

Threatened and Endangered Species

- Critical Habitat
- The Variegate Darter (Etheostoma variatum)
 - Endangered in Virginia
 - Live in warm streams and rivers with rocky bottoms
 - Eats mites and other insects
 - Dismal Creek, Knox Creek, and the Russell Fork
 - Affected by mine drainage, silt accumulation, and other pollutants



Threatened and Endangered Cont.

- Big Sandy Crayfish
 (Cambarus Puncticambarus veteranus)
 - Found in West Virginia
 and Big Sandy River
 drainage areas only
 - Likely extirpated



Threatened and Endangered Species of the Virginia Headwaters of the Big Sandy River

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	Species	Federal Status	State Status	į
	Plants			7
	Virginia Spirea	Т	E	,
	Alabama Grape-fern		SH	1
	Nodding Pogonia		S1	
	Nodding Trillium		S1	i
Š	Shining Ladies'-tresses		S1	
	Red Turtlehead		S1	
	Snails			
	Brown Supercoil	SOC	Т	
	Funnel Supercoil	SOC		
	Millipedes			
9	Hofman's xystodesmid millipede	SOC		
	Bats			
ű	Indiana Bat	E	E	
	Eastern Small-footed Bat		S1	
	Birds			
	Swainson's Warbler		SC	

Pink Lady's Slipper (Cypidium acaule)

- Type of orchid
- Spreads through crosspollination
- Prefers acidic soils and needs a fungus presetn in soil
- Once used as a medicinal plant



Ginseng (Panax quinquefolium)

- Appalachian mountains' ginseng world's most potent
- On the verge of extinction
- Sale of ginseng roots
 <10 yrs old prohibited



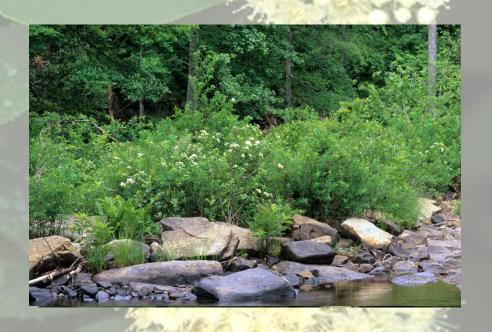
Eastern Hellbender (Cryptobranchus alleganiensis)

- Large aquatic salamander
- Lives in cool, mounatin streams
- Requires clean water
- Carnivorous, prefers crayfish
- Lives alone



Virginia Spiraea (Rosaceae spiraea virginiana)

- Member of the rose family
- Grows from 2 to 6 ft tall
- Requires regular flood scouring
- Human development and non-native species threaten its survival



Indiana Bat (Vespertilionidae Myotis sodalis)

- Highly endangered in VA
- Found throughout Big Sandy Watershed from April to October



Diana Fritillary Butterfly (Speyeria Diana)

- species of woodland butterfly
- prefer well-shaded forest land
- decline in population could be due to
 - loss of habitat (development and strip mining)
 - use of BT, a natural insecticide



Cougar (Puma concolor couguar)

- Federally endangered species
- Established cougar populations found only out West
- Before European settlement, habitat stretched to Atlantic coast
- Hunted to near extinction
- Population in VA unknown



Picture of Western Cougar in Arizona, not the subspecies Puma concolor couguar

Elk (Cervus elaphus nelsoni)

- Once native to region
- Last in Virginia killed in the 1800s
- Some migrate in from Kentucky where they have been reintroduced
- Virginia is currently considering reintroduction in Southwest VA



Rocky Mountain elk in Shoshone National Forest, Wyoming

- Over 200 species
 have been
 identified along the
 streams and ridges
 of the area
- Well-known for the diverse amount of wood-warblers

Kirtland's warbler, one of the rarest breeding birds of North America makes its migration route straight through our watershed





The <u>Cerulean Warbler</u>, a deep forest dwelling songbird, was once one of the most abundant warblers in the Ohio River Valley.

The Cumberland Mountains are one of the best places to find the bird but its population has been on the decline.

The <u>Brown-headed Cowbird</u>, a parasitic bird, is the one cause of the decline in certain bird species.

They lay eggs in other bird's nest and once hatched dominate the nest.





Chestnut-sided Warbler, once one of the rarest birds in all of North America, is on the rise. Their preferred habitat is second-growth and scrub land. Cooper's Hawk, a common year-round raptor of the Big Sandy watershed





The Peregrine Falcon has made a comeback through the efforts of the Virginia Department of Game and Inland Fisheries and its partners. The widespread use of DDT after World War II nearly led to its destruction.

References

- Variegate Darter: Courtesy of Jeff Web, EPA, http://www.epa.gov/bioiweb1/html/photos_fish_freshwater_perches.html
- Big Sandy Crayfish picture: Casey D. Swecker at Marshall University, http://www.science.marshall.edu/jonest/Crayfish%20web%20page/crayfishes_of_west_virginia.htm
- Pink Lady's Slipper: R.A. Howard @ USDA-NRCS PLANTS Database
- Ginseng (American); Courtesy of Dan J. Pittillo, US Fish and Wildlife Service
- Eastern Hellbender: Courtesy of John White VDGIF
- Virginia spiraea pictures: T.G. Barnes and habitat pic by Hugh and Carol Nourse, USDA Forest Service http://www.fs.fed.us/wildflowers/rareplants/profiles/tep/spiraea_virginiana/index.shtml
- Indiana Bat: Andy King @ U.S. Fish and Wildlife Service
- Diana fritillary butterfly, male: Courtesy of Bill Bouton, taken in Viola, Warren Co., TN
- Cougar: Photographer: AskJoanne Taken in Sedona, Arizona, copyright under <u>Creative Commons</u>
 Attribution-Share Alike 2.0 Generic
- Elk: USDA Forest Service, Bull Elk bugling during fall mating season, Shoshone National Forest, Wyoming, U.S.
- Kirtland's Warbler: Photographer: Dominic Sherony; copyright under <u>Creative Commons Attribution-Share</u> <u>Alike 2.0 Generic</u>
- Cerulean Warbler: Courtesy of Roger Mayhorn
- Brown-headed Cowbird: Courtesy of Lee Karney, US Fish and Wildlife Service
- Chestnut –sided Warbler: Courtesy of Roger Mayhorn
- Cooper's Hawk: Courtesy of Roger Mayhorn
- Peregrine Falcon: Courtesy of Steve Maslowski, US Fish and Wildlife Service