

APPENDIX O

U.S. Forest Service Threatened and Endangered Species

APPENDIX O-1

Regional Forester Species

APPENDIX O-1

**US Forest Service
Regional Forester Sensitive Species
Within or Near Portions of Jefferson National Forest Crossed by the
Mountain Valley Project**

Common Name	Scientific Name	Habitat
Mammals		
Eastern Small-Footed Bat	<i>Myotis leibii</i>	Forested areas; roosts in rock crevices during summer; hibernates in caves
Fish		
Candy Darter	<i>Etheostoma osburni</i>	Streams; unsilted runs, riffles, and swift pockets of current in and around large rubble and boulders
Kanawha Minnow	<i>Phenacobius teretulus</i>	Riffles and runs over bedrock or boulder substrates in medium-sized rivers
Orangefin Madtom	<i>Noturus gilbert</i>	Rocky riffles in small swift-moving rivers and streams
Roughhead Shiner	<i>Notropis ariommus</i>	Clear rocky pools and backwaters of small to large rivers
Mussels		
Atlantic Pigtoe	<i>Fusconaia masoni</i>	Clean, swift-moving waters in gravel or gravel-sand substrata
Green Floater	<i>Lasmigona subviridis</i>	Stagnant pools containing sand and gravel mix substrate
Yellow Lance	<i>Elliptio lanceolata</i>	Clean, coarse to medium sized sands and gravel substrates within streams
Terrestrial Invertebrates		
Allegheny Snaketail	<i>Ophiogomphus incurvatus alleghaniensis</i>	Shallow waters where gravel lies over soft mud
Diana fritillary	<i>Speyeria diana</i>	Grasslands-shrublands, near streams with thistles and milkweeds. Larval host plant, violets, <i>Viola</i> spp.
Green-Faced Clubtail	<i>Gomphus viridifrons</i>	Highly oxygenated streams containing gravel-sand and lightly silted rocks
Maureen's Hydraenan Minute Moss Beetle	<i>Hydraena maureenae</i>	Clear mountain streams among sand grains or vegetation
Regal Fritillary	<i>Speyeria idalia</i>	Herbaceous wetlands, riparian areas, grasslands, old fields, and savannas
Plants		
A liverwort	<i>Plagiochila sullivantii</i> var. <i>sullivantii</i>	Moist shaded rock outcrops, under cliff ledges, in crevices.
Trailing white monkshood	<i>Aconitum reclinatum</i>	Rich cove sites, streambanks, seepages all with high pH.
American barberry	<i>Berberis canadensis</i>	Calcareous open woods, bluffs, cliffs, and along fencerows.
Piratebush	<i>Buckleya distichophylla</i>	Open oak and hemlock woods.

APPENDIX O-1 (continued)

US Forest Service
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Common Name	Scientific Name	Habitat
Small spreading pogonia	<i>Cleistesiopsis bifaria</i>	Well drained, rather open, scrubby hillsides, oak-pine-heath woodlands, acidic soils.
Bentley's coralroot	<i>Corallorhiza bentleyi</i>	Dry, acid woods, along roadsides, well-shaded trails.
Tall larkspur	<i>Delphinium exaltatum</i>	Dry calcareous soil in open grassy glades or thin woodlands.
Butternut	<i>Juglans cinerea</i>	Well-drained bottomland and floodplain, rich mesophytic forests mostly along toeslopes.
Sweet pinesap	<i>Monotropsis odorata</i>	Dry oak-pine-heath woodlands, soil usually sandy.
Sword-leaf phlox	<i>Phlox buckleyi</i>	Open, often dry oak woodlands and rocky slopes, usually over shale in humus rich soils, often along roadsides.
Bog bluegrass	<i>Poa paludigena</i>	Shrub swamps and seeps, usually under shade.
Torrey's mountain-mint	<i>Pycnanthemum torrei</i>	Open, dry rocky woods, roadsides, and thickets near streams, heavy clay soil over calcareous rock.
Rock skullcap	<i>Scutellaria saxatilis</i>	Rich, dry to mesic ridgetop woods, 32 counties in VA, likely G4/S4.
Carolina hemlock	<i>Tsuga caroliniana</i>	Rocky ridges and slopes, usually dry and well drained.

APPENDIX O-2

Forest Service Locally Rare Species

APPENDIX O-2

**US Forest Service Locally Rare Species
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Common Name	Scientific Name	Habitat
Amphibians		
Hellbender Salamander	<i>Cryptobranchus alleganiensis</i>	Aquatic-streams, rivers
Reptiles		
Coal Skink	<i>Plestiodon anthracinus</i> (<i>Eumeces anthracinus</i>)	Humid, wooded or rocky hillsides (mixed pine-hardwoods). Under logs, rocks, leaf litter on forest floor.
Pine Snake	<i>Pituophis melanoleucus</i>	Dry upland forests and ridges with shortleaf pine & scrub-oak
Smooth Greensnake	<i>Opheodrys vernalis</i> (<i>Liochlorophis vernalis</i>)	Mesic habitats; wet meadows; bog & marsh edges; open woodlands
Birds		
Alder Flycatcher	<i>Empidonax alnorum</i>	Alder swamps; near water in dense, low, damp thickets of alders, willows, sumacs, viburnum, elderberry, and red-osier dogwood.
Blackburnian Warbler	<i>Setophaga fusca</i> (<i>Dendroica fusca</i>)	Upper canopy of mature conifer forests with few deciduous trees w/ sparse understory; shrubs around forest edges
Brown Creeper	<i>Certhia americana</i>	Mature woods; dense coniferous, deciduous, mixed woodlands; wooded swamps w/ standing snags with loose bark
Cerulean Warbler	<i>Setophaga cerulea</i> (<i>Dendroica cerulea</i>)	Shady, mature upland woods. Prefers forests with tall deciduous trees & little undergrowth.
Cooper's Hawk	<i>Accipiter cooperii</i>	Woodlands, forest edges, river groves, deciduous woods, broken woodlands, along streams.
Golden Eagle	<i>Aquila chrysaetos</i>	Mostly forested ridgetops with scattered openings.
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Brushy edge habitats; openings w/ saplings, forbs, & grasses
Red Crossbill	<i>Loxia curvirostra</i>	Associated with, but not confined to conifers; northern hardwood hemlocks & red spruce; On Shenandoah Mt in pine-oak woods
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Coniferous forests; woodland edges; mixed woodlands, especially coniferous-birch-aspen forests
Swainson's Thrush	<i>Catharus ustulatus</i>	Dense shaded woods, mixed coniferous woods
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Deciduous, mixed deciduous-coniferous forests & woodlands w/ poplars: Usually > 3500-ft. Dead or live trees w/ heart rot for cavity nests.

APPENDIX O-2 (continued)

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Common Name	Scientific Name	Habitat
Mammals		
Alleghany Woodrat	<i>Neotoma magister</i>	Rocky areas; caves; large boulder fields
Least Weasel	<i>Mustela nivalis</i>	Elevations 500 – 3,800 feet in pasturelands, brushy fence rows, weedy fence rows between hayfields, old fields
Northern River Otter	<i>Lontra canadensis</i>	Forested wetlands; herbaceous wetlands; riparian areas; scrub-shrub wetlands
Mussels		
Yellow Lance	<i>Elliptio lanceolata</i>	Aquatic-rivers
Isopods		
Greenbrier Valley Cave Isopod	<i>Caecidotea holsingeri</i>	Caves and Springs
Crayfish		
Big Sandy Crayfish	<i>Cambarus veteranus</i>	Fast flowing streams of moderate width.
Millipedes		
A Millipede	<i>Rudiloria trimaculata tortua</i>	Leaf litter within mixed hardwoods.
Aeto Millipede	<i>Conotyla aeto</i>	Leaf litter within mixed mesic hardwoods.
Packards Blind Cave Millipede	<i>Zygonopus packardi</i> (<i>Trichopetalum packardi</i>)	Caves
Damselflies		
Appalachian Jewelwing	<i>Calopteryx angustipennis</i>	Aquatic-streams
Dragonflies		
Northern Pygmy Clubtail	<i>Lanthus parvulus</i>	Aquatic-streams
Spatterdock Darner	<i>Rhionaeschna mutata</i> (<i>Aeshna mutata</i>)	Aquatic-ponds
Butterflies		
Silver-Bordered Fritillary	<i>Boloria selene</i>	Herbaceous wetland, scrub-shrub wetland
Hoary Elfin	<i>Callophrys polios</i>	Rocky slopes & ridges; outcrops, dry rocky forests & forest edges; acid bogs
Early Hairstreak	<i>Erora laeta</i>	Deciduous woods with beech-maple forest
Olympia Marble	<i>Euchloe olympia</i>	Shale barrens and slopes; openings and rights-of-way
Tawny Crescent	<i>Phyciodes batesii</i>	Moist meadows and pastures in northern part of range; dry rocky sparsely wooded ridges or hillsides
Tawny Crescent	<i>Phyciodes batesii batesii</i>	Moist meadows and pastures in northern part of range; dry rocky sparsely wooded ridges or hillsides
Skippers		
Two-Spotted Skipper	<i>Euphyes bimacula</i>	Bogs/fens; herbaceous wetlands; shrub wetlands
Moths		
Brown-Lined Dart Moth	<i>Anaplectoides brunneomedia</i>	Mountains at high elevations

APPENDIX O-2 (continued)

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Common Name	Scientific Name	Habitat
Marbled Underwing	<i>Catocala marmorata</i>	Breeding: mainly riparian forest areas; mostly mature, mesic hardwood forests
Precious Underwing	<i>Catocala pretiosa pretiosa</i>	Headwaters swamps; wet swales in pine barrens
Chestnut Clearwing Moth	<i>Synanthedon castaneae</i>	Mixed hardwoods: Prefers Quercus and Castanea (possibly chinkapin, Castanea pumila)
Liverworts (non-vascular plants)		
A Flapwort	<i>Plagiochasma rupestra</i>	Sandstone outcrops in a partially shaded xeric mixed oak-hickory forest
A Liverwort	<i>Radula tenax</i>	
Mosses (non-vascular plants)		
Narrowleaf Peatmoss	<i>Sphagnum angustifolium</i>	Above water level in open acid bogs; dry margins of open woodland fens.
Pom-Pom Peatmoss	<i>Sphagnum capillifolium</i>	On moist humus and rocks in Spruce Fir forests; uncommon at lower elevations on rock exposures; heath mires and spray waterfalls
Flexuose Peatmoss	<i>Sphagnum flexuosum</i>	Shrub and graminoid bogs; margins of vegetation mats; high elevation Spruce Fir forests.
Brown Peatmoss	<i>Sphagnum fuscum</i>	Short compact cushions along weak, poor fens.
Girgensohn'S Peatmoss	<i>Sphagnum girgensohnii</i>	High elevation Spruce Fir forests forming carpets on humus and large rocks; Waterfalls?
Five-Rowed Peatmoss	<i>Sphagnum quinquefarium</i>	Sheltered seepage areas; wet dripping cliffs; sloping banks in mountains; peaty soil in swamps
Red Peatmoss	<i>Sphagnum rubellum</i>	Hummocks and small carpets in Spruce Fir forests.
Russow'S Peatmoss	<i>Sphagnum russowii</i>	Cushions and small mats at edges of heath bogs.
Delicate Peatmoss	<i>Sphagnum subtile</i>	Small carpets in heath bogs and spruce fir forests.
Vascular Plants		
Great Indian-plantain	<i>Arnoglossum reniforme</i> (<i>Arnoglossum muehlenbergii</i>)	Sandy, semi-open alluvial streambanks, often flood-scoured. Edge of young mixed hardwoods.
Bradley's Spleenwort	<i>Asplenium bradleyi</i>	Crevices of dry, exposed or partly shaded cliffs and outcrops. Sandstone and felsic metasedimentary rocks.
Blue Wild Indigo	<i>Baptisia australis</i> var. <i>australis</i>	Moist, usually rocky or gravelly soil: Woodland borders, open woods
Triangle Grape Fern	<i>Botrychium lanceolatum</i> var. <i>angustisegmentum</i>	High elevation moist and shady forests, grassy balds, margins of swamps, meadows, bottoms, streambanks & sandy fields, Mostly subacid soils.
Dwarf Grape Fern	<i>Botrychium simplex</i> var. <i>simplex</i>	Mesic & dry-mesic forests.
Tuberous Grass-pink	<i>Calopogon tuberosus</i>	Bogs, fens, seeps. Basic and acidic substrates.
Wild Hyacinth	<i>Camassia scilloides</i>	Moist open woods, wet woods, thickets
Harebell	<i>Campanula rotundifolia</i>	Dry woods, barrens, cliffs, outcrops of calcareous substrates

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Common Name	Scientific Name	Habitat
Brown Bog Sedge	<i>Carex buxbaumii</i>	Calcareous & mafic fens, peat-bogs, marshes, wet meadows, seeps
Field Sedge	<i>Carex conoidea</i>	Calcareous and mafic fens, saturated meadows, old fields of calcareous substrates
Crested Sedge	<i>Carex cristatella</i>	Low, calcareous wet meadows, open swamp areas, seeps
Yellow Sedge	<i>Carex flava</i>	Wet places in calcareous areas
Inland Sedge	<i>Carex interior</i>	Calcareous seeps, fens, wet meadows
Sooner Sedge	<i>Carex oklahomensis</i>	Calcareous meadows, seeps
Limestone Purple Sedge	<i>Carex purpurifera</i>	Rich cove woods, dry calcareous woods
Roan Mountain Sedge	<i>Carex roanensis</i>	Dry-mesic, rocky, oak, oak-hickory and mixed hardwood forests. Middle to high elevations.
Rigid Sedge	<i>Carex tetanica</i>	Low woods, calcareous fens, spring marshes, meadows
Inflated Sedge	<i>Carex vesicaria</i>	Wet soil or shallow water in bogs, swamps, marshes, depression ponds, streams, seeps, springs
Fogg's Goosefoot	<i>Chenopodium foggii</i>	Dry, rocky open forests and woodlands. Shale or calcareous sandstones. Often amongst oak- hickory vegetation
Chestnut Lip Fern	<i>Cheilanthes castanea</i>	Dry exposed outcrops, shales: Calcareous sedimentary & metamorphic substrates
Chestnut Lip-Fern	<i>Cheilanthes eatonii</i>	Calcareous or metamorphic substrates: Cliffs, in crevices, on shale or talus slopes
Tall Thistle	<i>Cirsium altissimum</i>	Forests, rich thickets, river-banks, woods, fields, clearings
Satin-Curls	<i>Clematis catesbyana</i>	Woodlands, outcrops, clearings and roadsides. Calcareous substrates.
Purple Clematis	<i>Clematis occidentalis</i> var. <i>occidentalis</i>	High elevation forests, rock outcrops, clearings, roadsides
Roundleaf Dogwood	<i>Cornus rugosa</i>	Rocky forests, boulderfields
Pear Hawthorn	<i>Crataegus calpodendron</i>	Basic or calcareous substrates: Open woods, thickets, usually along small rocky streams
Downy Hawthorn	<i>Crataegus mollis</i> var. <i>mollis</i>	Mesic to dry upland forests, clearings and old fields.
Prunose Hawthorn	<i>Crataegus pruinosa</i>	Middle elevations: Thickets, fields, rocky ground
Fleshy Hawthorn	<i>Crataegus succulenta</i> var. <i>succulenta</i>	Old fields, pastures, clearings, forest edges. Occasionally on forested slopes and ridges.
Hazel Dodder	<i>Cuscuta coryli</i>	On various shrubs and herbs: Dry open forests, rocky woodlands & barrens
Beaked Dodder	<i>Cuscuta rostrata</i>	Herbacious hosts: High elevation forests & clearings in the mountains
Showy Lady's-slipper	<i>Cypripedium reginae</i>	Calcareous soils: Bogs, seeps, swamps, wet woods
Tennessee Bladder Fern	<i>Cystopteris tennesseensis</i>	Mesic to xeric calcareous outcrops

APPENDIX O-2 (continued)

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Common Name	Scientific Name	Habitat
Showy Tick-trefoil	<i>Desmodium canadense</i>	Calcareous substrates: Fens, wet meadows
Toothed Tick-Trefoil	<i>Desmodium cuspidatum</i>	Dry forests, woodlands, barrens. Calcareous substrates.
Ringed Panic Grass	<i>Dichanthelium annulum</i>	Dry open forests, woodlands, barrens, clearings. Rocky, sandy, hardpan soils. Usually over mafic or calcareous substrates.
Matted Spikerush	<i>Eleocharis intermedia</i>	Calcareous fens, seeps, pools, depressions, ruts, other disturbed areas
Nodding Wild Rye	<i>Elymus canadensis</i> var. <i>canadensis</i>	River banks, open ground, sandy soil
Slender Wheatgrass	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	Limy soils, prairies, open soils
American Willow-Herb	<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	High elevations. Bogs, seeps, wet meadows, wet clearings.
Bog Willow-Herb	<i>Epilobium leptophyllum</i>	Circumneutral soils: High elevation bogs, wet meadows, seeps, other moist soils
Pink Thoroughwort	<i>Fleischmannia incarnata</i> = <i>Eupatorium incarnatum</i>	Calcareous & mafic substrates: Mesic to dry open forests
Low Rough Aster	<i>Eurybia radula</i> = <i>Aster radula</i>	Bogs, streambanks, fens, seeps and other moist places of various soil types
Spotted Joe-Pye Weed	<i>Eutrochium maculatum</i> var. <i>maculatum</i> (<i>Eupatorium maculatum</i>)	Usually in rich or calcareous soils: Damp thickets, meadows, spring marshes
Box Huckleberry	<i>Gaylussacia brachycera</i>	Dry, acidic oak-pine woodlands
Narrow-leaf Gentian	<i>Gentiana linearis</i>	Open grassy areas, wet woods, & meadows
Greater Fringed Gentian	<i>Gentianopsis crinita</i>	Calcareous substrates: Low woods, wet meadows, brook banks
Low Cudweed	<i>Gnaphalium uliginosum</i>	High elevations: Ephemeral pools, depressions, ditches, damp clearings, waste places
Dwarf Rattlesnake-Plantain	<i>Goodyear repens</i>	Cove and hemlock forests: Usually in mossy substrates
Smooth Sunflower	<i>Helianthus laevigatus</i>	Dry open forests, rocky woodlands, barrens, clearings, road banks
Purple Alumroot	<i>Huchera hispida</i> (<i>Heuchera americana</i> var. <i>hispida</i>)	Rocky woods, outcrops, open woods over limestone
Long-Flowered Alumroot	<i>Heuchera longiflora</i>	Upland woods, hillsides, shales, rich woods on limestone substrate; open or shaded areas
Crested Coralroot	<i>Hexalectris spicata</i> var. <i>spicata</i>	Circumneutral, or calcareous soils: Rocky woods, woodland stream margins
Canada bluets	<i>Houstonia canadensis</i>	Woodlands, openings, rocky woods, hillsides of calcareous substrates
Northern St. John's-Wort	<i>Hypericum boreale</i>	Damp peat, sand, shallow water
Jointed Rush	<i>Juncus articulatus</i>	Wet meadows, seeps, gravel bars & shores

APPENDIX O-2 (continued)

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Common Name	Scientific Name	Habitat
Small-Head Rush	<i>Juncus brachycephalus</i>	Calcareous fens & seeps
Narrow-Panicked Rush	<i>Juncus brevicaudatus</i>	High elevations: Muddy, or wet places such as bogs & seeps
Highland Dog-Hobble	<i>Leucothoe fontanesiana</i>	Gentle slopes in open deciduous hardwoods. Cove forests.
Grooved Yellow Flax	<i>Linum sulcatum</i>	Shale barrens, dry rocky woodlands, clearings
Bog Twayblade	<i>Liparis loeselii</i>	Damp or wet woods, bogs, fens, seeps, swamps, wet meadows of calcareous substrate
American Gromwell	<i>Lithospermum latifolium</i>	Mesic to dry forests of calcareous substrate
Northern Bog Clubmoss	<i>Lycopodiella inundata</i>	Damp peaty or sandy shores, bogs, seeps, swamps, pond edges
Winged Loosestrife	<i>Lythrum alatum</i>	Calcareous fens, swamps, meadows, prairies, ditches
Three-Flower Melic Grass	<i>Melica nitens</i>	Calcareous substrates: Rocky woods, bluffs, dry clearings
Swamp Saxifrage	<i>Micranthes pensylvanica</i> (<i>Saxifraga pensylvanica</i>)	Calcareous mafic substrates: Forested seeps, seepage swamps
Large-Leaved Grass-Of-Parnassus	<i>Parnassia grandifolia</i>	Neutral to basic thinly wooded gravelly seeps, wet, calcareous soil, fens, bogs, meadows, bases of dripping cliffs.
Yellow Nailwort	<i>Paronychia virginia</i> var. <i>virginica</i>	Rocky places, crevices and ledges, shale barrens and cliffs of calcareous substrates.
Black-Seed Ricegrass	<i>Patis racemosa</i> = <i>Oryzopsis racemosa</i>	Rich cove forests.
Large-Leaf Phlox	<i>Phlox amplifolia</i>	Mesic woodlands, hardwood forests of calcareous substrates.
Large Purple Fringed Orchid	<i>Platanthera grandiflora</i>	Meadows, seeps, swamps, coves.
Fowl Bluegrass	<i>Poa palustris</i>	Meadows, rocky shores, marshes of calcareous substrate.
Canada Plum	<i>Prunus nigra</i>	Borders of woods, fencerows, old fields.
Shinleaf	<i>Pyrola elliptica</i>	Dry to moist woods, northern red oak and spruce forests.
Sweet Azalea	<i>Rhododendron arborescens</i>	Rocky forests, outcrops, banks of rivers, high gradient streams.
Cumberland Azalea	<i>Rhododendron cumberlandense</i>	Montane woodlands, balds, moist exposed slopes, rock outcrops.
Climbing Prairie Rose	<i>Rosa setigera</i>	Open woods, clearings, pastures, fields.
Red Raspberry	<i>Rubus idaeus</i> ssp. <i>strigosus</i>	Rocky woods, boulderfields, woodland edges, clearings.
Pursh'S Wild-Petunia	<i>Ruellia purshiana</i>	Dry forests, rocky woodlands, barrens. Calcareous and mafic substrates.
Sessile-Fruited Arrowhead	<i>Sagittaria rigida</i>	Natural montane ponds, meadows.

APPENDIX O-2 (continued)

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Common Name	Scientific Name	Habitat
Large-Fruited Sanicle	<i>Sanicula trifoliata</i>	Rich cove and slope forests, northern hardwood forests, dry-mesic oak-hickory forests.
Heart-Leaf Skullcap	<i>Scutellaria ovata</i> ssp. <i>Rugosa</i> (<i>Scutellaria ovata</i> ssp. <i>Pseudoarguta</i>)	Calcareous woodlands, barrens. Shale, metabasalt substrates.
Small Skullcap	<i>Scutellaria leonardii</i> (<i>Scutellaria parvula</i>)	Mafic to felsic substrates. Barrens, outcrops, grass balds at high elevations.
Stiff Goldenrod	<i>Solidago rigida</i> var. <i>rigida</i> (<i>Oligoneuron rigidum</i>)	Dry rocky woods, barrens, outcrops, clearings, fields with prairie affinities.
Narrow-Leaf Burreed	<i>Sparganium emersum</i> (<i>Sparganium chlorocarpum</i>)	≥ 2,500 feet. Bogs, beaver wetlands, calcareous marshes .
Freshwater Cordgrass	<i>Spartina pectinata</i>	Rocky riverbanks, wet meadows, wet open streambanks, swamps, calcareous fens.
Shining Ladies'-Tresses	<i>Spiranthes lucida</i>	Calcareous fens and seeps, moist banks, damp meadows.
Yellow Nodding Ladies'-Tresses	<i>Spiranthes ochroleuca</i>	High elevations. Bogs, meadows, swamps, marshes, wet woods, edge of lakes and streams, peaty and gravelly soil in open barrens, on seepages slopes, forestsclearings, meadows.
Small Dropseed	<i>Sporobolus neglectus</i>	Dry, sterile or sandy soil, mostly open areas. Limestone barrens, cliffs and rocky fields.
Celandine Poppy	<i>Stylophorum diphyllum</i>	Rich woods, often calcareous, cove forests.
Common Snowberry	<i>Symphoricarpos albus</i>	Calcareous ledges, barrens and gravels. Rocky woods and fields.
Mountain Pimpernel	<i>Taenidia montana</i>	Dry woodlands, barrens, outcrops. Open rocky forests. Shale and calcareous sandstone.
Tower Mustard	<i>Turritis glabra</i> (<i>Arabis glabra</i>)	Dry soil. Woodland borders, disturbed habitats.
Fraser's Marsh St. John'S-Wort	<i>Hypericum fraseri</i> (<i>Triadenum fraseri</i>)	Bogs, seeps, swamps, depression ponds.
Narrow-leaf Blue Curls	<i>Trichostema setaceum</i>	Sandstone barrens and outcrops.
Kate's Mountain Clover	<i>Trifolium virginicum</i>	Shale barrens, dry open woodlands.
Nodding Pogonia	<i>Triphora trianthophora</i> ssp. <i>Trianthophora</i> (<i>Triphora trianthophora</i>)	Damp rich woods, often on rotten logs.
Cranberry	<i>Vaccinium macrocarpon</i>	Mostly high elevations. Open bogs and ponds.
Marsh Speedwell	<i>Veronica scutellata</i>	Calcareous substrates. Bogs, fens, seeps.
Nannyberry	<i>Viburnum lentago</i>	Banks of streams, seeps, old fields.
American Purple Vetch	<i>Vicia americana</i> var. <i>americana</i> (<i>Vicia americana</i>)	Dry shale woodlands, forest edges, clearings, prairies.
Prostrate Blue Violet	<i>Viola walteri</i>	Calcareous substrates. Dry woods, rocky ledges, slopes.

APPENDIX P

Summary of Pipeline Collocation with Existing Rights-of-Way

APPENDIX P

**Summary of Pipeline Collocated with Existing Corridors and Rights-of-Way
Mountain Valley Project**

Project Component/ State/County/Facility Type	Start MP	End MP	Distance (feet)	Offset between Pipe and Edge of ROW (feet) <u>a/</u>	Construction ROW Offset (feet) <u>a/</u>
MOUNTAIN VALLEY PROJECT					
West Virginia					
<i>Wetzel County</i>					
Field Road ROW	0.2	0.35	800	0 to 31	0 to 30
Pipeline	0.9	1.05	800	0 to 42	30
Overhead Power Line	1.7	1.85	800	0 to 63	25 to 50
County Road ROW	1.75	1.85	500	0 to 93	0 to 30
County Road ROW	2.3	2.36	300	0 to 65	0 to 30
County Road ROW	3	3.5	2,600	0 to 150	0 to 30
Pipeline	3.3	3.5	1,100	25	0 to 30
Pipeline	3.9	4	500	67	0
Pipeline	4.2	4.6	2,100	0 to 42	0 to 100
Field Road ROW	6.1	6.4	1,600	0 to 145	0 to 15
<i>Harrison County</i>					
Field Road ROW	12.5	12.7	1,100	0 to 38	0 to 30
Pipeline	12.7	12.85	800	0 to 25	0 to 30
Pipeline	13.25	13.35	500	0 to 5	30
Pipeline	14	14.1	500	0 to 20	0 to 30
Field Trail ROW	14.1	14.4	1,600	0	0 to 15
Pipeline	14.85	16	6,100	25	38
Field Road ROW	16	16.65	3,400	0 to 291	0 to 15
Pipeline	16.25	16.35	500	0 to 88	0 to 30
Pipeline	16.45	16.65	1,100	4 to 88	0 to 30
Pipeline	20.2	20.25	300	0 to 2	30
Field Trail ROW	21	21.2	1,100	0	0 to 15
Pipeline	22.1	22.6	2,600	0 to 121	0 to 30
Field Trail ROW	23.4	24	3,200	0 to 203	0 to 15
Fiber optic	24.85	24.95	500	0 to 126	0 to 15
Pipeline	25.65	25.7	300	0 to 16	23 to 50
Field Road ROW	28.25	28.5	1,300	0 to 16	0 to 15
Pipeline	29.2	29.4	1,100	0	50
Field Trail ROW	29.4	29.7	1,600	217 to 306	0
Field Trail ROW	29.55	29.72	900	0 to 134	0 to 15
Field Trail ROW	30.5	30.7	1,100	0	0 to 15
Pipeline	31	31.5	2,600	114	0

APPENDIX P (continued)

**Summary of Pipeline Collocated with Existing Corridors and Rights-of-Way
Mountain Valley Project**

Project Component/ State/County/Facility Type	Start MP	End MP	Distance (feet)	Offset between Pipe and Edge of ROW (feet) <u>a/</u>	Construction ROW Offset (feet) <u>a/</u>
Overhead Power Line	32.7	33.1	2,100	0 to 20	0 to 15
Pipeline	32.7	32.9	1,100	0 to 48	0 to 15
Pipeline	32.9	33	500	0 to 42	30
Pipeline	32.9	33	500	0 to 57	30
Underground Telephone Line	32.9	33	500	15	0 to 15
<i><u>Harrison/Doddridge County</u></i>					
Field Road ROW	36.9	37.6	3,700	0 to 183	0 to 15
<i><u>Doddridge County</u></i>					
Pipeline	31.7	31.8	500	12	50
Field Road ROW	33.82	34.5	3,600	0 to 52	0 to 15
Field Road ROW	34.4	34.48	400	0 to 88	0 to 15
Pipeline	35.15	35.3	800	25	25
Field Road ROW	35.3	35.7	2,100	0 to 88	0 to 15
Field Road ROW	35.98	36.08	500	0 to 76	0 to 15
Pipeline	36	36.1	500	0	0 to 30
<i><u>Lewis County</u></i>					
Field Road ROW	39.3	39.95	3,400	0 to 182	0 to 15
Pipeline	39.98	40.03	300	16	47
Pipeline	42.2	42.4	1,100	0 to 42	0 to 50
Pipeline	42.85	44	6,100	0 to 176	0 to 50
Pipeline	42.95	43.5	2,900	0 to 88	0 to 50
Pipeline	43.8	43.95	800	25	25
Field Road ROW	43.95	44.6	3,400	0 to 145	0 to 15
Pipeline	44.9	44.95	300	53	50
Underground electric	45.5	45.85	1,800	0 to 77	0 to 15
Pipeline	46.44	46.46	100	0 to 88	0 to 50
Field Road ROW	46.6	47.5	4,800	0 to 258	0 to 15
Pipeline	47.1	47.3	1,100	0 to 21	30
Field Road ROW	48.03	48.05	100	17 to 126	0 to 15
Field Trail ROW	51.3	51.45	800	0	0 to 15
Pipeline	51.8	52.3	2,600	0 to 70	0 to 30
Pipeline	52.4	52.6	1,100	0 to 117	0 to 30
Pipeline	52.8	53.1	1,600	96	25
County Road ROW	52.9	53.1	1,100	0 to 132	0 to 30
County Road ROW	53.1	53.25	800	0 to 193	0 to 30
Field Trail ROW	53.25	54.4	6,100	0 to 39	0 to 15

APPENDIX P (continued)

**Summary of Pipeline Collocated with Existing Corridors and Rights-of-Way
Mountain Valley Project**

Project Component/ State/County/Facility Type	Start MP	End MP	Distance (feet)	Offset between Pipe and Edge of ROW (feet) <u>a/</u>	Construction ROW Offset (feet) <u>a/</u>
Overhead Power Line	53.2	53.3	500	0	50
Pipeline	53.2	53.3	500	0 to 4	30
Pipeline	54.8	54.85	300	0 to 25	0 to 30
Pipeline	55.45	55.55	500	0 to 48	0 to 50
Field Trail ROW	55.95	55.99	200	6 to 59	0 to 15
Pipeline	56.3	56.5	1,100	0	50
Pipeline	56.5	56.55	300	0 to 25	15 to 30
Field Road ROW	56.6	56.73	700	0 to 88	0 to 15
Field Road ROW	57.3	58.1	4,200	0	0 to 15
Field Road ROW	59.7	59.8	500	0 to 88	0 to 15
Pipeline	60.6	60.7	500	0 to 74	0 to 50
Field Road ROW	60.85	61.35	2,600	0 to 210	0 to 15
Pipeline	60.9	60.95	300	0 to 141	0 to 50
Field Road ROW	61.9	62.15	1,300	0	0 to 15
Pipeline	63.1	63.35	1,300	0 to 55	0 to 320
Field Road ROW	64.45	64.68	1,200	0 to 86	0 to 15
Field Trail ROW	64.95	65.15	1,100	0 to	0 to 15
<u>Braxton County</u>					
Field Trail ROW	66.2	66.4	1,100	0	0 to 15
Field Trail ROW	67	67.05	300	0	0 to 15
Field Trail ROW	67.15	67.3	800	0	0 to 15
Field Trail ROW	68	68.6	3,200	0	0 to 15
Pipeline	69	69.1	500	0 to 73	0 to 30
Field Trail ROW	69	69.12	600	0	0 to 15
Field Road ROW	71.85	71.9	300	0	0 to 15
Field Road ROW	72	72.05	300	0	0 to 15
Pipeline	72.6	73.5	4,800	0 to 225	0 to 30
Field Road ROW	72.62	73.4	4,100	0 to 224	0 to 30
Field Road ROW	74.3	74.5	1,100	0	0 to 15
Overhead Power Line	73.65	73.85	1,100	0 to 79	0 to 50
Field Road ROW	75	75.15	800	0	0 to 15
Field Trail ROW	75.35	76.2	4,500	0	0 to 15
Pipeline	76.05	76.3	1,300	0 to 62	0 to 50
Pipeline	76.4	76.5	500	0 to 25	0 to 30
County Road ROW	78.4	78.5	500	0 to 147	0 to 30

APPENDIX P (continued)

**Summary of Pipeline Collocated with Existing Corridors and Rights-of-Way
Mountain Valley Project**

Project Component/ State/County/Facility Type	Start MP	End MP	Distance (feet)	Offset between Pipe and Edge of ROW (feet) <u>a/</u>	Construction ROW Offset (feet) <u>a/</u>
<u>Webster County</u>					
Field Trail ROW	81.45	81.6	800	0 to 94	0 to 15
Overhead Power Line	82.1	82.4	1,600	0 to 112	0 to 50
Field Trail ROW	82.15	82.25	500	0	0 to 15
County Road ROW	82.28	82.5	1,200	0 to 323	0 to 30
Field Trail ROW	83.9	84.05	800	0	0 to 15
Field Trail ROW	86.27	86.6	1,700	0	0 to 15
Field Road ROW	88.55	90.04	7,900	0 to 271	0 to 15
Field Road ROW	91.2	92.1	4,800	0 to 88	0 to 15
Field Road ROW	93.6	97	18,000	0	0 to 15
County Road ROW	98.65	98.9	1,300	42 to 78	0 to 4
Overhead Power Line	98.75	98.85	500	7 to 30	5 to 50
Field Trail ROW	103.6	103.75	800	0	0 to 15
Overhead Power Line	105.9	106.1	1,100	0 to 164	0 to 50
Field Trail ROW	107.1	107.3	1,100	0	0 to 15
Field Road ROW	108.3	108.65	1,800	5 to 112	0 to 15
Field Road ROW	109.25	109.45	1,100	0 to 50	0 to 15
<u>Webster/Nicholas County</u>					
Field Road ROW	110.5	110.78	1,500	0 to 184	0 to 15
<u>Nicholas County</u>					
Local Road ROW	109.75	109.8	300	0 to 62	0 to 15
Field Road ROW	110.9	110.95	300	0 to 268	0 to 15
Pipeline	113.45	113.65	1,100	0 to 94	0 to 30
Pipeline	113.7	113.8	500	0 to 20	0 to 30
Field Road ROW	118.95	119.15	1,100	0	0 to 15
Field Road ROW	122.5	122.6	500	0	0 to 15
Overhead Power Line	122.8	122.85	300	0 to 155	0 to 50
Field Road ROW	127.8	127.83	200	0	0 to 15
Overhead Power Line	129.38	129.42	200	0 to 58	0 to 50
County Road ROW	129.38	129.46	400	0 to 133	0 to 30
Field Road ROW	131.65	131.82	900	0	0 to 15
Overhead Power Line	132.85	133	800	0 to 186	0 to 50
County Road ROW	133.14	133.7	3,000	0 to 29	0 to 30
County Road ROW	134.4	135.3	4,800	0 to 165	0 to 30
Overhead Power Line	134.6	134.7	500	0 to 88	0 to 50

APPENDIX P (continued)

**Summary of Pipeline Collocated with Existing Corridors and Rights-of-Way
Mountain Valley Project**

Project Component/ State/County/Facility Type	Start MP	End MP	Distance (feet)	Offset between Pipe and Edge of ROW (feet) <u>a/</u>	Construction ROW Offset (feet) <u>a/</u>
<i><u>Greenbrier County</u></i>					
Overhead Power Line	135.85	136.4	2,900	0 to 92	0 to 100
County Road ROW	136.04	136.05	100	0 to 78	0 to 15
State Route ROW	136.35	136.65	1,600	0 to 239	0 to 30
Field Road ROW	136.7	136.8	500	0	0 to 15
Field Road ROW	137.25	137.35	500	0 to 146	0 to 15
Field Road ROW	137.97	139.35	7,300	0 to 276	0 to 15
Overhead Power Line	138.15	138.25	500	0 to 44	0 to 50
Overhead Power Line	140.45	140.55	500	0 to 46	0 to 50
County Road ROW	140.45	140.6	800	0 to 74	0 to 30
Field Road ROW	140.98	141.3	1,700	0	0 to 15
Field Road ROW	141.55	142.45	4,800	0	0 to 15
Overhead Power Line	143.8	143.85	300	37 to 88	0 to 33
Field Road ROW	145.75	146	1,300	33 To 45	0 to 6
Field Trail ROW	151.35	151.55	1,100	0	0 to 15
Overhead Power Line	152.15	152.25	500	0	0 to 50
Field Road ROW	152.3	152.65	1,800	0	0 to 15
County Road ROW	152.9	153.3	2,100	0 to 148	0 to 30
<i><u>Fayette County</u></i>					
Field Road ROW	153.8	153.95	800	0	0 to 15
<i><u>Summers County</u></i>					
Underground Telephone Line	158.8	158.85	300	0 to 124	0 to 15
Field Trail ROW	159.3	159.5	1,100	0 to 112	0 to 15
Field Trail ROW	160.3	160.5	1,100	0	0 to 15
Field Trail ROW	162.85	162.97	600	0	0 to 15
Field Trail ROW	163.25	164.2	5,000	0 to 139	0 to 15
County Road ROW	163.3	163.5	1,100	0 to 132	0 to 30
Underground Telephone Line	166.8	167.05	1,300	0 to 151	0 to 15
Overhead Power Line	166.8	167.05	1,300	0 to 88	22 to 50
Field Trail ROW	167.75	168.35	3,200	0	0 to 15
Field Road ROW	170.05	170.15	500	44 to 117	0 to 15
Overhead Power Line	170.4	170.45	300	0	0 to 50
Field Trail ROW	171.3	171.55	1,300	0 to 88	0 to 15
<i><u>Summers/Monroe County</u></i>					
Overhead Power Line	173.2	173.5	1,600	52 to 182	0 to 37

APPENDIX P (continued)

**Summary of Pipeline Collocated with Existing Corridors and Rights-of-Way
Mountain Valley Project**

Project Component/ State/County/Facility Type	Start MP	End MP	Distance (feet)	Offset between Pipe and Edge of ROW (feet) <u>a/</u>	Construction ROW Offset (feet) <u>a/</u>
<i>Monroe County</i>					
Field Road ROW	173.6	174.4	4,200	0	0 to 15
Local Public Road ROW	175.2	175.6	2,100	0 to 78	0 to 125
Field Road ROW	176.75	177.3	2,900	0	0 to 15
Overhead Power Line	179.1	179.35	1,300	0 to 101	0 to 50
Field Road ROW	179.1	179.8	3,700	0 to 100	0 to 15
Overhead Power Line	184	184.15	800	0	0 to 50
Field Road ROW	181.4	181.5	500	0 to 151	0 to 15
Field Road ROW	182.25	183.55	6,900	0 to 269	0 to 15
County Road ROW	187.29	187.58	1,500	0 to 141	0 to 30
Field Trail ROW	191.1	192	4,800	0	0 to 15
Virginia					
<i>Giles County</i>					
National Trail	195.39	195.47	400	0 to 120	0 to 15
Field Trail ROW	195.9	197.85	10,300	0 to 112	0 to 15
Overhead Power Line	199.1	199.4	1,600	116	0
Overhead Power Line	199.4	199.8	2,100	0 to 165	0 to 100
Overhead Power Line	199.8	200.1	1,600	80	7
Overhead Power Line	201.1	201.5	2,100	86	0
Overhead Power Line	201.95	202.3	1,800	77	0
Field Trail ROW	201.9	201.98	400	0	0 to 15
Overhead Power Line	202.3	202.55	1,300	0 to 280	0 to 100
State Route ROW	202.35	202.43	400	0 to 88	0 to 30
Field Road ROW	202.82	203	1,000	0	0 to 15
Overhead Power Line	202.55	202.9	1,800	82	6
Overhead Power Line	203.15	203.45	1,600	79	8
Overhead Power Line	203.45	203.9	2,400	83	0
Overhead Power Line	203.9	204.1	1,100	84	4
Overhead Power Line	204.1	204.95	4,500	84	4
Overhead Power Line	204.95	205.65	3,700	0 to 548	0 to 75
Overhead Power Line	205.65	206.8	6,100	69	0
Overhead Power Line	206.8	207	1,100	0 to 175	0
Field Road ROW	206.9	207	500	0	0 to 15
Overhead Power Line	207	207.55	2,900	96	0
Overhead Power Line	209.6	209.9	1,600	22	16
Local Public Road ROW	209.02	209.15	700	0 to 61	0 to 15

APPENDIX P (continued)

**Summary of Pipeline Collocated with Existing Corridors and Rights-of-Way
Mountain Valley Project**

Project Component/ State/County/Facility Type	Start MP	End MP	Distance (feet)	Offset between Pipe and Edge of ROW (feet) <u>a/</u>	Construction ROW Offset (feet) <u>a/</u>
State Route ROW	210.79	210.81	100	83	4
<i>Montgomery County</i>					
Overhead Power Line	221.4	221.75	1,800	82	5
Overhead Power Line	221.75	222.5	4,000	38 to 208	0
Overhead Power Line	222.5	222.8	1,600	89	1
Overhead Power Line	222.8	223.4	3,200	0 to 202	0 to 100
State Route ROW	222.89	222.92	200	0 to 106	0 to 30
Overhead Power Line	223.4	223.75	1,800	0 to 432	0 to 100
Overhead Power Line	223.75	224	1,300	76 to 218	0 to 11
Local Public Road ROW	223.89	223.95	300	15 to 52	0 to 15
Overhead Power Line	224	225.4	7,400	75	13
Local Private Road ROW	224.3	224.4	500	0 to 145	0 to 15
Field Trail ROW	224.7	224.82	600	0	0 to 15
Electric Transmission Line	226.6	226.75	800	76	9
Electric Transmission Line	226.75	227.55	4,200	0 to 612	0 to 100
Electric Transmission Line	227.55	229.05	7,900	70	18
Electric Transmission Line	229.05	229.35	1,600	0 to 135	0 to 100
Field Road ROW	229.2	229.35	800	45 to 54	0 to 7
State Route ROW	231	231.2	1,100	0 to 85	0 to 30
State Route ROW	230.1	230.12	100	0 to 140	0 to 30
Electric Transmission Line	232.85	233.05	1,100	74	13
<i>Roanoke County</i>					
Field Trail ROW	236.6	237.15	2,900	0 to 64	0 to 15
Field Road ROW	238.5	238.65	800	0 to 88	0 to 15
<i>Franklin County</i>					
Field Road ROW	246.5	246.65	800	0 to 46	0 to 15
Overhead Power Line	247.1	247.35	1,300	0 to 145	0
State Route ROW	247.19	247.31	600	60 to 180	0
State Route ROW	247.2	247.31	600	50	13
Local private Road ROW	254.85	255.3	2,400	0 to 88	0 to 15
State Route ROW	256.58	256.64	300	0 to 68	0 to 30
State Route ROW	258.92	258.93	100	0 to 25	0 to 30
Electric Transmission Line	259.05	259.4	1,800	33	55
Electric Transmission Line	259.4	259.7	1,600	41	0
Electric Transmission Line	262.1	262.25	800	0 to 44	0 to 100
Overhead Power Line	263.1	263.6	2,600	0 to 112	0 to 50

APPENDIX P (continued)

**Summary of Pipeline Collocated with Existing Corridors and Rights-of-Way
Mountain Valley Project**

Project Component/ State/County/Facility Type	Start MP	End MP	Distance (feet)	Offset between Pipe and Edge of ROW (feet) <u>a/</u>	Construction ROW Offset (feet) <u>a/</u>
Field Road ROW	263.6	263.95	1,800	0 to 223	0 to 15
Electric Transmission Line	263.7	264	1,600	0 to 167	0 to 100
Electric Transmission Line	264	265.7	1,300	0 to 411	0 to 100
Field Road ROW	264.45	265.45	5,300	0 to 225	0 to 15
Field Road ROW	270.8	272.5	9,000	0 to 122	0 to 15
Field Road ROW	273.5	273.65	800	0 to 52	0 to 15
Field Road ROW	274.14	274.16	100	0	0 to 15
Electric Transmission Line	274.85	275.25	2,100	10	25
Electric Transmission Line	275.3	275.75	2,400	13	25
Field Road ROW	275.3	275.7	2,100	0	0 to 15
Electric Transmission Line	275.8	276.1	1,600	25	13
Electric Transmission Line	276.15	276.55	2,100	12	76
Field Road ROW	276.15	276.55	2,100	0 to 55	0 to 15
Electric Transmission Line	276.55	277	2,400	0	38
Field Road ROW	276.9	277.15	1,300	0	0 to 15
Electric Transmission Line	277	277.2	1,100	0 to 61	41 to 100
Electric Transmission Line	277.2	277.55	1,800	38	0
Electric Transmission Line	277.9	278.15	1,300	25	62
Field Road ROW	277.9	278.2	1,600	6 to 64	0 to 15
Electric Transmission Line	278.08	280.15	10,900	0 to 186	0 to 100
Electric Transmission Line	278.15	278.5	1,800	20	20
Electric Transmission Line	278.78	280.08	6,900	38	0
Field Road ROW	280.1	280.5	2,100	0 to 321	0 to 15
<i>Pittsylvania County</i>					
Field Road ROW	285.4	286.1	3,700	0 to 165	0 to 15
Field Road ROW	287.78	287.9	600	0	0 to 15
State Route ROW	287.99	288.32	1,700	0 to 55	0 to 30
Electric Transmission Line	289.45	289.65	1,100	96	0
State Route ROW	290.25	290.32	400	0 to 131	0 to 30
Railroad ROW	295.4	295.67	1,400	0	100
Field Road ROW	295.65	295.76	600	0 to 16	15
Field Road ROW	296.6	296.7	500	0 to 82	0 to 15
Pipeline	300.55	300.8	1,300	63	0

APPENDIX P (continued)

**Summary of Pipeline Collocated with Existing Corridors and Rights-of-Way
Mountain Valley Project**

Project Component/ State/County/Facility Type	Start MP	End MP	Distance (feet)	Offset between Pipe and Edge of ROW (feet) <u>a/</u>	Construction ROW Offset (feet) <u>a/</u>
EEP - H-158/M-80					
Pennsylvania					
<u>Green County</u>					
Pipeline	0.16	0.24	422		
EEP - H-305					
Pennsylvania					
<u>Green County</u>					
Pipeline	0	0.1	528		
EEP - H-316					
Pennsylvania					
<u>Green County</u>					
Pipeline	0.2	0.46	1,373		
Pipeline	0.2	0.46	1,373		
EEP - H-318					
Pennsylvania					
<u>Allegheny County</u>					
Pipeline	0	0.8	4,224		
Pipeline	1.22	2.04	4,330		
a/ Note that an offset of zero can indicate an overlap between (1) the pipeline centerline or the construction ROW and (2) the edge of the ROW.					