

# **APPENDIX F**

**FEDERALLY LISTED T&E, CANDIDATE AND  
SPECIES OF CONCERN**

## **APPENDIX F: T & E SPECIES TABLE**

Threatened, endangered, candidate and species of concern known to inhabit the proposed project area were identified through correspondence with the appropriate regional United States Fish and Wildlife Field Office. Responses to these letters included lists broken down by county. These responses and habitat information are summarized in Table F-1.

**Table F-1**  
**Federally Listed and Species of Concern**

Common Name	Scientific Name	Status	Distribution
SOC = Species of Concern	T = Threatened	E = Endangered	C = Candidate
<b>Fishes</b>			
Ashy darter	<i>Etheostoma cinereum</i>	SOC	VA - Scott Habitat: Found in larger rivers and streams of Cumberland and Tennessee River drainages. Prefers such cover as boulders and undercut banks in little or moderate current.
Blackside dace	<i>Phoxinus cumberlandensis</i>	T	VA - Lee TN - Campbell, Claiborne, and Scott KY - Bell, Harlan, Knox, Laurel, Letcher, McCreary, Pulaski, Whitley Habitat: Found in approximately 30 separate streams in the Upper Cumberland River system. Inhabits riffles in cool, small (7-15') streams upland streams with moderate flows. Generally associated with undercut banks and large rocks within relatively stable, well-vegetated watersheds with good riparian vegetation. Habitat has been greatly degraded by siltation from surface mining.
Blotchside darter	<i>Percina burtoni</i>	SOC	VA - Russell, Scott, Tazwell Habitat: Found in the mountains and uplands of the Cumberland and Tennessee drainages in medium-sized, warm, usually clear streams of moderate gradient. It occupies riffles, runs, and pools with gravel to boulder strewn bottoms lacking major siltation.
Bluestone sculpin	<i>Cottus sp. 1</i>	SOC	VA - Tazwell WV - Mercer County
Candy darter	<i>Etheostoma osburni</i>	SOC	WV - Nicholas, Webster (Gauley River Basin) Mercer (Bluestone River)
Clinch sculpin	<i>Cottus sp. 4</i>	SOC	VA - Tazwell
Crystal darter	<i>Crystallaria asprella</i>	SOC	WV - Kanawha. (Elk River) Habitat: Found in the Mississippi River system in moderate to swift rivers over sand, gravel, or rocks. Can occasionally be found in pools. Has been eliminated from much of its range due to canalization and dams.

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Cumberland johnny darter	<i>Etheostoma nigrum susanae</i>	C	KY - Harlan, Letcher, McCreary, Whitley TN - Campbell, Scott
Duskytail darter (Dusky darter)	<i>Etheostoma percnurum</i>	E	TN - Scott VA - Scott KY - McCreary Habitat: Historically known in the middle reaches of the Cumberland River and upper reaches of the Tennessee River. Insectivore found near the edges of gently flowing, shallow pools, eddy areas, and slow runs; usually in clear water of large creeks and moderately large rivers (33 to 264'). They prefer a heterogeneous mixture of rock sizes from pea gravel, rubble/cobble, slabrock, and bolder substrates. Also often found associated with detritus and sometimes slightly silted substrates.
Eastern sand darter	<i>Etheostoma pellucidum</i>	SOC	WV - Braxton, Clay, Kanawha (Elk River) Boone. (Big and Little Coal Rivers) Habitat: Found in streams and rivers ranging in size from small creeks to large rivers with a bottom of sand, silt, mud, or gravel. The sandy raceways of large rivers are preferred.
Kanawha minnow	<i>Phenacobius teretulus</i>	SOC	WV - Greenbrier, Nicholas, Webster (Gauley River headwater tributaries) Habitat: Occurs in swift, rocky streams of the New River drainage.
Longhead darter	<i>Percina macrocephala</i>	SOC	VA - Scott WV - Braxton, Clay, Kanawha, Webster (Elk River) Habitat: Prefers clean, fast, rocky riffles or clear pools in medium-sized, unpolluted streams with moderate current.
Paddlefish	<i>Polyodon spathuia</i>	SOC	WV - Kanawha. (Elk and Kanawha Rivers) Habitat: Mississippi River system in large free-flowing rivers rich in zooplankton, but frequents impoundments with access to spawning sites.
Palezone shiner	<i>Notropis sp</i>	E	KY - McCreary, Wayne TN - Campbell Habitat: Cumberland and Tennessee River drainages. Found in flowing pools and runs of upland streams that have permanent flow, clean clear water, and substrates of bedrock, cobble, and gravel mixed with clean sand. Food habits are unknown.

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Popeye shiner	<i>Notropis ariommus</i>	SOC	VA - Lee, Russell, Scott
Slender chub	<i>Erimystax cahni</i> (=Hybopsis)	T	VA - Lee, Russell, Scott: <b>Critical habitat in Lee and Scott</b> TN - Claiborne, Cumberland, Fentress, Morgan Habitat: Benthic feeder that eats insects and mollusks. Found in moderate to large size (30-125 meter-wide) warm water streams with fine gravel substrates swept clean by moderate to swift currents. Critical habitat includes the Clinch and Powell Rivers.
Snail darter	<i>Percina tanasi</i>	T	TN - Marion Habitat: Adults prefer the swifter portions of shoals with clean gravel substrate in cool, low-turbidity water. Historically known near gravel shoals in the main channel of the Little Tennessee River. Juveniles utilized downstream nursery sites located in the Tennessee River (Watts Bar Reservoir headwater). Populations have also been found in S. Chickamauga Creek and Sewee Creek.
Spotfin chub	<i>Cyprinella monacha</i> (=Hybopsis)	T	VA - Scott: <b>Critical habitat in Scott</b> TN - Claiborne, Cumberland, Fentress, Morgan Habitat: Insectivore (mainly Dipterans) found in the Tennessee River Drainage. Prefers moderate to large streams (15-70 meters wide) with good current, clear water, and cool to warm temperatures. These streams have pools frequently alternating with riffles. This species has been found in a variety of substrates but rarely, if ever, from significantly silted substrates.
Spotted darter	<i>Etheostoma maculatum</i>	SOC	WV - Braxton, Webster. (Elk River above Sutton Lake) Habitat: This species requires large unpolluted streams, spending most of its time in deep riffles, or pools downstream where a gravel-rubble bottom predominates and the bottom velocity is low.
Tennessee Dace	<i>Phoxinus tennesseensis</i>	SOC	VA - Lee
Tippecanoe Darter	<i>Etheostoma tippecanoe</i>	SOC	VA - Russell, Scott
Western sand darter	<i>Ammocrypta clara</i>	SOC	VA - Lee, Scott Habitat: Found in medium to large rivers in the Ohio River drainage with moderate to slow current over sand. This darter spawns from July through August. It has been found an inch or more below the surface of the sand.

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Yellowfin madtom	<i>Noturus flavipinnis</i>	T	VA - Lee, Russell, Scott (Species has not been documented): <b>Critical habitat in Lee and Scott</b> TN - Claiborne Habitat: Nocturnal benthic fish that feeds on aquatic insect larvae. Found in warm streams of small to moderate size (8-40 meters wide) streams with moderate gradient and clear water with little siltation. Prefers quiet sections of pools and backwaters.
<b>Amphibian</b>			
Hellbender	<i>Cryptobranchus alleganiensis</i>	SOC	WV - Boone, Braxton, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, McDowell, Mercer, Mingo, Nicholas, Raleigh, Webster, Wyoming. Habitat: Nocturnal & completely aquatic. Hides under rocks or submerged logs, boulders, snags, and other large loose debris. Found in fast-moving, mid-sized streams and the channels of rivers with clear water. Eats crayfish & snails.
<b>Mammals</b>			
Eastern small-footed bat	<i>Myotis leibii</i>	SOC	VA - Dickenson, Lee, Tazwell, Wise WV - Greenbrier Habitat: Found in caves and abandoned mine shafts in the Allegheny Mountains with a possible preference for caves located in hemlock-covered foothills near water. This bat is a solitary hibernator that hibernates closer to cave openings than other bats.
Eastern woodrat	<i>Neotoma floridana</i>	SOC	WV - Boone, Braxton, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, McDowell, Mercer, Mingo, Nicholas, Raleigh, Webster, Wyoming Habitat: Nocturnal rodent that prefers secluded rock strewn sites in the Appalachian Mountains; usually on mountain tops and valley sides. Under tree canopy, the large rocks and boulders provide caves and a network of subsurface crevices that shelter the rat.
Gray bat	<i>Myotis grisecens</i>	E	KY - Carter, Lee, Pulaski, Wayne TN - Anderson, Bledsoe, Campbell, Claiborne, Fentress, Marion, Overton, Sequatchie VA - Lee, Scott Habitat: Food is mainly aquatic insects. In the summer it uses caves located within a km of a river or reservoir. In winter gray bat colonies are found in deep, vertical caves or cave-like habitat.

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Indiana bat	<i>Myotis sodalis</i>	E	<p>KY - Bell, Carter, Elliott, Estill, Greenup, Harlan, Jackson, Lee, Letcher, McCreary, Morgan, Pulaski, Rockcastle, Whitley, Wolfe</p> <p>TN - Campbell, .Claiborne, Fentress, Marion.</p> <p>VA - Buchanan, Dickenson, Lee, Russell, Scott, Tazwell, Wise.</p> <p>WV - Boone, Braxton, Clay, Fayette, Greenbrier, Lincoln, Logan, Kanawha, McDowell, Mercer, Mingo, Nicholas, Raleigh, Webster, Wyoming.</p> <p>Habitat: Eats insects. Females and juveniles forage in the airspace near the foliage of riparian and floodplain trees. Males forage the densely wooded area at tree top height. Creeks are apparently not used if riparian trees have been removed. In summer, maternity colonies are mainly found under loose bark or in hollows of trees. A few individuals under bridges &amp; old buildings. Limestone caves are used in winter months. Greenbrier and Mercer counties in WV have caves which serve as hibernacula for the Indiana Bat.</p>
Southeastern big-eared bat	<i>Corynorhinus rafinesquii</i>	SOC	<p>WV - Boone, Fayette, Lincoln, Logan, McDowell, Mingo, Nicholas, Raleigh, Wyoming.</p> <p>Habitat: Hibernates in caves in the northern part of its range, but it is often a species of the hollow of trees or buildings in wooded areas. Some populations live in caves or mines all year round. This species emerges late and it feeds mostly on adult months. Breeding occurs in fall or winter and one young per year is produced.</p>
Southern rock vole	<i>Microtus chrotorrhinus carolinensis</i>	SOC	<p>WV - Greenbrier, Nicholas, Webster</p> <p>Habitat: Rock voles in WV represent a relict population and they currently exist in small isolated areas of habitat. Therefore, this species is vulnerable to localized extirpation. In the central Appalachians, this vole is primarily a high elevation species, occurring in cool, rocky, boulder-strewn, coniferous, deciduous, and mixed deciduous-coniferous forests. In WV, it has been found in moss-covered rock areas in beech-maple-oak forests, among rock outcrops associated with nearby water in both northern hardwoods and mixed red spruce-northern hardwood forests; in recent red spruce and mixed red spruce clearcuts; and in 100+ year old northern hardwood stands greater than 3,020 feet in elevation.</p>

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Southern water shrew	<i>Sorex palustris punctulatus</i>	SOC	WV - Greenbrier, Nicholas, Webster Habitat: Usually associated with high elevation northern hardwood forests with yellow birch, beech, red spruce, red maple, and hemlock trees in the overstory. Dense rhododendron, mountain laurel, and other shrubs are in the understory. This animal is typically found along mountain streams characterized by cut banks, rocks, fallen logs, and abundant moss and leaf litter. Clear, relatively pure water that harbors an abundance of aquatic insects seems to be an essential part of its habitat.
Virginia big-eared bat	<i>Corynorhinus townsendii virginianus</i>	E	KY - Estill, Jackson, Lee, Morgan, Rockcastle, Wolfe. VA - Lee, Tazwell Habitat: Eats butterflies, flies, beetles, and mayflies. Utilize caves year-round.
Virginia northern flying squirrel	<i>Glaucomys sabrinus fuscus</i>	E	WV - Greenbrier, Webster (with proclamation boundaries of Monongahela National Forest. Habitat: Populations are restricted to isolated areas at higher elevations. Use the transition zone between coniferous and N. hardwood forest. During cooler months, they nest in tree cavities and woodpecker holes. In summer, they construct leaf nests. There is evidence that they sometimes enter burrows in the ground. They are not as aggressive as the southern flying squirrel.



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<b>Avian</b>			
Cerulean warbler	<i>Cendroica cerulea</i>	SOC	WV - Boone, Braxton, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, McDowell, Mercer, Mingo, Nicholas, Raleigh, Webster, Wyoming. Habitat: Insectivore and Neo-tropical migrant. Concentrated in oak and hickory forests at elevations below 600 meters along the Ohio and Monongahela rivers in WV. Prefers tall, mature trees near river bottoms, along lakes, and river shores, or on river islands. Highly sensitive to forest fragmentation. Studies suggest that a minimum of 700 hectares is needed for viable population.
<b>Invertebrates</b>			
Alabama lamp pearly mussel	<i>Lampsilis virescens</i>	E	TN - Anderson, Morgan. Habitat: Sand and gravel substrates of shoals; small to medium-sized rivers.
Anthony's river snail	<i>Athearnia anthonyi</i>	E	TN - Anderson, Marion. Habitat: Gravel to large boulder and log substrates; moderate to fast-flowing current; small to large rivers (mostly large).
Aquatic cavesnail	<i>Holsingeria unthinksensis</i>	SOC	VA - Lee.
Appalachian monkeyface pearlymussel	<i>Quadrula sparsa</i>	E	VA - Lee, Scott Habitat: Clean fast-flowing water in areas that contain relatively firm rubble, gravel, and sand substrate, swept free of silt.
Beartown perlodid stonefly	<i>Isoperla major</i>	SOC	VA - Tazwell
Big Cedar Creek millipede	<i>Brachoria falcifera</i>	SOC	VA - Russell.
Birdwing pearly mussel	<i>Conradilla caelata</i>	E	TN - Anderson, Claiborne. Habitat: Sand and gravel substrate; moderate to fast current; riffles of small to medium rivers. VA - Lee, Russell, Scott, Wise.
Brown supercoil	<i>Paravitrea septadens</i>	SOC	VA - Dickenson.
Burkes Garden cave beetle	<i>Pseudanophthalmus hortulanus</i>	SOC	VA - Tazwell.

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Cave beetle	<i>Pseudanophthalmus seclusus</i>	SOC	VA - Scott.
Cave beetle	<i>Pseudanophthalmus sp. 4</i>	SOC	VA - Scott.
Cave beetle	<i>Pseudanophthalmus sp. 9</i>	SOC	VA - Russell.
Cave beetle	<i>Pseudanophthalmus sp. 10</i>	SOC	VA - Russell.
Cave beetle	<i>Pseudanophthalmus vicarius</i>	SOC	VA - Tazwell.
Cave dipluran	<i>Litocampa sp. 4</i>	SOC	VA - Scott.
Cave dipluran	<i>Litocampa sp. 5</i>	SOC	VA - Tazwell.
Cave lumbriculid worm	<i>Stylodrilus beattiei</i>	SOC	VA - Tazwell.
Cave mite	<i>Rhagidia varia</i>	SOC	VA - Scott.
Cave pselaphid beetle	<i>Arianops jeanneli</i>	SOC	VA - Lee.
Cave pseudo-scorpion	<i>Kleptochthonius binoculatus</i>	SOC	VA - Scott.
Cave pseudo-scorpion	<i>Kleptochthonius gertschi</i>	SOC	VA - Lee.
Cave pseudo-scorpion	<i>Kleptochthonius lutzii</i>	SOC	VA - Lee.
Cave pseudo-scorpion	<i>Kleptochthonius proximisetus</i>	SOC	VA - Lee.
Cave pseudo-scorpion	<i>Kleptochthonius regulus</i>	SOC	VA - Tazwell.
Cave pseudo-scorpion	<i>Kleptochthonius similis</i>	SOC	VA - Lee.
Cave pseudo-scorpion	<i>Microcreagris valentinei</i>	SOC	VA - Lee.
Cave spider	<i>Nesticus paynei</i>	SOC	VA - Scott.
Cave spider	<i>Nesticus tennesseensis</i>	SOC	VA - Tazwell.
Cave springtail	<i>Oncopodura hubbardi</i>	SOC	VA - Lee

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Cave springtail	<i>Arrhopalites commorus</i>	SOC	VA - Tazwell
Cave springtail	<i>Arrhopalites carolynae</i>	SOC	VA - Lee
Cave springtail	<i>Pseudosinella hirsuta</i>	SOC	VA - Lee.
Cedar millipede	<i>Brachoria cedra</i>	SOC	VA - Lee.
Chandler's planarian	<i>Sphalloplana chandleri</i>	SOC	VA - Tazwell.
Cherokee clubtail	<i>Stenogomphus consanguis</i>	SOC	VA - Scott
Clubshell	<i>Pleurobema clava</i>	E	KY - McCreary. WV - Braxton, Clay, Kanawha. (Elk River) Habitat: Medium to large rivers in gravel or mixed gravel and sand.
Cracking pearly mussel	<i>Hemistena lata</i>	E	VA - Lee, Russell, Scott KY - McCreary, Wayne. Habitat: Medium to large rivers in mud, sand, or gravel.
Crayfish	<i>Cambarus veteranus</i>	SOC	WV - McDowell, Mingo, Raleigh, Wayne, Wyoming.
Cumberland bean pearly mussel (Cumberland bean)	<i>Villosa trabalis</i>	E	KY - Jackson, Laurel, McCreary, Pulaski, Rockcastle, Wayne, Whitley. TN - Scott. VA - Russell, Scott, Taz well
Cumberland Cave amphipod	<i>Stygobromus cumberlandus</i>	SOC	VA - Lee, Scott, Wise
Cumberlandian combshell	<i>Epioblasma brevidens</i>	E	KY - Laurel, McCreary, Pulaski, Wayne. TN - Claiborne, Scott. VA - Lee, Scott.
Cumberland elktoe	<i>Alasmidonta atropurpurea</i>	E	KY - Jackson, laurel, McCreary, Rockcastle, Whitley. TN - Fentress, Morgan, Scott.

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Cumberland monkeyface pearlymussel	<i>Quadrula intermedia</i>	E	TN - Claiborne, Lincoln, Maury. VA - Lee, Scott Habitat: Clean fast-flowing water in areas that contain relatively firm rubble, gravel, and sand substrate, swept free of silt.
Deceptive cave beetle	<i>Pseudanophthalmus deceptivus</i>	SOC	VA - Lee.
Delicate cave beetle	<i>Pseudanophthalmus delicatus</i>	SOC	VA - Lee.
Diana fritillary butterfly	<i>Speyeria diana</i>	SOC	VA - Buchanan, Dickenson, Lee, Scott, Tazwell, Wise o. WV - Boone, Braxton, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, McDowell, Mercer, Mingo, Nicholas, Raleigh, Webster, Wyoming. Habitat: Mainly found in the Appalachian Mountains in moist, well-shaded forests with rich soils. Can be found nectaring along woodland edges and small openings. Larval host plant is woodland violets.
Dromedary pearlymussel	<i>Dromus dromas</i>	E	VA - Lee, Scott.
Elktoe mussel	<i>Alasmidonta marginata</i>	SOC	WV - Braxton, Clay, Kanawha. (Elk River)
Fanshell mussel	<i>Cyprogenia stegaria</i>	E	KY - Boyd, Carter, Greenup, Lawrence, Wayne VA - Scott. WV - Fayette. (Kanawha River) Habitat: Found in medium to large rivers primarily in relatively deep water with moderate current over gravelly substrate.
Fine-rayed pigtoe	<i>Fusconaia cuneolus</i>	E	TN - Anderson, Claiborne, Sequatchie. VA - Lee, Russell, Scott, Tazwell, Wise.
Fluted kidneyshell	<i>Ptychobranhus subtentum</i>	C	KY - Jackson, laurel, McCreary, Pulaski, Rockcastle, Whitley. TN - Claiborne. VA - Lee, Russell, Scott, Tazewell, Wise.
Funnel supercoil	<i>Paravitrea mira</i>	SOC	VA - Buchanan, Dickenson.

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Greenbrier cavesnail	<i>Fontigens turritella</i>	SOC	WV - Greenbrier.
Greenbrier Valley cave beetle	<i>Pseudanophthalmus fuscus</i>	SOC	WV - Greenbrier.
Greenbrier Valley cave pseudo-scorpion	<i>Kleptochthonius henroti</i>	SOC	WV - Greenbrier.
Ground beetle	<i>Cyclotrachelus incisus</i>	SOC	VA - Dickenson.
Green-blossom pearly mussel	<i>Epioblasma torulosa gubernaculum</i>	E	VA - Scott. Habitat: Medium to large rivers in gravel riffles.
Green-faced clubtail	<i>Gomphus viridifrons</i>	SOC	VA - Dickenson, Scott, Wise.
Hoffman's xystodesmid millipede	<i>Brachoria hoffmani</i>	SOC	VA - Dickenson.
Holsinger's cave spider	<i>Nesticus holsingeri</i>	SOC	VA - Lee, Scott, Wise. Habitat: Constant natural air temperature, air flow and humidity
Holsinger's cave beetle	<i>Pseudanophthalmus holsingeri</i>	C	VA - Lee. Habitat: Constant natural air temperature, air flow and humidity
Hubricht's cave beetle	<i>Pseudanophthalmus hubrichti</i>	SOC	VA - Russell. Habitat: Constant natural air temperature, air flow and humidity
Lee County cave amphipod	<i>Stygobromus leensis</i>	SOC	VA - Lee.
Lee County cave beetle	<i>Pseudanophthalmus hirsutus</i>	SOC	VA - Lee. Habitat: Constant natural air temperature, air flow and humidity
Lee County cave isopod	<i>Lirceus usdagalun</i>	E	VA - Lee. Habitat: Constant natural air temperature, air flow and humidity
Little Kennedy cave beetle	<i>Pseudanophthalmus cordicollis</i>	SOC	VA - Wise. Habitat: Constant natural air temperature, air flow and humidity

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Little-wing pearlymussel	<i>Pegias fabula</i>	E	KY - Jackson, Laurel, McCreary, Pulaski, Rockcastle, Wayne. TN - Scott. VA - Lee Russell, Scott, Tazewell
Long-headed cave beetle	<i>Pseudanophthalmus longiceps</i>	SOC	VA - Lee. Habitat: Constant natural air temperature, air flow and humidity
Maiden Spring cave beetle	<i>Pseudanophthalmus virginicus</i>	SOC	VA - Tazewell. Habitat: Constant natural air temperature, air flow and humidity
Millipede - No common name	<i>Brachoria dentata</i>	SOC	VA - Lee.
Millipede - No common name	<i>Buotus carolinus</i>	SOC	VA - Tazewell.
Millipede - No common name	<i>Dixioria fowleri</i>	SOC	VA - Tazewell.
Millipede - No common name	<i>Pseudotremia alecto</i>	SOC	VA - Tazewell.
Millipede - No common name	<i>Pseudotremia armesi</i>	SOC	VA - Tazewell.
Millipede - No common name	<i>Pseudotremia tuberculata</i>	SOC	VA - Tazewell.
No common name	<i>Arrhopalites carolynae</i>	SOC	VA - Lee, Wise.
No common name	<i>Arrhopalites commorus</i>	SOC	VA - Lee.
No common name	<i>Arrhopalites marshall</i>	SOC	VA - Scott.
No common name	<i>Arrhopalites pavo</i>	SOC	VA - Scott.
No common name	<i>Oncopodura hubbardi</i>	SOC	VA - Dickenson.

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No common name	<i>Pseudosinella erehwon</i>	SOC	VA - Scott.
No common name	<i>Pseudosinella extra</i>	SOC	VA - Scott.
No common name	<i>Typhlogastruta valentini</i>	SOC	VA - Scott.
Northern riffleshell	<i>Epioblasma torulosa rangiana</i>	E	WV - Kanawha. (Elk River) Habitat: Medium to large rivers in gravel riffles.
Ohio river pigtoe	<i>Pleurobema cardatum</i>	SOC	VA - Scott.
Overlooked cave beetle	<i>Pseudanophthalmus praetermissus</i>	SOC	VA - Scott.
Oyster mussel	<i>Epioblasma capsaeformis</i>	E	KY - Laurel, McCreary, Pulaski, Wayne, Whitley. TN - Claiborne, Scott. VA - Lee, Russell, Scott, Tazwell.
Pale lilliput pearly mussle	<i>Toxolasma cylindrella</i>	E	TN - Marion.
Pink mucket pearly mussel	<i>Lampsilis abrupta</i> (=orbiculata)	E-EX	VA - Scott KY - Green, Greenup, McCracken, Marshall. TN - Hardin, Hawkins, Meigs, Roane, Trousdale. WV - Fayette (Kanawha River), Kanawha (Elk River). Habitat: Lower Mississippi and Ohio Rivers and their larger tributaries in gravel or sand. Medium to large rivers in habitats ranging from silt to boulders, rubble, gravel, and sand substrates.
Powell Valley planarian	<i>Sphalloplana consimilis</i>	SOC	VA - Lee.
Powell Valley terrestrial cave isopod	<i>Amerigoniscus henroti</i>	SOC	VA - Lee. Habitat: Constant natural air temperature, air flow and humidity
Purple bean	<i>Villosa perpurpurea</i>	E	TN - Cumberland, Morgan, Scott. VA - Lee, Russell, Scott, Tazewell

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Purple lilliput	<i>Toxolasma lividus</i>	SOC	VA - Russell, Scott. Habitat: Lakes and small streams in gravel.
Pyramid pigtoe	<i>Pleurobema rubrum</i>	SOC	VA - Scott.
Rayed bean mussel	<i>Villosa fabilis</i>	SOC	WV - Braxton, Clay, Kanawha. (Elk River)
Regal fritillary	<i>Speyeria idalia</i>	SOC	VA - Buchanan, Lee, Russell, Tazwell. Habitat: Found in tall prairie and other large grasslands adjacent to marshes, bogs, or wet meadows. May prefer grasslands in higher elevations. Larval host plant is violet.
Ring pink	<i>Obovaria retusa</i>	E	KY - Greenup. Habitat: Large rivers in gravel or sand.
Rotund cave beetle	<i>Pseudanophthalmus rotundatus</i>	SOC	VA - Lee. Habitat: Constant natural air temperature, air flow and humidity
Rough pigtoe	<i>Pleurobema plenum</i>	E	KY - Warren VA - Scott. TN - Hardin, Trousdale Habitat: Medium to large rivers in sand and gravel substrates.
Rough rabbitsfoot	<i>Quadrula cylindrica strigillata</i>	E	TN - Claiborne, Hancock. VA - Lee, Russell, Scott, Tazewell.
Rove beetle	<i>Atheta troglaphila</i>	SOC	VA - Lee.
Royal marstonia snail	<i>Marstonia ogmoraphe</i>	E	TN - Marion.
Royal syarinid pseudo-scorpion	<i>Chitrella regina</i>	SOC	WV - Greenbrier. Habitat: Constant natural air temperature, air flow and humidity. Associated with limestone geology.
Rye cove isopod	<i>Lirceus culveri</i>	SOC	VA - Scott.
Saint Paul cave beetle	<i>Pseudanophthalmus sanctipauli</i>	SOC	VA - Russell, Scott.



## Appendix F

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Sequatchie caddisfly	<i>Glyphopsyche sequatchie</i>	C	TN - Marion
Sheepnose	<i>Plethobasus cyphus</i>	SOC	VA - Lee, Russell, Scott.
Shiney pigtoe	<i>Fusconaia cor</i>	E	TN - Anderson, Campbell, Claiborne. VA - Lee, Russell, Scott, Wise.
Sidelong supercoil	<i>Paravitrea ceres</i>	SOC	WV - Nicholas. Habitat: Constant natural air temperature, air flow and humidity
Silken cave beetle	<i>Pseudanophthalmus sericus</i>	SOC	VA - Scott. Habitat: Constant natural air temperature, air flow and humidity
Slabside pearlymussel	<i>Lexingtonia dolabelloides</i>	C	VA - Lee, Russell, Scott, Tazewell
Skillet clubtail	<i>Gomphus ventricosus</i>	SOC	VA - Scott.
Snuffbox mussel	<i>Epioblasma triquetra</i>	SOC	VA - Lee, Scott. WV - Braxton, Clay, Kanawha. (Elk River) Habitat: Medium to large rivers in clear, gravel riffles.
Spectacle case	<i>Cumberlandia monodonta</i>	SOC	VA - Russell, Scott, Tazewell.
Spiny riversnail	<i>Io fluvialis</i>	SOC	VA - Lee, Russell, Scott, Tazewell.
Tan riffleshell	<i>Epioblasma florentina walkeri</i>	E	KY - Pulaski, Wayne. TN - Scott VA - Russell, Tazewell.
Tennessee clubshell	<i>Pleurobema oviforme</i>	SOC	VA - Lee, Russell, Scott, Tazewell.
Tennessee heelsplitter	<i>Lasmigona holstonia</i>	SOC	VA - Lee, Russell, Scott, Tazewell, Wise.
Tennessee pigtoe	<i>Fusconaia barnesiana</i>	SOC	VA - Lee, Russell, Scott, Tazewell, Wise.
Thomas' cave beetle	<i>Pseudanophthalmus thomasi</i>	SOC	VA - Scott. Habitat: Constant natural air temperature, air flow and humidity
White wartyback	<i>Plethobasus cicatricosus</i>	E	TN - Anderson

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Yellow-blossom	<i>Epioblasma florentina florentina</i>	E	TN - Claiborne.
<b>Plants</b>			
Vascular Plants			
A bittercress	<i>Cardamine flagellifera</i>	SOC	VA - Dickenson.
American hart's tongue fern	<i>Asplenium americana</i>	T	TN - Marion. Habitat: Requires deep shade, a continuously high humidity, moist soil, and the presence of dolomitic limestone outcrops with a high magnesium concentration.
Appalachian bugbane	<i>Cimicifuga rubifolia</i>	SOC	VA - Lee, Russell, Scott, Tazwell, Wise. Habitat: Moist woods.
Barbara's buttons	<i>Marshallia grandiflora</i>	SOC	WV - Nicholas, Webster. Habitat: Perennial plant that blooms from June-July. Grows in crevices of flood-scoured rock shelves and cobble/sand banks of rivers (e. g. , Youghiogheny). The regular flood cycles of the river may be necessary to prevent competing grasses and shrubs from taking over and outcompeting the <i>Marshallia</i> .
Bog bluegrass	<i>Poa paludigena</i>	SOC	VA - Russell, Scott, Tazwell. Habitat: Small grass found in sphagnum bogs, tamarack swamps, and cold spring heads.
Box huckleberry	<i>Gaylusscaia brachycera</i>	SOC	VA - Dickenson. Habitat: Long-lived perennial thought to spread through asexual reproduction by rhizomes. The rhizomes spread very slowly at the rate of about 6" per year. Found on north-facing slopes over acidic shale bedrock.

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Butternut	<i>Juglans cinera</i>	SOC	WV - Boone, Braxton, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, McDowell, Mercer, Mingo, Nicholas, Raleigh, Webster, Wyoming. Habitat: Shade-intolerant, fast-growing tree characteristic of deep, moist, fertile soils of lower slopes, coves, river banks, and floodplains. Also grows on dry, rocky limestone soils in fewer numbers. Populations are declining because of infection with a fungus that causes trunk and branch cankers and subsequent crown dieback.
Canby's mountain-lover	<i>Paxistima canbyi</i>	SOC	VA - Lee, Russell, Scott, Tazwell, Wise. WV - Greenbrier, Mercer. Habitat: Grows on rocky, well-drained upland soils. The branches spread along the ground and sprout where favorable. Flowers in April and May.
Carey saxifrage	<i>Saxifraga careyana</i>	SOC	VA - Buchanan, Russell. Habitat: Found in the mountains of WV. Grows on moist rocks and wet spots on rock outcrops and cliffs. Flowers in May and June.
Gray's saxifrage	<i>Saxifraga caroliniana</i>	SOC	VA - Russell. WV - Boone, Braxton, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, McDowell, Mercer, Mingo, Nicholas, Raleigh, Webster, Wyoming. Habitat: Found in the mountains of WV, VA, NC, and TN. Grows on wet spots in moist rocky woods. Flowers in May and June.
Chaffseed	<i>Schwalbea americana</i>	E	KY - McCreary Habitat: Moist to dry pinelands, oak woods or clearings.
Cumberland rosemary	<i>Conradina verticillata</i>	T	KY - McCreary. TN - Cumberland, Fentress, Morgan, Scott. Habitat: Grows along rivers in close proximity to the Cumberland Plateau. Always found in close association with the floodplain of watercourses. Prefers open to slightly shaded, moderately deep, well-drained soils, and topographic features that protect the plants from the full force of flooding. Specific areas supporting this species include boulder, sand, and gravel bars, terraces of sand on gradually sloping river banks, and islands.

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Cumberland sandwort	<i>Arenaria cumberlandensis</i>	E	KY - McCreary. TN - Fentress, Morgan, Scott. Habitat: Known in a limited portion of the Cumberland Plateau. Restricted to shady, moist rockhouse floors, overhanging ledges, and solution pockets in sandstone rock faces. Needs the correct combination of shade, high moisture, cool temperatures, and high humidity. Flowers in late June to early July.
Eggert's sunflower	<i>Helianthus eggertii</i>	T	KY - Jackson. TN - Marion.
Glade spurge	<i>Euphorbia purpurea</i>	SOC	VA - Russell, Tazwell. Habitat: Flowers from July to September. Found in rich seepage wetlands and thickets. Sprouts from a short, thick underground stem. Threatened by habitat destruction and water quality degradation.
Green pitcher plant	<i>Sarracenia oreophila</i>	E	TN - Cumberland
Long stalked holly	<i>Ilex collina</i>	SOC	VA - Tazwell
Large-flowered skullcap	<i>Scutellaria montana</i>	E	TN - Marion, Sequatchie. Habitat: Mint found only at the southern end of the Ridge and Valley Physiographic Province in Georgia and Tennessee. It occurs on dry to slightly moist rock slopes under a canopy of mature (70-200 years old) hardwoods (primarily oaks and hickories). All known sites show little or no disturbance due to logging activities or grazing by livestock.
Ovate catchfly	<i>Silene ovata</i>	SOC	VA - Lee. Habitat: Perennial plant found in rich woods. Flowers in August.
Piratebush	<i>Buckleya distichophylla</i>	SOC	VA - Tazwell. Habitat: Found in moist woods with hemlocks. May be parasitic on hemlocks.
Price's potato bean	<i>Apios priceana</i>	T	TN - Marion. Habitat: Found in woods and thickets. Flowers from July through September.
Running buffalo clover	<i>Trifolium stoloniferum</i>	E	KY - Jackson

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Running glade clover	<i>Trifolium calcaricum</i>	SOC	VA - Lee, Scott. Habitat: Limestone glades.
Schweinitz's sedge	<i>Carex schweinitzii</i>	SOC	VA - Lee, Russell, Scott, Tazwell, Wise. Habitat: Open, calcareous wetlands.
Small whorled pogonia	<i>Isotria medeoloides</i>	T	VA - Lee, Wise. WV - Greenbrier. Habitat: Open, dry deciduous woods with acid soil. Flowers from mid-May to mid-June. Does not necessarily flower annually.
Smoke hole bergomot	<i>Monarda fistulosa ssp. brevis</i>	SOC	WV - Mercer (Along Bluestone Ridge, Pipestem Gorge)
Sweet pine sap	<i>Monotropsis odorata</i>	SOC	VA - Dickenson. Habitat: Forested habitats.
Virginia spiraea	<i>Spirea virginiana</i>	T	KY - Laurel, Pulaski, Rockcastle, Whitley TN - Cumberland, Morgan, Scott, Fentress, Sequatchie, VA - Buchanan, Dickenson, Lee, Russell, Scott, Tazwell, Wise WV - Fayette, Nicholas, Mercer, Raleigh, and Greenbrier (Known along the Gauley, Meadow, Bluestone Rivers and Beaver Creek) Habitat: Typically found on rocky, flood-scoured riverbanks in gorges or canyons. Flood scouring is essential to the survival of this plant. Grows best in full sun, but can tolerate some shade. The bedrock surrounding this species is primarily sandstone and the soils are acidic.
White fringeless orchid	<i>Platanthera integrilabia</i>	C -Ex C	C-KY - Laurel, McCreary, Pulaski, Rockcastle C-Ex, VA - Lee. C-TN - Cumberland, Fentress, Marion, Sequatchie Habitat: Flowers from July to September. It grows in the wet peaty soils of swamps, bogs, and in pine barrens.

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White-haired goldenrod	<i>Solidago albopilosa</i>	T	KY - Wolfe. Habitat: Grows in rock shelters on the upper slopes of the Red River Gorge between 800-1,300 feet mean sea level in elevation. Can occur on any slope aspect, but plants growing in north to northwest exposures are smaller than average. Found almost exclusively in partial shade behind the dripline of rockshelters. Rarely found on rock ledges or in sandy soil along the side of a hiking trail.
Yarrow-leaved ragwort	<i>Senecio millefolium</i>	SOC	VA - Lee, Scott. Habitat: Grows on wet or dry rock in the southwest mountains of VA. Flowers from May to early June.