

From: [Lennon, Tiernan](#)
To: [Stahl, Megan D.](#)
Cc: [Hoskin, Sumalee](#); [Cindy Schulz](#); [Jennifer Stanhope](#)
Subject: Re: MVP bat conservation measure
Date: Thursday, November 2, 2017 4:58:02 PM
Attachments: [MVP Potential Hib Within Action Area 11.2.17 FWScomments.xlsx](#)

Hey Megan - Here's our comments on the spreadsheet (highlighted in yellow). Feel free to give us a call if you have any questions.

Thanks,
Tiernan

On Thu, Nov 2, 2017 at 9:54 AM, Stahl, Megan D. <MStahl@eqt.com> wrote:

Tiernan and Sumalee,

In preparation for our call this morning I am providing the updated spreadsheet (attached) which addresses specific comments and questions about potential hibernacula. Responses to your general questions are provided below.

Occasional flooding does not automatically make a cave unsuitable. Currently, the spreadsheet says things like "floods during high water" and classifies caves/portals as unsuitable. Please explain how you used flooding (see criteria #3 in your previous email) to screen suitability.

The following two documents both state "prone to flooding" as an acceptable characteristic to determine suitability. MVP understands that partial flooding may not be sufficient to disregard potential suitability, but screened out potential hibernacula that showed evidence of complete flooding.

- 1. Page 2 of the attached WVFO cave assessment guidance currently posted on the WVFO's website.*
- 2. Page 118 of the attached NiSource biological opinion (May 2015), identifying the Winter Habitat Assessment Protocols that FWS approved for screening out potential hibernacula.*

Also, can you clarify what you mean when "Potential for Construction Impacts" does that mean you expect physical impacts to the hibernacula (e.g. the pipeline does through the hib or it alters the hydrology).

As identified in the criteria at the bottom of the table, MVP considered the following conditions to determine potential for physical impact to hibernacula.

1. *Location and proximity to limits of disturbance (LOD)*
2. *Trend away from LOD*
3. *Topographic setting/gradient*
4. *Hydrology*
5. *Noise*
6. *Specific construction activities in proximity to feature*

Megan

From: Hoskin, Sumalee [mailto:sumalee_hoskin@fws.gov]

Sent: Monday, October 30, 2017 12:16 PM

To: Lennon, Tiernan <tiernan_lennon@fws.gov>

Cc: Stahl, Megan D. <MStahl@eqt.com>; Centofanti, John <JCentofanti@eqt.com>; Barbara Douglas <barbara_douglas@fws.gov>; Cindy Schulz <cindy_schulz@fws.gov>; Jennifer Stanhope <jennifer_stanhope@fws.gov>

Subject: Re: MVP bat conservation measure

Hi Megan,

I have a few follow up comments/question.

The distance to LOD (Column J) is missing for PS-WV3-Y-P1, please include that distance.

Also, can you clarify what you mean when "Potential for Construction Impacts" does that mean you expect physical impacts to the hibernacula (e.g. the pipeline does through the hib or it alters the hydrology).

Thanks,

Sumalee

Sumalee Hoskin

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Visit us at <http://www.fws.gov/northeast/virginiafield/>

On Fri, Oct 27, 2017 at 3:21 PM, Lennon, Tiernan <tiernan_lennon@fws.gov> wrote:

Megan - See attached spreadsheet for comments.

General Comment:

Occasional flooding does not automatically make a cave unsuitable. Currently, the spreadsheet says things like "floods during high water" and classifies caves/portals as unsuitable. Please explain how you used flooding (see criteria #3 in your previous email) to screen suitability.

Thank you for putting this together.

To learn about EQT's sustainability efforts visit: <https://csr.eqt.com>

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Tiernan Lennon

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Our office is working on Administration priority projects and we anticipate increased project review times (≥ 60 days) and response times to phone calls and emails. Please be patient; we will address project reviews and messages as soon as we are able to.

Feature Name	State	Indiana Bat Status as Documented in the BA*	Northern Long-eared Bat Status as Documented in the BA*	Distance to LOD as Documented in the BA (meters)*	Actual Distance to LOD based on Reference(s) in Column R (meters)	Cave Length based on Reference(s) in Column R (feet)	Closest Feature within LOD	Topographic setting/ gradient based on Reference(s) in Column R	Cave Description based on Reference(s) in Column R	Suitability based on Physical Details**	Potential for Construction Impact***	Basis for determinations	Cave Data References****	FWS Comments	FWS Notes
	West Virginia	Not Occupied	Known			60 ROW		40 degree slope on wooded hillside		Suitable	Potential	currently not enough information to rule out potential for impact from construction activities	ESI Field Review	Is the portal downslope from pipeline LOD or on the same contour?	Megan will send ESI's bat survey report on this portal to Sumalee. DAA will conduct a site visit to gather more info on this portal (e.g, which way the portal trends, slope, potential re-route distance, how construction may affect the hydrology/structural integrity of the portal, etc). WVDEP info on this portal - no existing mining maps.
	Virginia	Suitable, Unsurveyed	Suitable, Unsurveyed			9000 Access Road		Upgradient from existing access road		Suitable	No	no impact based on existing access that will not be upgraded or widened, it will be used in its current condition for light truck traffic only	Virginia Speleological Survey, DAA Karst Team	Previous comment addressed	
	Virginia	Suitable, Unsurveyed	Suitable, Unsurveyed			50 Access Road		Downgradient from existing access road		Suitable	No	no impact based on existing access that will not be upgraded or widened, it will be used in ints current condition for light truck traffic only	ESI Field Review	ok	
	Virginia	Suitable, Unsurveyed	Suitable, Unsurveyed			20 Access Road		Downgradient from existing access road		Suitable	No	no impact based on existing access that will not be upgraded or widened, it will be used in ints current condition for light truck traffic only	ESI Field Review	ok	
	West Virginia	Suitable, Unsurveyed	Suitable, Unsurveyed			60 Access Road		Upslope from existing access road		Suitable	No	no impact based on upgradient of existing access that will be supplemented with additional E&S controls	ESI Field Review	will the access road be upgraded or widened?	
	Virginia	Known	Known			3980 ROW		On hillside opposite side Rd and Creek from LOD. Hydrologically upgradient.		Suitable	No	no impact based on hydrologic and geologic analysis, addressed in BA	Douglas, Holsinger, DAA Karst Team	ok	
	Virginia	Not Occupied	Known			3388 Access Road		Cave is uphill from route and AR		Suitable	No	no impact based on hydrologic and geologic analysis, addressed in BA	Douglas, Holsinger, DAA Karst Team	ok	
	Virginia	Suitable, Unsurveyed	Suitable, Unsurveyed			215 ROW		Sideways two draws southwest.		Suitable	No	no impact based on outside of 0.5-mile buffer	Douglas, DAA Karst Team	ok	
	Virginia	Suitability Unknown	Suitability Unknown			208 Access Road		Downslope from existing gravel driveway.		Potential	No	no impact based on trend parallel to existing access road (Steele Acres Drive)	Holsinger	will the road be upgraded or widened?	11-2-17 phone call with MVP and FWS, EQT will revise to address previous FWS comment
	Virginia	Suitability Unknown	Suitability Unknown			600 ROW		In hillside above Route.		Potential	No	no impact based on upgradient and distance to end of cave	Douglas, DAA Karst Team	ok	
	Virginia	Suitability Unknown	Suitability Unknown			135 Access Road		Other side of draw from AR.		Potential	No	no impact based on topography and trend away from AR	Virginia Speleological Survey, DAA Karst Team	Is there only 1 entrance, does the "no airflow" comment refer the entire cave or was there no air flow detected at the entrance?	
	Virginia	Suitability Unknown	Suitability Unknown			1530 ROW		Upgradient, across creek, over a hill.		Potential	No	no impact based on upgradient and distance to end of cave	Holsinger, DAA Karst Team	ok	
	Virginia	Suitability Unknown	Suitability Unknown			85 Access Road and ROW		Sideways far along the mountain.		Potential	No	no impact based on distance to single pit, no trend	Douglas	Better describe the pit, is this a cave/portal? Is it enclosed? Explain what "sideways far along the mountain" means	
	Virginia	Suitability Unknown	Suitability Unknown			6230 ROW		Upgradient		Potential	No	no impact based on upgradient and trends away	Douglas, Holsinger, DAA Karst Team	ok	
	Virginia	Suitability Unknown	Suitability Unknown			503 Access Road		Sideways across a ridge and draw.		Potential	No	no impact based on topography across a ridge	Virginia Speleological Survey, DAA Karst Team	ok	
	Virginia	Suitability Unknown	Suitability Unknown			500 Access Road		On flank of mountain across creek, road, and US-460. Upgradient.		Potential	No	no impact based on topography upgradient on ridge on different mountain across road and stream	Douglas, Holsinger	ok	
	Virginia	Suitability Unknown	Suitability Unknown			1323 ROW		Downgradient		Potential	No	no impact based on distance 0.49-mile from LOD and trend away	Douglas, DAA Karst Team	ok	
	Virginia	Suitability Unknown	Suitability Unknown			437 ROW		On opposite hill		Potential	No	no impact based on entrance outside 0.5-mile buffer, closest passage is 0.44-mile	Virginia Speleological Survey, DAA Karst Team	ok	
	Virginia	Suitability Unknown	Suitability Unknown							Potential	No	no impact based on outside of 0.5-mile buffer	ESI, DAA Karst Team	ok	
	Virginia	Suitability Unknown	Suitability Unknown							Outside Action Area	No	outside of 0.5-mile buffer	Douglas	Is the cave suitable?	
	Virginia	Suitability Unknown	Suitability Unknown			10 ROW		Downgradient but not in draw		No	N/A	not suitable based on cave length	Holsinger, DAA Karst Team	ok	
	Virginia	Suitability Unknown	Suitability Unknown			0 ROW		Sideways from route, in powerline clearing		No	N/A	not suitable based on cave length	DAA Karst Team	ok	

[illegible]

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The diagram illustrates the construction of a 2D grid for a numerical scheme. It consists of two horizontal rows of cells. The top row has 10 cells, and the bottom row has 10 cells. The cells are labeled with indices i and j . The top row is labeled with i from 1 to 10, and the bottom row is labeled with i from 1 to 10. The vertical axis is labeled with j from 1 to 2. The grid is used to illustrate the construction of a 2D grid for a numerical scheme.