



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

4525 Este Avenue
Cincinnati, OH 45232
Phone: 513-451-1777 Fax: 513-451-3321

Pesi 593

April 17, 2018

Ms. Tiernan Lennon
and Mr. John Schmidt
U.S. Fish & Wildlife Service
West Virginia Field Office
90 Vance Drive
Elkins, WV 26241

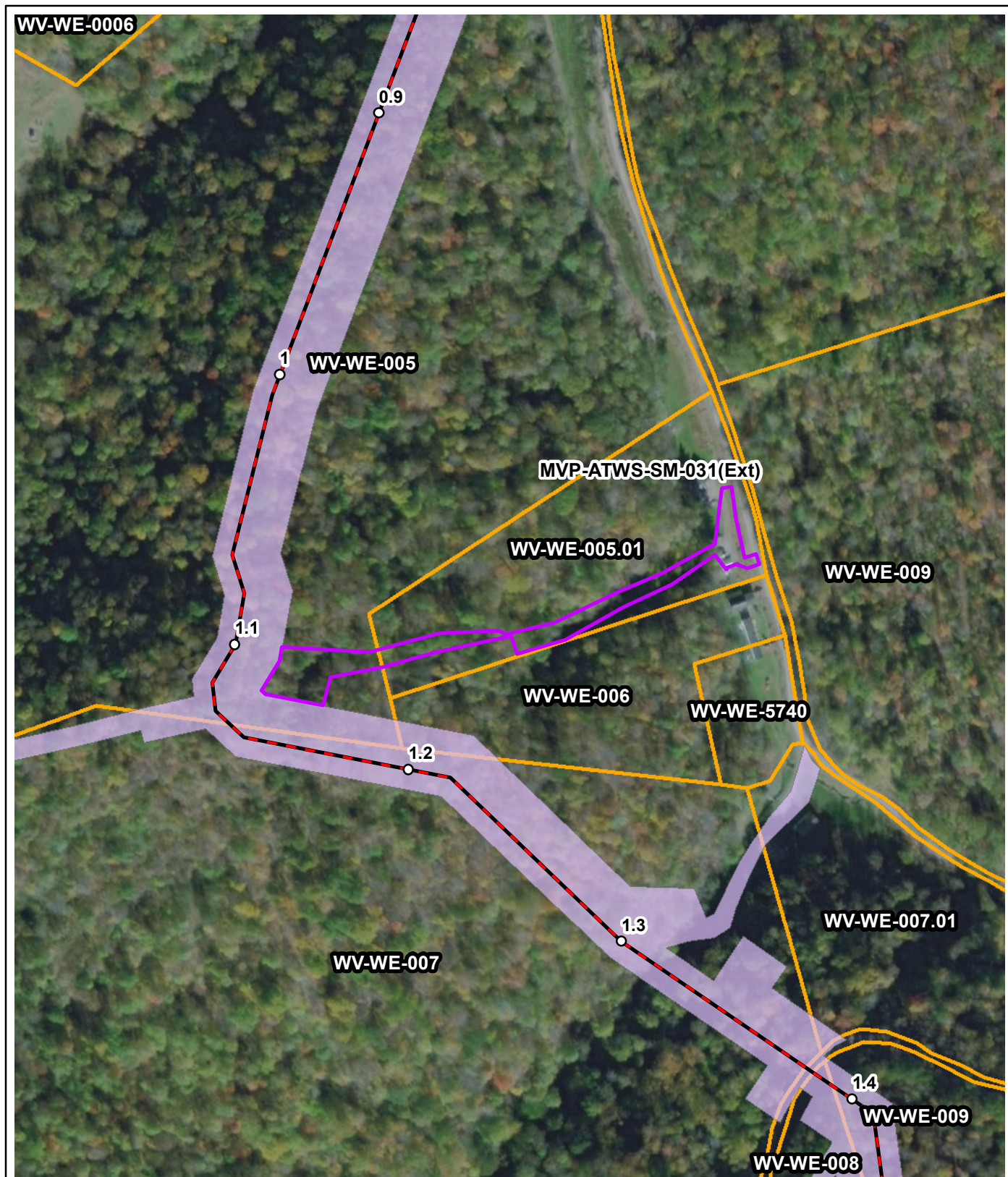
RE: Variance MVP-ATWS-SM-031 – Detailed Habitat Assessment and Portal Searches

On April 8, 2019, Environmental Solutions & Innovations, Inc. (ESI) conducted a detailed habitat assessment (DHA) and portal searches on Variance MVP-ATWS-SM-031 in Spread A at mile post 1.2 along the Mountain Valley Pipeline Project (Mountain Valley, Project Area). In the DHA, habitat is assessed and potential roost trees (PRTs) are marked and categorized. The Project Area is approximately 5 kilometers (3.2 mi) southeast of Big Run, in Wetzel County, WV. Surveys were conducted in an area which have not been surveyed previously. The Project Area is 0.38-hectare (0.93 ac) in area (Figure 1).

The Project is within the range of the federally endangered Indiana bat (*Myotis sodalis*) and federally threatened northern long-eared bat (*Myotis septentrionalis*). The habitat assessment, conducted according to *the 2018 US Fish and Wildlife Indiana Bat Summer Survey Guidelines*, was completed to determine the presence of suitable habitat for the Indiana bat and northern long-eared bat, and to identify different habitat types throughout the Project Area.

No PRTs were identified within the Project Area.

Three habitat patches were identified within the Project Area (Figure 2). One was classified as woodland and two were categorized as open. No portals were located within the survey area.



MVP Slip ATWS
 Parcel Boundary
 MVP LOD

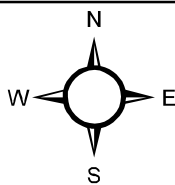
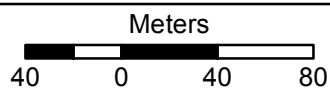
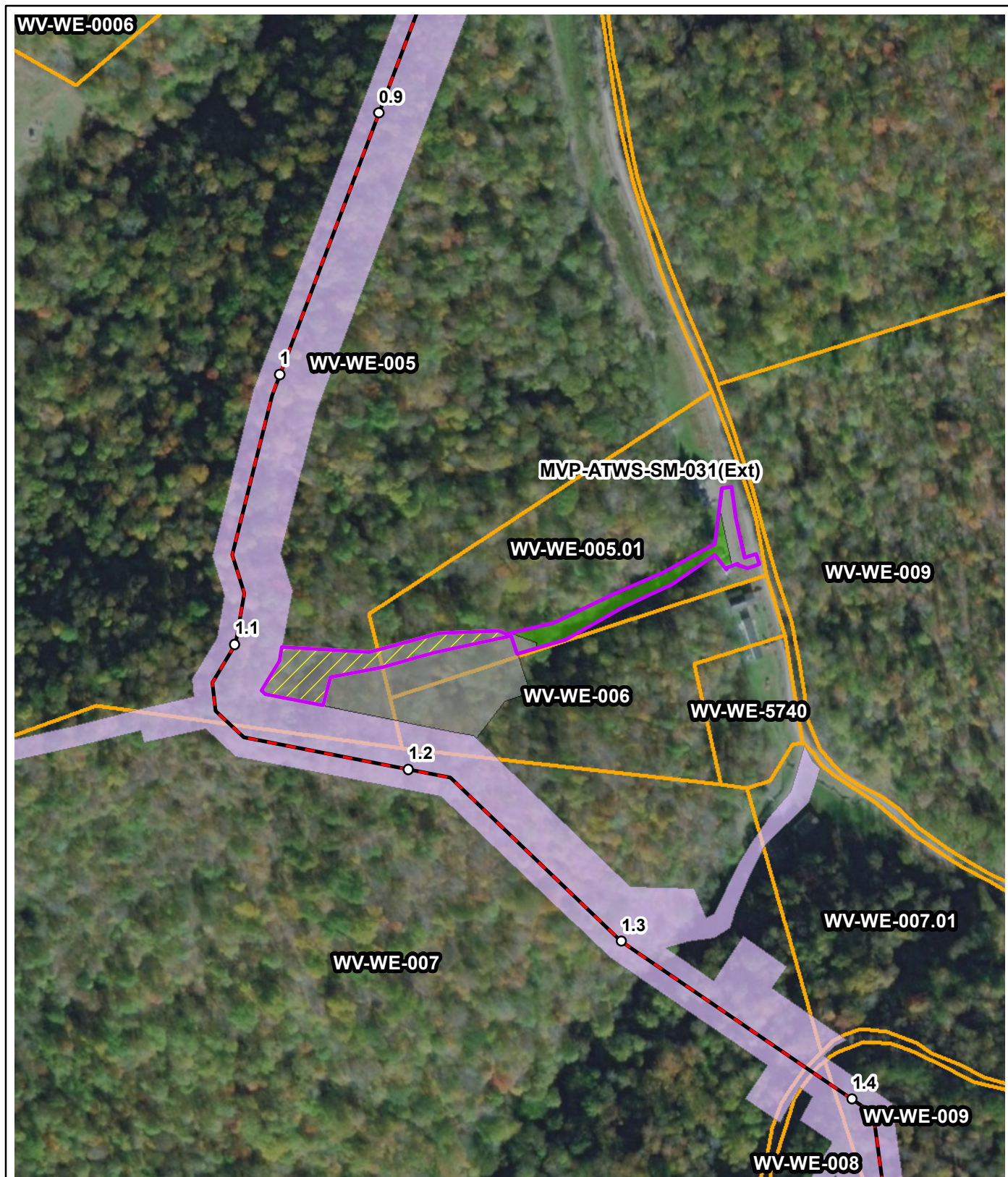


Figure 1. Project Area and delineated habitat patches on Variance MVP-ATWS-SM-031 for the Mountain Valley Pipeline Project in Wetzel County, WV.



Base Map: ESRI "World Imagery (Clarity)";
accessed 4/17/2019



- | | | |
|---|--|--|
|  MVP Slip ATWS |  Open |  MVP LOD |
|  Approximate tree removal area |  Woodland |  Parcel Boundary |

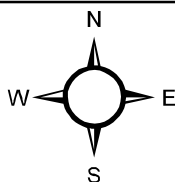
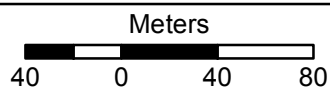


Figure 2. Delineated habitat blocks on Variance MVP-ATWS-SM-031 for the Mountain Valley Pipeline Project in Wetzel County, WV.



Base Map: ESRI "World Imagery (Clarity)";
accessed 4/17/2019

Table 1. Habitat patches identified on Variance MVP-ATWS-SM-031 for the Mountain Valley Pipeline Project in Wetzel County, WV.

Habitat ID	Habitat Type	Dominant Species	Canopy Closure %	Description	MYSE Roosting Potential	MYSO Roosting Potential	Acreage
SB-HA-001	Open			Downed trees			0.48
SB-HA-002	Woodland	Fagus grandifolia	75	Young sapling forest with stream running parallel	Low	Low	0.34*
SB-HA-009	Open			Mowed residential area.	None	None	0.11

MYSE: Northern long-eared bat

MYSO: Indiana bat

*Not Cleared/Cut

No PRTs of moderate to high-roosting potential were located. Habitat patches do not contain moderate or high roosting potential for Indiana or northern long-eared bats. Data sheets and habitat photographs are attached. These trees were felled by April 11, 2019 per the April 3, 2019 approval for Mountain Valley to cut trees as part of a slip Emergency Endangered Species Act Consultation filed with FERC.

Thank you,



Patrick Moore, Technical Lead, CWB®

PMoore@ENVSI.com

Enclosures

PROJECT DATA SHEETS



ENDANGERED BAT HABITAT ASSESSMENT

Property of: Environmental Solutions & Innovations, Inc.
4525 Este Ave. Cincinnati, OH 45232
(Phone: 513-451-1777)

STEP ONE: ☒ DETAILED Evaluation OR ☐ General Assessment of Indiana Bat Habitat

Project #: 593.34 Date: 4/8/2019 2 Biologists: <null>
Project Name: Mountain Valley Pipeline Project Site Name: MVP Variance Locations
State: West Virginia County: Wetzel

STEP TWO: Comparison of Project to Surrounding Landscape

HOW DOES PROJECT HABITAT COMPARE TO SURROUNDING LANDSCAPE?

Describe: Mature woodland running down slope to small creek.

STEP THREE: For EACH PATCH OF HABITAT of the search area delineated, complete the following:

- Patch ID: JJ-HP-001 1a. Patch Acre: 2.00
- Does the patch look like it is supposed to look based on mapping? Yes
Describe Mature hardwood forest dominated by maples
- Habitat Patch Type Hardwood Forest
- If Open, Developed <null> Ag-Cultivated <null> Ag-Pasture <null> Ag-Hayfield <null>
Other, explain <null>
- If Scrub/Shrub-Oldfield-Early Successional <null>
- If Woodland, Type: Hardwood Woodland Age More Mature Woodland Position Upland Evidence of Logging Yes
Average DBH in cm _____ Percent of Trees DBH (Must Total 100%) <5" 15 (%) 5-16" _____ (%) >16" _____ (%)
Species 1. Acer saccharum SubCanopy Species 1. Fagus grandifolia
2. Quercus alba 2. Carya cordiformis
3. Acer rubrum 3. Quercus velutina
Canopy Closure 60
SubCanopy Clutter Moderate Subcanopy Dominated by Lower Branches of Canopy Trees, Saplings,

STEP FOUR: Determination of Habitat Quality

Foraging Potential: *M. septentrionalis* Low
M.sodalis Low

Explain your Foraging Potential Rating
cluttered area foraging on edge mainly

Based on: Woodlands Yes Scrub/Shrub No Pasture/Hay No
Cultivated/Bare No Developed No Edge Yes Wetlands No
Stream Corridor No Man-made Corridor Yes

Roosting Potential: *M. septentrionalis* Low
M.sodalis Low

Explain your Roosting Potential Rating
Low number of available roosts

Based on Number of Roosts: Yes Spatial Association Yes
Quality of Roosts Size Yes Amount of Exfoliating Bark Yes
Solar Exposure: Opening Yes Edge Yes Density Yes

Adjacent Habitat Patch Description:

Open row of MVP two unvegetated slip aread



ENDANGERED BAT HABITAT ASSESSMENT

Property of: Environmental Solutions & Innovations, Inc.
4525 Este Ave. Cincinnati, OH 45232
(Phone: 513-451-1777)

STEP ONE: ☒ DETAILED Evaluation OR ☐ General Assessment of Indiana Bat Habitat

Project #: 593.34 Date: 4/8/2019 4 Biologists: <null>
Project Name: Mountain Valley Pipeline Project Site Name: MVP Variance Locations
State: West Virginia County: Wetzel

STEP TWO: Comparison of Project to Surrounding Landscape

HOW DOES PROJECT HABITAT COMPARE TO SURROUNDING LANDSCAPE?

Describe: Unvegetated slip very muddy

STEP THREE: For EACH PATCH OF HABITAT of the search area delineated, complete the following:

- Patch ID: JJ-HP-002 1a. Patch Acre: 0.68
- Does the patch look like it is supposed to look based on mapping? Yes
Describe <null>
- Habitat Patch Type Barren Land
- If Open, Developed No Ag-Cultivated No Ag-Pasture No Ag-Hayfield No
Other, explain Slip area
- If Scrub/Shrub-Oldfield-Early Successional <null>
- If Woodland, Type: <null> Woodland Age <null> Woodland Position <null> Evidence of Logging <null>
Average DBH in cm _____ Percent of Trees DBH (Must Total 100%) <5" _____ (%) 5-16" _____ (%) >16" _____ (%)
Species 1. <null> SubCanopy Species 1. <null>
2. <null> 2. <null>
3. <null> 3. <null>
Canopy Closure <null>
SubCanopy Clutter <null> Suncanopy Dominated by <null>

STEP FOUR: Determination of Habitat Quality

Foraging Potential: *M. septentrionalis* Low
M.sodalis Low

Explain your Foraging Potential Rating

Mainly edge foraging

Based on: Woodlands No Scrub/Shrub No Pasture/Hay No
Cultivated/Bare No Developed Yes Edge Yes Wetlands No
Stream Corridor No Man-made Corridor No

Roosting Potential: *M. septentrionalis* None
M.sodalis None

Explain your Roosting Potential Rating

No trees no roost

Based on Number of Roosts: Yes Spatial Association Yes
Quality of Roosts Size Yes Amount of Exfoliating Bark Yes
Solar Exposure: Opening Yes Edge Yes Density Yes

Adjacent Habitat Patch Description:

<null>



ENDANGERED BAT HABITAT ASSESSMENT

Property of: Environmental Solutions & Innovations, Inc.
4525 Este Ave. Cincinnati, OH 45232
(Phone: 513-451-1777)

STEP ONE: ☒ DETAILED Evaluation OR ☐ General Assessment of Indiana Bat Habitat

Project #: 593.34 Date: 4/8/2019 4 Biologists: Shane Brodnick
Project Name: Mountain Valley Pipeline Project Site Name: MVP Variance Locations
State: West Virginia County: Wetzel

STEP TWO: Comparison of Project to Surrounding Landscape

HOW DOES PROJECT HABITAT COMPARE TO SURROUNDING LANDSCAPE?

Describe: <null>

STEP THREE: For EACH PATCH OF HABITAT of the search area delineated, complete the following:

- Patch ID: SB-HA-009 1a. Patch Acre: 0.11
- Does the patch look like it is supposed to look based on mapping? Yes
Describe Mowed residential area.
- Habitat Patch Type Residential
- If Open, Developed <null>Ag-Cultivated <null>Ag-Pasture <null>Ag-Hayfield <null>
Other, explain Residential area
- If Scrub/Shrub-Oldfield-Early Successional Yes
- If Woodland, Type: <null> Woodland Age <null> Woodland Position <null> Evidence of Logging <null>
Average DBH in cm _____ Percent of Trees DBH (Must Total 100%) <5" _____ (%) 5-16" _____ (%) >16" _____ (%)
Species 1. <null> SubCanopy Species 1. <null>
2. <null> 2. <null>
3. <null> 3. <null>
Canopy Closure <null>
SubCanopy Clutter <null> SubCanopy Dominated by <null>

STEP FOUR: Determination of Habitat Quality

Foraging Potential: *M. septentrionalis* High
M. sodalis High

Explain your Foraging Potential Rating

Open corridor with stream running parallel

Based on: Woodlands <null>Scrub/Shrub <null>Pasture/Hay <null>

Cultivated/Bare <null>Developed <null>Edge Yes Wetlands <null>

Stream Corridor Yes Man-made Corridor Yes

Roosting Potential: *M. septentrionalis* None
M. sodalis None

Explain your Roosting Potential Rating

<null>

Based on Number of Roosts: <null>Spatial Association <null>

Quality of Roosts Size <null>Amount of Exfoliating Bark <null>

Solar Exposure:Opening <null>Edge <null>Density <null>

Adjacent Habitat Patch Description:

Deciduous forest

HABITAT PATCH REPRESENTATIVE PHOTOGRAPHS



Habitat Patch SB-HP-001



Habitat Patch SB-HP-001



Habitat Patch SB-HP-001



Habitat Patch SB-HP-001



Habitat Patch SB-HP-002



Habitat Patch SB-HP-002



Habitat Patch SB-HP-002



Habitat Patch SB-HP-002



Habitat Patch SB-HP-009



Habitat Patch SB-HP-009



Habitat Patch SB-HP-009