phil Dunning, Dave Scopaz, Justin Collins

Effort: # of surveyors x survey minutes = ⁶⁰⁰ minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): CRLR Habitat Site Code (if known): _____

County: Cambria Quadrangle: Vintondale Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 336 Average Width: _____ Width range: 721

Activity Extent (m): Longest Length: _____ Average Width: _____ Width range: _____
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 25' 39.77 " & Longitude W78 ° 56 ' 49.93 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1800 to 2140 Slope Range (%): 25 to 30

Aspects (degrees): southerly aspects: _____ % _____ ° northerly aspects: 100 % 350 °
(135°-225°) (315°-45°)
easterly aspects: _____ % _____ ° westerly aspects: _____ % _____ °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge top

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

- | | |
|----------------------------------|----------------------------------|
| 1) Code # <u>312</u> % <u>73</u> | 2) Code # <u>133</u> % <u>25</u> |
| 3) Code # _____ % _____ | 4) Code # <u>112</u> % <u>2</u> |

Geological formation: Allegheny, Pottsville

Nearest mapped water: Name: Findley Run tributary Distance to: 250 m



FORM PGC 4150 wdrat

Forest Fragmentation Code: 5 Two-digit Habitat Disturbance code: 1E 5D 5C

Anderson Level III cover code on site: 415 and adjacent to site: 415

Tree canopy coverage overtop Habitat Site: 75 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): _____

Black Birch, Red Maple, Sugar Maple, Hemlock, Chestnut Oak, Red Oak, Black Cherry,

Black Gum, Sassafras, Yellow Birch, White Ash

Shrub, Vine and Briar (Rubus) Species: Green Briar, Low bush blueberry, Huckleberry,

Rhododendron, Witch-hazel, Mountain Laurel, Striped Maple, Blackberry

Herbaceous Species: Marginal Wood Fern, Hay scented fern, Bracken fern, sedges and grasses

Teaberry,

General Description of Surrounding Habitat (>100m & <500m): Mature mixed forest,

Pipeline and powerline crosses the habitat.

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

9 rattlesnakes on powerline



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	N40 25'32.15"	W78 56'46.10"	0	0	0	0	0	0	312	95
2	N40 25'36.77"	W78 56'47.95"	0	0	0	0	0	0	112	95
3	N40 25'42.64"	W78 56'42.64"	0	0	0	0	0	0	312	95
4	N40 25'45.79"	W78 56'56.44"	0	0	0	0	0	0	133	95
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19										
20										
21										
22										
23										
24										
25										
TOTAL =										



FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	
Hard Mast	
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	
Raccoon Feces	



FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Laurel Ridge 1 Trap-site Number: _____ Date: 6/24/2014

Ownership (circle one): Public **Private** Both Access (Name, Address Telephone): _____

Location: _____ N or ^{6.0Km} S and _____ E or _____ W of: Vintondale

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; **>2km**

Surveyors: Stan Boder, Brian Benner

Effort: # of surveyors x survey minutes = 360 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): CRLR Habitat Site Code (if known): _____

County: Cambria Quadrangle: Vintondale Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 501 Average Width: _____ Width range: 870

Activity Extent (m): Longest Length: _____ Average Width: _____ Width range: _____
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 25 ' 20.97 " & Longitude W78 ° 54 ' 18.58 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1990 to 2280 Slope Range (%): 10 to 25

Aspects (degrees): southerly aspects: 5 % 200 ° northerly aspects: _____ % _____ °
(135°-225°) (315°-45°)

easterly aspects: 95 % 120 ° westerly aspects: _____ % _____ °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge top

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

1) Code # 312 % 75 2) Code # 211 % 15

3) Code # 132 % 5 4) Code # 133 % 5

Geological formation: Allegheny, Pottsville

Nearest mapped water: Name: Laurel Run tributary Distance to: 40 m



FORM PGC 4150 wdrat

Forest Fragmentation Code: 5 Two-digit Habitat Disturbance code: 1E 2H 3G

Anderson Level III cover code on site: 415 and adjacent to site: 415

Tree canopy coverage overtop Habitat Site: 85 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): _____

Black Birch, Red Maple, Sugar Maple, Red Oak

Shrub, Vine and Briar (Rubus) Species: Green Briar, Blackberry,

Mountain Laurel, Striped Maple, Witch hazel

Herbaceous Species: Marginal Wood Fern, Teaberry, Hay scented fern,

General Description of Surrounding Habitat (>100m & <500m): Mature forest with thick underbrush

Pipeline splits the habitat.

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	N40 25'23.36"	W78 54'19.82"	0	0	0	0	0	0	312	95
2	N40 25'24.79"	W78 54'3.59"	0	0	0	0	0	0	312	100
3	N40 25'16.44"	W78 54'37.35"	0	0	0	0	0	0	312	95
4	N40 25'17.6"	W78 54'20.9"	0	0	0	0	0	0	142	100
5										
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9										
10										
11										
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13										
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15										
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19										
20										
21										
22										
23										
24										
25										
TOTAL =										



FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	
Hard Mast	
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	
Raccoon Feces	



FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Altoona Bypass 1 Trap-site Number: _____ Date: 7/24/2014

Ownership (circle one): Public **Private** Both Access (Name, Address Telephone): _____

Location: _____ N or 2.5km S and _____ E or 8.1km W of: Hollidaysburg

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; **>2km**

Surveyors: Brian Benner

Effort: # of surveyors x survey minutes = 30 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): RAYS Habitat Site Code (if known): _____

County: Blair Quadrangle: Hollidaysburg Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 200m Average Width: 30m Width range: 10-30m

Activity Extent (m): Longest Length: NA Average Width: NA Width range: NA
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 24 ' 18.91 " & Longitude W78 ° 29 ' 4.06 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1500ft to 1520ft Slope Range (%): 25 to 30

Aspects (degrees): southerly aspects: _____ % _____ ° northerly aspects: _____ % _____ °
(135°-225°) (315°-45°)
easterly aspects: 100 % 95 ° westerly aspects: _____ % _____ °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge/valley- side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

- 1) Code # 321 % 100
- 2) Code # _____ % _____
- 3) Code # _____ % _____
- 4) Code # _____ % _____

Geological formation: Foreknobs Formation

Nearest mapped water: Name: Dry Run Tributary Distance to: 46 m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 5 Two-digit Habitat Disturbance code: 1E 4G 5D

Anderson Level III cover code on site: 415 and adjacent to site: 760

Tree canopy coverage overtop Habitat Site: 100 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): Red Oak, Red Maple, Black Cherry,
White ash

Shrub, Vine and Briar (Rubus) Species: Low Bush Blueberry, Green Briar, Grapevine,
Virginia Creeper

Herbaceous Species: Marginal Wood Fern, Polypody Fern, Grass spp., Hay scented fern,
Goldenrod, Whitewood aster, False Solomon's Seal

General Description of Surrounding Habitat (>100m & <500m): Mature forest with thick underbrush
Powerline adjacent to the south, site is on top of steep ravine

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

At least 1 porcupine den was located, few cracks in rock



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	40° 24' 18.91"	78° 29' 4.06'	0	0	0	0	0	0	321	100
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
TOTAL =										



FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	
Hard Mast	
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	
Raccoon Feces	



FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Altoona Bypass 2 Trap-site Number: _____ Date: 7/25/2014

Ownership (circle one): Public, Private, Both Access (Name, Address Telephone): _____

Location: _____ N or ^{0.9km} S and _____ E or _____ W of: Duncansville

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; >2km

Surveyors: Brian Benner

Effort: # of surveyors x survey minutes = 30 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): RAYS Habitat Site Code (if known): _____

County: Blair Quadrangle: Hollidaysburg Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 100m Average Width: 35m Width range: _____

Activity Extent (m): Longest Length: _____ Average Width: _____ Width range: _____
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 24 ' 29.86 " & Longitude W78 ° 24 ' 37.97 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1340ft to 1380ft Slope Range (%): 20 to 35

Aspects (degrees): southerly aspects: _____ % _____ ° northerly aspects: 20 % 100 °
(135°-225°) (315°-45°)

easterly aspects: _____ % _____ ° westerly aspects: _____ % _____ °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge top

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

1) Code # 141 % 60 , 2) Code # 142 % 40 ,

3) Code # _____ % _____ , 4) Code # _____ % _____

Geological formation: Keyser and Tonoloway Formations

Nearest mapped water: Name: Beaverdam Branch Tributary Distance to: 439 m



FORM PGC 4150 wdrat

Forest Fragmentation Code: 3 Two-digit Habitat Disturbance code: 2E 4C 4G

Anderson Level III cover code on site: 416 and adjacent to site: 415

Tree canopy coverage overtop Habitat Site: 100 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): Red Maple, Basswood

Shrub, Vine and Briar (Rubus) Species: Tartarian honeysuckle, Virginia Creeper

Herbaceous Species: Grass spp., Poison Ivy, White baneberry

General Description of Surrounding Habitat (>100m & <500m): Mature forest with thick underbrush

Powerline adjacent to the south

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

Chipmunk activity



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	40° 24' 29.86"	78° 24' 37.97"	0	0	0	0	0	0	142	100
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
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13										
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17										
18										
19										
20										
21										
22										
23										
24										
25										
TOTAL =										



FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	
Hard Mast	
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	
Raccoon Feces	



FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Jack's Mountain 1 Trap-site Number: _____ Date: 6/23/2014

Ownership (circle one): Public, **Private**, Both Access (Name, Address Telephone): _____

Location: _____ N or 2.1km S and _____ E or 8.0km W of: Allenport

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; **>1km - 2km**; >2km

Surveyors: Stan Boder, Brian Benner, Phil Dunning, Dave Scopaz, Justin Collins

Effort: # of surveyors x survey minutes = 600 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): _____ Habitat Site Code (if known): _____

County: Huntingdon Quadrangle: Butler Knob Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 400 Average Width: 400 Width range: _____

Activity Extent (m): Longest Length: _____ Average Width: _____ Width range: _____
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 21 ' 0.97 " & Longitude W77 ° 58 ' 0.86 " ,
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 820 to 940 Slope Range (%): 10 to 25

Aspects (degrees): southerly aspects: _____ % _____ ° northerly aspects: _____ % _____ °
(135°-225°) (315°-45°)

easterly aspects: _____ % _____ ° westerly aspects: 285 % 100 °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge/valley side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

1) Code # 312 % 50 , 2) Code # 133 % 25 ,

3) Code # 132 % 25 , 4) Code # _____ % _____

Geological formation: Onodaga/ Old Port, Hamilton

Nearest mapped water: Name: Hares Valley Creek Distance to: 474 m



FORM PGC 4150 wdrat

Forest Fragmentation Code: 3 Two-digit Habitat Disturbance code: 1E 3G 3C

Anderson Level III cover code on site: 416 and adjacent to site: 416

Tree canopy coverage overtop Habitat Site: 85 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): _____

Chestnut Oak, Black Birch, Red Oak, Red Maple, White Oak, Sugar Maple, White Pine

Shrub, Vine and Briar (Rubus) Species: Green Briar, Low bush blueberry,

Striped Maple, Sapplings of trees

Herbaceous Species: Marginal Wood Fern, Polypody Fern,

General Description of Surrounding Habitat (>100m & <500m): Mature mixed forest,

Pipeline and powerline crosses the habitat.

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

Pipeline splits habitat, logging to the north adjacent to habitat.



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	N40 21'0.98"	W77 57'58.34"	0	0	0	0	0	0	133	80
2	N40 21'3.09"	W77 57'58.79"	0	0	0	0	0	0	133	90
3	N40 20'55.79"	77 58'2.44"	0	0	0	0	0	0	133	95
4										
5										
6										
7										
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16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
TOTAL =										



FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	
Hard Mast	
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	
Raccoon Feces	



FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Jack's Mountain 2 Trap-site Number: _____ Date: 6/23/2014

Ownership (circle one): Public, **Private**, Both Access (Name, Address Telephone): _____

Location: _____ N or 2.3km S and _____ E or 7km W of: Allenport

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; **>1km - 2km**; >2km

Surveyors: Stan Boder, Brian Benner

Effort: # of surveyors x survey minutes = 90 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): _____ Habitat Site Code (if known): _____

County: Huntingdon Quadrangle: Butler Knob Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 427m Average Width: _____ Width range: 300m

Activity Extent (m): Longest Length: _____ Average Width: _____ Width range: _____
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 20 ' 50.23 " & Longitude W77 ° 57 ' 19.28 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1300 to 1660 Slope Range (%): 20 to 30

Aspects (degrees): southerly aspects: _____ % _____ ° northerly aspects: _____ % _____ °
(135°-225°) (315°-45°)

easterly aspects: _____ % _____ ° westerly aspects: 280 % 100 °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge/valley side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

1) Code # 132 % 65 , 2) Code # 112 % 35 ,

3) Code # _____ % _____ , 4) Code # _____ % _____

Geological formation: Tuscarora, Cinton

Nearest mapped water: Name: Hares Valley Creek tributary Distance to: 1000 m



FORM PGC 4150 wdrat

Forest Fragmentation Code: 7 Two-digit Habitat Disturbance code: 1E 5G 5C

Anderson Level III cover code on site: 416 and adjacent to site: 416

Tree canopy coverage overtop Habitat Site: 50 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): _____

Black Birch, Red Oak, Chestnut Oak, Sugar Maple, Red Maple

Shrub, Vine and Briar (Rubus) Species: Grapevine, Blackberry,

Striped Maple

Herbaceous Species: Virginia Creeper

General Description of Surrounding Habitat (>100m & <500m): Mature forest, shaded talus

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

Three porcupine dens located, one rattlesnake observed.



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	N40 20'51.337"	W77 57'19.402"	0	0	0	0	0	0	112	0
2	N40 20'48.483"	W77 57'14.987"	0	0	0	0	0	0	112	0
3	N40 20.996'	W77 57.319'	0	0	0	0	0	0	111,12	10
4	N40 20.971'	W77 57.228'	0	0	0	0	0	0	111,12	0
5	N40 20'56.6"	W77 57'26.4"	0	0	0	1	0	0	111,12	100
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
TOTAL =			0	0	0	1	0	0		



FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	
Hard Mast	Acorns
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	Virginia Creeper vines were cached.
Raccoon Feces	



FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Jack's Mountain 3 Trap-site Number: _____ Date: 6/23/2014

Ownership (circle one): Public, Private, Both Access (Name, Address Telephone): _____

Location: _____ N or 3.0km S and _____ E or 5.9km W of: Allenport

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km - 2km; >2km

Surveyors: Stan Boder, Brian Benner

Effort: # of surveyors x survey minutes = 270 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): _____ Habitat Site Code (if known): _____

County: Huntingdon Quadrangle: Butler Knob Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 128 Average Width: _____ Width range: 486

Activity Extent (m): Longest Length: 108 Average Width: _____ Width range: 284
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 20 ' 37.07 " & Longitude W77 ° 56 ' 34.47 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1560 to 1640 Slope Range (%): 20 to 30

Aspects (degrees): southerly aspects: _____ % _____ ° northerly aspects: _____ % _____ °
(135°-225°) (315°-45°)
easterly aspects: 95 % 50 ° westerly aspects: 5 % 270 °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge/valley side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

- 1) Code # 132 % 40 , 2) Code # 133 % 40 ,
3) Code # 112 % 20 , 4) Code # _____ % _____

Geological formation: Tuscarora

Nearest mapped water: Name: Singer's Gap tributary Distance to: 88 m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 6 Two-digit Habitat Disturbance code: 1E 5G 5C

Anderson Level III cover code on site: 415 and adjacent to site: 415

Tree canopy coverage overtop Habitat Site: 60 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): _____

Black Birch, Chestnut Oak, Red Maple, Red oak, White Pine

Shrub, Vine and Briar (Rubus) Species: Blackberry, Virginia Creeper, Mountain Laurel, Grapevine

Herbaceous Species: Wood Fern, Polypody Fern

General Description of Surrounding Habitat (>100m & <500m): Deciduous mature forest

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

Pipeline splits habitat, known WR trapping site, 2 rattlesnakes in habitat, habitat enhancement previously performed.



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	N40 20' 39.08"	W77 56' 32.53"	0	0	0	1	0	0	112	85
2	N40 20' 37.16"	W77 56' 37.78"	0	0	0	1	0	1	112	0
3	N40 20' 33.55"	W77 56' 38.99"	0	0	0	0	0	1	112	50
4	N40 20' 30.92"	W77 56' 37.91"	0	1	0	1	0	1	112	40
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
TOTAL =			0	1	0	3	0	3		

FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	Very few green ferns
Ferns	Present
Hard Mast	
Soft Mast	
Other Seeds	Present
Fungi & Lichens	
Misc. (Sticks etc.)	Present
Raccoon Feces	

FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Blacklog Mountain Trap-site Number: _____ Date: 7/22/2014

Ownership (circle one): Public, Private, Both Access (Name, Address Telephone): _____

Location: _____ N or 7.1km S and 5.7km E or _____ W of: Mount Union

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; >2km

Surveyors: Brian Benner, Rob Schwartz

Effort: # of surveyors x survey minutes = 720 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): RAYS Habitat Site Code (if known): _____

County: Huntington Quadrangle: Aughwick Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 565m Average Width: 155m Width range: _____

Activity Extent (m): Longest Length: 10m Average Width: 10m Width range: _____
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 19 ' 22.59 " & Longitude W77 ° 48 ' 34.07 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1300ft to 1650ft Slope Range (%): 10 to 35

Aspects (degrees): southerly aspects: 25 % 180 ° northerly aspects: 20 % 360 °
(135°-225°) (315°-45°)

easterly aspects: 5 % 50 ° westerly aspects: 50 % 315 °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge/valley- side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

1) Code # 132 % 50 , 2) Code # 112 % 40 ,

3) Code # 111 % 5 , 4) Code # 121 % 5 ,

Geological formation: Tuscarora, Juniata, Clinton Formations

Nearest mapped water: Name: Fort Run Distance to: 1600 m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 4 Two-digit Habitat Disturbance code: 1E 1H 1G

Anderson Level III cover code on site: 415 and adjacent to site: 415

Tree canopy coverage overtop Habitat Site: 50-100 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): Red Oak, Red Maple, Black Birch,
Witch Hazel, Chestnut Oak, Sassafras, White Pine

Shrub, Vine and Briar (Rubus) Species: Low Bush Blueberry, Blackberry, Green Briar, Grapevine,
Mountain Laurel

Herbaceous Species: Marginal Wood Fern, Polypody Fern, Grass spp., Virginia Creeper,
Black Raspberry

General Description of Surrounding Habitat (>100m & <500m): Mature forest with thick underbrush

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

At least 4 porcupine dens were located, Black rat snake observed, fox or coyote den observed



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	40° 19' 29.79"N	77° 48' 45.93"W	0	0	0	0	0	0	112	90
2	40° 19' 27.6"N	77° 48' 38.90"W	0	0	0	0	0	0	112	90
3	40° 19' 22.62"N	77° 48' 34.15"W	0	0	0	1	0	0	112	75
4	40° 19' 34.37"N	77° 48' 40.215"W	0	0	0	0	0	0	112	80
5	40° 19' 36.8"N	77° 48' 37.5"W	0	0	0	0	0	0	112	90
6	40° 19' 35.8"N	77° 48' 33.1"W	0	0	0	0	0	0	112	90
7	40° 19' 33.2"N	77° 48' 28.1"W	0	0	0	0	0	0	112	80
8	40° 19' 31.7"N	77° 48' 22.1"W	0	0	0	0	0	0	112	90
9	40° 19' 33.98"N	77° 48' 17.89"W	0	0	0	0	0	0	111	90
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
TOTAL =			0	0	0	1	0	0		

FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	1 fern bent in an accordion style ball
Hard Mast	
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	A few sticks and old goldenrod stems
Raccoon Feces	



FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Shade Mountain Trap-site Number: _____ Date: 7/21/2014

Ownership (circle one): Public **Private** Both Access (Name, Address Telephone): _____

Location: _____ N or 2.6km S and 8.2km E or _____ W of: Augwick

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; **>2km**

Surveyors: Brian Benner

Effort: # of surveyors x survey minutes = 450 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): RAYS Habitat Site Code (if known): _____

County: Huntington Quadrangle: Aughwick Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 395m Average Width: 450m Width range: _____

Activity Extent (m): Longest Length: _____ Average Width: _____ Width range: _____
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 19 ' 1.93 " & Longitude W77 ° 46 ' 5.87 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1480ft to 1780ft Slope Range (%): 0 to 35

Aspects (degrees): southerly aspects: _____ % _____ ° northerly aspects: _____ % _____ °
(135°-225°) (315°-45°)
easterly aspects: 65 % 100 ° westerly aspects: 35 % 280 °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge/valley- side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

- 1) Code # 112 % 85
- 2) Code # 111 % 10
- 3) Code # 113 % 3
- 4) Code # 132 % 2

Geological formation: Tuscarora, Juniata, Clinton Formations

Nearest mapped water: Name: Cherry Hollow Distance to: 2572 m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 4 Two-digit Habitat Disturbance code: 1C 1E 1H

Anderson Level III cover code on site: 415 and adjacent to site: 415

Tree canopy coverage overtop Habitat Site: 0-100 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): Black Birch, Red Maple, Sassafras,
Witch Hazel, Red Oak, Tulip Poplar, Basswood

Shrub, Vine and Briar (Rubus) Species: Blackberry, Green Briar, Virginia Creeper, Grapevine,
Poison Ivy, Striped Maple

Herbaceous Species: Polypody Fern, Marginal Wood Fern, Grass spp., White Baneberry

General Description of Surrounding Habitat (>100m & <500m): Woods with utility lines, unimproved
trail, mostly untouched beyond this

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

At least 3 porcupine dens were located, timber rattlesnake and eastern garter snake
observed, coyote droppings observed.



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	40° 19' 1.41"	77° 45' 59.30"	0	0	0	0	0	0	112	10
2	40° 19' 0.43"	77° 46' 7.63"	0	0	0	0	0	0	112	10
3	40° 18' 56.02"	77° 46' 13.68"	0	0	0	0	0	0	112	0
4	40° 19' 6.84"	77° 46' 6.39"	0	0	0	0	0	0	112	80
5	40° 19' 1.16"	77° 46' 14.61"	0	0	0	0	0	0	112	50
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24										
25										
TOTAL =										



FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	
Hard Mast	
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	
Raccoon Feces	



FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Tuscarora Mountain Trap-site Number: _____ Date: 11/14/2014

Ownership (circle one): Public, Private, Both Access (Name, Address Telephone): Unknown

Location: _____ N or 1.2km S and _____ E or 8.2km W of: New Germantown

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; >2km

Surveyors: J. Collins, P. Dunning, S. Boder, D. Scopaz

Effort: # of surveyors x survey minutes = 720 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): TUBL Habitat Site Code (if known): _____

County: Perry Quadrangle: Blairs Mills Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 700 Average Width: 400 Width range: 350-400

Activity Extent (m): Longest Length: 500 Average Width: 300 Width range: 200-400
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude 40 ° 17 ' 46.7 " & Longitude 77 ° 39 ' 50.4 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1500 to 1920 Slope Range (%): 18 to 28

Aspects (degrees): southerly aspects: 60 % 230 ° northerly aspects: 10 % 340 °
(135°-225°) (315°-45°)
easterly aspects: 30 % 120 ° westerly aspects: _____ % _____ °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): Ridge-top, valley side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

- 1) Code # 112 % 55 , 2) Code # 113 % 20 ,
- 3) Code # 122 % 15 , 4) Code # 123 % 10 ,

Geological formation: Tuscarora Formation/ Juniata, Bald Eagle Undivided

Nearest mapped water: Name: Unnamed intermittent stream Distance to: 1.2m SE m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 1 Two-digit Habitat Disturbance code: 1E 3H 4C

Anderson Level III cover code on site: 414 and adjacent to site: 415

Tree canopy coverage overtop Habitat Site: 50-90 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): Red Oak, White Oak, Chestnut Oak,
Black Birch, Yellow Poplar, Striped Maple, Red Maple, Eastern Hemlock

Shrub, Vine and Briar (Rubus) Species: Virginia Creeper, Witch Hazel, Mountain Laurel
Greenbriar, Allegheny Blackberry

Herbaceous Species: Hayscented Fern, unidentified ferns and forbs

General Description of Surrounding Habitat (>100m & <500m): Mostly deciduous forest with some
degraded hemlocks

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

Mostly from disease to hemlocks, possible fire in the future and renovation of current pipeline.



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	40° 17' 41.63"N	77° 39' 51.86"W	0	0	0	0	0	0	112	90
2	40° 17' 49.03"N	77° 39' 44.70"W	0	0	0	0	0	0	111	90
3	40° 17' 50.61"N	77° 39' 51.37"W	0	0	0	0	0	0	112	90
4	40° 17' 47.04"N	77° 39' 55.87"W	0	0	0	0	0	0	112	80
5	40° 17' 42.23"N	77° 39' 56.15"W	0	0	0	0	0	0	112	80-90
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21										
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24										
25										
TOTAL =			0	0	0	0	0	0		



FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	
Hard Mast	
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	
Raccoon Feces	

FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Conococheague Trap-site Number: NA Date: 4/16/2015

Ownership (circle one): Public Private, Both Access (Name, Address Telephone): _____
DCNR- Tuscarora State Forest

Location: 0.5km N or S and 7.0km E or W of: Blairs Mills

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; >2km

Surveyors: J. Hart, B. Benner, T. Crumb, D. Wanke and C. Comacho

Effort: # of surveyors x survey minutes = 450 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): TUBL Habitat Site Code (if known): NA

County: Perry Quadrangle: Blairs Mills Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 450 Average Width: 375 Width range: 300

Activity Extent (m): Longest Length: NA Average Width: NA Width range: NA
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude 40 ° 17 ' 23.6 " & Longitude 77 ° 38 ' 08.5 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1420 to 1840 Slope Range (%): 16 to 18

Aspects (degrees): southerly aspects: 15 % 224 ° northerly aspects: 20 % 43 °
(135°-225°) (315°-45°)
easterly aspects: 60 % 106 ° westerly aspects: 5 % 284 °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge/valley- side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

- 1) Code # 112 % 30
- 2) Code # 113 % 30
- 3) Code # 133 % 25
- 4) Code # 211 % 15

Geological formation: Martinsburg, Juniata Fm and Bald Eagle Fm undivided, Tuscarora

Nearest mapped water: Name: To the northwest-Horse Valley Run Distance to: 1700 m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 5 Two-digit Habitat Disturbance code: 1E 2H 5D

Anderson Level III cover code on site: 415 and adjacent to site: 415

Tree canopy coverage overtop Habitat Site: 70-80% %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): Red and Chestnut oaks, black birch, red maple, witch hazel.

Shrub, Vine and Briar (Rubus) Species: Low Bush Blueberry, Green Briar, Grapevine, Virginia Creeper

Herbaceous Species: Marginal Wood Fern, Polypody Fern, Grass spp., Hay scented fern, Goldenrod

General Description of Surrounding Habitat (>100m & <500m): Mature forest with moderate underbrush

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

NA

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

Although some porcupine sign was noted, it wasn't too prevalent.

Rattlesnakes are known to occur on this site.



FORMPGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	40° 17' 20.7"	77° 38' 8.9"	0	0	0	0	0	0	113	75
2	40° 17' 20.8"	77° 38' 19.2"	0	0	0	0	0	0	112	75
3	40° 17' 23.1"	77° 38' 2.8"	0	0	0	0	0	0	112	<50
4	40° 17' 25.6"	77° 37' 59.9"	0	0	0	0	0	0	112	<50
5	40° 17' 27.9"	77° 38' 3.2"	0	0	0	0	0	0	113	<75
6	40° 17' 18.3"	77° 38' 7.5"	0	0	0	0	0	0	133	<75
7	40° 17' 20.0"	78° 29' 2.0"	0	0	0	0	0	0	211	<50
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25										
TOTAL =			0	0	0	0	0	0		

FORMPGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	NA
Ferns	NA
Hard Mast	NA
Soft Mast	NA
Other Seeds	NA
Fungi & Lichens	NA
Misc. (Sticks etc.)	NA
Raccoon Feces	None noted within the survey area.

FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Bowers Mountain #2 Trap-site Number: NA Date: 11/10/2014

Ownership (circle one): Public, Private, Both Access (Name, Address Telephone): DCNR
Tuscarora State Forest

Location: 8.2km N or S and E or 27.8km W of: Carlisle

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; >2km

Surveyors: Jim Hart, S. Boder, J. Collins, P. Dunning, J. Treaster

Effort: # of surveyors x survey minutes = 720 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): TUBL Habitat Site Code (if known):

County: Perry Quadrangle: Blain Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 500 Average Width: 600 Width range: 300-500

Activity Extent (m): Longest Length: 300 Average Width: 150 Width range: 100-300
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude 40 ° 16 ' 12.0 " & Longitude 77 ° 31 ' 4.5 " W
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1620 to 1940 Slope Range (%): 20 to 30

Aspects (degrees): southerly aspects: 35 % 140 ° northerly aspects: 30 % 325 °
(135°-225°) (315°-45°)
easterly aspects: 20 % 65 ° westerly aspects: 15 % 240 °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): Ridge/valley side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

- 1) Code # 112 % 55 2) Code # 113 % 25
3) Code # 122 % 10 4) Code # 123 % 10

Geological formation: Tuscarora, Juniata and Bald Eagle Undivided

Nearest mapped water: Name: Bull Run Distance to: 650 m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 1 Two-digit Habitat Disturbance code: 1E H3

Anderson Level III cover code on site: 414 and adjacent to site: 414

Tree canopy coverage overtop Habitat Site: 10-70 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): black birch, red maple,
many dead hemlocks, some scattered oaks, witch hazel

Shrub, Vine and Briar (Rubus) Species: Mountain laurel, VA creeper

Herbaceous Species: mostly ferns with a scattering of flowering plants

General Description of Surrounding Habitat (>100m & <500m): Very comparable to what
is on site except for more oak species such as chestnut and red.

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

Pipeline runs through center of surveyed area and an upgraded pipeline is proposed for this site. There is a moderate amount of hemlock mortality in the area from wooley adelgid.



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	40-16-12.9	77-30-50.5							113	50
2	40-16-10.5	77-30-55.6	2		3	1			113	50
3	40-16-7.5	77-30-53.3		1		1			112	25
4	40-16-9.4	77-31-1.4							112	25
5	40-16-11.5	77-31-9.3							112	25
6	40-16-8.5	77-31-13.2							122	50
7	40-16-13.7	77-31-1.9							122	50
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TOTAL =			2	1	3	2				

FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	Oak leaves, maple leaves and stems, sweet fern
Ferns	New York, Hay scented (a few), some wood fern
Hard Mast	Old hulls of acorns
Soft Mast	
Other Seeds	
Fungi & Lichens	Some fungi but very little lichen.
Misc. (Sticks etc.)	Many old sticks that may have been dragged in for creating a hutch
Raccoon Feces	None noted anywhere on site.

FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Bowers Mountain #1 Trap-site Number: NA Date: 4/15/2015

Ownership (circle one): Public, Private, Both Access (Name, Address Telephone): DCNR
Tuscorora State Forest

Location: 9.5km N or S and 2.4km E or W of: Andersonburg

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; >2km

Surveyors: J. Hart, C. Camacho, B. Benner, T. Crumb, D. Wanke

Effort: # of surveyors x survey minutes = 300 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): TUBL Habitat Site Code (if known): NA

County: Perry Quadrangle: Andersonburg Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 130m Average Width: 35m Width range: 20-40m

Activity Extent (m): Longest Length: NA Average Width: NA Width range: NA
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude 40 ° 15 ' 50.7 " & Longitude 77 ° 29 ' 33.0 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1350' to 1400' Slope Range (%): 18.5 to 21.5

Aspects (degrees): southerly aspects: 35 % 180 ° northerly aspects: 15 % 48 °
(135°-225°) *(315°-45°)*
easterly aspects: 40 % 90 ° westerly aspects: 10 % 230 °
(45°-135°) *(225°-315°)*

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): Valley side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

- 1) Code # 132 % 35
- 2) Code # 142 % 30
- 3) Code # 122 % 25
- 4) Code # 311 % 10

Geological formation: Tuscorora Group overlaying the Clinton Formation

Nearest mapped water: Name: Laurel Run Distance to: 200m S m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 8 Two-digit Habitat Disturbance code: 1N 4H 5N

Anderson Level III cover code on site: 413 and adjacent to site: 413

Tree canopy coverage overtop Habitat Site: 50-75% %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): _____

Chestnut oak, Red oak, a few hickory and red maple

Shrub, Vine and Briar (Rubus) Species: Mostly witch hazel, black raspberry

Herbaceous Species: Some blueberry

General Description of Surrounding Habitat (>100m & <500m): The above mentioned species along with many downed snags.

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

A single black rat snake (*Pantherophis alleghaniensis*)

porcupine droppings scattered throughout the rocks

Gray squirrels (*Sciurus carolinensis*)



FORMPGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	40-15-52.7	77-29-31.9	0	0	0	0	0	0	311	25%
2	40-15-54.1	77-29-36.9	0	0	0	0	0	0	122	<50%
3	40-15-53.6	77-29-38.2	0	0	0	0	0	0	122	<50%
4										
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22										
23										
24										
25										
TOTAL =			0	0	0	0	0	0		

FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	NA
Ferns	NA
Hard Mast	NA
Soft Mast	NA
Other Seeds	NA
Fungi & Lichens	NA
Misc. (Sticks etc.)	NA
Raccoon Feces	NA

FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Middle Ridge Trap-site Number: NA Date: 4/15/2015

Ownership (circle one): Public, Private, Both Access (Name, Address Telephone): DCNR
Bureau of Forestry

Location: 9.8km N or S and 2.0km E or W of: Andersonburg

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; >2km

Surveyors: Jim Hart, Brian Benner

Effort: # of surveyors x survey minutes = 180 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): TUBL Habitat Site Code (if known): _____

County: Perry Quadrangle: Andersonburg Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 160 Average Width: 165 Width range: 40-180

Activity Extent (m): Longest Length: NA Average Width: NA Width range: NA
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude 40 ° 15 ' 39.9 " & Longitude 77 ° 29 ' 20.6 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1000' to 1280 Slope Range (%): 7 to 25

Aspects (degrees): southerly aspects: 10 % 142 ° northerly aspects: 327 % 60 °
(135°-225°) *(315°-45°)*
easterly aspects: 20 % 54 ° westerly aspects: 233 % 10 °
(45°-135°) *(225°-315°)*

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): Ridge-top, Valley side along ROW

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

1) Code # 113 % 30, 2) Code # 112 % 40,
3) Code # 132 % 15, 4) Code # 212 % 15

Geological formation: Tuscarora Fm/ Clinton Group

Nearest mapped water: Name: Laurel Run Distance to: 350 m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 6 Two-digit Habitat Disturbance code: 1N 2J 2H

Anderson Level III cover code on site: 434 and adjacent to site: 435

Tree canopy coverage overtop Habitat Site: 50-75 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): 60' hemlock (mostly w/
wooley adelgid), white pine, red and chestnut oak, red maple,
black birch, some witch hazel

Shrub, Vine and Briar (Rubus) Species: black and red raspberry, green briar

Herbaceous Species: Canada Mayflower, trailing arbutus, colt's foot,

General Description of Surrounding Habitat (>100m & <500m): The area is characterized
by steeply incised valleys with steep, narrow mountains.

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

NA

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

Many dead and dying hemlocks showing evidence of infestation with wooley
adelgid, porcupine population in line mostly with forested habitat and not overly
populace. No timber rattlesnakes have been noted at this site.



FORMPGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	40° 15' 40.3"	77° 29' 12.3"	0	0	0	0	0	0	112	<25
2	40° 15' 39.9"	77° 29' 16.2"	0	0	0	0	0	0	112	<50
3	40° 15' 40.6"	77° 29' 17.6"	0	0	0	0	0	0	113	<50
4	40° 15' 38.8"	77° 29' 14.6"	0	0	0	0	0	0	112	75
5	40° 15' 37.5"	77° 29' 16.7"	0	0	0	0	0	0	132	75
6	40° 15' 35.8"	77° 29' 21.1"	0	0	0	0	0	0	212	<50
7	40° 15' 37.3"	77° 29' 26.4"	0	0	0	0	0	0	112	<50
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
TOTAL =			0	0	0	0	0	0		

FORM PGC 4150-wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	NA
Ferns	NA
Hard Mast	NA
Soft Mast	NA
Other Seeds	NA
Fungi & Lichens	NA
Misc. (Sticks etc.)	NA
Raccoon Feces	NA

Although this is good habitat and there are active sites to the north on Bowers Mountain, no sign was located at this site.



FORM PGC 4150 wdrat

PENNSYLVANIA GAME COMMISSION

Revision Date: 2-20-09

ALLEGHENY NEMA HABITAT SITE SURVEY

Use the accompanying *Neotoma magister* Survey Code Booklet to complete this form.

Habitat Site Name: Blue Mountain Trap-site Number: _____ Date: 6/18/2014

Ownership (circle one): Public, Private, Both Access (Name, Address Telephone): _____

Location: 1.3km N or _____ S and _____ E or 1.6km W of: McCrea

Nearest other active or inactive (?) habitat site (circle one): 200-500m; >500m-1km; >1km-2km; >2km

Surveyors: Philip R. Dunning, Justin M. Collins

Effort: # of surveyors x survey minutes = 300 minutes. Was the site(s) previously surveyed? Yes No

Conservation Mgmt. Area (4 letters, see Appendix 1): TUBL Habitat Site Code (if known): _____

County: Cumberland Quadrangle: Andersonburg Map Photocopy attached? Yes No

Habitat Site Size (m): Longest Length: 1000ft Average Width: 600ft Width range: 400-800ft

Activity Extent (m): Longest Length: _____ Average Width: _____ Width range: _____
(Estimate the length & width of rectangle that would include all Activity Centers within Habitat Site)

Latitude N40 ° 15 ' 23.59 " & Longitude W77 ° 28 ' 6.215 "
(Center of Habitat Site in Degrees, Minutes and Seconds, NAD27)

Elevation Range: 1500ft to 1700ft Slope Range (%): 30 to 40

Aspects (degrees): southerly aspects: 60 % 145 ° northerly aspects: _____ % _____ °
(135°-225°) (315°-45°)

easterly aspects: 40 % 120 ° westerly aspects: _____ % _____ °
(45°-135°) (225°-315°)

Topography (ridge/valley-side, ridge top, river gorge, water gap, etc.): ridge/valley- side

Surface Rock Habitat Types: List the four most common surface rock habitat types (and estimate the percent coverage of each) starting with the most common:

1) Code # 112 % 65 , 2) Code # 111 % 15 ,

3) Code # 132 % 10 , 4) Code # 113 % 5 ,

Geological formation: Juniata and Bald Eagle Formations

Nearest mapped water: Name: Unnamed tributary to Doubling Gap Distance to: 300 m

FORM PGC 4150 wdrat

Forest Fragmentation Code: 4 Two-digit Habitat Disturbance code: 3H 1E 4D

Anderson Level III cover code on site: 415 and adjacent to site: 415

Tree canopy coverage overtop Habitat Site: 90 %

Vegetation on and within 100 meters of the Habitat Site:

Trees Species (list most common first and least common last): red oak, red maple, black birch,
witch hazel, chestnut oak, sassafras, striped maple

Shrub, Vine and Briar (Rubus) Species: low bush blueberry, blackberry, green briar, grapevine,
mountain laurel, virginia creeper

Herbaceous Species: hay-scented fern

General Description of Surrounding Habitat (>100m & <500m): Mature forest with moderate
shrub cover

If applicable: this Habitat Site replaces (merges) the following Sites (enter the Site names):

Comments, e.g. threats to site, unusual tree mortality, large population of porcupines (tally number of dens), snake species observed, droppings of predators noted etc.

Timber rattlesnakes observed. Porcupine sign throughout.



FORM PGC 4150 wdrat

ACTIVITY CENTERS or POTENTIAL ACTIVITY CENTERS (circles with a 15m radius)										
<i>Establish up to 5 ACs and/or PACs for every 1 km of Habitat Site length.</i>										
No.	GPS Latitude	GPS Longitude	# Toilet Areas		# Midden-caches		# Nests/Hutches		Rock Code	% Canopy Coverage
			Fresh	Old	Fresh	Old	Fresh	Old		
1	40°15'24.89" N	77°27'54.31" W	0	0	0	0	0	0	112	90
2	40°15'25.64" N	77°28'1.38" W	0	0	0	0	0	0	112	90
3	40°15'22.53" N	77°28'8.30" W	0	0	0	0	0	0	112	90
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
TOTAL =										



FORM PGC 4150 wdrat

MIDDEN-CACHE CONTENTS COMBINED FOR ALL ACTIVITY CENTERS	
Green Vegetation & Buds	
Ferns	
Hard Mast	
Soft Mast	
Other Seeds	
Fungi & Lichens	
Misc. (Sticks etc.)	
Raccoon Feces	

Appendix III. Detailed location maps and photographs of Allegheny Woodrat (*Neotoma magister*) Habitat Sites, Activity Centers (ACs) and Potential Activity Centers (PACs) identified during habitat surveys of the proposed Pennsylvania Pipeline Project, Indiana, Cambria, Blair, Huntingdon, Perry, and Cumberland Counties, Pennsylvania, June 23-July 24, 2014.

Photo Map 1 - Laurel Ridge 2 - Allegheny woodrat habitat

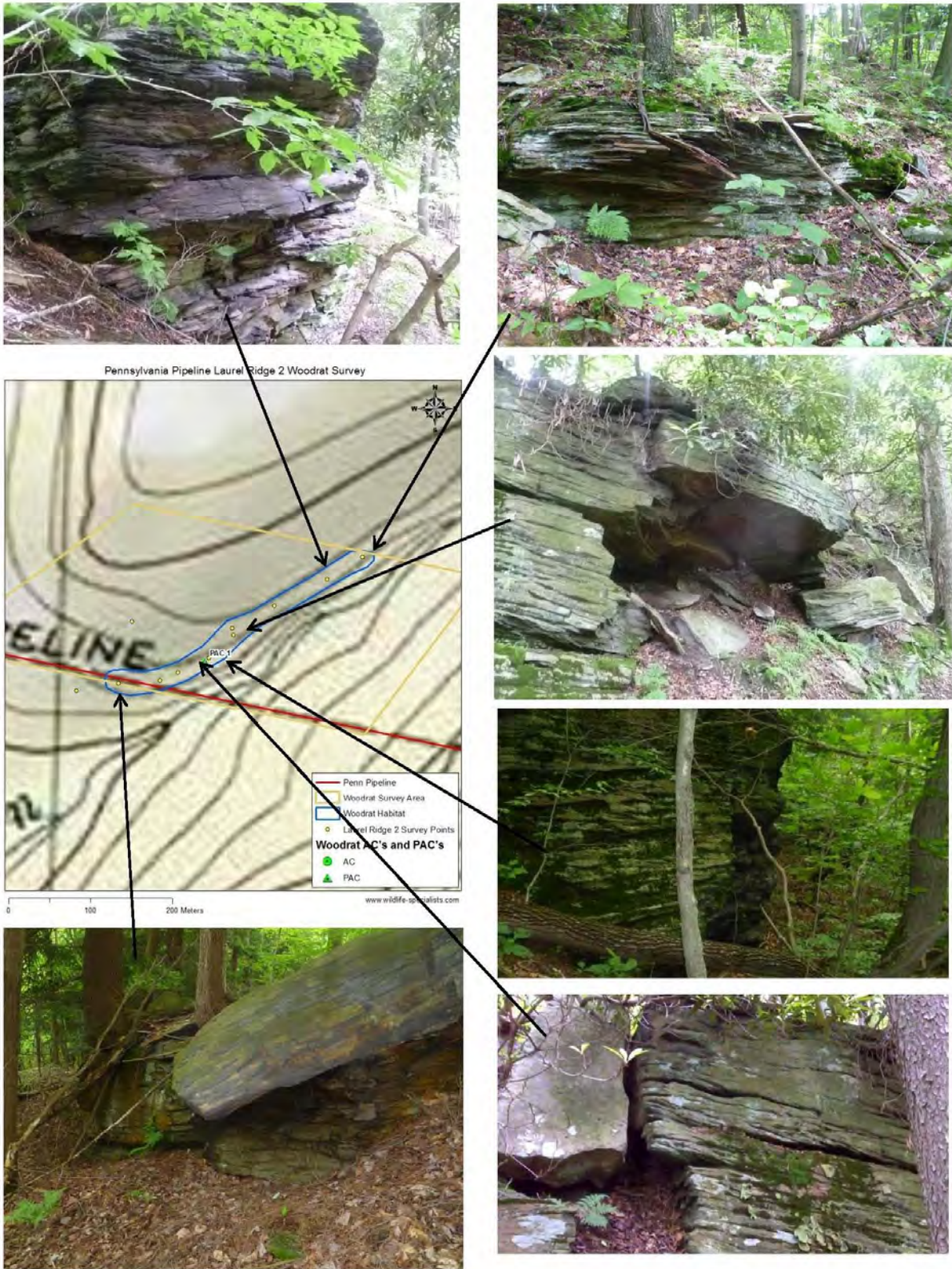


Photo Map 2 - Laurel Ridge 3 - Allegheny woodrat habitat

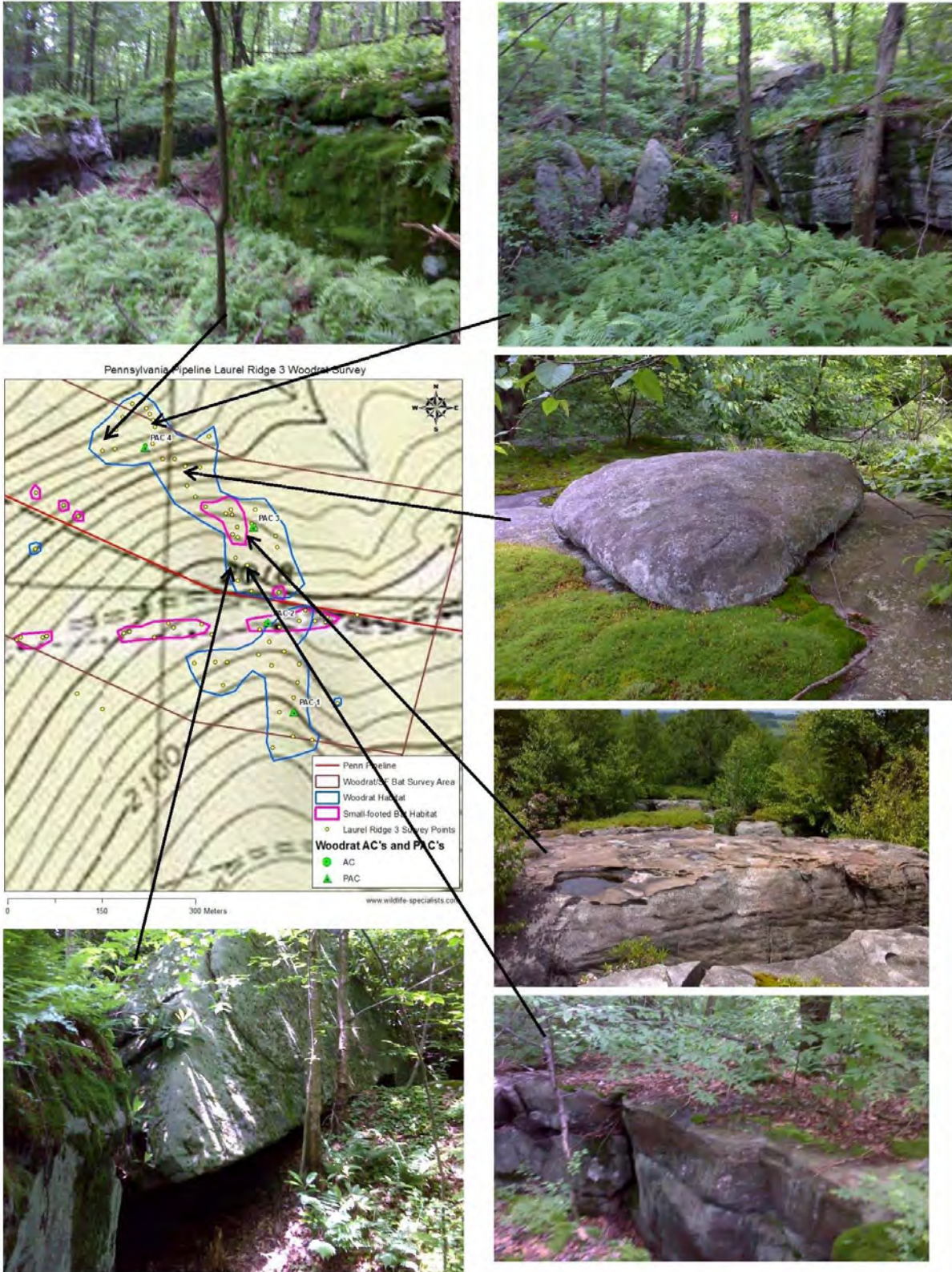


Photo Map 3 - Laurel Ridge 3 - Allegheny woodrat habitat



Photo Map 4 - Laurel Ridge 1 - Allegheny woodrat habitat



Pennsylvania Pipeline Laurel Ridge 1 Woodrat Survey

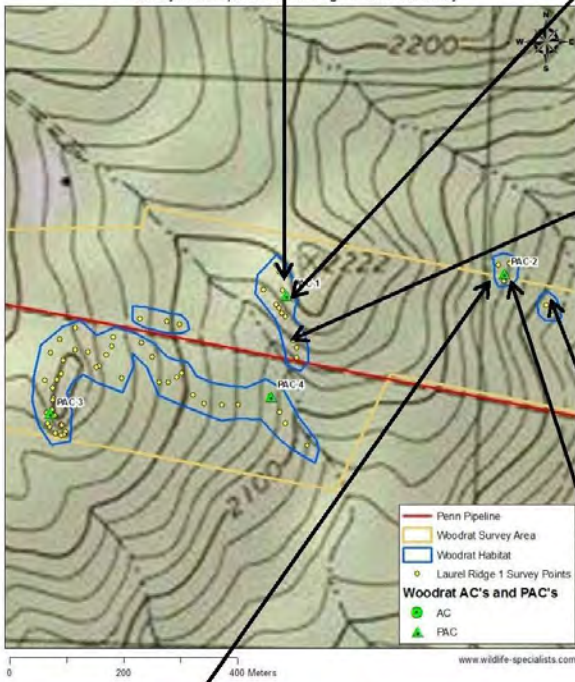


Photo Map 5 - Laurel Ridge 1 - Allegheny woodrat habitat



Pennsylvania Pipeline Laurel Ridge 1 Woodrat Survey

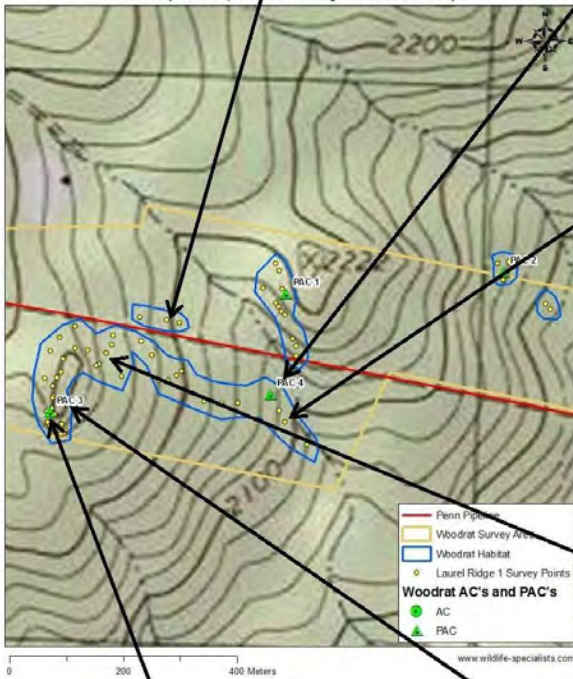


Photo Map 6 - Altoona Bypass 1 and 2 - Allegheny woodrat habitat



Photo Map 7 - Jacks Mountain 1 - Allegheny woodrat habitat

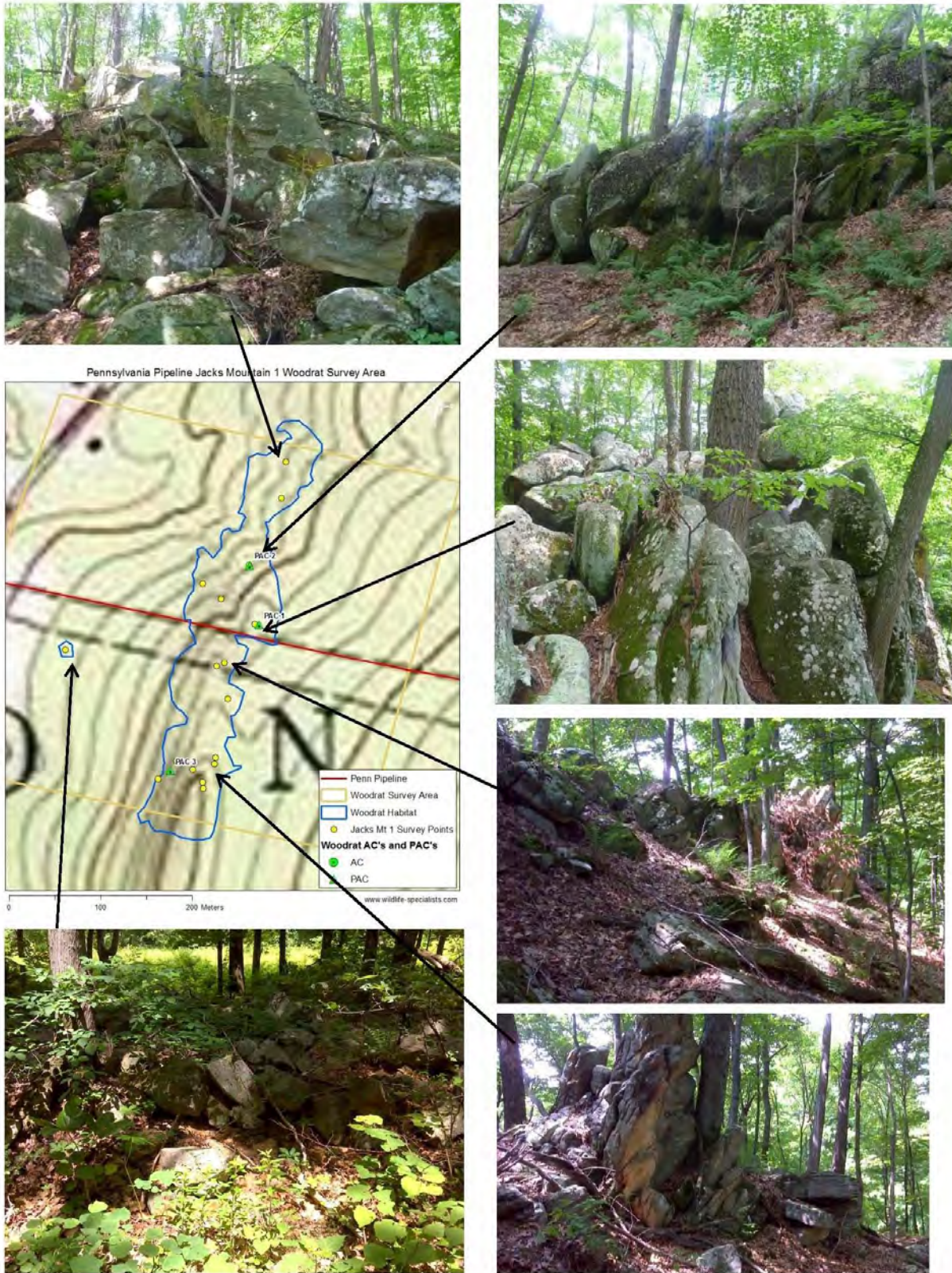


Photo Map 8 - Jacks Mountain 2 - Allegheny woodrat habitat and sign

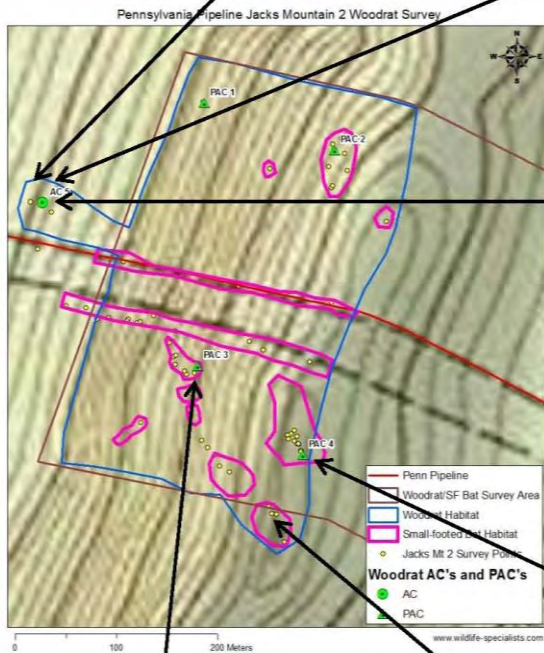


Photo Map 9 - Jacks Mountain 2 - Allegheny woodrat habitat

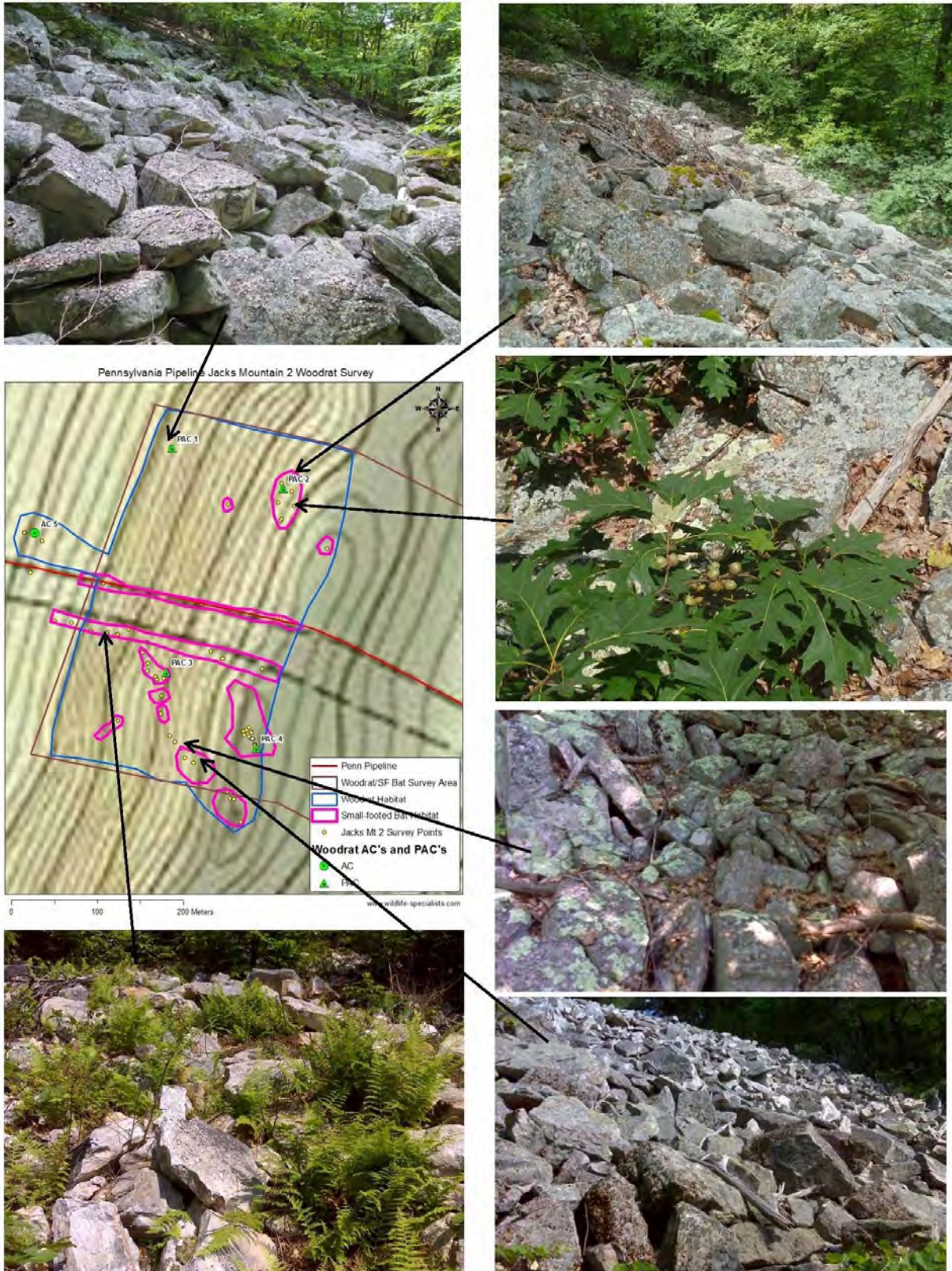


Photo Map 10 - Jacks Mountain 3 - Allegheny woodrat habitat and sign

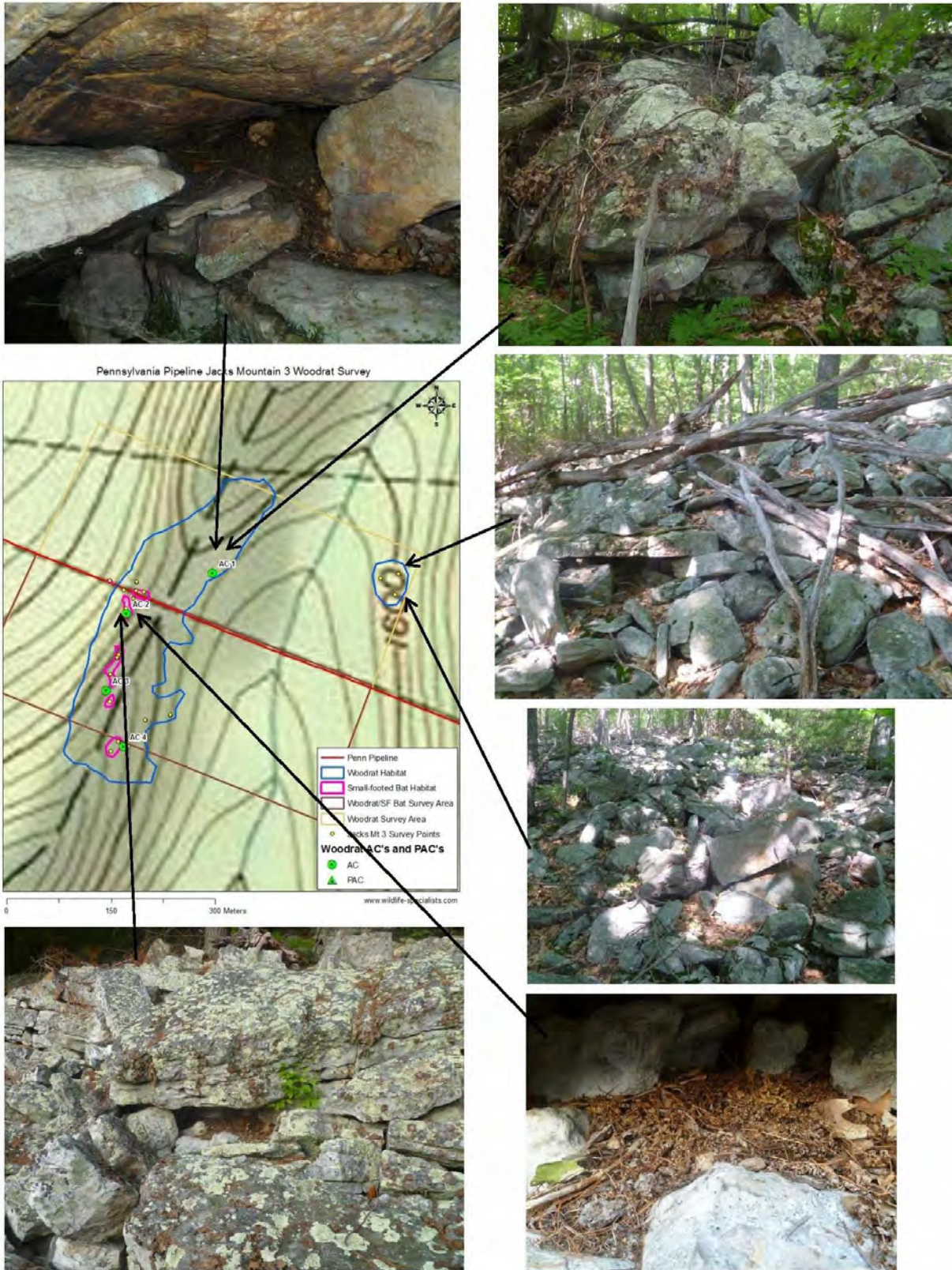


Photo Map 11 - Jacks Mountain 3 - Allegheny woodrat habitat and sign

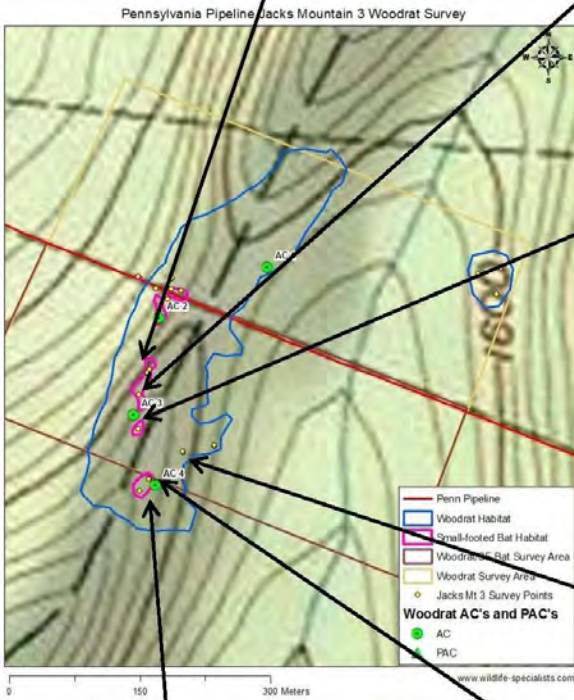


Photo Map 12 - Blacklog Mountain - Allegheny woodrat habitat

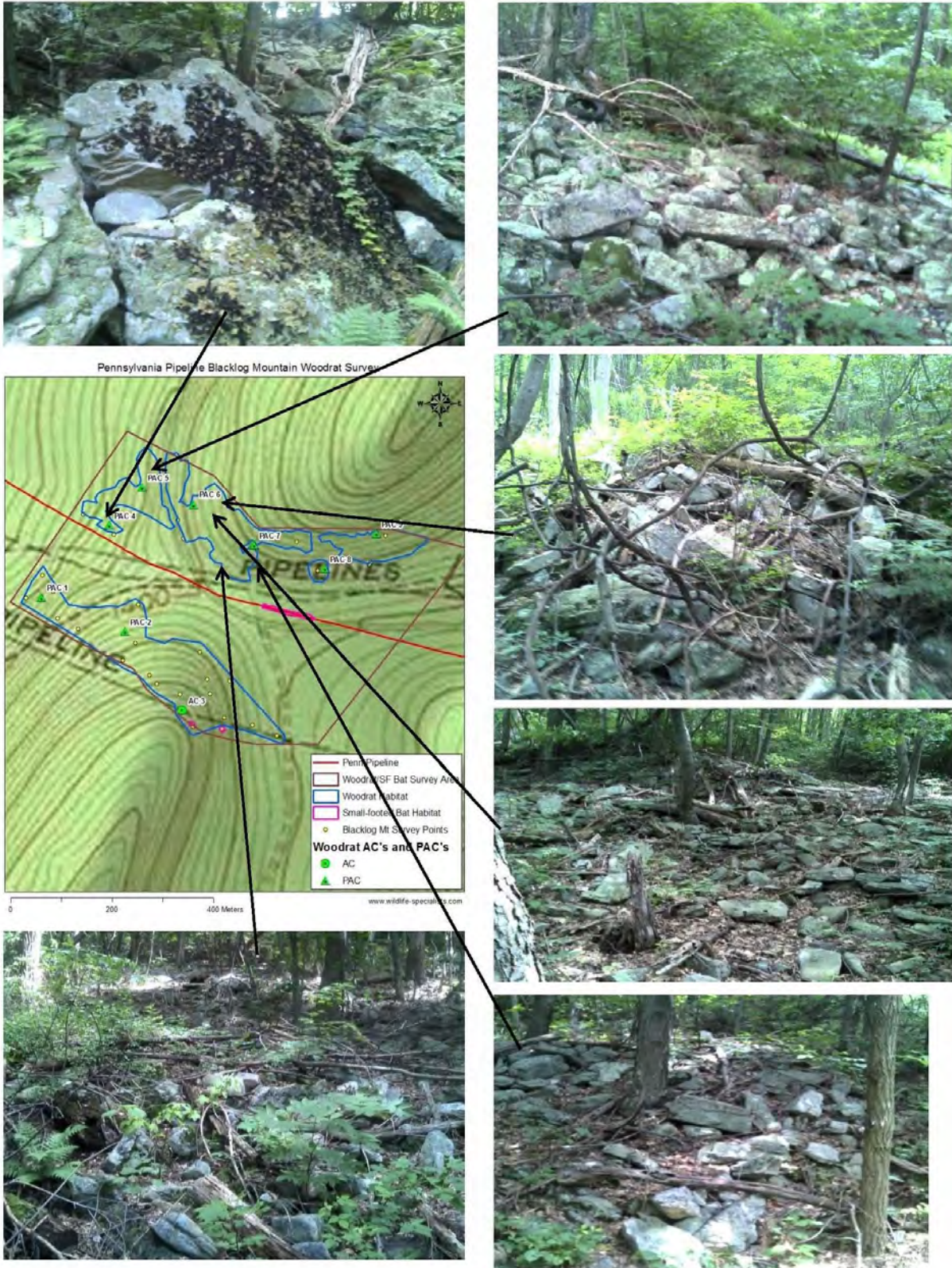


Photo Map 13 - Blacklog Mountain - Allegheny woodrat habitat and sign

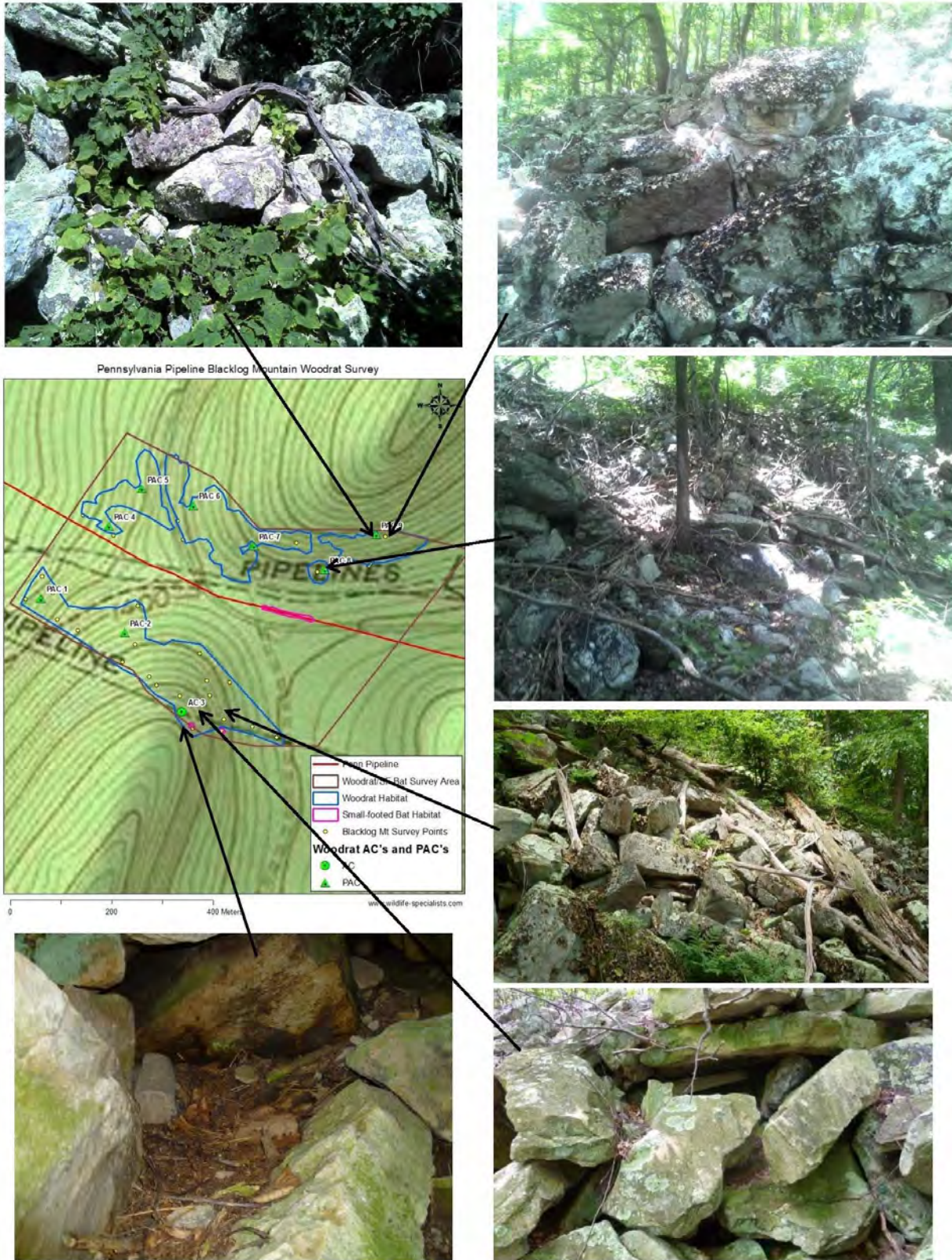


Photo Map 14 - Blacklog Mountain - Allegheny woodrat habitat

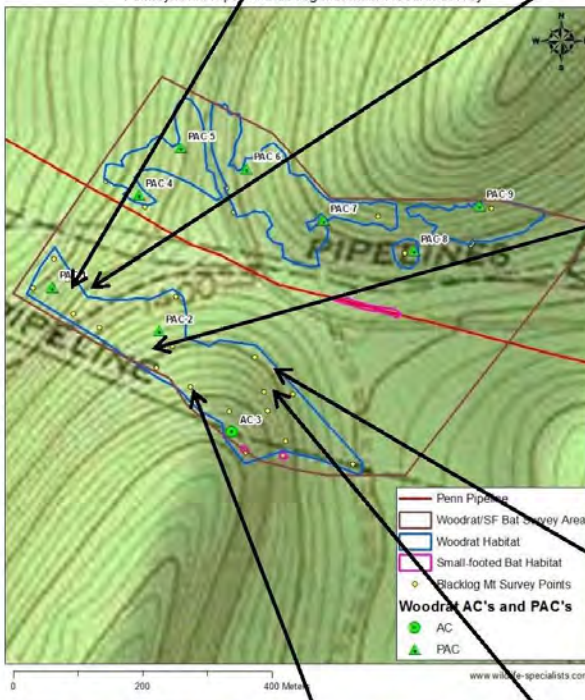


Photo Map 15 - Shade Mountain - Allegheny woodrat habitat

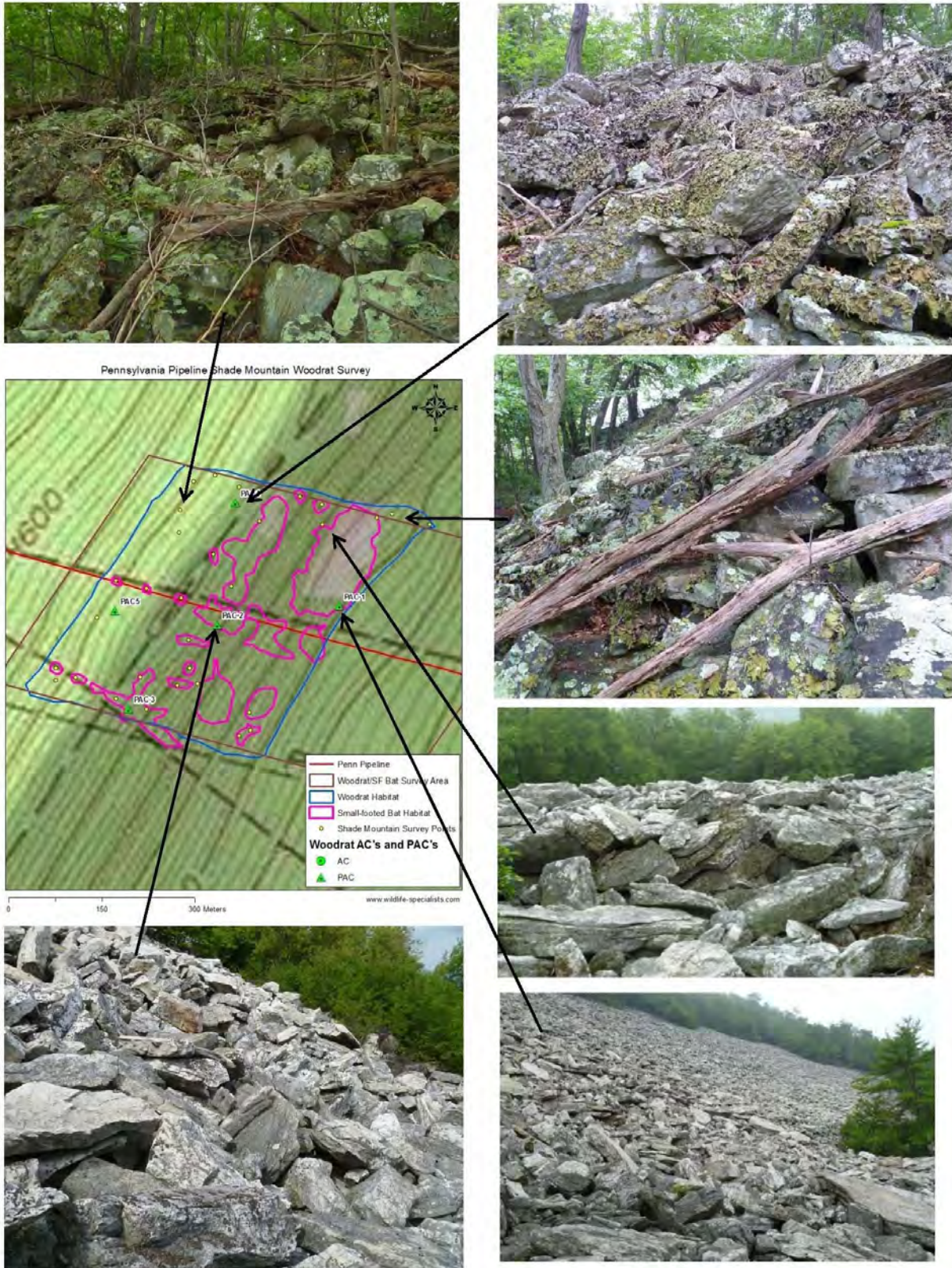


Photo Map 16 - Shade Mountain - Allegheny woodrat habitat



Photo Map 17 - Tuscarora Mountain Allegheny woodrat habitat



Pennsylvania Pipeline Tuscarora Mountain Woodrat Survey

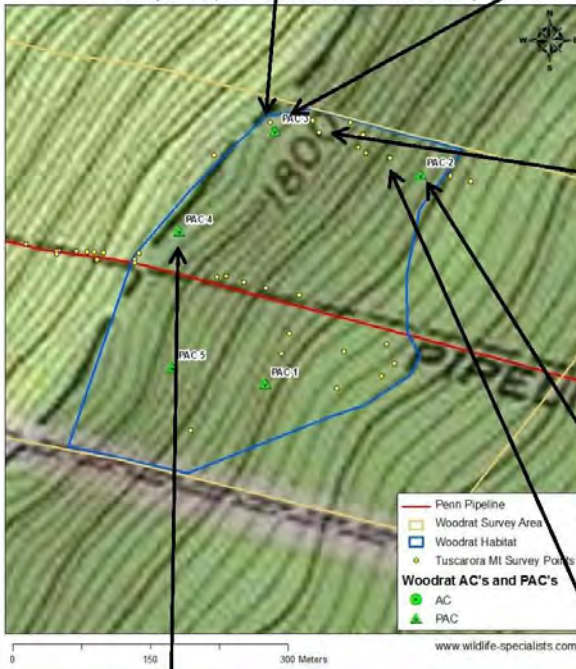


Photo Map 18 - Tuscarora Mountain Allegheny woodrat habitat



Pennsylvania Pipeline Tuscarora Mountain Woodrat Survey

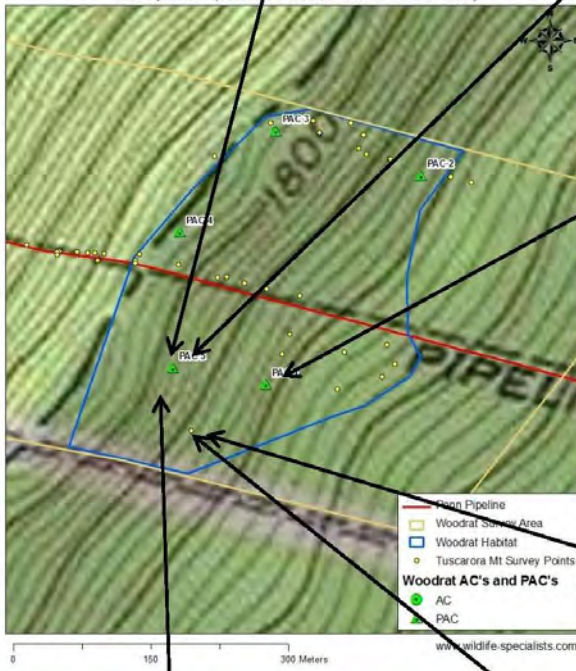


Photo Map 19 – Conococheague Mountain Allegheny woodrat habitat and sign

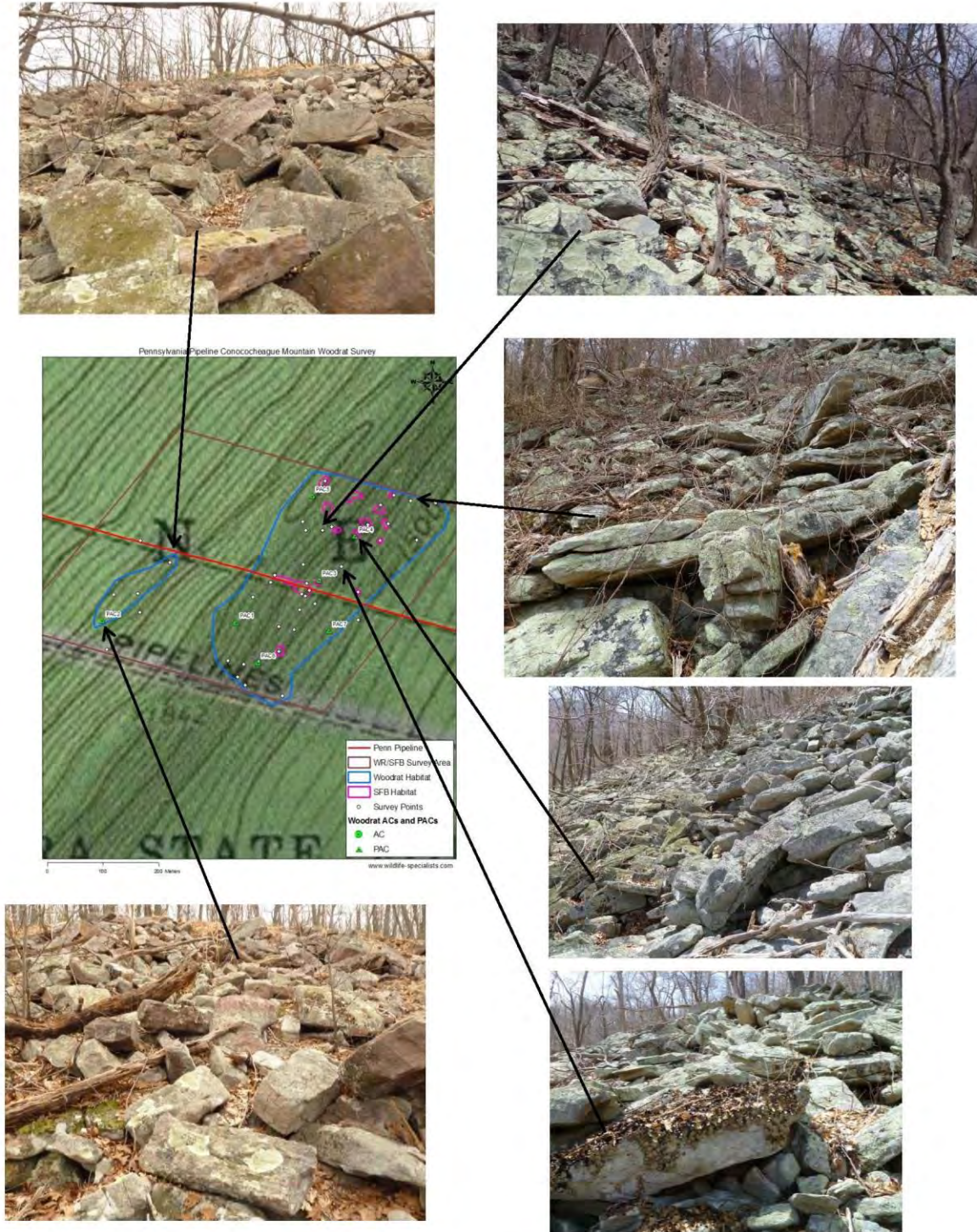


Photo Map 20 – Conococheague Mountain Allegheny woodrat habitat and sign

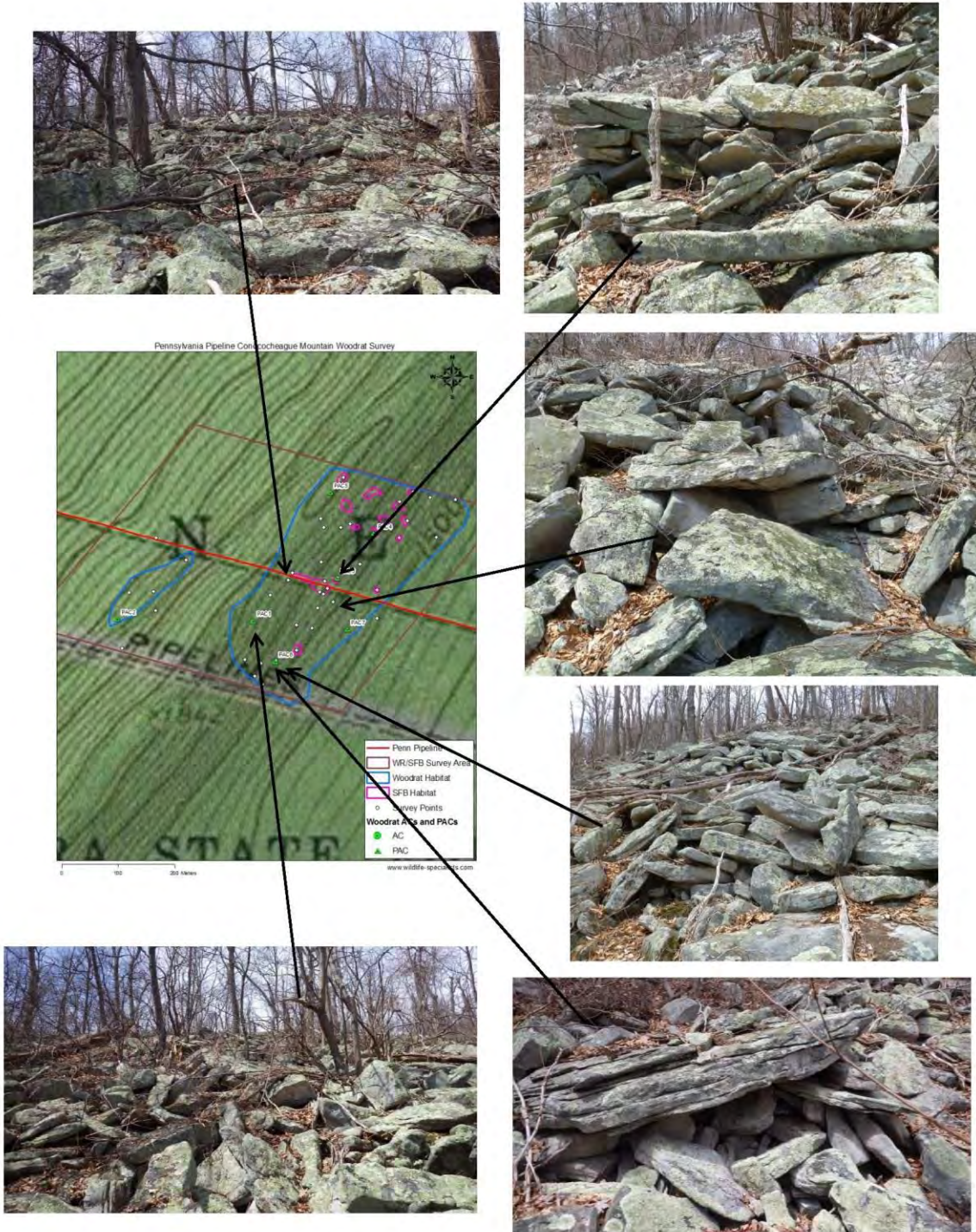


Photo Map 21 - Bowers Mountain 2 Allegheny woodrat habitat and sign



Pennsylvania Pipeline Bowers Mountain 2 Woodrat Survey



Photo Map 22 - Bowers Mountain 1 Allegheny woodrat habitat and sign

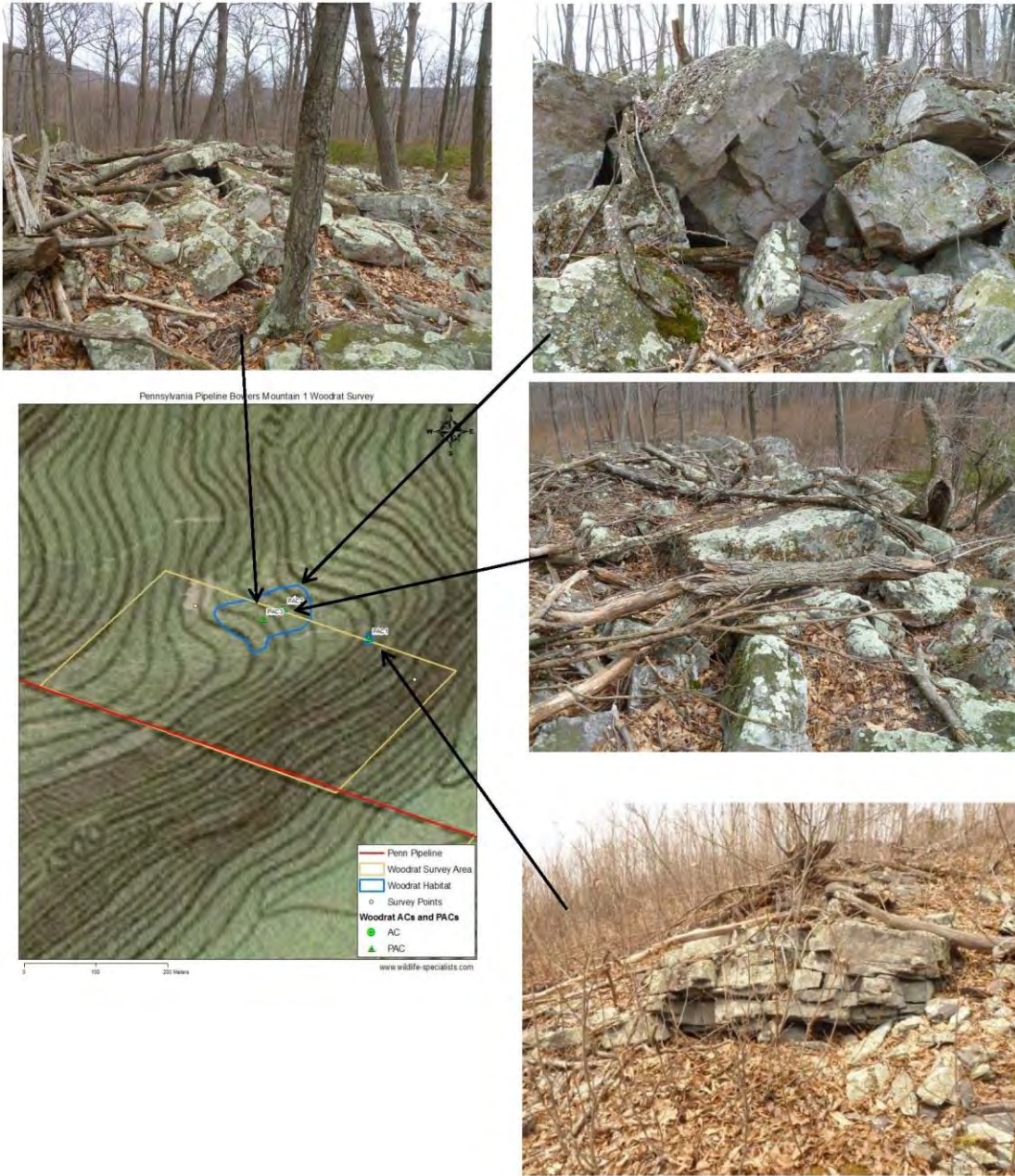


Photo Map 23 - Middle Ridge Allegheny woodrat habitat and sign



Photo Map 24 – Middle Ridge Allegheny woodrat habitat and sign

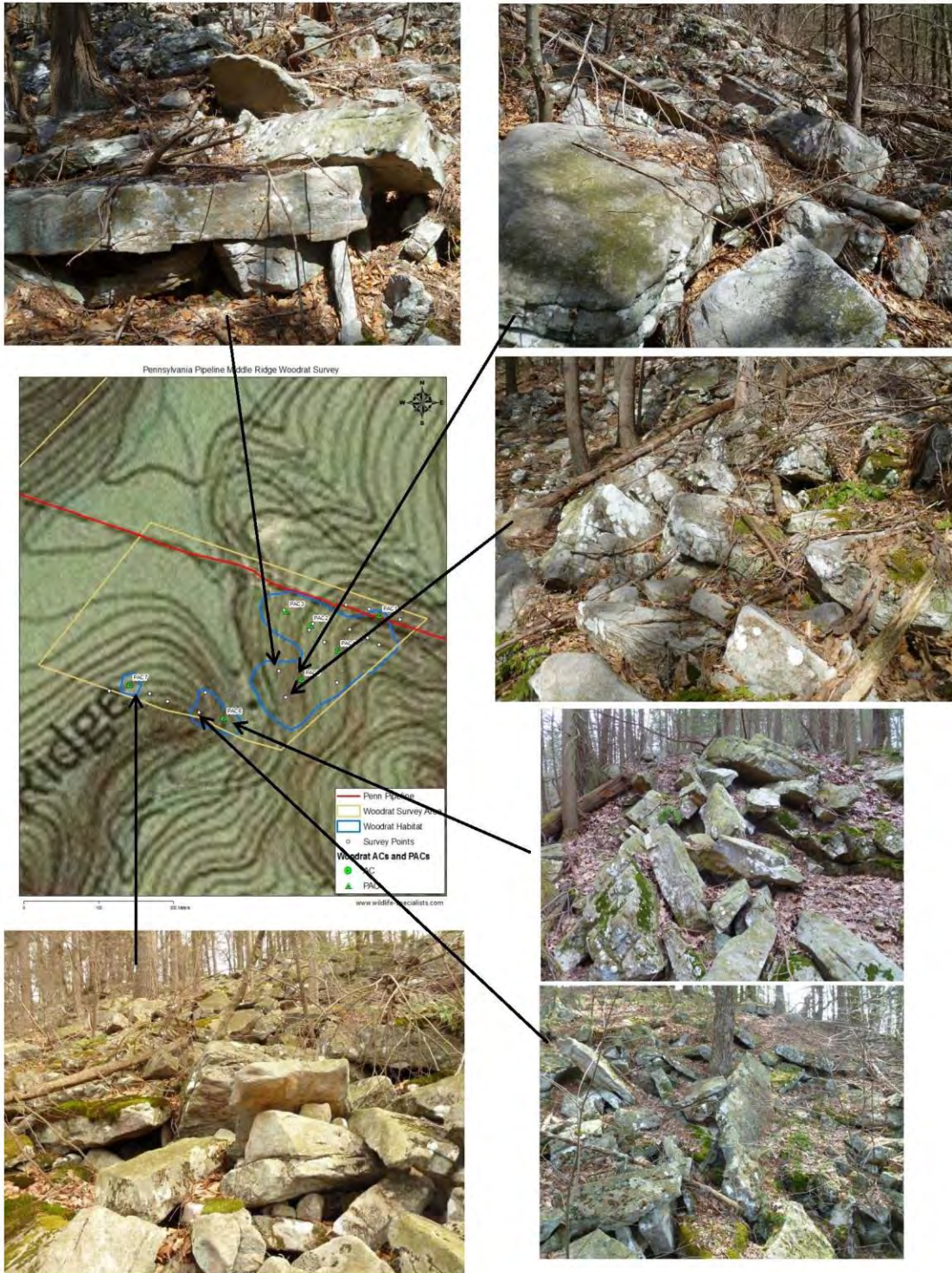


Photo Map 25 - Blue Mountain Allegheny woodrat habitat



Pennsylvania Pipeline Blue Mountain Woodrat Survey Area



Appendix IV. Detailed location maps and photographs of Eastern Small-footed Bat (*Myotis leibii*) potential summer roosting habitat as well as shaded rocky areas considered non-habitat identified during habitat surveys of the proposed Pennsylvania Pipeline Project, Indian, Cambria, Blair, Huntingdon, Perry and Cumberland Counties, Pennsylvania, June 23-July 24, 2014.

Photo Map 1 - Laurel Ridge 3 - Eastern small-footed bat survey area – suitable habitat



Photo Map 2 - Laurel Ridge 3 - Eastern small-footed bat survey area - non-suitable habitat

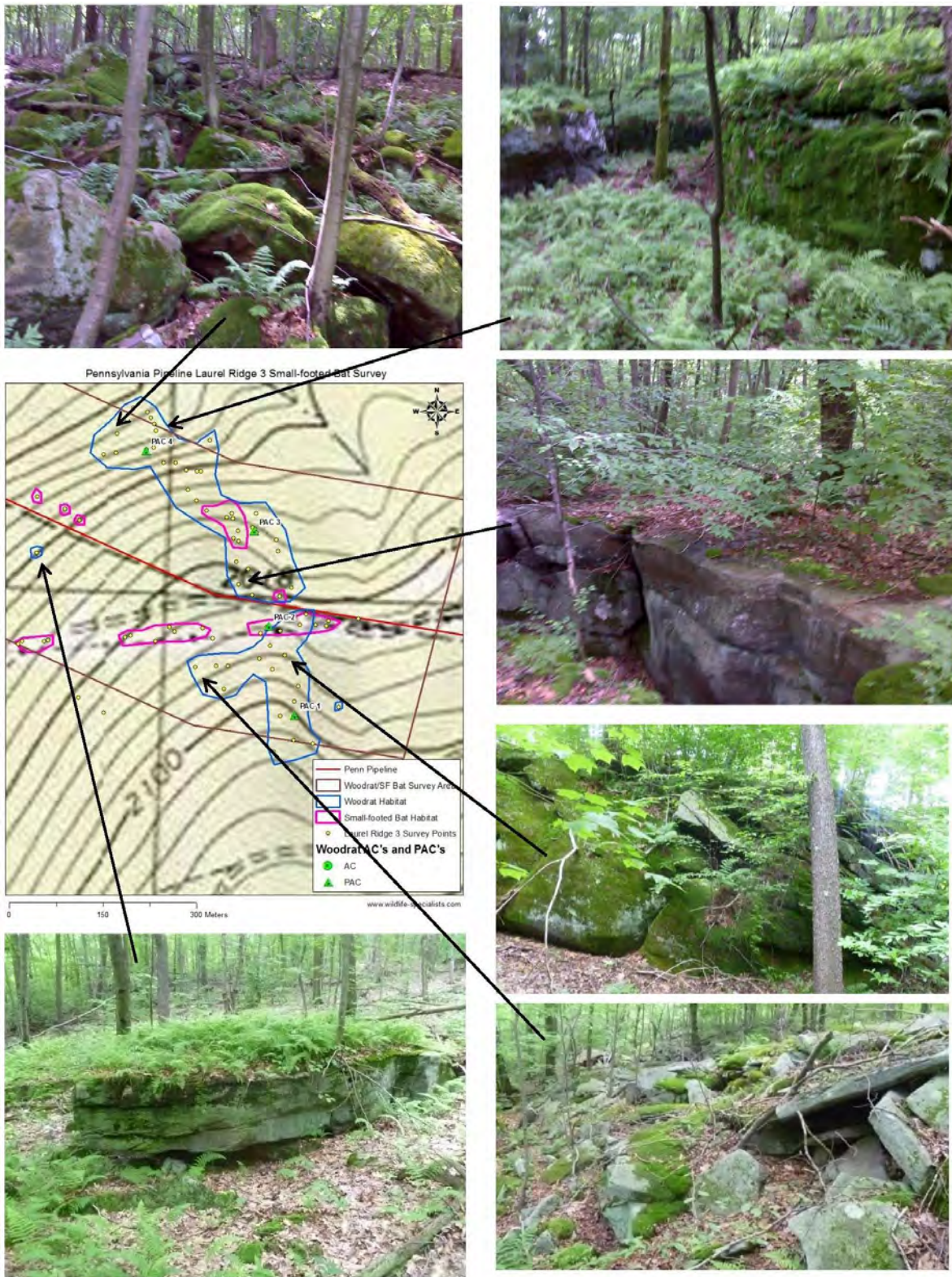


Photo Map 3 - Altoona Bypass - Eastern small-footed bat survey area - suitable habitat

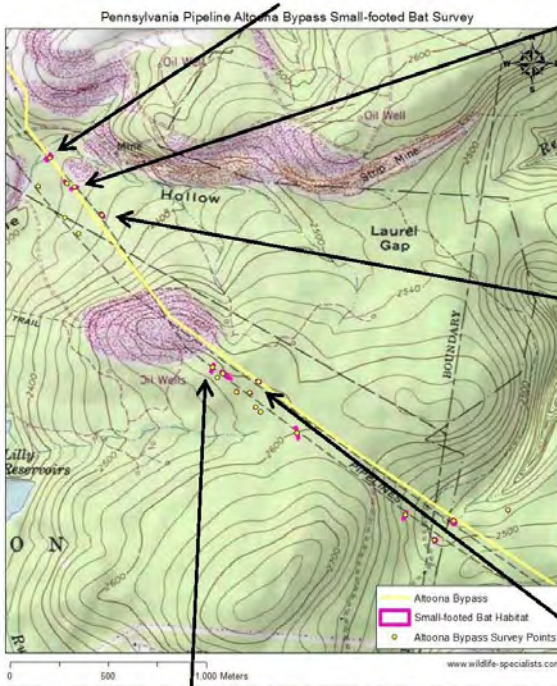


Photo Map 4 - Altoona Bypass - Eastern small-footed bat survey area - suitable habitat

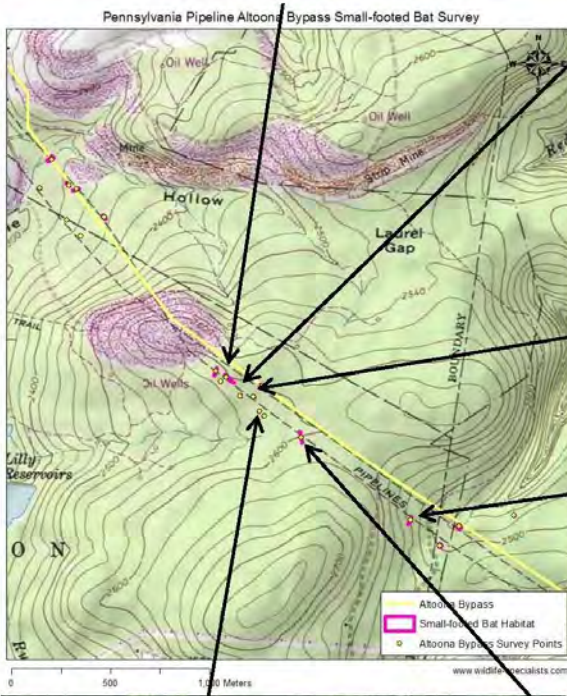


Photo Map 5 - Altoona Bypass - Eastern small-footed bat survey area - suitable habitat

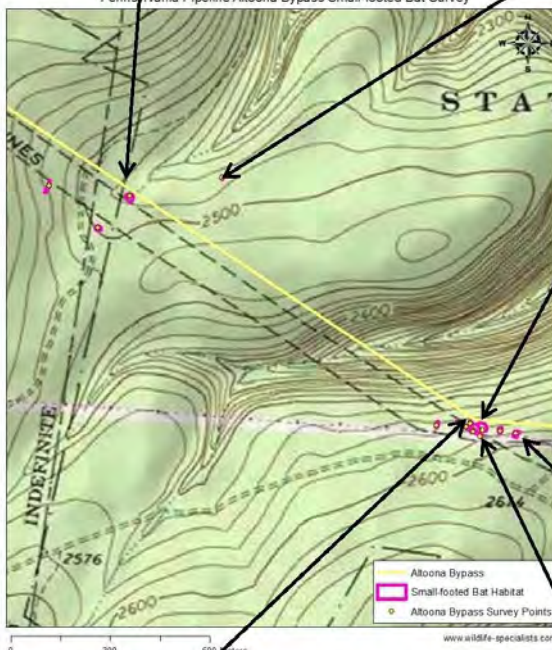


Photo Map 6 - Altoona Bypass - Eastern small-footed bat survey area - suitable habitat



Pennsylvania Pipeline Altoona Bypass Small-footed Bat Survey

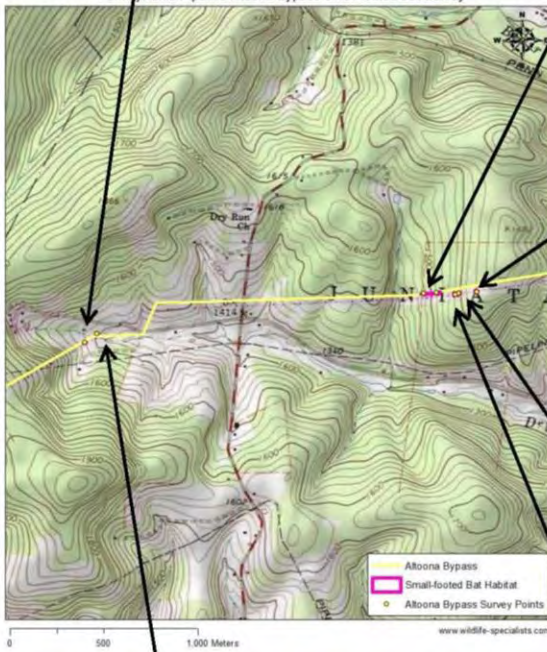


Photo Map 7 - Altoona Bypass - Eastern small-footed bat survey area - suitable habitat

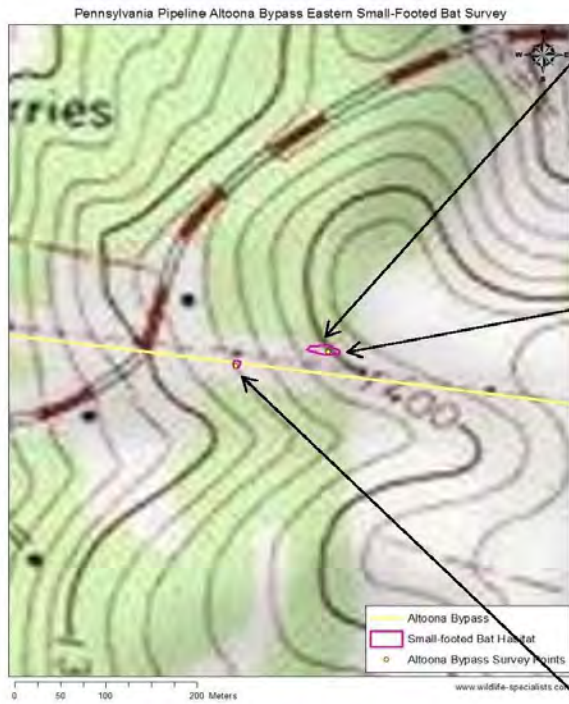


Photo Map 8 - Altoona Bypass - Eastern small-footed bat survey area - suitable habitat

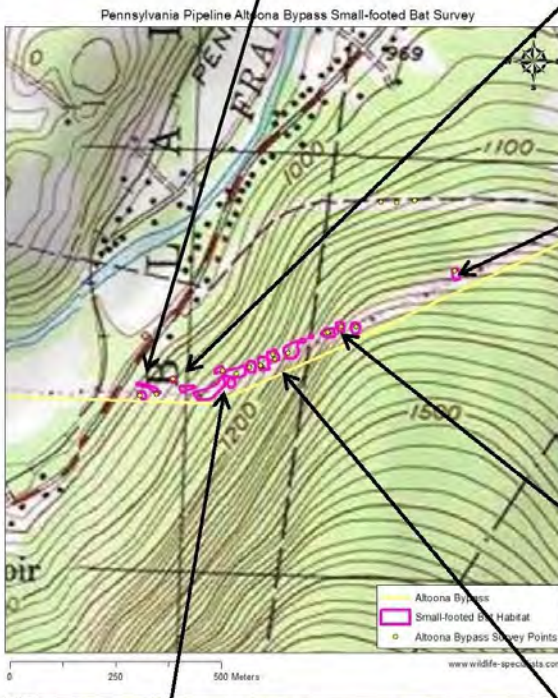


Photo Map 9 - Lock Mountain - Eastern small-footed bat survey area - non-suitable habitat



Pennsylvania Pipeline Lock Mountain Small-footed Bat Survey

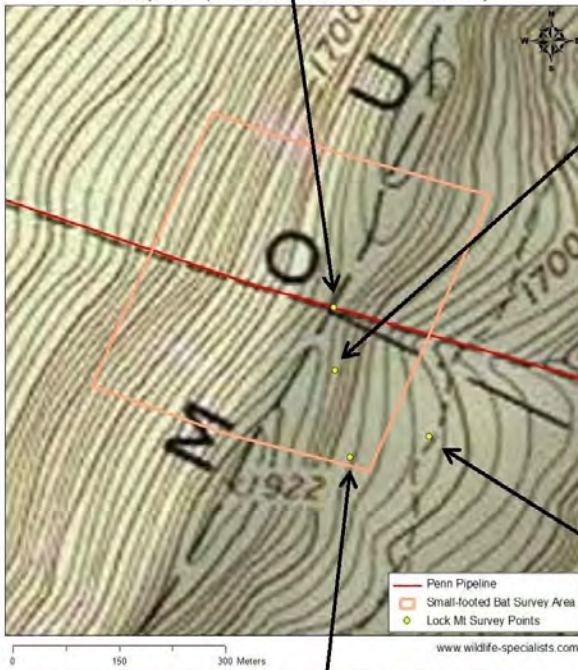


Photo Map 10 - Jacks Mountain 2 - Eastern small-footed bat survey area - suitable habitat

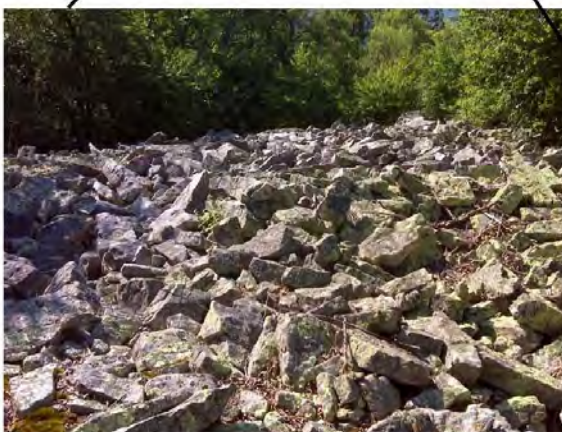
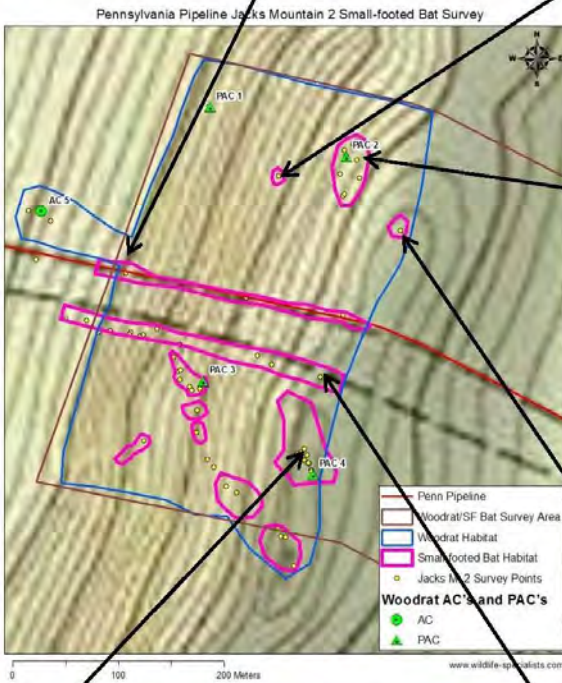


Photo Map 11 - Jacks Mountain 2 - Eastern small-footed bat survey area - suitable habitat

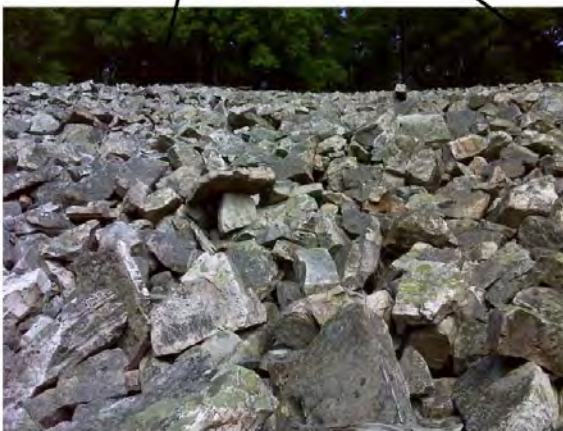
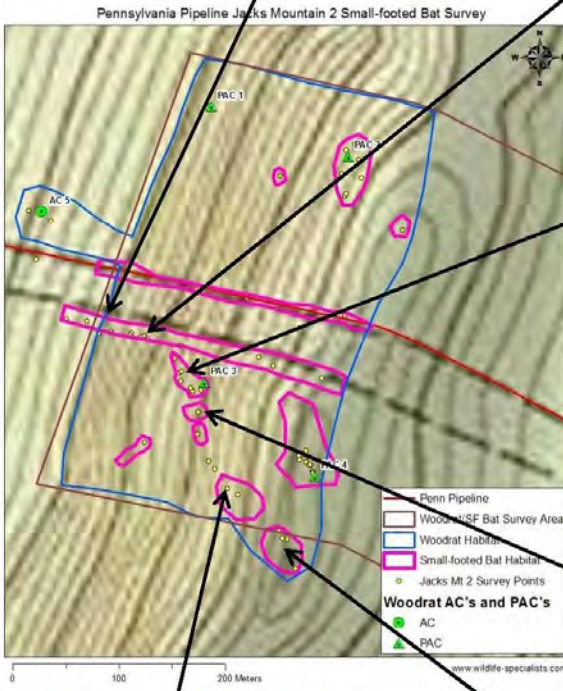


Photo Map 12 - Jacks Mountain 2 - Eastern small-footed bat survey area - non-suitable habitat



Photo Map 13 - Jacks Mountain 3 Eastern small-footed bat survey area - suitable habitat

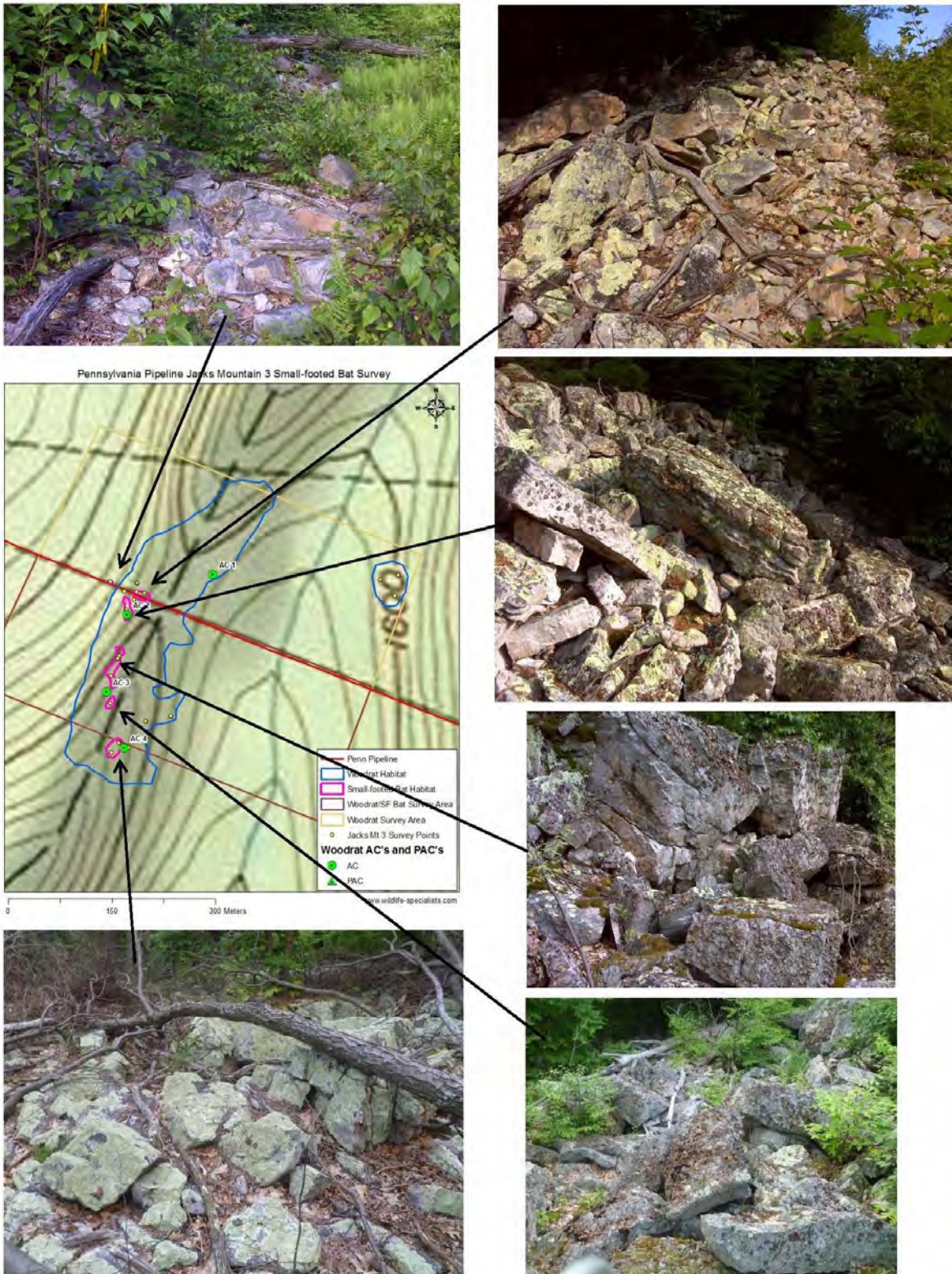


Photo Map 14 - Jacks Mountain 3 - Eastern small-footed bat survey area - non-suitable habitat

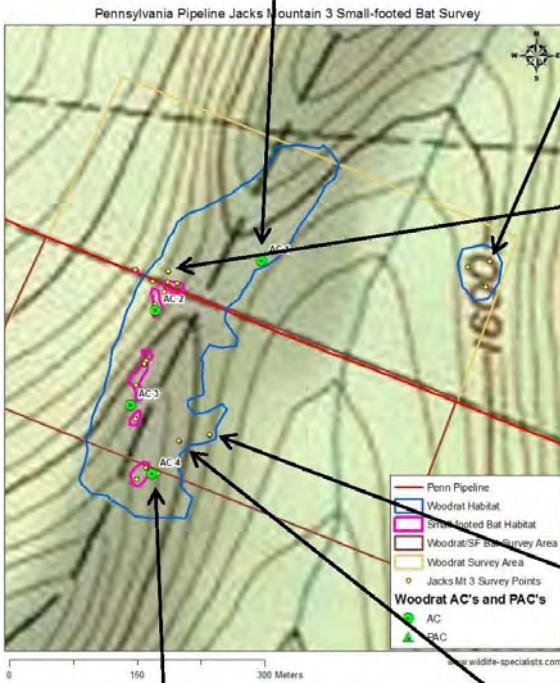


Photo Map 15 - Blacklog Mountain - Eastern small-footed bat survey area - suitable habitat



Pennsylvania Pipeline Blacklog Mountain Small-footed Bat Survey

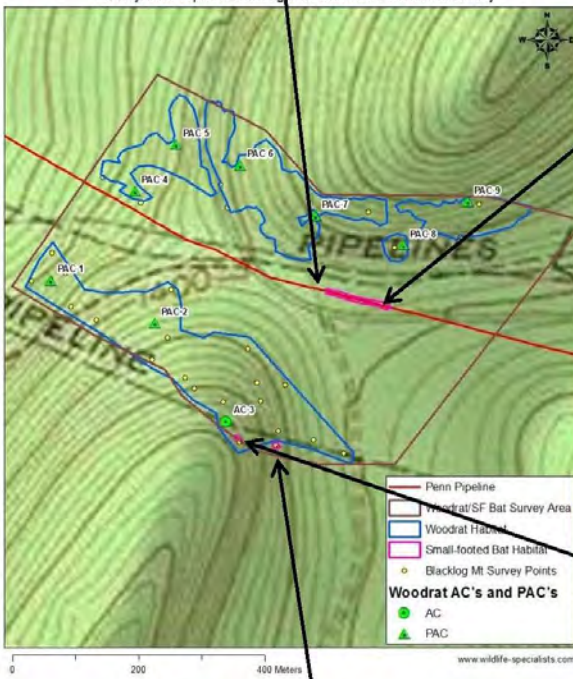


Photo Map 16 - Blacklog Mountain Eastern Small-footed Bat survey area - non-suitable habitat

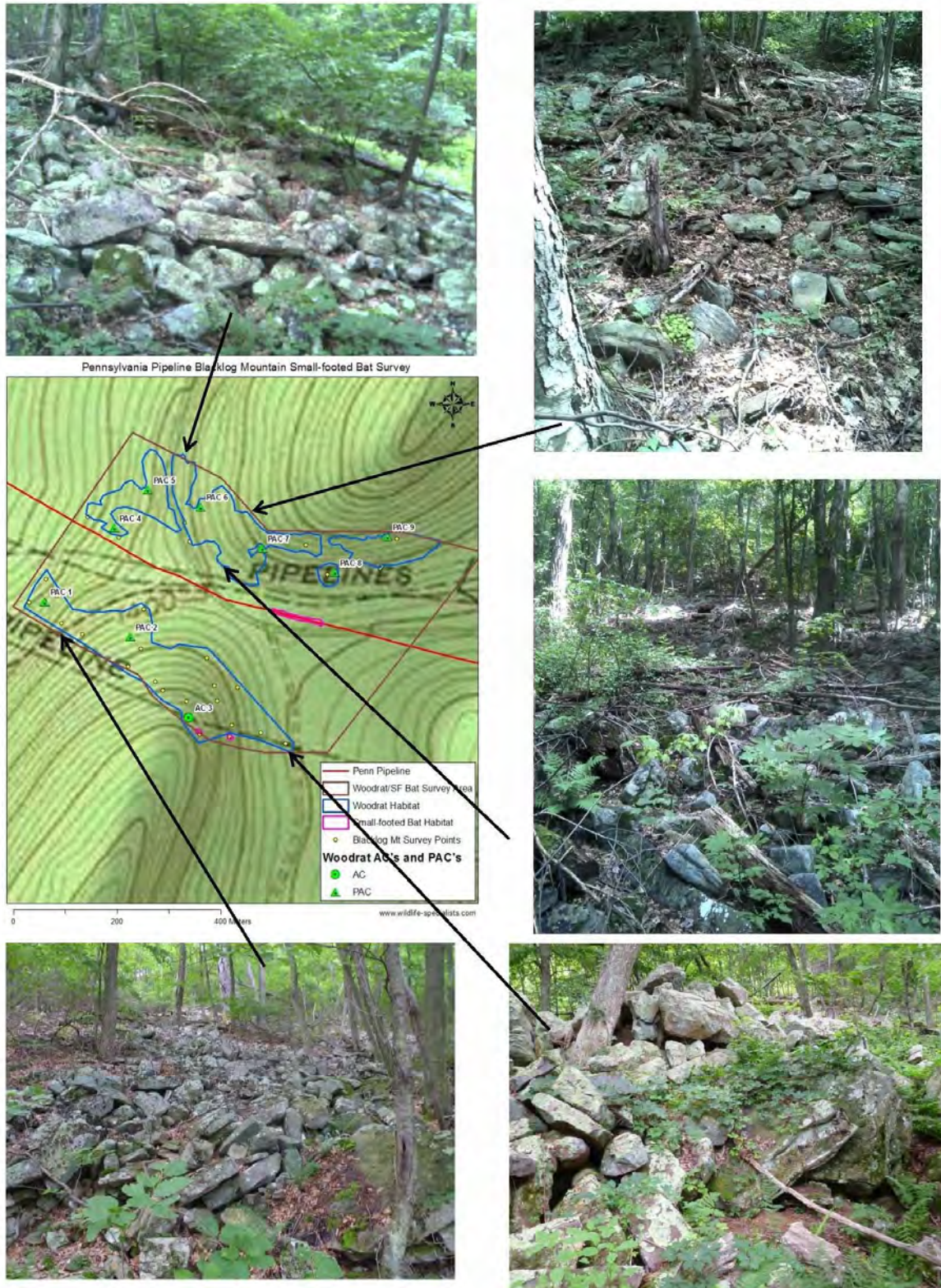


Photo Map 17 - Shade Mountain Eastern Small-footed Bat survey area - suitable habitat



Pennsylvania Pipeline Shade Mountain Small-footed Bat Survey



Photo Map 18 - Shade Mountain Eastern Small-footed Bat survey area - suitable habitat

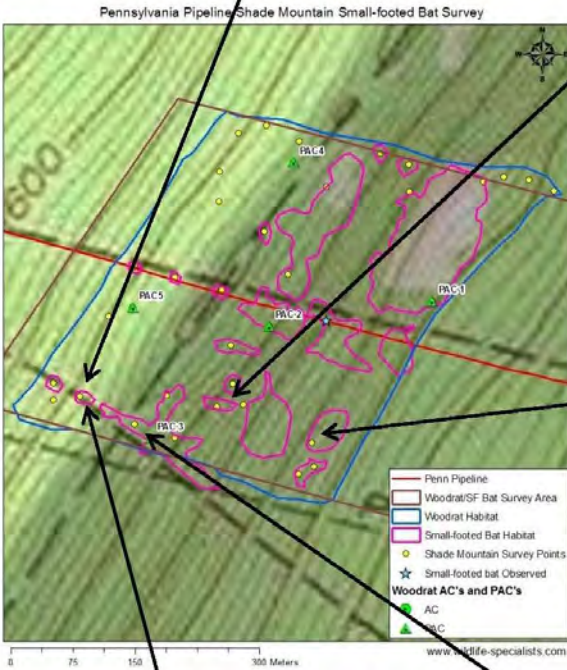
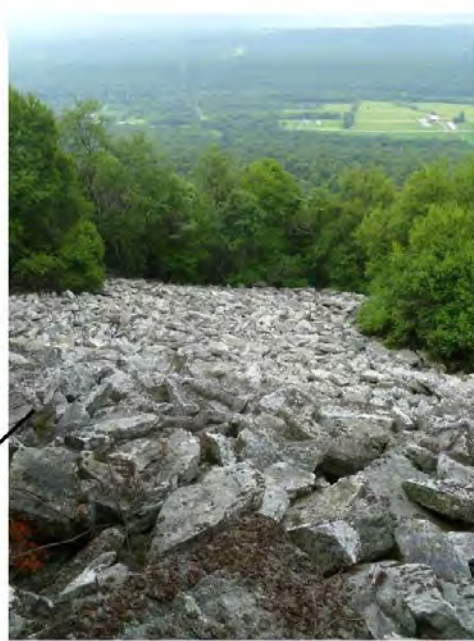


Photo Map 19 - Shade Mountain Eastern Small-footed Bat survey area - non-suitable habitat



Photo Map 20 - Conococheague Mountain Eastern Small-footed Bat survey area - Suitable habitat

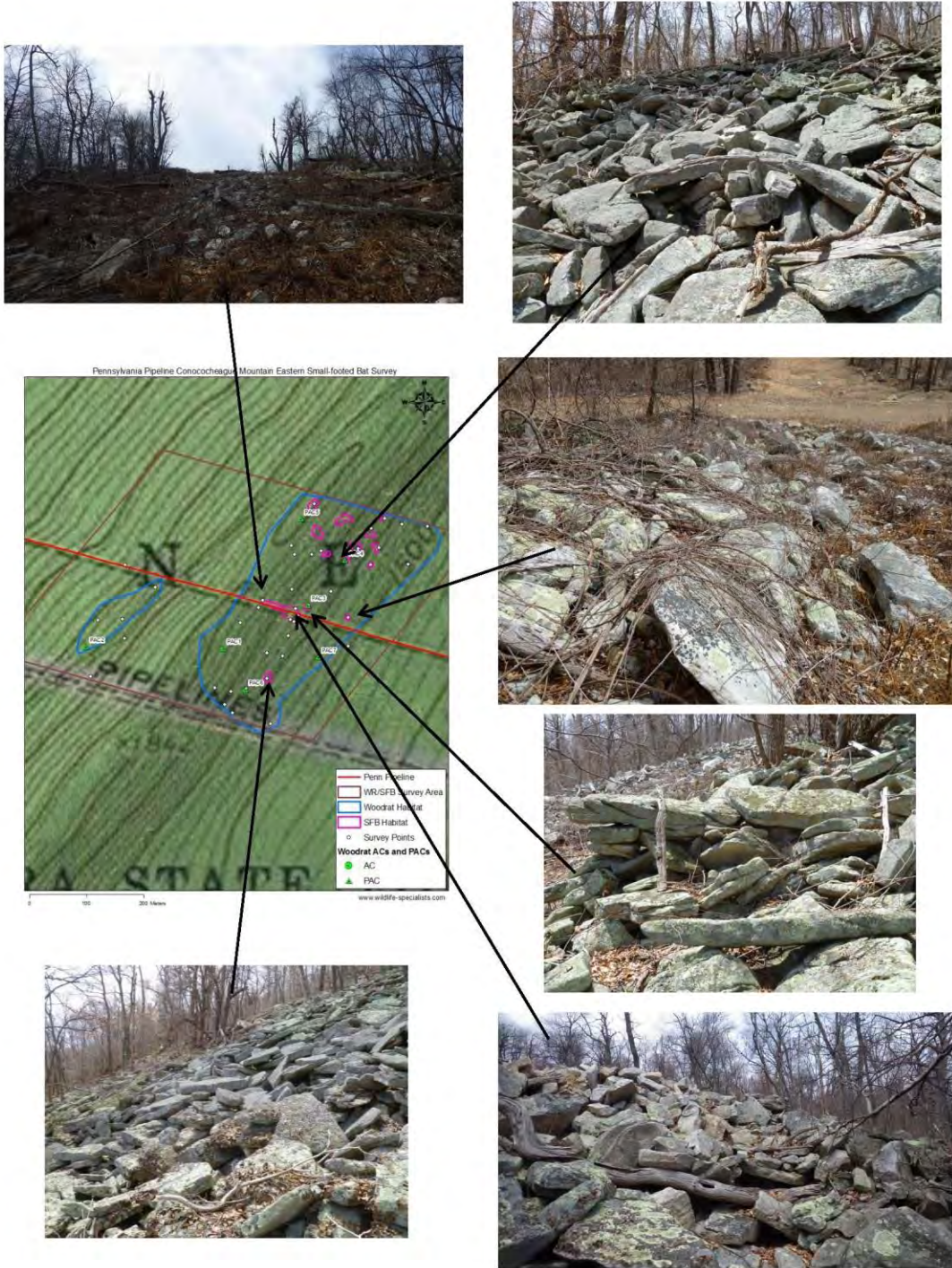


Photo Map 21 - Conococheague Mountain Eastern Small-footed Bat survey area - Suitable habitat

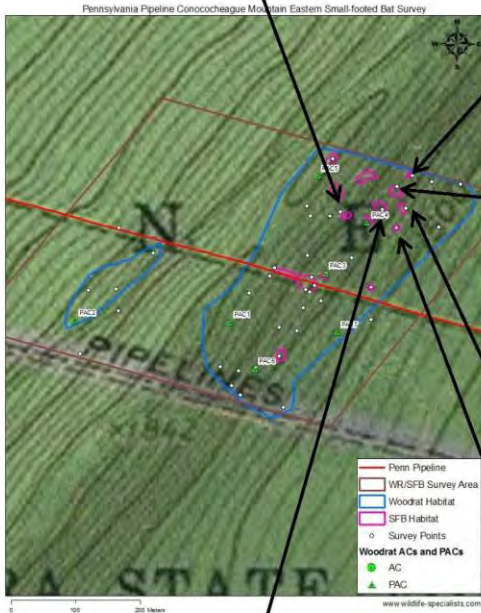


Photo Map 22 - Conococheague Mountain Eastern Small-footed Bat survey area - Non-suitable habitat

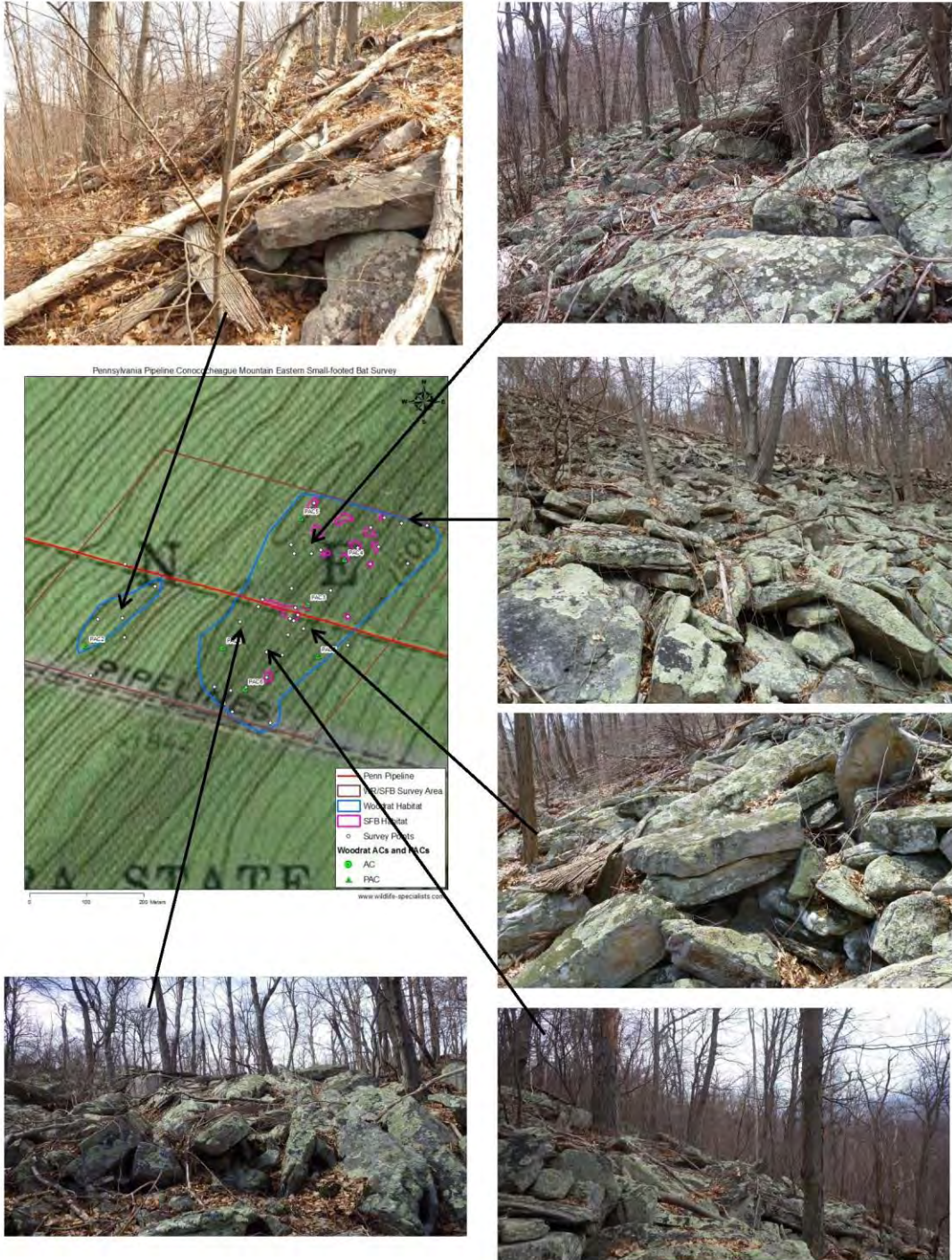


Photo Map 23 - Lock Mountain 2 Eastern Small-footed Bat survey area - Suitable habitat

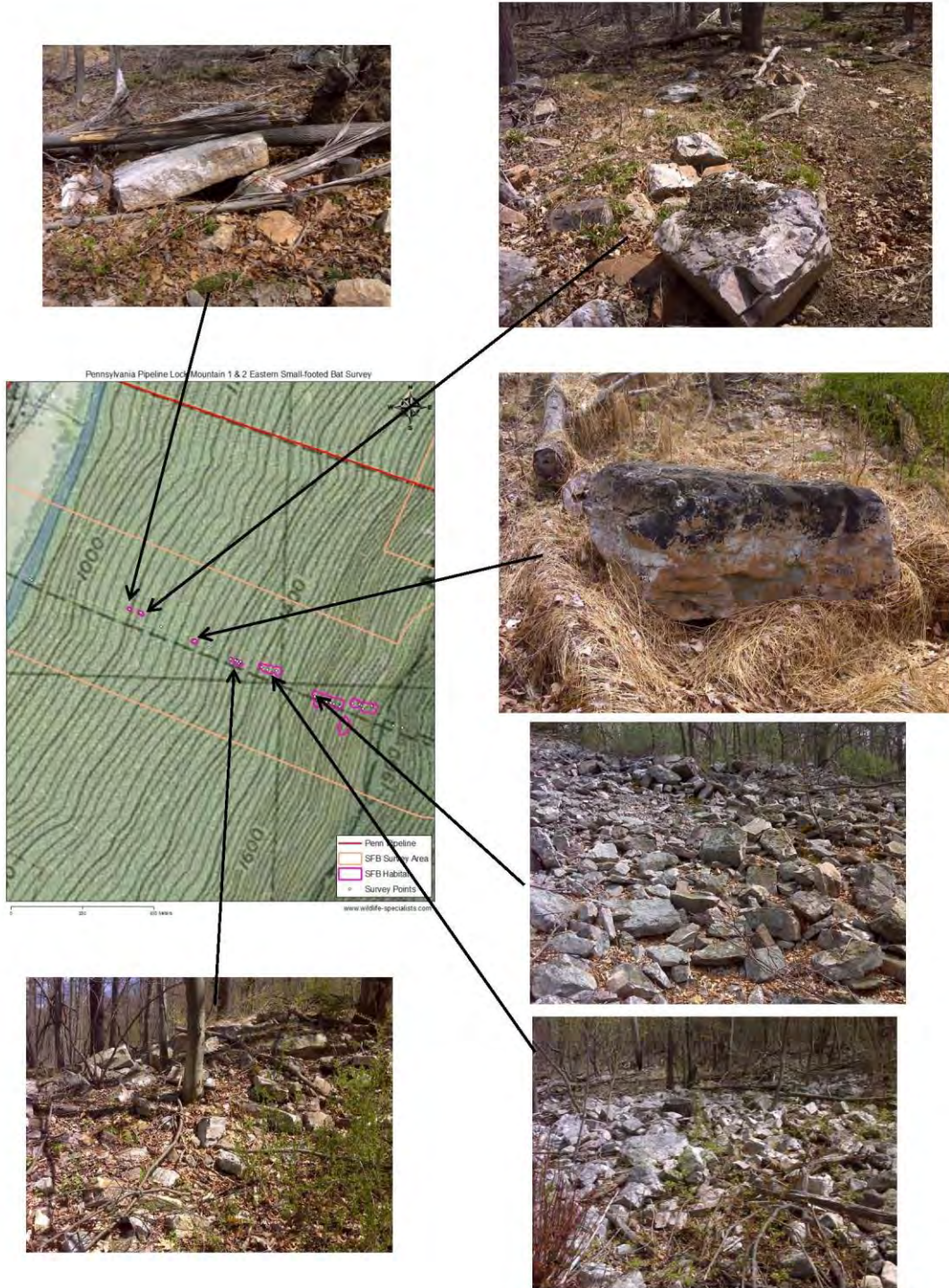


Photo Map 24 - Lock Mountain 2 Eastern Small-footed Bat survey area - Suitable habitat

