

From: [Cindy Schulz](#)
To: [Tiernan Lennon](#); [Troy Andersen](#)
Cc: [John Schmidt](#); [Barbara Douglas](#)
Subject: comments on MVP Draft VASP Sections
Date: Thursday, October 19, 2017 3:58:37 PM
Attachments: [DRAFT VIRGINIA SPIRAEA 10.16.17 CS.docx](#)
[VASP MVP Effects Table 10.16.17 CS.xlsx](#)
Importance: High

Tiernan – please see attached. There are a significant number of comments/edits. If you want to discuss any of these over the phone, don't hesitate to call. When you have revised drafts of the documents, please email them to me and I will review again.

Cindy

From: Lennon, Tiernan [mailto:tiernan_lennon@fws.gov]
Sent: Monday, October 16, 2017 11:56 AM
To: Cindy Schulz; Troy Andersen
Cc: Schmidt, John; Barbara Douglas; Jennifer Stanhope
Subject: MVP Draft VASP Sections and Consultation History

Cindy and Troy - Included below are my draft VASP sections, including the VASP effects table. I've also attached a draft consultation history, which may be missing some VAFO events.

MVP has told us that they intend on submitting additional plans detailing AMMs and conservation measures for plants, but to date we have not received those plans. The sections I've drafted do not reference these plans. I only reference information included in the initiation package or supplemental information that was submitted after initiation. As I receive additional information from MVP I will update my sections accordingly.

If you have any questions please do not hesitate to call me.

Thanks,
Tiernan

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Tiernan Lennon
Fish and Wildlife Biologist
West Virginia Field Office
U.S. Fish and Wildlife Service
694 Beverly Pike
Elkins, WV 26241
304-636-6586 Ext. 12
Fax: 304-636-7824
Tiernan_Lennon@fws.gov

VIRGINIA SPIRAEA

STATUS OF THE SPECIES

As described in Service (1992) VASP conservation needs include preserving existing populations by minimizing human disturbance and controlling invasive species. Currently, as a whole, the range-wide status of the species is stable (Service 2008). From 1992-2007, population numbers in WV remained stable (Service 2008). The primary factors influencing the status include risks posed by a limited range with increasing amounts of fragmentation, a lack of genetic variation, a lack of natural habitat succession ~~in the habitat~~, invasive species, application of herbicides, and disturbance by humans leading to “changes in hydrology by impoundment and by impact from recreational use, hydroelectric facilities, and run-off debris” (NatureServe 2016).

~~VASP is a clonal shrub of the rose family and was listed as threatened in 1990. It can be found among large boulders, flatrock, and flood debris along scoured streambanks and rivers, as well as roadside wet areas and wet marshy meadows. VASP requires periodic flood scouring to eliminate taller woody competitors and to create river wash deposits and early successional habitats.~~

For a more detailed account of the species description, life history, population dynamics, threats, and conservation needs, refer to: <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=Q2R1>.

ENVIRONMENTAL BASELINE

Regulations implementing the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all federal, state, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated and/or ongoing impacts of all proposed federal projects in the action area that have undergone Section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultation in progress.

Status of the Species within the Action Area

The proposed action crosses portions of the Gauley, Greenbrier, and Meadow rivers, in Nicholas and Summers Counties, WV, which ~~are known to~~ provide habitat for VASP. VASP Field surveys were completed ~~by a Service approved plant surveyor in areas near these rivers using a pedestrian meander search technique across the~~ 300 ft wide environmental study corridor ~~(a total of 3.64 acres along 0.14 miles) (ESI 2015) in . A presence/probable absence survey for VASP was performed from August 5–12, 2015, in Summers and Nicholas Counties, and yielding no VASP was found individuals (ESI 2016). A total of 3.64 acres along 0.14 miles were surveyed during these efforts. In areas where VASP surveys were completed, along the proposed project, no plants were found and the habitat was either characterized as unsuitable or not optimal for VASP.~~

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Due to restricted ~~land~~ access, a total of 2.30 acres within the construction ROW in close proximity to the Greenbrier River in Summers County within the proposed project workspace in Summers County, within close proximity to the Greenbrier River, was not surveyed. Potentially suitable habitat for VASP has been identified in the 2.3 acre area based on the VASP habitat model (WVDNR citation). VASP is a clonal shrub found among large boulders, flatrock, and flood debris along scoured streambanks and rivers, as well as roadside wet areas and wet marshy meadows. VASP requires periodic flood scouring to eliminate taller woody competitors and to create river-wash deposits and early successional habitats. Because VASP is a riparian/wetland species that occurs along rivers, streams, and wetlands, we the Service was able to identify areas of potentially suitable habitat for VASP within the proposed project workspace, using the National Wetlands Inventory (NWI) maps to confirm that the 2.3 acres contain suitable habitat. Thus, for the purposes of this Opinion analysis, presence of VASP is assumed within the 2.3 acre unsurveyed area. Absent valid surveys, the Service must use the best available scientific data in a reasonable worst case scenario to insure that any possible impacts are properly considered in the effects analysis. In areas where VASP surveys were completed along the proposed project, no plants were found and the habitat was either characterized as unsuitable or not optimal for VASP. However, it is reasonable to assume presence here because the Service was able to identify areas of potentially suitable habitat for VASP within the proposed project workspace, using the National Wetlands Inventory (NWI) maps. Thus, for the purposes of this analysis, presence of VASP is assumed within the unsurveyed area.

Greenbrier River Population

To estimate the extent of VASP within the 2.3 acres, we used 1996-2010 VASP occurrence data from the Greenbrier River (Table X). This data was collected from 3 VASP occurrences, the closest of which is xx linear meters upstream/downstream from the 2.3 acres and the further of which is xx linear meters upstream/downstream from the 2.3 acres. These 3 occurrences together are considered 1 population. More recent data is available for these occurrences. The more recent data was collected using the stem count method, instead of the extent of VASP coverage method used in previous years. Because of the difficulty in using this new data to determine extent of coverage, we are utilizing the 1996-2010 data. However, the more recent surveys indicate the occurrences appear to be healthy and comparable in size to previous years (P.J. Harmon, WVDNR, email to T. Lennon, Service, October 11, 2017; J.J. Hajenga, WVDNR, phone call to T. Lennon, Service, October 10, 2017).

There are 3 documented occurrences of VASP on the Greenbrier River. Two are in close proximity to each other, and were last surveyed in 2017¹, and the other is located 11 miles downstream, and was surveyed in 2015 (J.J. Hajenga, WVDNR, phone call to T. Lennon, Service, October 10, 2017). For the purposes of this analysis we will refer to these 3 occurrences as the Greenbrier River population. Monitoring reports provided by the WVDNR indicate that

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¹ The 2017 survey applied a different survey method than the 1996-2010 surveys. WV has recently modified their survey method to be more consistent with other states, which makes the recently collected data difficult to compare to previous years. The stem count method was performed on these 2 occurrences in 2017, instead of the extent of VASP coverage method used in previous years, yielding 137 and 244 stems. Based on observations made by the WVDNR, these occurrences appear to be healthy and comparable in size to previous years (P.J. Harmon, WVDNR, email to T. Lennon, Service, October 11, 2017; J.J. Hajenga, WVDNR, phone call to T. Lennon, Service, October 10, 2017). For the reasons described above, the Service has elected to not use 2017 survey data to estimate VASP coverage in the unsurveyed area.

the Greenbrier River population is stable and within the natural range of fluctuation (WVDNR 2011).

The 2017 survey applied a different survey method than the 1996–2010 surveys. WV has recently modified their survey method to be more consistent with other states, which makes the recently collected data difficult to compare to previous years. The stem count method was performed on these 2 occurrences in 2017, instead of the extent of VASP coverage method used in previous years, yielding 137 and 244 stems. Based on observations made by the WVDNR, these occurrences appear to be healthy and comparable in size to previous years (P.J. Harmon, WVDNR, email to T. Lennon, Service, October 11, 2017; J.J. Hajenga, WVDNR, phone call to T. Lennon, Service, October 10, 2017). For the reasons described above, the Service has elected to not use 2017 survey data to estimate VASP coverage in the unsurveyed area. In order to estimate the coverage of VASP within the unsurveyed area, the Service compiled VASP data from existing occurrences along the Greenbrier River and averaged the data together to make a reasonable assumption regarding VASP coverage. Furthermore, since VASP is a riparian/wetland species that occurs along rivers, streams, and wetlands, the Service assumes that VASP is mostly likely to inhabit areas along a 288.6 linear ft reach of stream that overlaps with the proposed project workspace (Figure X).

Based on the survey data collected on the Greenbrier River, the extent of VASP coverage averaged 221.33 m² (0.05 acre) (Table X). Therefore, we are assuming the extent of VASP coverage within the 2.3 acres is 0.05 acre.

Table X. Estimated extent of VASP coverage on the Greenbrier River (add WVDNR citation).

Year	Extent of Coverage (m ²)
1996	205.31
1997	183.00
2001	226.37
2003	226.37
2005	233.07
2007	237.61
2010	237.61
Average	221.33

Since VASP is a riparian/wetland species that occurs along rivers, streams, and wetlands, we assume that VASP mostly likely occurs in areas along a 288.6 linear ft reach of stream that overlaps with the construction ROW (Figure X).

Figure X. Unsurveyed area and likely suitable habitat within the proposed project workspace.

Commented [SC5]: Where are these 3 occurrences in relation to the proposed action (e.g., the construction ROW)? Please provide that info in miles or feet upstream/downstream. Are these occurrences in the action area? Will they be affected by the proposed action?

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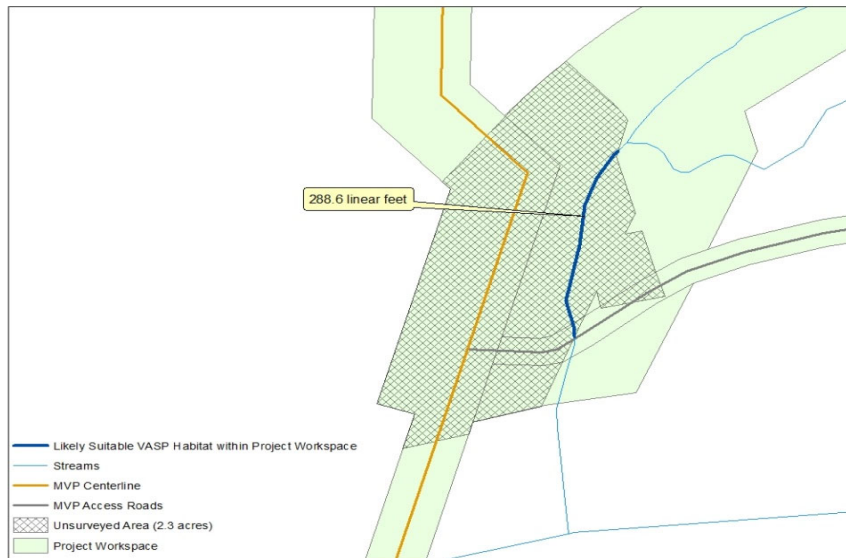
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The extent of the site was used in this Opinion as the best measure for VASP coverage (instead of number of stems) because due to the clonal nature and density of some occurrences, it is almost impossible to determine individuals in the field and this type of data was not collected in previous years (DNA 2014). According to the survey data collected at a long-term WVDNR monitoring site on the Greenbrier River, the extent of VASP coverage averaged 221.33m² (0.05 acre) over a 14 year period (Table X). Therefore, for the purposes of our analysis, the Service will assume that the extent of VASP coverage within the unsurveyed area will be 0.05 acre.

Table X. Estimated coverage of VASP at a WVDNR monitoring site on the Greenbrier River.

Year	Extent of site (m ²)
1996	205.31
1997	183.00
2001	226.37
2003	226.37
2005	233.07
2007	237.61
2010	237.61
Average	221.33

All VASP occurrences along the Greenbrier River are on private land (J.J. Hajenga, WVDNR, email to T. Lennon, Service, October 10, 2017) and we are not aware of specific activities that have occurred in the action area that adversely affecting VASP the species. However, because most occurrences of VASP are located on or near the edge of the river, they have likely received

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~~some type of occasional disturbance.~~ Potential threats within the action area ~~may~~ include: invasive species, such as Japanese knotweed (*sci name*) and purple loosestrife (*sci name*) that compete with VASP; ~~or~~ changes in water flow regimes from weather related factors; ~~and or~~ construction of boat docks or other streambank modifications (*Service 2008*). All of these ~~potential~~ threats may affect the amount of habitat available for the species along the streambanks in the action area (*Service 2008*).

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EFFECTS OF THE ACTION

Direct effects are the direct or immediate effects of the project on the species, its habitat, or designated/proposed critical habitat. Indirect effects are defined as those that are caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02). An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation. Direct and indirect effects of the proposed action along with the effects of interrelated/interdependent activities are all considered together as the “effects of the action.”

To standardize the effects analysis, the proposed action was divided into discrete actions described as subactivities. Defining subactivities allows for easier interpretation and consideration of complex activities. The project subactivities are defined in the species effects tables (Appendix X Tables 1-X).

The potential effects of the proposed action are described in Appendix ~~BX~~ Table ~~2X~~. The project subactivities unlikely to result in any impacts to VASP are described in Appendix ~~X-B~~ Table ~~2X~~; NE subactivities. ~~Most of these subactivities are not expected to occur in VASP habitat. For example, upland areas are not VASP habitat and thus, activities in those areas will not directly affect the species. Vegetation management, inspection activities, vegetation disposal, compression facility noise, and telecommunications equipment operation in these upland areas would have no effect on VASP.~~ For those subactivities of the proposed action that are determined to result in NE to VASP, there will be no further discussion in this Opinion.

The project subactivities that may affect, but are NLAA, ~~the~~ VASP are described in Appendix ~~BX~~ Table ~~2X~~; NLAA subactivities. ~~Most of these subactivities will occur after the primary impacts have occurred from the original clearing and construction of the project. Tree trimming, mowing, ROW repair, regrading, and revegetation would have discountable effects on VASP because these subactivities are occurring in areas that have already been disturbed by construction or are occurring in areas where the habitat has been rendered unsuitable.~~ For those subactivities of the proposed action that are determined NLAA VASP, there will be no further discussion in this Opinion.

There are other subactivities of the project that are LAA VASP ~~where the species is assumed to be present~~ (Appendix ~~BX~~ Table ~~2X~~; LAA subactivities). ~~The type and magnitude of these impacts are discussed below.~~ For some components of the proposed action that may affect VASP, AMMs have been incorporated to ameliorate those effects and those are also noted in

Appendix ~~BX~~ Table ~~2X~~. These subactivities are LAA VASP by physically impacting individual plants and/or altering or degrading its habitat.

Ground disturbance subactivities related to grading, graveling, grubbing, increased foot and vehicle traffic, vegetation and tree clearing, stream and wetland crossings, and trenching (for temporary access roads, temporary workspaces, and the pipeline ROW) will effect VASP plants and seeds (Appendix B Table 2). These impacts to VASP will cause individuals to experience decreased fitness (e.g., from competition with introduced invasive species), decreased reproductive success (e.g., from minor physical damage, competition with introduced invasive species, or habitat disturbance), and death (e.g., from crushing, cutting, digging up, burying, or soil compaction). Instream work and stream and wetland crossings will cause sedimentation and alter hydrology that will degrade and alter habitat. As a result, plants may be buried and site-specific hydrology may be such that reestablishment of VASP post-construction is not likely.

Placement of fill and gravel will cause habitat loss in all permanently maintained areas, preventing reestablishment of VASP post-construction. The effects from these activities will likely result in the removal of all plants and habitat in the entire 0.05 acre of VASP suitable habitat.

The project will directly impact 0.05 acres of presumed, occupied habitat within the 2.30-acre unsurveyed proposed project workspace. The subactivities completed in VASP habitat will result in direct and indirect impacts to the exposed individuals. Ground disturbance subactivities related to grading, graveling, grubbing, increased foot and vehicle traffic, vegetation and tree clearing, stream and wetland crossings, and trenching (for temporary access roads, temporary workspaces, and the pipeline ROW) will kill VASP plants and seeds (Appendix X Table X). Conducting these activities in areas of suitable habitat may alter/degrade the habitat in such a way that the reestablishment of VASP post-construction is not likely. Additionally, the placement of fill and gravel will cause permanent habitat loss in all areas permanently maintained by MVP. The effects from these activities will likely result in the removal of the entire VASP occurrence (0.05-acre) assumed to be present within the unsurveyed area.

Direct impacts may cause individuals to experience decreased reproductive success (e.g., from minor physical damage, competition with introduced invasive species, or habitat disturbance) to death (e.g., from crushing, cutting, digging up, burying, or soil compaction). These direct impacts to VASP would occur primarily from the installation of pipeline and building of new access roads across occupied habitat. In stream work and stream and wetland crossings may cause sedimentation that may bury plants and alter hydrology on-site resulting in unsuitable VASP habitat. Individuals may suffer decreased fitness resulting from indirect effects, such as introduction of invasive exotic plant competitors. Activities involving heavy equipment and machinery in or near species habitat may spread seeds of invasive exotic plant species.

AMMs have been included in the proposed action MVP has incorporated a number of conservation measures into the project that will should minimize the extent and significance of the adverse effects on VASP, if VASP is not located immediately within the proposed project workspace. These AMMs measures include: implementing sediment and erosion control measures during and after construction; ensuring restoration of pre-existing topographic contours

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Commented [SC13]: Don't we think it is?

after any ground disturbance; restoring native vegetation (where possible); developing plans and procedures for invasive species management; expediting construction within any waterbody, effectively reducing disturbance to the streambed and adjacent soils and the quantity of suspended sediments; prohibiting construction equipment, vehicles, hazardous materials, chemicals, fuels, lubricating oils, and petroleum products from being parked, stored, or serviced within a 100 ft radius of any wetland or waterbody; and avoiding the use of herbicides and pesticides to maintain any portion of the project-construction ROW. Furthermore, if VASP is found within the project workspace MVP has committed to relocate individuals outside of the affected area in coordination with the Service.

CUMULATIVE EFFECTS

Cumulative effects are those “effects of future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area” considered in this Opinion (50 CFR 402.02).

The Service is not aware of any future state, tribal, local, or private actions that are reasonably certain to occur within the action area at this time; therefore, no cumulative effects are anticipated.

JEOPARDY ANALYSIS

Section 7(a)(2) of the ESA requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat.

Jeopardy Analysis Framework

“Jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02). The following analysis relies on 4 components: (1) Status of the Species, (2) Environmental Baseline, (3) Effects of the Action, and (4) Cumulative Effects. The jeopardy analysis in this Opinion emphasizes the range-wide survival and recovery needs of the listed species and the role of the action area in providing for those needs. It is within this context that we evaluate the significance of the proposed federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Analysis for Jeopardy

Impacts to Individuals – The proposed action includes ground disturbance, vegetation and tree clearing, and stream and wetland crossing subactivities. As discussed in the Effects of the Action, potential effects of the action include effects to VASP present within the action area year-around during construction. Effects generally include decreased fitness, ~~and decreased~~ reproductive success, or death of individual VASP due to minor physical damage, competition

~~with introduced invasive species, habitat disturbance, crushing, cutting, digging up, burying, or soil compaction degradation and loss of VASP habitat caused by soil compaction, altered hydrology, sedimentation, and competition.~~ Additionally, these activities may permanently alter and degrade habitat such that conditions are no longer favorable for VASP re-establishment. The ~~AMM~~ ~~conservation measures listed in the Effects of the Action~~ will minimize the ~~potential adverse effects from sedimentation during construction and restoration and competition from invasive exotic plants.~~ In summary, there will be impacts to individual VASP survival and fitness.

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Impacts to Populations – As we have concluded that individual VASP are likely to experience mortality due to the proposed action, we need to assess the aggregated consequences of the anticipated losses of the exposed individuals on the populations to which these individuals belong.

We expect that the population level impacts from ~~decreased fitness, and decreased reproductive success, and death of individual VASP and habitat degradation and loss injury, death, and decreased fitness and reproductive success to VASP~~ will be relatively small because the proposed action affects a small number of individuals in 1 occurrence of VASP (estimated to be 0.05 acre in size) near the Greenbrier River, which is a fraction of the number of occurrences that make up the Greenbrier River population and ~~overall~~ populations range-wide. The Greenbrier River population consists of 3 occurrences, not including the 0.05 acre for which presence is being assumed. ~~Furthermore, Service (2008) estimates that t~~ There are an estimated 109 occurrences of VASP in WV and 236 occurrences of VASP range-wide throughout the range of the species ~~Service (2008);, which means that~~ 0.9% of the WV occurrences and 0.4% of the range-wide overall occurrences ~~range-wide~~ will be affected by the proposed project.

Commented [SC15]: Here we say a small number of individuals will be affected – make sure that is consistent with the above text in the “Impacts to Individuals” section and the Effects section

Following completion of each action that results in adverse effects to VASP, we expect that the Greenbrier River population, given no other major stressors, will recover. The effects of the proposed action are expected to be primarily temporary and in time VASP habitat should recover, providing favorable conditions for VASP re-establishment. ~~Additionally, if MVP's~~ relocation efforts are successful we anticipate that the number of VASP stems relocated will increase over time. Therefore, we conclude that the effects from the proposed action do not pose a significant risk to VASP and will not result in permanent population declines.

Commented [SC16]: This is a lot different than what we say in the Effects of the Action section. There we say that all 0.05 ac of VASP will be lost. We need to be clear about what we think the effects are when we include implementation of the AMMs.

Impacts to Species – As we have concluded that populations of VASP are unlikely to experience reductions in their fitness, there will be no harmful effects (i.e., there will be no reduction in RND) on the species as a whole.

CONCLUSION

We considered the current overall stable status of VASP and the similar condition of the species within the action area (environmental baseline). We then assessed the effects of the proposed action and the potential for cumulative effects in the action area on individuals, populations, and the species as a whole. These types of effects of the proposed action are currently considered primary factors influencing the status of the species. While they may temporarily compound those factors in a very minor, inconsequential way for a small percentage of plants, as stated

above, we do not anticipate any reductions in the overall RND of VASP. It is the Service's Opinion that authorization to construct and operate the pipeline, as proposed, is not likely to jeopardize the continued existence of VASP.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

- Conduct surveys for VASP in areas where landowner access was denied, and suitable habitat is present, prior to construction.
- Relocate plants outside of the affected area. Dig the plants out by hand prior to the construction and move them to a safe location during construction. After the project is complete, the plants and any propagules should be planted in areas where they are most likely to thrive.
- Monitor any documented occurrences of VASP within and adjacent to the action area and conduct surveys to locate additional populations.
- Permanently protect habitat for the Greenbrier River population to further the recovery of the species.
- Contribute towards research efforts for breeding ecology (seed viability/pollinators/compatibility) and genetic diversity.
- Develop a site specific exotic/invasive species management plan to be implemented at sites occupied by VASP, as these activities will provide recovery benefits for this species.

For the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

LITERATURE CITED

Virginia Spiraea Status of the Species

U.S. Fish and Wildlife Service. 1992. Virginia spiraea (*Spiraea virginiana* Britton) recovery plan. Newton Corner, MA.

U.S. Fish and Wildlife Service. 2011. Virginia spiraea (*Spiraea virginiana*) draft 5-year review: summary and evaluation. Virginia Field Office, Gloucester, VA.

NatureServe. 2017. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://explorer.natureserve.org>.

Virginia Spiraea Environmental Baseline

Environmental Solutions & Innovations, Inc. 2015. Study Plan: Habitat Assessments and

Surveys for Rare Plants along the Mountain Valley Pipeline Project in Virginia and West Virginia. Report to U.S. Fish and Wildlife Service, West Virginia Field Office, Elkins, WV; U.S. Fish and Wildlife Service, Virginia Field Office, Gloucester, VA; VA Department of Game and Inland Fisheries, Henrico, VA; Department of Conservation and Recreation, Richmond, VA; and West Virginia Division of Natural Resources, Elkins, WV.

Environmental Solutions & Innovations, Inc. 2016. Surveys for Rare Plants along the Mountain Valley Pipeline Project in West Virginia. Report to U.S. Fish and Wildlife Service, West Virginia Field Office, Elkins, WV.

West Virginia Division of Natural Resources. 2011. Federal Assistance Performance Report: Endangered Species (Plants). Project E-2, Segment 24 (1 March 2010 – 28 February 2011) Elkins, WV.

Tennessee Division of Natural Areas (DNA). 2014. Federal Assistance Performance Report: Report on 2013-2014 Population Monitoring for *Spiraea virginiana*. Segment 27

Commented [WVFO17]: Need to find the full citation.

Table 2. Analysis of effects on Virginia spiraea.

10/18/17, Cindy's Comments											
General comments: Table title merge cells so table title is on 1 row. Make font (i cell of table (except header row) black and Times New Roman 10. Freeze row 2											
Pipeline Activity	Subjectivity	Environmental Impact or Threat	Stressor	Stressor Pathway (optional)	Exposure (Resource affected)	Range of Response	Conservation Need Affected	Demographic Consequences	NE, NLAA or LAA	Comments	
New Disturbance - Construction	Vehicle Operation and Foot Traffic	physical impacts to individuals, habitat alteration and/or degradation	crushing, soil compaction	vehicles	habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, sedimentation, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.	Specify if this activity will occur in the permanent ROW too. How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
New Disturbance - Construction	Clearing - herbaceous vegetation and ground cover	physical impacts to individuals, habitat alteration and/or degradation	burying, soil compaction, introduction of invasive species, cutting, digging up, and crushing		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, sedimentation, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.	Specify if this activity will occur in the permanent ROW too. How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
New Disturbance - Construction	Clearing - trees and shrubs	physical impacts to individuals, habitat alteration and/or degradation	crushing, burying, digging up, cutting		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	This could result in the direct removal of VASP plants or alter the habitat so that it is no longer suitable for VASP.	How many plants and acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
New Disturbance - Construction	Vegetation Disposal (upland) - dragging, chipping, hauling, piling, stacking	neutral	none	NA	NA	NA	NA	NA	NE	VASP is a riparian/wetland species and is not found in upland areas. No impacts to riparian/wetland habitats are anticipated from this action.	looks good
New Disturbance - Construction	Vegetation Disposal (upland) - brush pile burning	neutral	none	NA	NA	NA	NA	NA	NE	VASP is a riparian/wetland species and is not found in upland areas. No impacts to riparian/wetland habitats are anticipated from this action.	looks good
New Disturbance - Construction	Vegetation Clearing - tree side trimming by bucket truck or helicopter	habitat alteration and/or degradation	altered sunlight	NA	NA	discountable - beneficial	NA	NA	NLAA	Primary impacts will occur from the original clearing of the ROW. VASP is not a shade tolerant species; overtopping from arboreal species will eventually eliminate VASP. Therefore, effects from side trimming along the ROW may range from discountable to beneficial over an extended period of time.	I don't understand the 1st sentence about "primary impacts" - it seems to be referring to another activity. I recommend deleting or clarifying this sentence.
New Disturbance - Construction	Grading, erosion control devices	physical impacts to individuals, habitat alteration and/or degradation, temporary loss of habitat	crushing, burying, cutting roots		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, sedimentation, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.	Specify if this activity will occur in the permanent ROW too. How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
New Disturbance - Construction	Trenching (digging, blasting, dewatering, open trench, sedimentation)	physical impacts to individuals, habitat alteration and/or degradation, temporary loss of habitat	crushing, burying, cutting roots		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, sedimentation, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.	Specify if this activity will occur in the permanent ROW too. How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
New Disturbance - Construction	Pipe Stringing - bending, welding, coating, padding and backfilling	neutral	none	NA	NA	NA	NA	NA	NE	This activity will occur in areas that have already been disturbed. No additional impacts after clearing, grading, and trenching.	I recommend deleting "after clearing, grading, and trenching"
New Disturbance - Construction	Hydrostatic Testing (water withdrawal and discharge), new line	neutral	none	NA	NA	NA	NA	NA	NE	The water used during hydrostatic testing will be stored, if necessary, at the discharge location. The discharge location is on the other side of the river, in an upland area not suitable for VASP.	looks good
New Disturbance - Construction	Regrading and Stabilization - restoration of corridor	neutral	none	NA	NA	NA	NA	NA	NE	This activity will occur in areas that have already been disturbed. No additional impacts after clearing, grading, and trenching.	I recommend deleting "after clearing, grading, and trenching"
New Disturbance - Construction	Facilities - noise, lights	neutral	none	NA	NA	NA	NA	NA	NE	No impacts to this species are anticipated from this action.	I recommend replacing "this species" with "VASP"
New Disturbance - Construction	Access Roads - upgrading existing roads, new roads temp and permanent - grading, graveling	physical impacts to individuals, habitat alteration and/or degradation, temporary or permanent loss of habitat	crushing, changes in hydrology, contaminants, burying, digging up		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, sedimentation, etc) and ultimately prevent the reestablishment of VASP in the temporary access road ROW post-construction.	Specify if this activity will occur in the permanent ROW too. How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
New Disturbance-Construction	Access Roads - upgrading existing roads, new roads temp and permanent - culvert installation	neutral	none	NA	NA	NA	NA	NA	NE	Activity not proposed within VASP habitat.	looks good
New Disturbance-Construction	Access Roads - upgrading existing roads, new roads temp and permanent - tree trimming and tree removal	habitat alteration and/or degradation	altered sunlight			discountable - beneficial			NLAA	Primary impacts will occur from the original clearing of the temporary access road. VASP is not a shade tolerant species; overtopping from arboreal species will eventually eliminate VASP. Therefore, effects from side trimming along the ROW may range from discountable to beneficial over an extended period of time.	If new access roads are not w/ VASP habitat then why isn't tree trimming NE?
New Disturbance-Construction	Stream Crossings, flume	neutral	none	NA	NA	NA	NA	NA	NE	Activity not proposed within VASP habitat.	looks good
New Disturbance-Construction	Stream Crossings, dam & pump	neutral	none	NA	NA	NA	NA	NA	NE	Activity not proposed within VASP habitat.	looks good
New Disturbance-Construction	Stream Crossings, cofferdam	neutral	none	NA	NA	NA	NA	NA	NE	Activity not proposed within VASP habitat.	looks good
New Disturbance-Construction	Stream Equipment Crossing Structures	habitat alteration and/or degradation	sedimentation, soil compaction	NA	limited to some habitat, population, few to some individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, sedimentation, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.	Specify if this activity will occur in the permanent ROW too. How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
New Disturbance - Construction	Crossings, wetlands and other water bodies (non-riparian) - clearing	physical impacts to individuals, habitat alteration and/or degradation	burying, soil compaction, introduction of invasive species, cutting and crushing		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, sedimentation, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.	Specify if this activity will occur in the permanent ROW too. How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
New Disturbance - Construction	Crossings, wetlands and other water bodies (non-riparian) - tree side trimming	habitat alteration and/or degradation	altered sun	NA	NA	discountable - beneficial	NA	NA	NLAA	Primary impacts will occur from the waterbody crossing. VASP is not a shade tolerant species; overtopping from arboreal species will eventually eliminate VASP. Therefore, effects from side trimming along the ROW may range from discountable to beneficial over an extended period of time.	I recommend deleting the 1st sentence
New Disturbance - Construction	Crossings, wetlands and other water bodies (non-riparian) - grading, trenching, regrading	physical impacts to individuals, habitat alteration and/or degradation	cutting root systems, digging up plants, burying		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, sedimentation, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.	Specify if this activity will occur in the permanent ROW too. How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
New Disturbance - Construction	Crossings, wetlands and other water bodies (non-riparian) - pipe stringing	neutral	none	NA	NA	NA	NA	NA	NE	This activity will occur in areas that have already been disturbed. No additional impacts after clearing, grading, and trenching.	I recommend deleting the 2nd sentence
Operation & Maintenance	Facilities - vehicles, foot traffic, noise	neutral	none	NA	NA	NA	NA	NA	NE	No impacts to this species are anticipated from this action.	looks good
Operation & Maintenance	Vegetation Management - mowing	physical impact to individuals	cutting, crushing	NA	NA	discountable	NA	NA	NLAA	Mowing will only be occurring along the permanent ROW, which is outside of the areas containing VASP habitat.	looks good
Operation & Maintenance	Vegetation Management - chainsaw and tree clearing	neutral	none	NA	NA	NA	NA	NA	NE	These activities will occur in areas not suitable for VASP.	looks good
Operation & Maintenance	Vegetation Management - herbicides - hand, vehicle mounted, aerial applications	neutral	none	NA	NA	NA	NA	NA	NE	Spraying of herbicides will not occur at this site.	looks good
Operation & Maintenance	Vegetation Disposal (upland) - dragging, chipping, hauling, piling, stacking	neutral	none	NA	NA	NA	NA	NA	NE	VASP is a riparian/wetland species and is not found in upland areas. No impacts to riparian/wetland habitats are anticipated from this action.	specify which site?
Operation & Maintenance	Vegetation Disposal (upland) - brush pile burning	neutral	none	NA	NA	NA	NA	NA	NE	VASP is a riparian/wetland species and is not found in upland areas. No impacts to riparian/wetland habitats are anticipated from this action.	looks good
Operation & Maintenance	Vegetation Management - tree side trimming by bucket truck or helicopter	habitat alteration and/or degradation	altered sunlight	NA	NA	discountable - beneficial	NA	NA	NLAA	Primary impacts will occur from the original clearing of the ROW. VASP is not a shade tolerant species; overtopping from arboreal species will eventually eliminate VASP. Therefore, effects from side trimming along the ROW may range from discountable to beneficial over an extended period of time.	looks good
Operation & Maintenance	ROW repair, regrading, revegetation (upland) - hand, mechanical	physical impacts to individuals, habitat alteration and/or degradation	sedimentation, chemical contaminants	NA	NA	discountable	NA	NA	NLAA	EAS plans will be used to minimize effects from erosion and sedimentation on-site. No herbicides will be used at this site.	I recommend deleting "be used to" in the 1st sentence
Operation & Maintenance	ROW repair, regrading, revegetation (wetland) - hand, mechanical	physical impacts to individuals, habitat alteration and/or degradation, temporary or permanent loss of habitat	crushing, burying, soil compaction, introduction of invasives	heavy equipment and machinery, imported fill and materials, storm water runoff	habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, sedimentation, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.	Since this is maintaining the ROW, haven't the initial impacts to VASP already occurred? Seems like the explanation here should focus on effects to plants that resprout/grow post-construction and any effects to the habitat from ROW maintenance. How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
Operation & Maintenance	ROW repair, regrading, revegetation - in stream stabilization and/or fill	physical impacts to individuals, habitat alteration and/or degradation, temporary or permanent loss of habitat	crushing, burying, soil compaction, introduction of invasives	heavy equipment and machinery, imported fill and materials, storm water runoff	habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	Will kill VASP plants and seeds. Conducting these activities may alter/degrade suitable habitat (e.g. by changing hydrology, introducing invasive species, compacting soil, sedimentation, etc) and ultimately prevent the reestablishment of VASP in the temporary construction ROW and temporary work space areas post-construction.	Since this is maintaining the ROW, haven't the initial impacts to VASP already occurred? Seems like the explanation here should focus on effects to plants that resprout/grow post-construction and any effects to the habitat from ROW maintenance. How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
Operation & Maintenance	Access Road Maintenance - grading, graveling	neutral	none	NA	NA	NA	NA	NA	NE	Access roads on this site will be temporary and will be restored post-construction.	Up above (row 17) regarding access roads we say "Activity not proposed within VASP habitat." Shouldn't that be the same statement we use here?
Operation & Maintenance	Access Road Maintenance - culvert replacement	neutral	none	NA	NA	NA	NA	NA	NE	Access roads on this site will be temporary and will be restored post-construction.	Up above (row 17) regarding access roads we say "Activity not proposed within VASP habitat." Shouldn't that be the same statement we use here?
Operation & Maintenance	General Appurtenance and Cathodic Protection Construction - Off ROW Clearing	physical impacts to individuals, habitat alteration and/or degradation	crushing, burying, soil compaction, introduction of invasives		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	This could result in the direct removal of VASP plants or alter the habitat so that it is no longer suitable for VASP.	How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
Operation & Maintenance	General Appurtenance and Cathodic Protection Construction - trenching, anode, bell hole	physical impacts to individuals, habitat alteration and/or degradation	crushing, burying, soil compaction, chemical contaminants, introduction of invasives		habitat, population, individuals	injury, death	reproduction, nutrition, habitat	numbers, reproduction	LAA	This could result in the direct removal of VASP plants or alter the habitat so that it is no longer suitable for VASP.	How many acres (or square ft) of VASP habitat will be affected? Will all plants/habitat be affected? If not, how much (a small percent, the majority)?
Operation & Maintenance	Inspection Activities - ground and aerial	neutral	none	NA	NA	NA	NA	NA	NE	Aerial and ground inspections will have no effect because they will not be occurring in VASP habitat.	looks good