

## *Rapid Watershed Assessment Lower Juniata Watershed*

*Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help landowners and local leaders set priorities and determine the best actions to achieve their goals.*



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## Preface

The Natural Resources Conservation Service (NRCS) is initiating rapid watershed assessments in order to increase the speed and efficiency generating resource information to guide conservation implementation, as well as the speed and efficiency of putting it into the hands of local decision makers. While these rapid assessments provide less detail and analysis than full-blown studies and plans, they do provide a foundation for watershed studies or area planning. In addition, the assessments provide the benefits of NRCS locally-led planning for resource conservation and conservation program implementation in less time and at a reduced cost than more complex studies.

Rapid watershed assessments will be valuable for Farm Bill program delivery, and provide useful information for county, watershed and regional planners. These assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments can help landowners and local leaders set priorities and determine the best actions to achieve their goals.

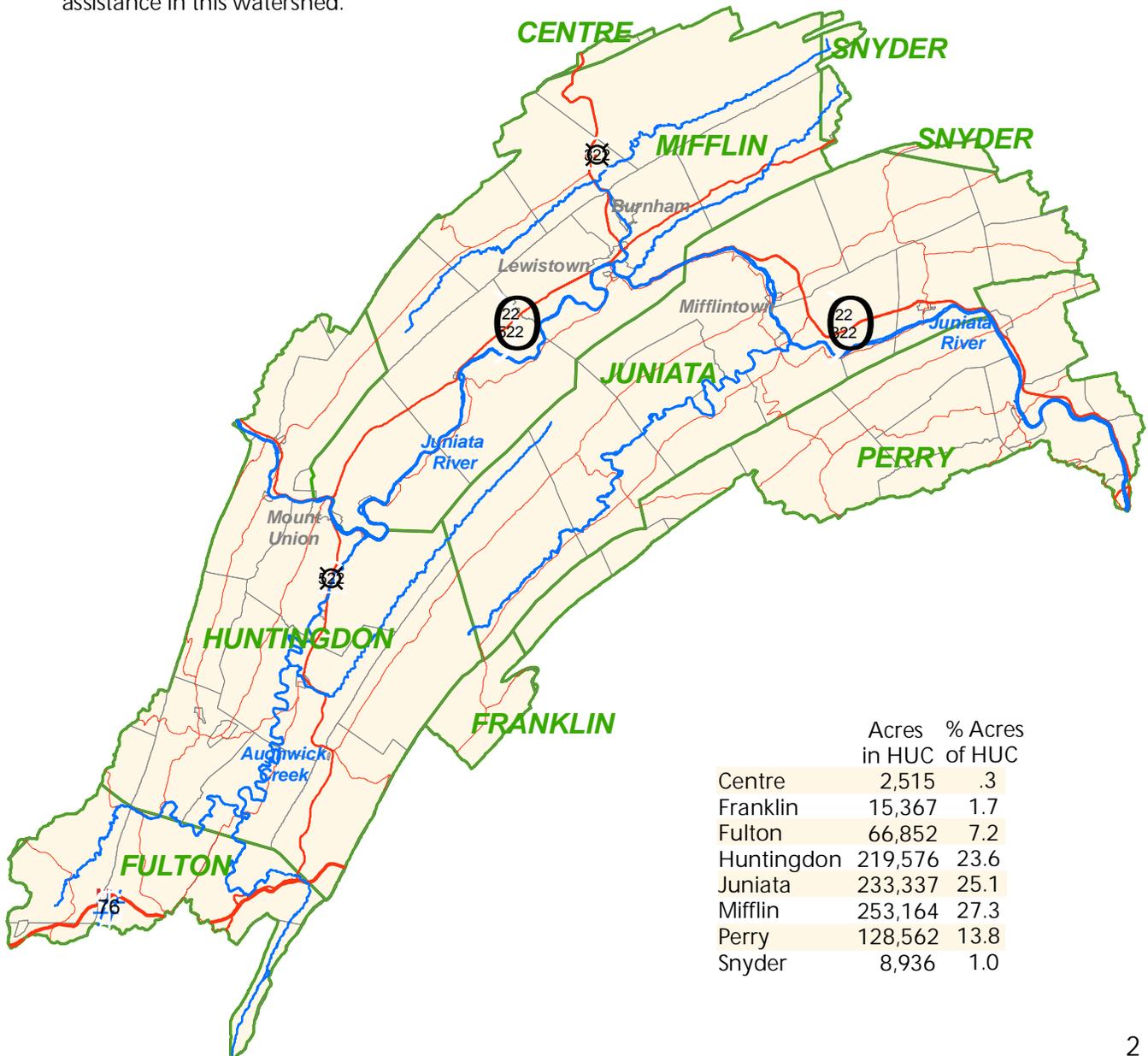
To produce the assessments, quantitative and qualitative data is collected and organized to create a watershed profile using Geographic Information System (GIS) technology. The data is analyzed to allow resource concerns and conditions to become apparent, and to generate maps and information to help people make better decisions about conservation needs and programs.

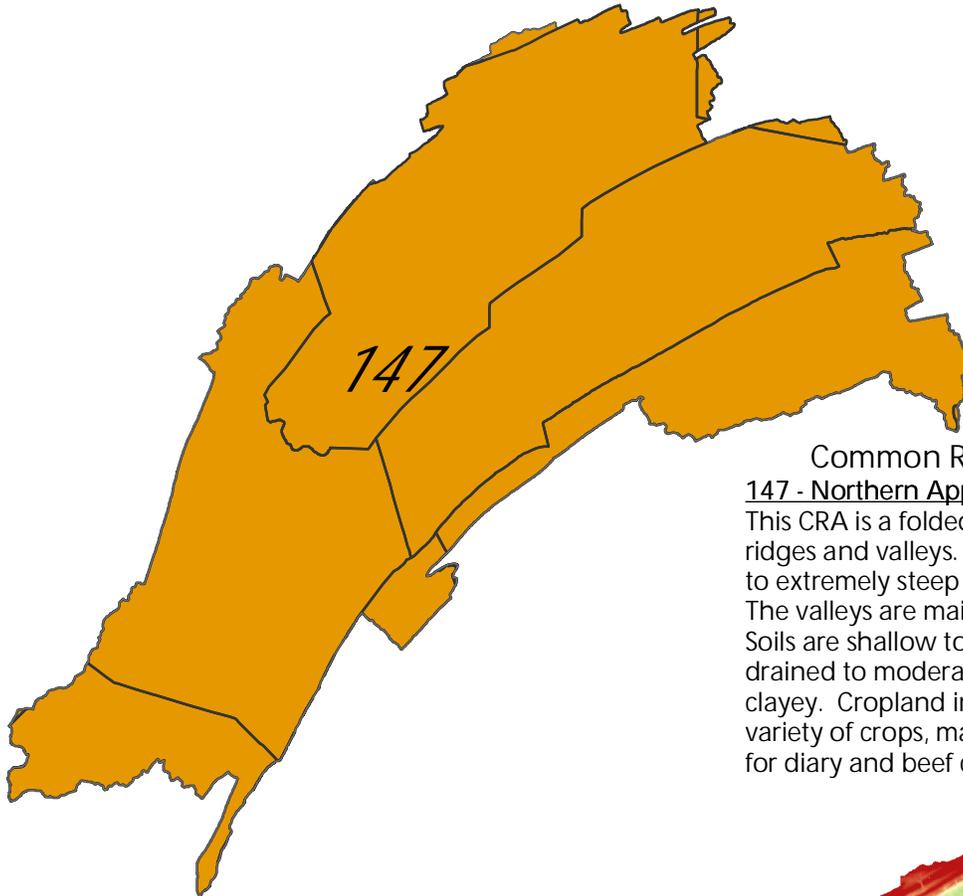
/s/ Craig R. Derickson  
Pennsylvania State Conservationist



## Introduction

The Lower Juniata Watershed is located in Central Pennsylvania in portions of Centre, Franklin, Fulton, Huntingdon, Juniata, Mifflin, Perry, and Snyder Counties. The watershed is almost 928,700 acres in size, of which almost 206,000 acres is farmland. Eight Service Centers of the Natural Resources Conservation Service, eight county Conservation Districts and parts of four Resource Conservation and Development Council offices provide conservation assistance in this watershed.





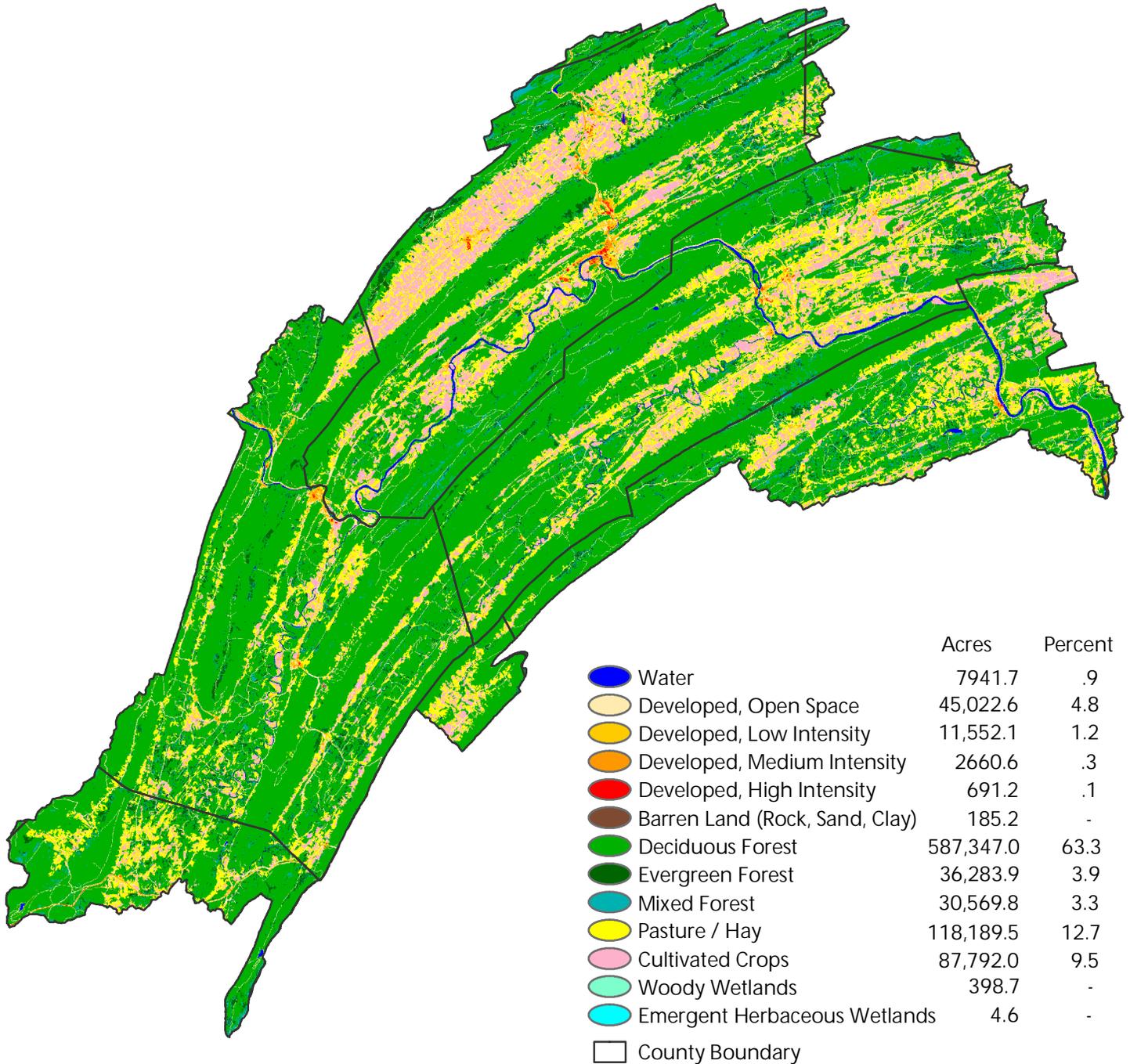
**Common Resource Area (CRA)<sup>1</sup>**  
**147 - Northern Appalachian Ridges and Valleys:**  
This CRA is a folded and faulted area of parallel ridges and valleys. The ridges are strongly sloping to extremely steep and have narrow, rolling crests. The valleys are mainly level to strongly sloping. Soils are shallow to very deep, generally excessively drained to moderately well drained, and loamy or clayey. Cropland in the area is used for a wide variety of crops, mainly corn, small grain, and forage for dairy and beef cattle.

**Elevation<sup>2</sup>**  
Elevation in the CRA  
ranges from 246 feet  
high point to 321 feet  
low point.

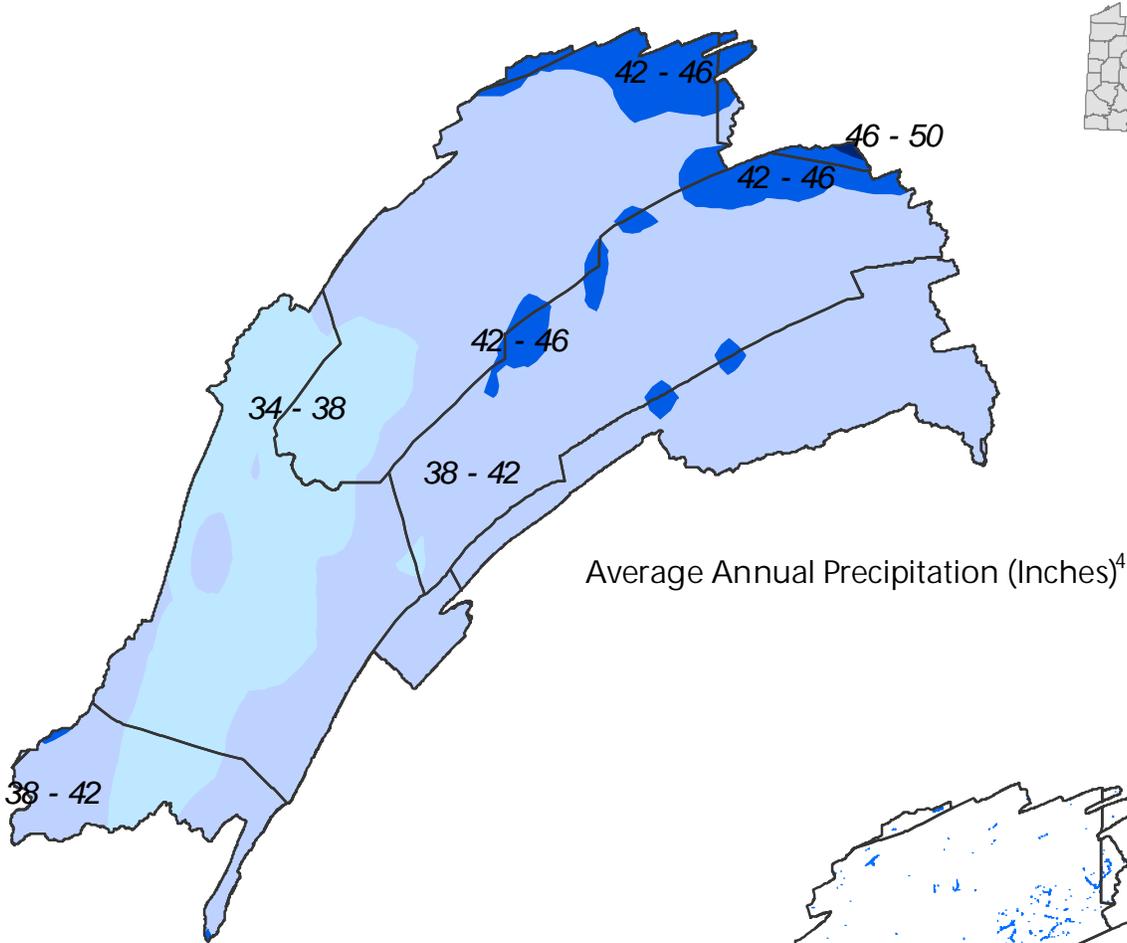




Land Use / Land Cover 2001<sup>3</sup>



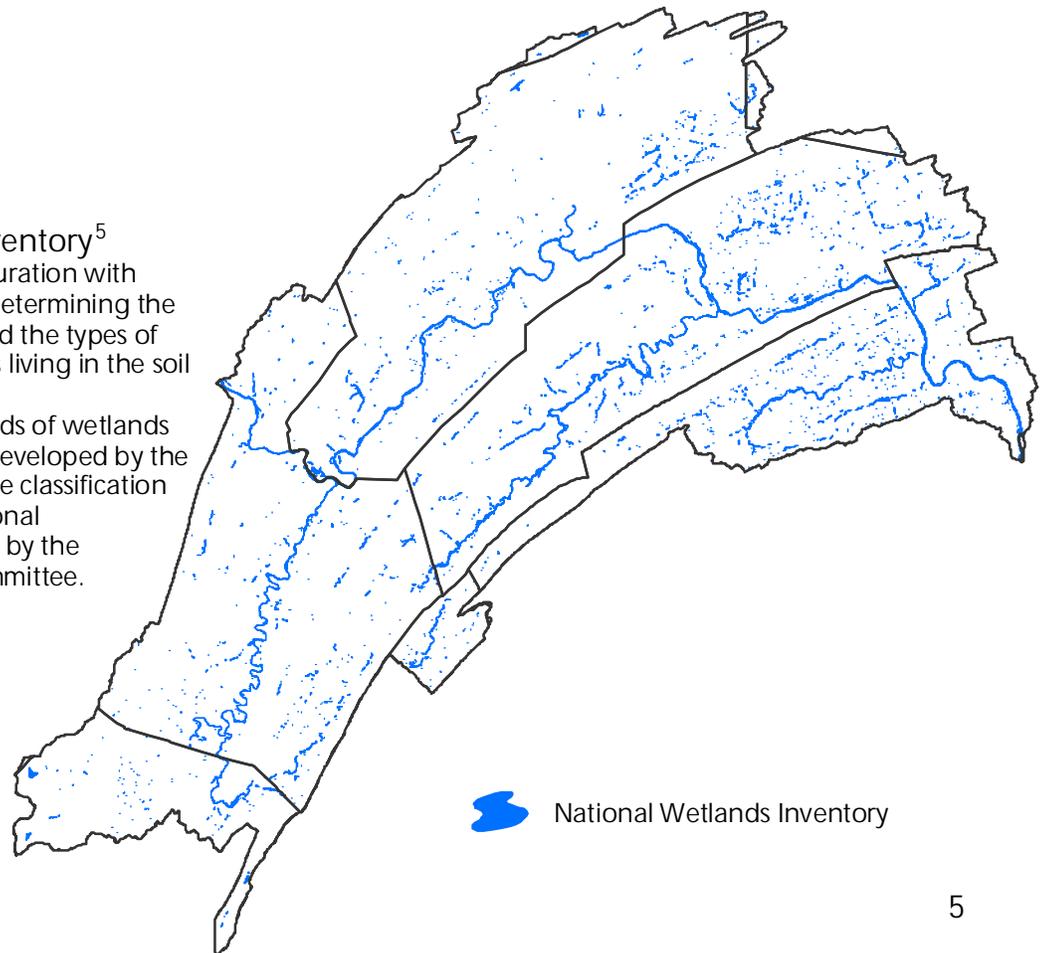
## Lower Juniata Watershed



### National Wetlands Inventory<sup>5</sup>

Wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface.

NWI digital data files are records of wetlands location and classification as developed by the U.S. Fish & Wildlife Service. The classification system was adopted as a national classification standard in 1996 by the Federal Geographic Data Committee.



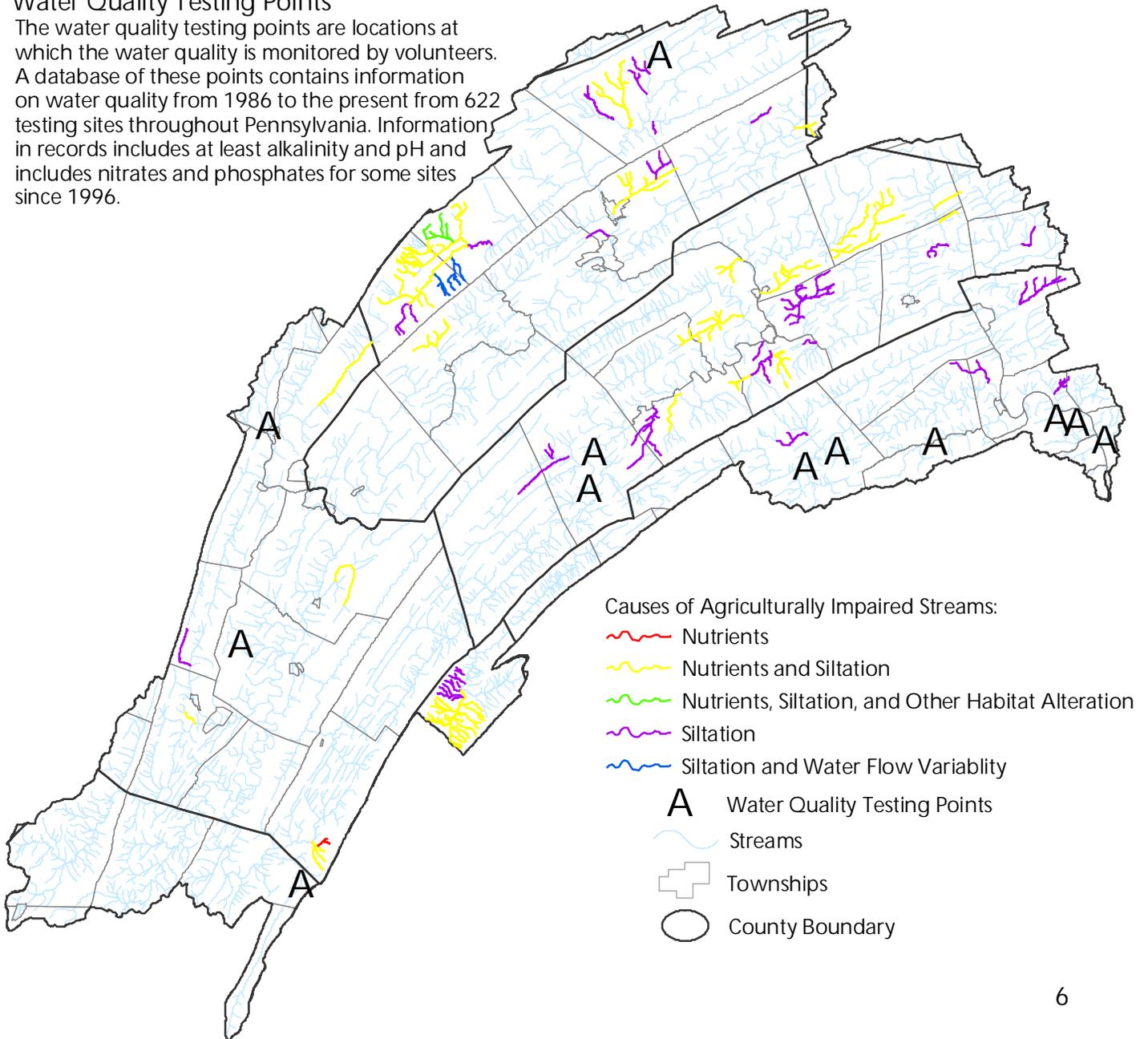


**Impaired Streams<sup>6</sup>**

The Streams Integrated List (2006) represents stream assessments in an integrated format for the Clean Water Act Section 305(b) reporting and Section 303(d) listing. PA Department of Environmental Protection protects 4 stream water uses: aquatic life, fish consumption, potable water supply, and recreation. The 305(b) layers represents stream segments that have been evaluated for attainment of those uses and determine which streams are non-attaining.

**Water Quality Testing Points<sup>7</sup>**

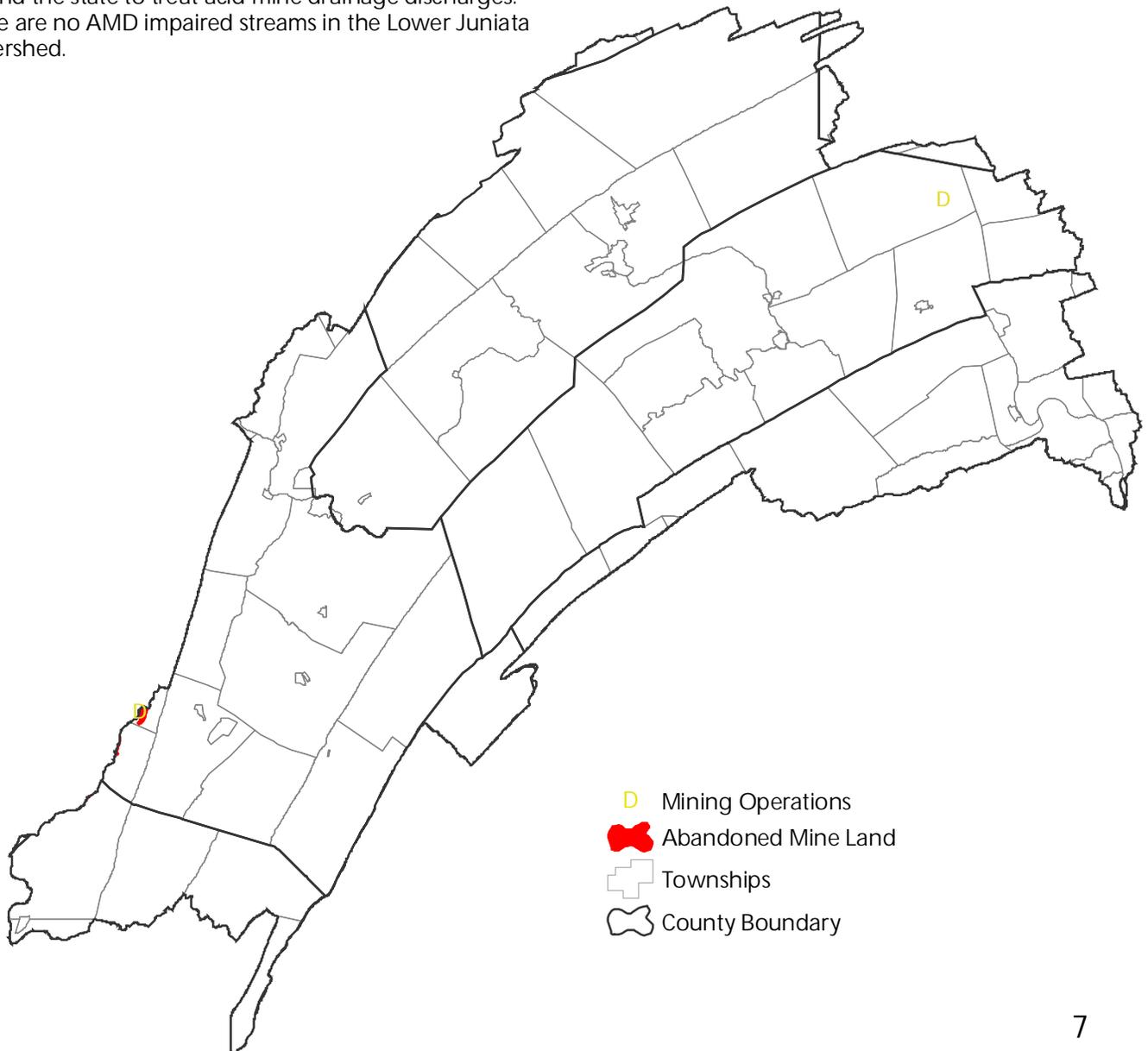
The water quality testing points are locations at which the water quality is monitored by volunteers. A database of these points contains information on water quality from 1986 to the present from 622 testing sites throughout Pennsylvania. Information in records includes at least alkalinity and pH and includes nitrates and phosphates for some sites since 1996.

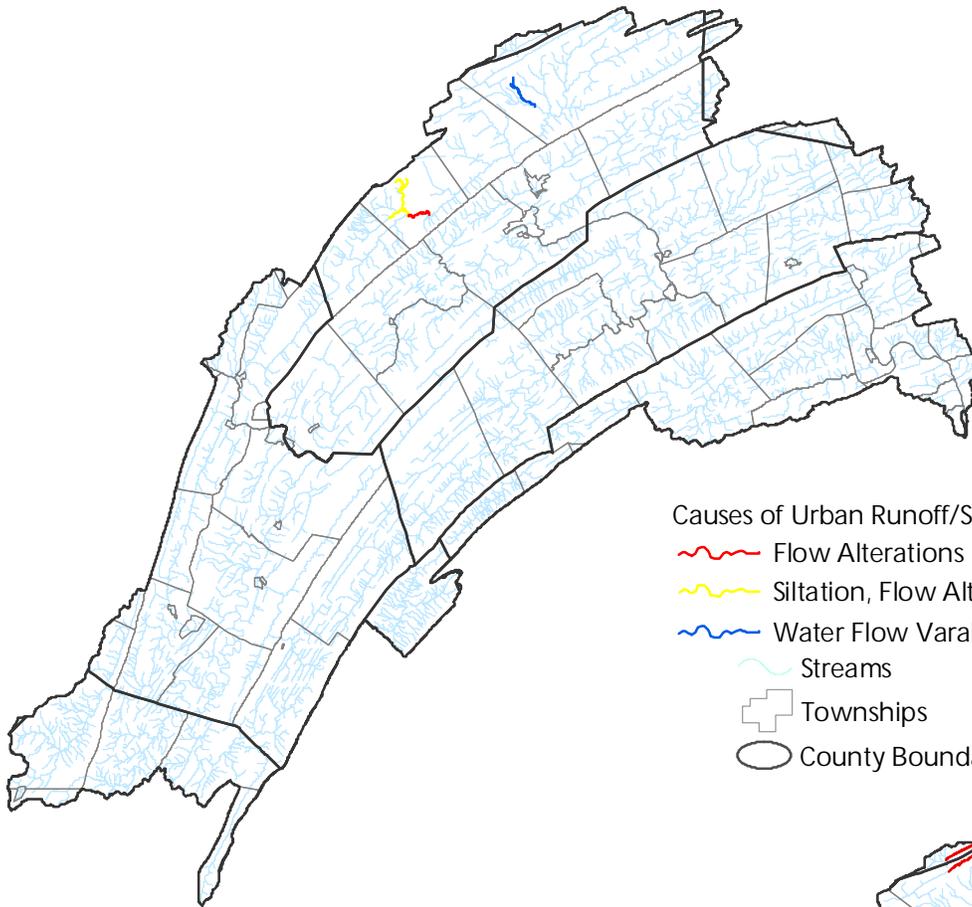




### Abandoned Mine Land and Abandoned Mine Drainage Impaired Streams<sup>8</sup>

Coal mining in Pennsylvania began in the mid-1700's. Pennsylvania is the fourth largest coal producer in the United States, producing over 69.5 million tons in 1995 in 878 mining operations. The environmental legacy of hundreds of years of coal mining in PA includes over 2,400 miles of PA's 84,000 miles of streams effected by acid mine drainage from old coal mining operations. Acid mine drainage is the single largest source of water pollution in the state. Since 1967, Pennsylvania and the federal government have invested close to \$500 million to correct problems from abandoned surface and deep mines. There are acid mine drainage treatment plants around the state to treat acid mine drainage discharges. There are no AMD impaired streams in the Lower Juniata Watershed.



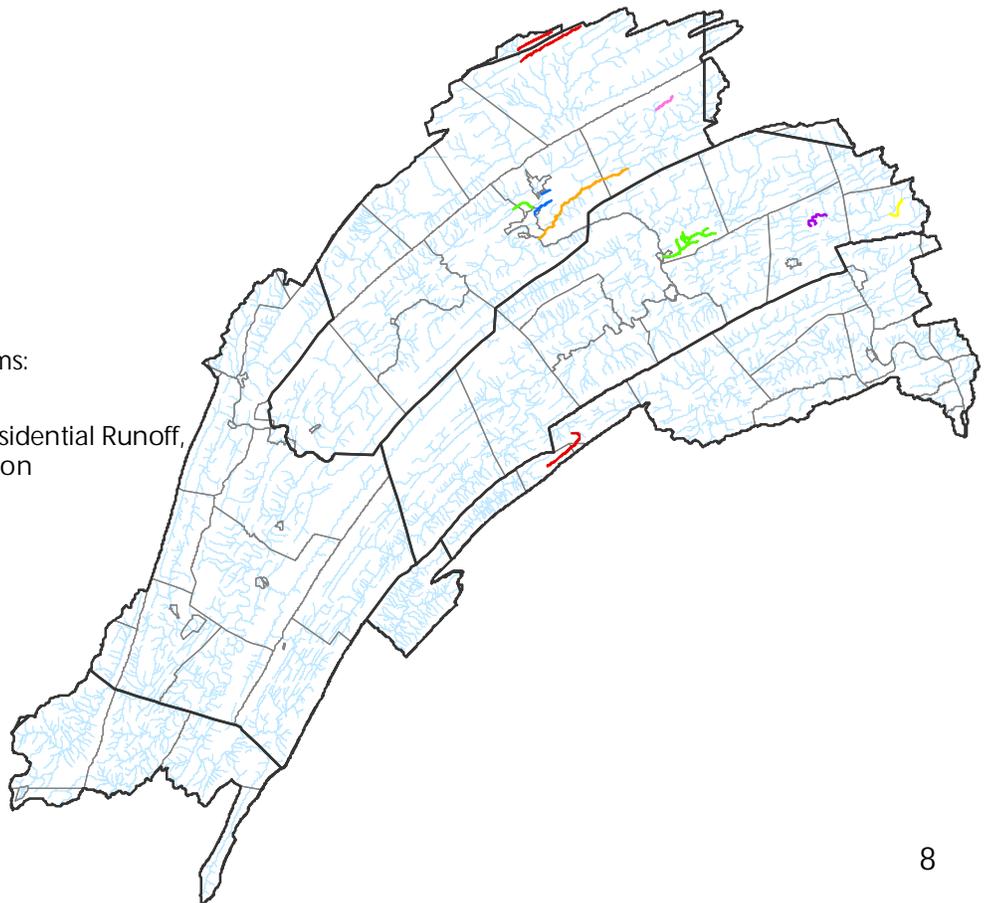


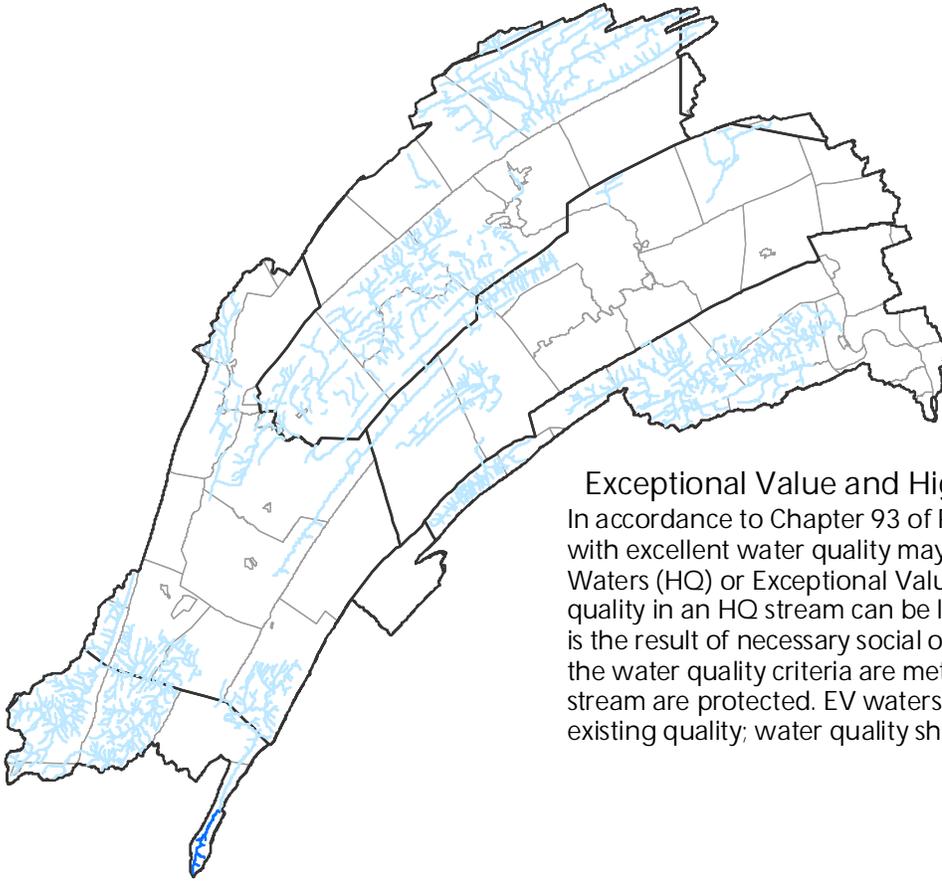
Causes of Urban Runoff/Storm Sewer Impaired Streams:

-  Flow Alterations
-  Siltation, Flow Alterations, and Other Habitat Alt
-  Water Flow Variability
-  Streams
-  Townships
-  County Boundary

Other Sources of Impaired Streams:

-  Atmospheric Deposition
-  Channelization, Small Residential Runoff, and Removal of Vegetation
-  Construction
-  Hydromodification
-  Removal of Vegetation
-  Silviculture
-  Source Unknown
-  Streams
-  Townships
-  County Boundary





-  Exceptional Value Streams
-  High Quality Streams
-  Townships
-  County Boundary

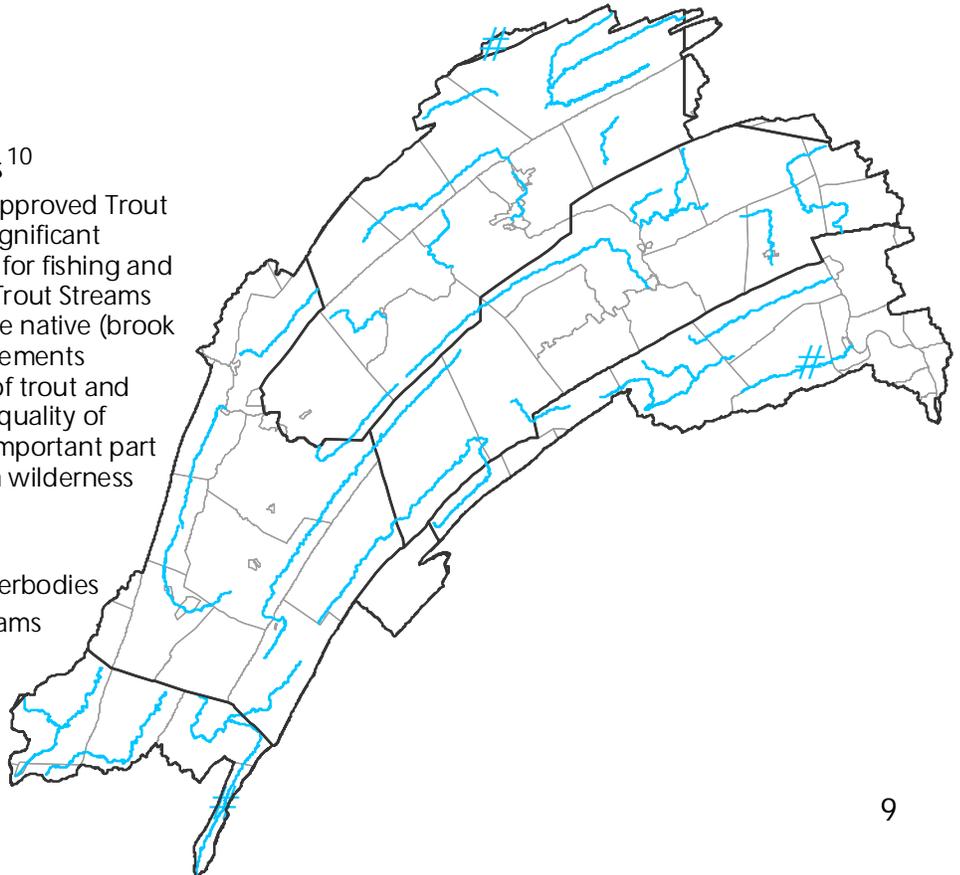
### Exceptional Value and High Quality Streams<sup>9</sup>

In accordance with Chapter 93 of Pennsylvania Code, streams with excellent water quality may be designated High Quality Waters (HQ) or Exceptional Value Waters (EV). The water quality in an HQ stream can be lowered only if a discharge is the result of necessary social or economic development, the water quality criteria are met, and all existing uses of the stream are protected. EV waters are to be protected at their existing quality; water quality shall not be lowered.

### Pennsylvania Trout Waters<sup>10</sup>

Approved Trout Waterbodies and Approved Trout Streams are waters which contain significant portions that are open to the public for fishing and are stocked with trout. Wilderness Trout Streams are designed to protect and promote native (brook trout) fisheries, the ecological requirements necessary for natural reproduction of trout and wilderness aesthetics. The superior quality of these watersheds is considered an important part of the overall angling experience on wilderness trout streams.

-  Approved Trout Waterbodies
-  Approved Trout Streams
-  Townships
-  County Boundary





### Water Resource Points <sup>11</sup>

A Water Resource is a DEP primary facility type related to the Water Use Planning Program. The sub-facility types related to Water Resources that are included are:

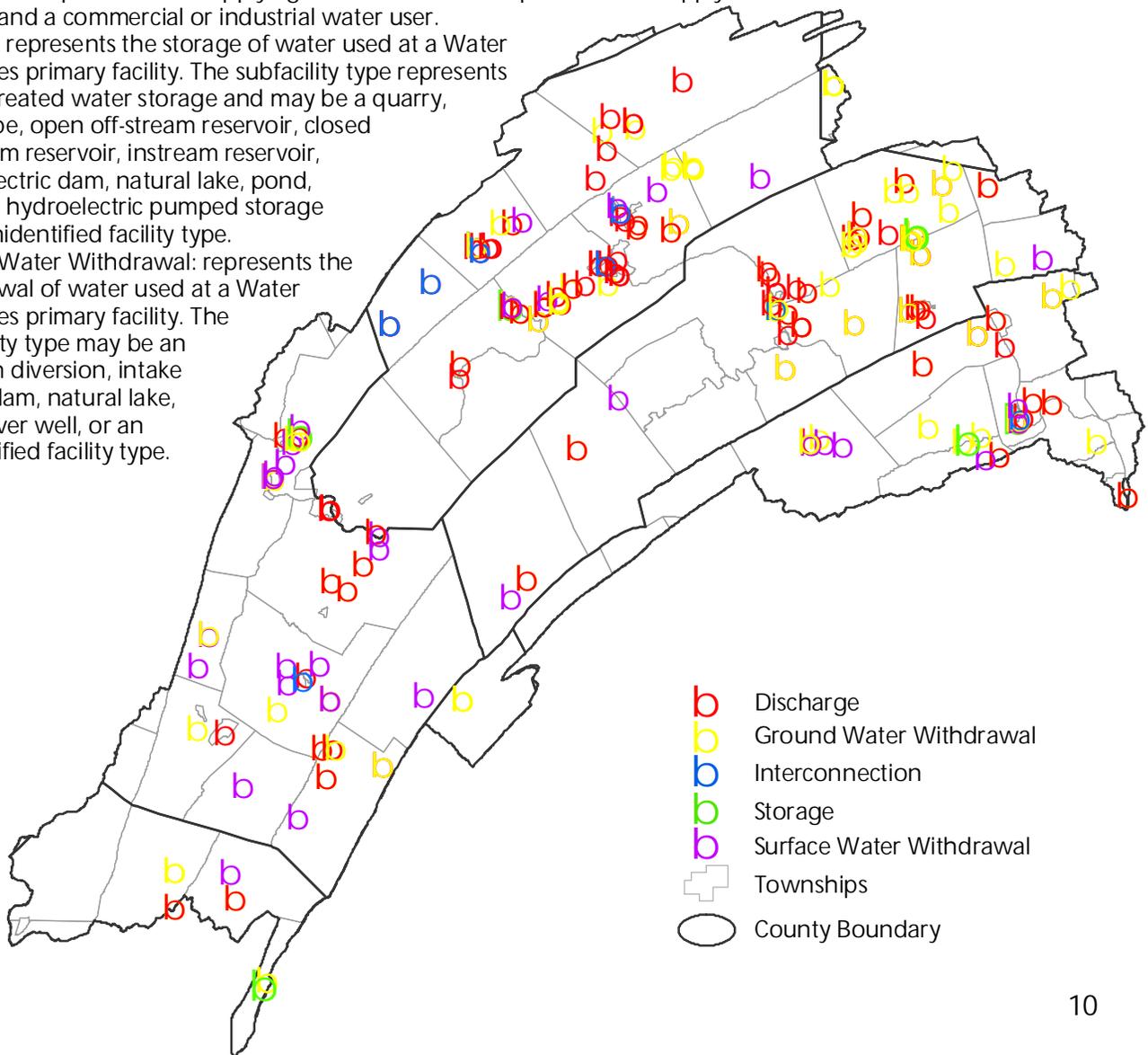
**Discharge:** represents the return of water used at a Water Resources primary facility. The subfacility type may be a sewage treatment plant, instream discharge, spray irrigation field, groundwater recharge, on-lot septic or an unidentified facility type.

**Ground Water Withdrawal:** represents the withdrawal of water used at a Water Resources primary facility. The subfacility type may be a well, spring, quarry, infiltration gallery, deep mine, surface mine or an unidentified facility type.

**Interconnection:** represents the point of interconnection between Water Resources primary facilities. The subfacility type may be for an interconnection between two public water supply agencies or between a public water supply agency and a commercial or industrial water user.

**Storage:** represents the storage of water used at a Water Resources primary facility. The subfacility type represents raw or treated water storage and may be a quarry, standpipe, open off-stream reservoir, closed off-stream reservoir, instream reservoir, hydroelectric dam, natural lake, pond, silt dam, hydroelectric pumped storage or an unidentified facility type.

**Surface Water Withdrawal:** represents the withdrawal of water used at a Water Resources primary facility. The subfacility type may be an instream diversion, intake from a dam, natural lake, pond, river well, or an unidentified facility type.



Natural Heritage Inventory Sites<sup>12</sup>

These areas are intended to identify outstanding floral, faunal, and geologic features, including natural communities (habitats) and locations of animal and plant species of special concern (endangered, threatened, or rare).

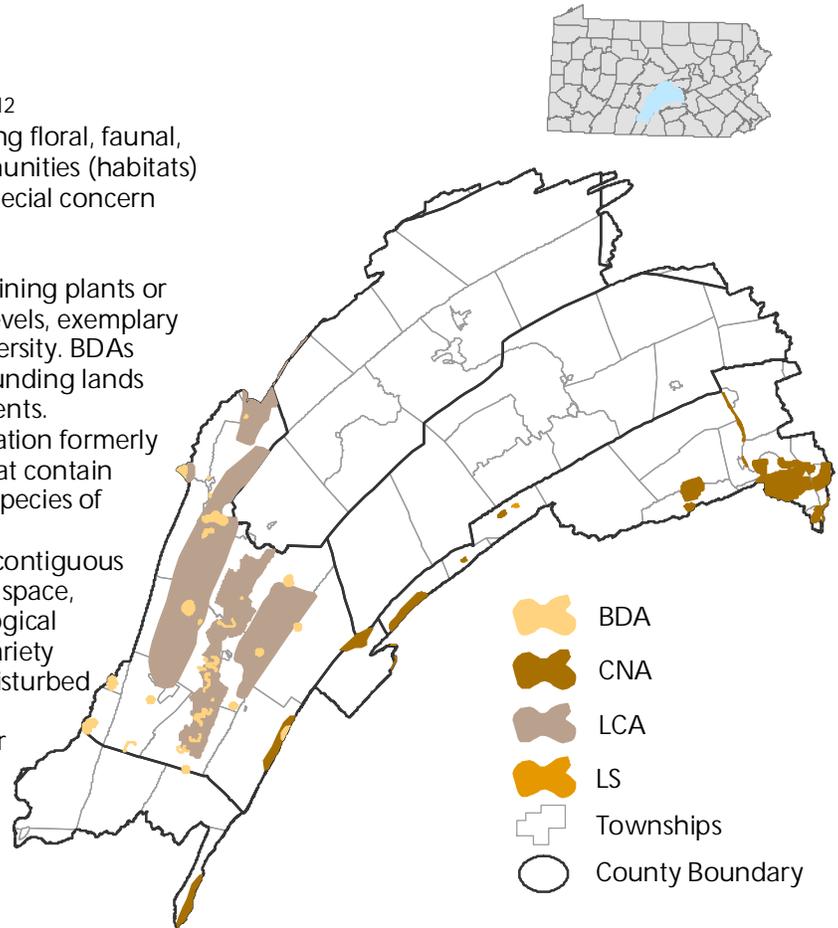
Area Types in this watershed include:

BDA - Biological Diversity Area - An area containing plants or animals of special concern at state or federal levels, exemplary natural communities, or exceptional native diversity. BDAs include both the immediate habitat and surrounding lands important in the support of these special elements.

CNA - County Natural Area - This is the designation formerly used by the Eastern Office of PNHP for sites that contain elements - exemplary natural communities or species of concern as tracked by PNHP.

LCA - Landscape Conservation Area - A large contiguous area that is important because of its size, open space, habitats, and/or inclusion of one or more Biological Diversity Areas. Although an LCA includes a variety of land uses, it typically has not been heavily disturbed and thus retains much of its natural character.

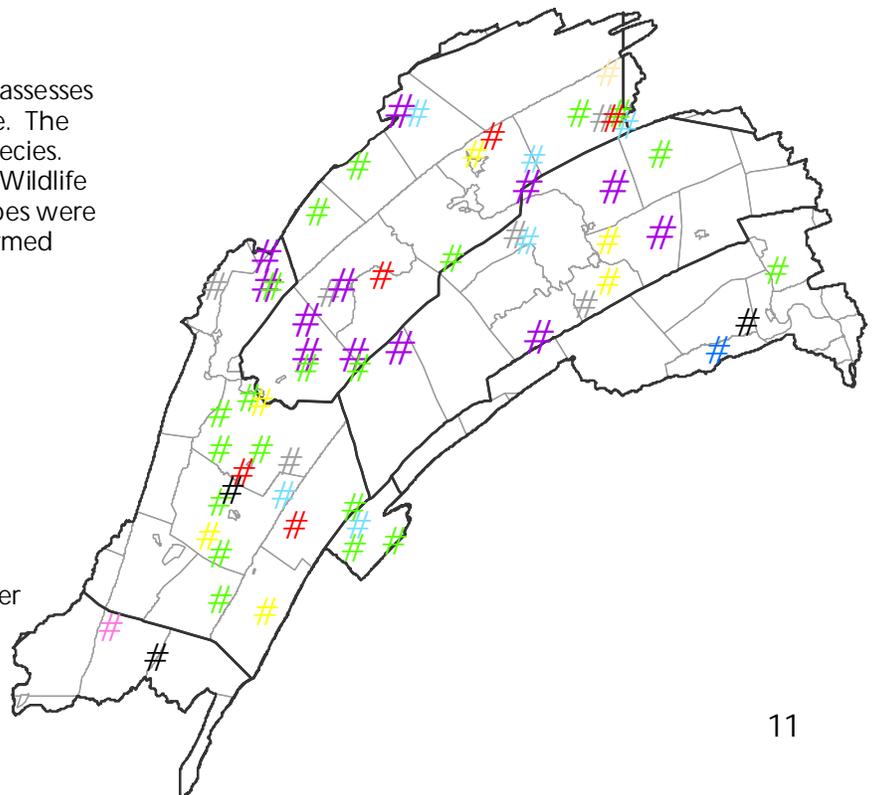
LS - Locally Significant: Site was not surveyed or was not found to contain PNHP elements, but is considered Locally Significant.



Pennsylvania Breeding Bird Atlas<sup>13</sup>

The 1st Pennsylvania Breeding Bird Atlas (1992) assesses the distribution of breeding birds across the state. The areas below are confirmed breeding areas for species. Fourteen birds species from Pennsylvania's state Wildlife Action Plan associated with agricultural landscapes were focused on in this assessment, not all have confirmed breeding area in this watershed.

- # American Woodcock
- # Barn Owl
- # Blackbilled Cuckoo
- # Bobolink
- # Eastern Meadowlark
- # Grasshopper Sparrow
- # Northern Bobwhite
- # Redheaded Woodpecker
- # Whip-poor-will
- # Yellow Breasted Chat
- ⊕ Townships
- County Boundary

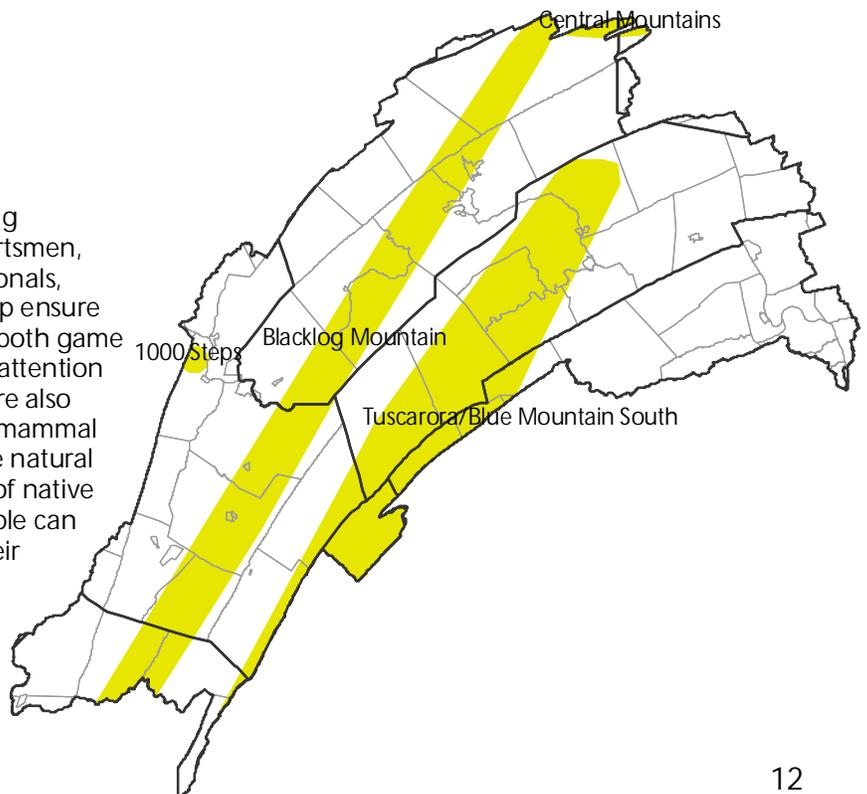




**Important Bird Areas<sup>14</sup>**  
 Important Bird Areas (IBA) are sites that provide essential habitat for one or more species of bird. IBAs include sites for breeding, wintering, and/or migrating birds. IBAs may be a few acres or thousands of acres, but usually they are discrete sites that stand out from the surrounding landscape. IBAs may include public or private lands, or both, and they may be protected or unprotected.

-  Important Bird Areas
-  Townships
-  County Boundary

**Important Mammal Areas<sup>15</sup>**  
 The Important Mammal Areas Project is being carried out by a broad based alliance of sportsmen, conservation organizations, wildlife professionals, and scientists. The primary concern is to help ensure the future of Pennsylvania's wild mammals, both game and non-game species. Although particular attention is given to species of special concern, they are also interested in habitats that simply have high mammal diversity. Because a commitment to preserve natural heritage requires understanding the needs of native species, they also identify places where people can learn about mammals and enjoy them in their natural environment.



-  Important Mammal Areas
-  Townships
-  County Boundary



### Drainage Classification

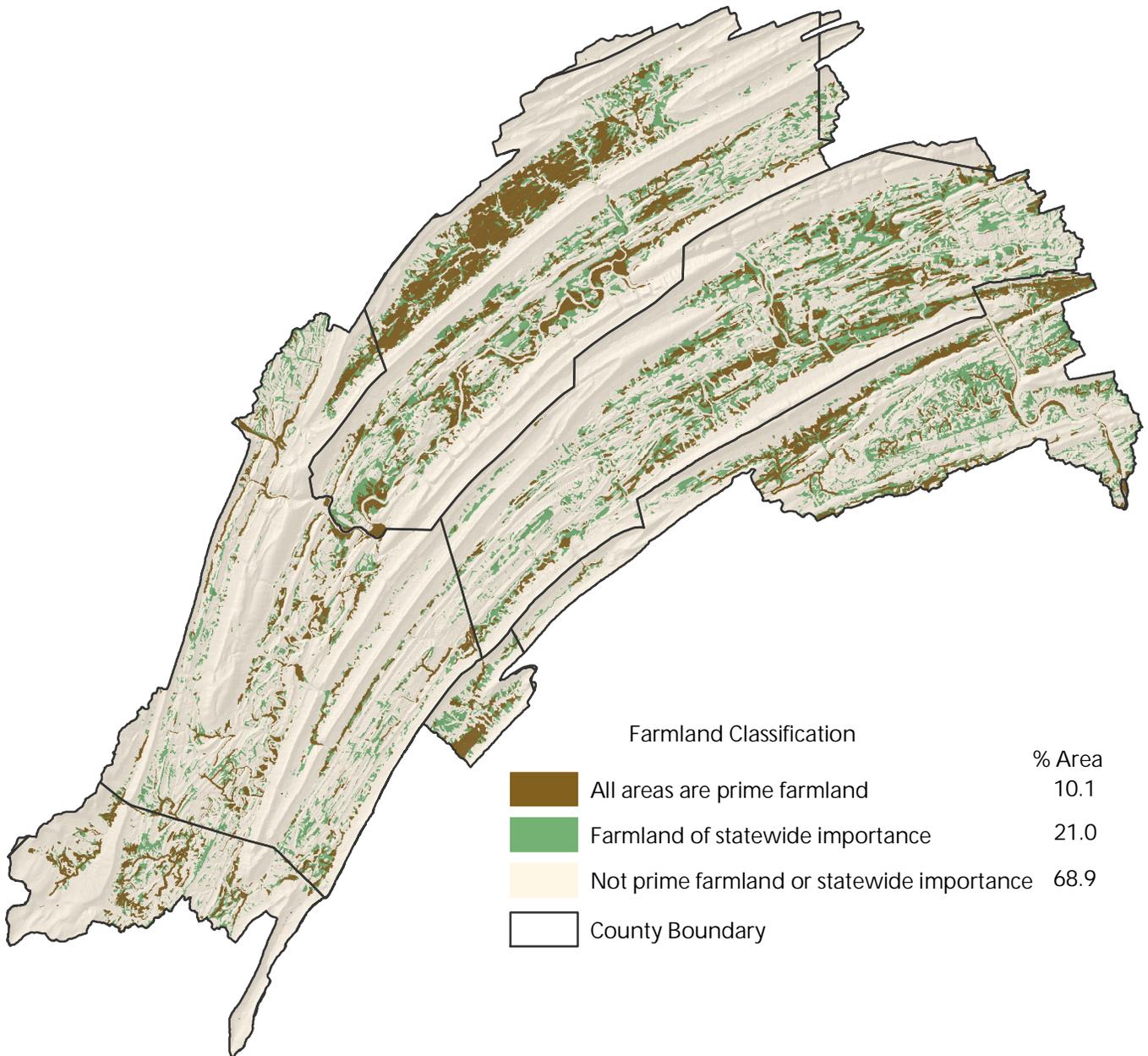
Drainage class (natural) refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized -- excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

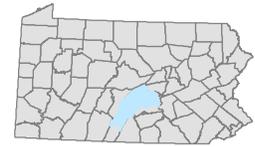




### Farmland Classification

Farmland classification identifies soil map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. Farmland classification identifies the location and extent of the most suitable land for producing food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the Federal Register, Vol. 43, No. 21, January 31, 1978.

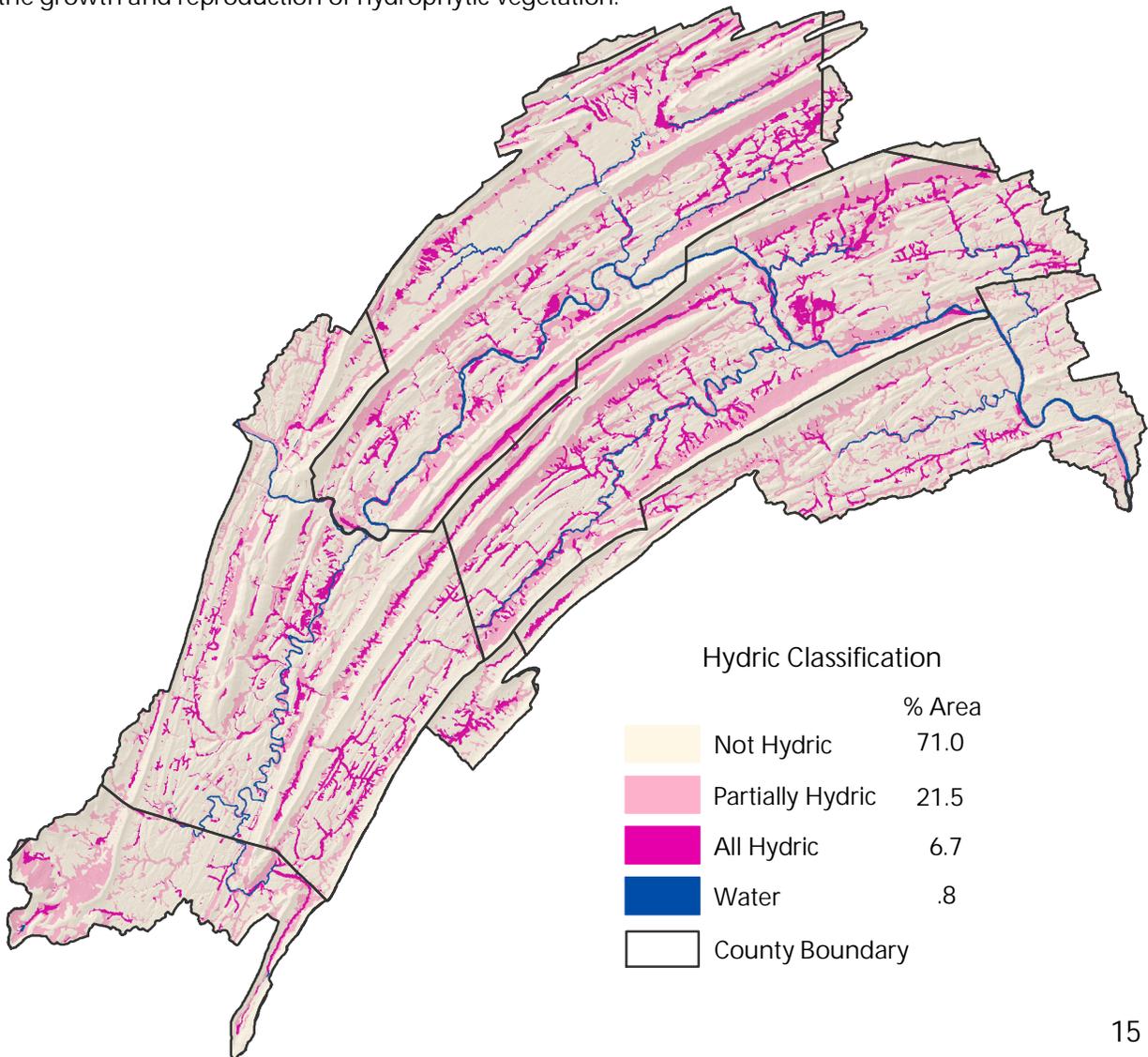




### Hydric Soil Classification

This rating provides an indication of the proportion of the map unit that meets criteria for hydric soils. Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

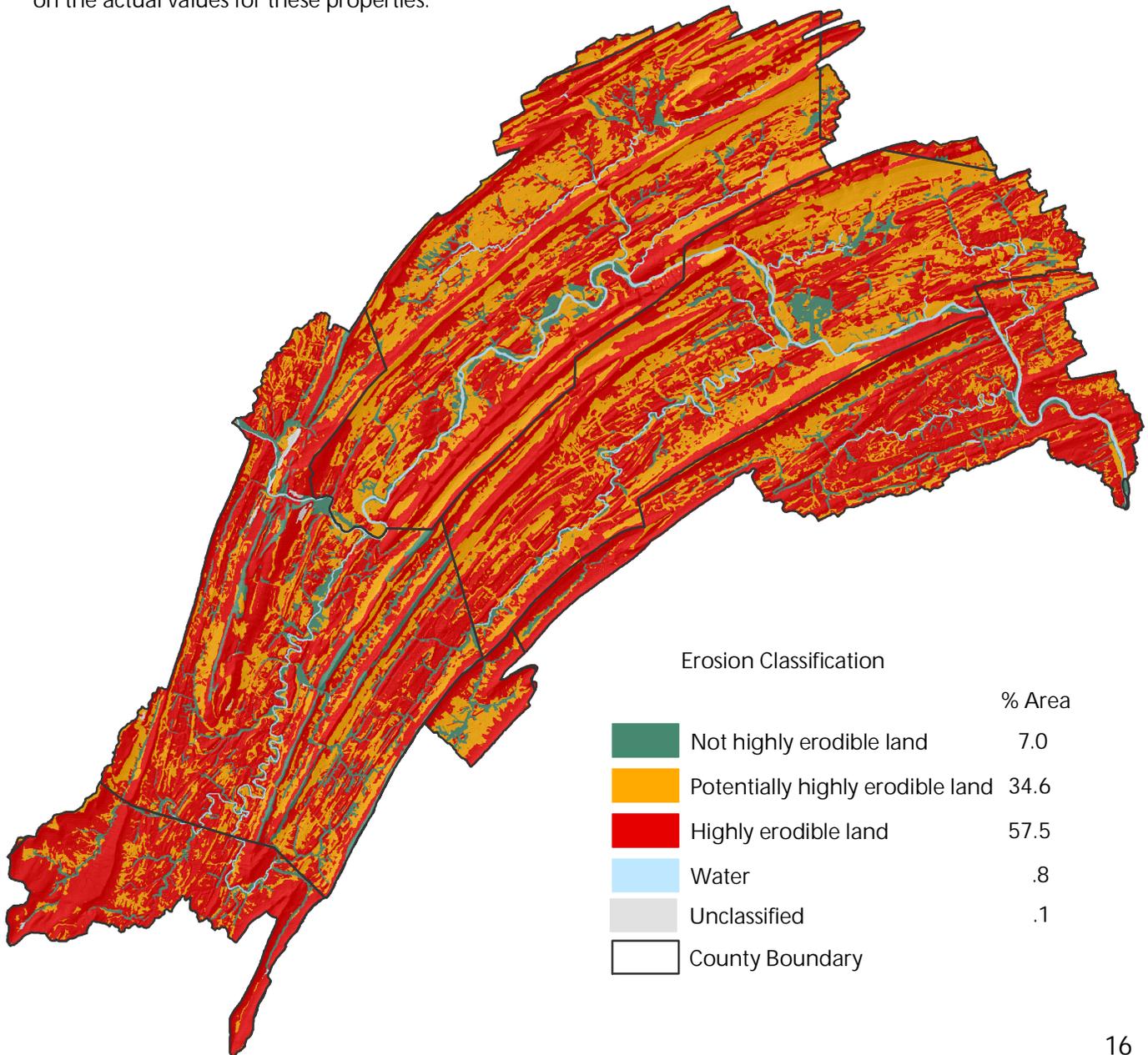
Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.





### Highly Erodible Land

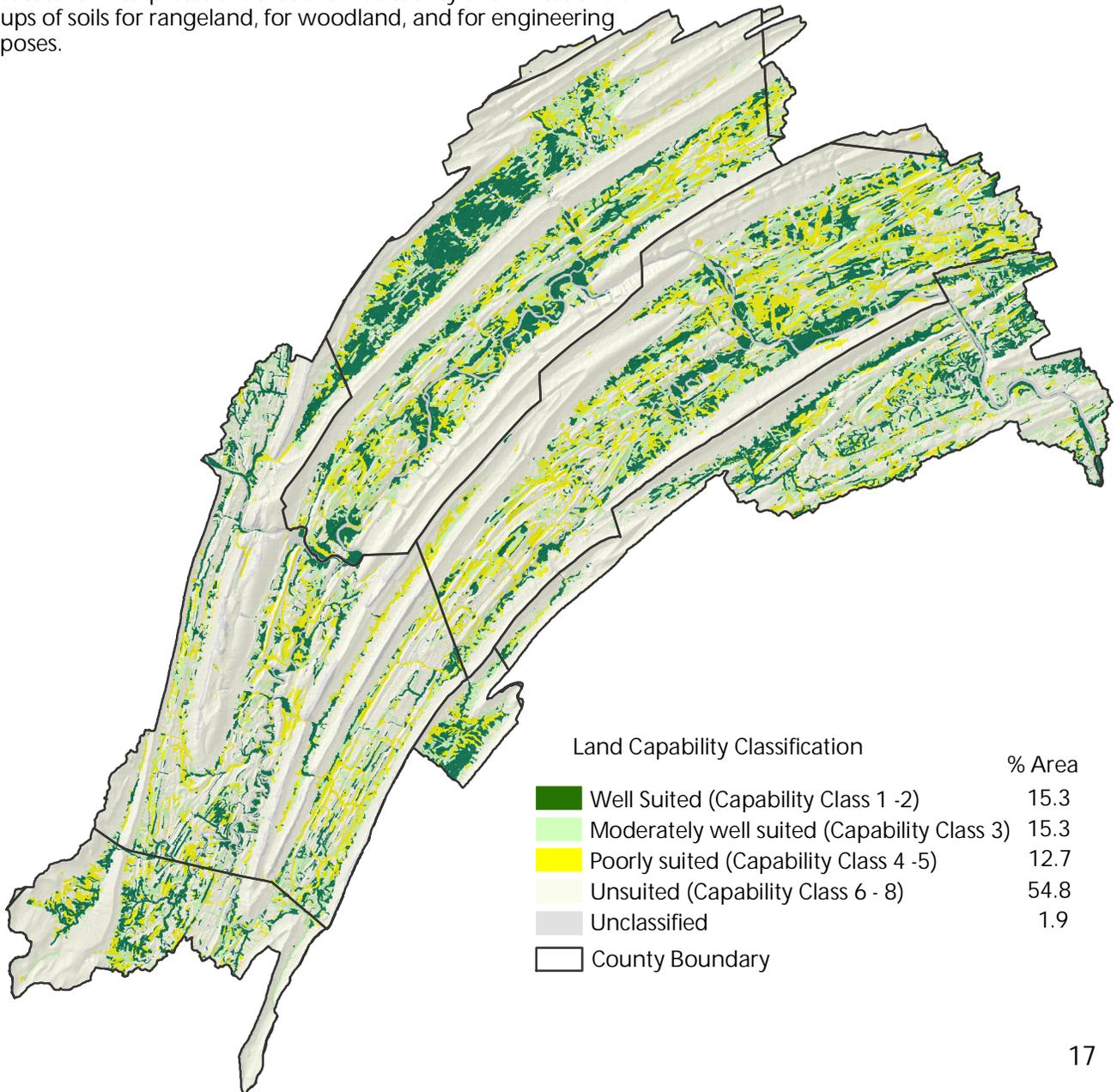
A soil map with an erodibility index (EI) of 8 or greater is considered to be highly erodible land (HEL). The EI for a soil map unit is determined by dividing the potential erodibility for the soil map unit by the soil loss tolerance (T) value established for the soil in the FOTG as of January 1, 1990. Potential erodibility is based on default values for rainfall amount and intensity, percent and length of slope, surface texture and organic matter, permeability, and plant cover. Actual erodibility and EI for any specific map unit depends on the actual values for these properties.

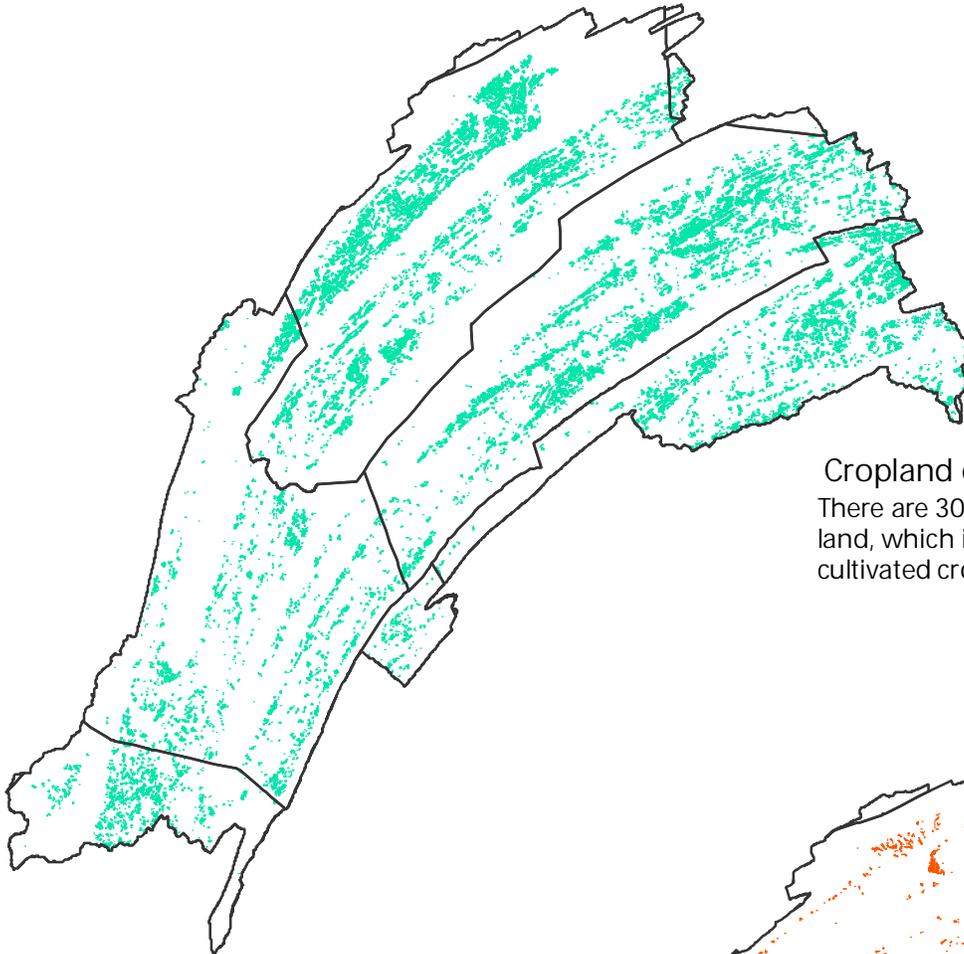




### Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations that show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

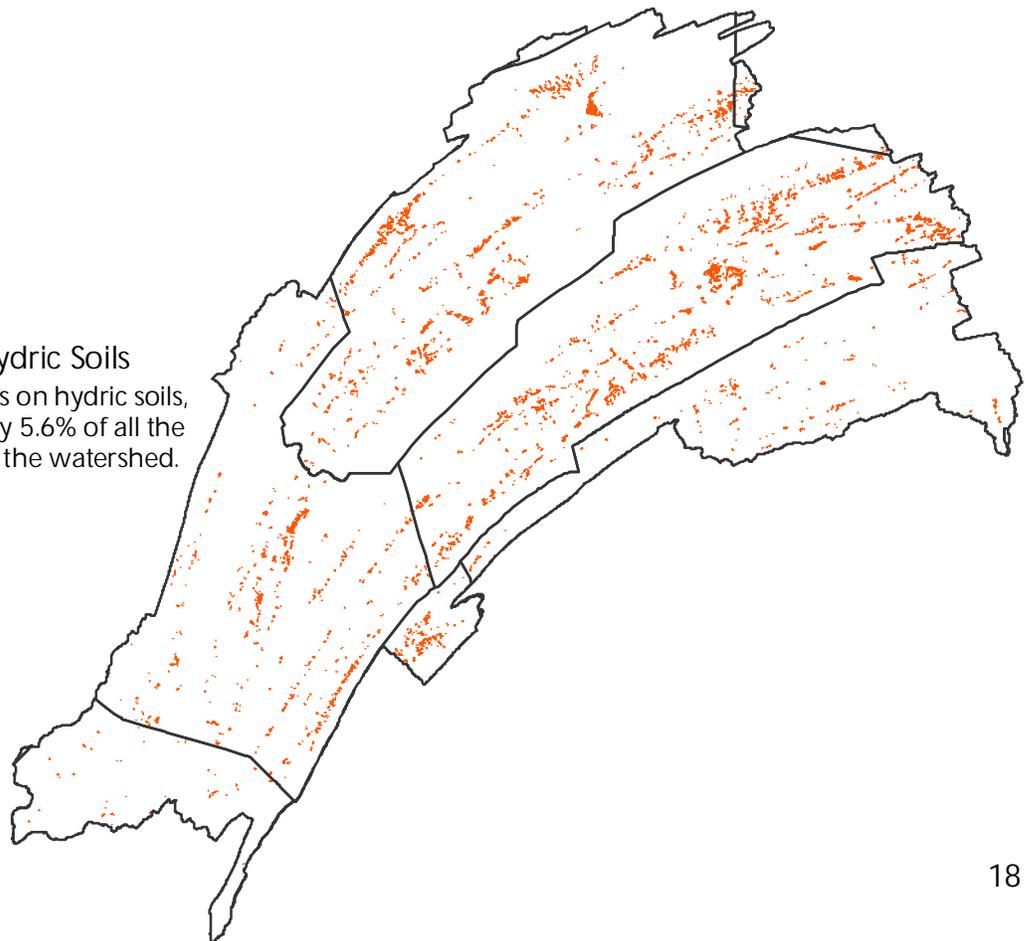


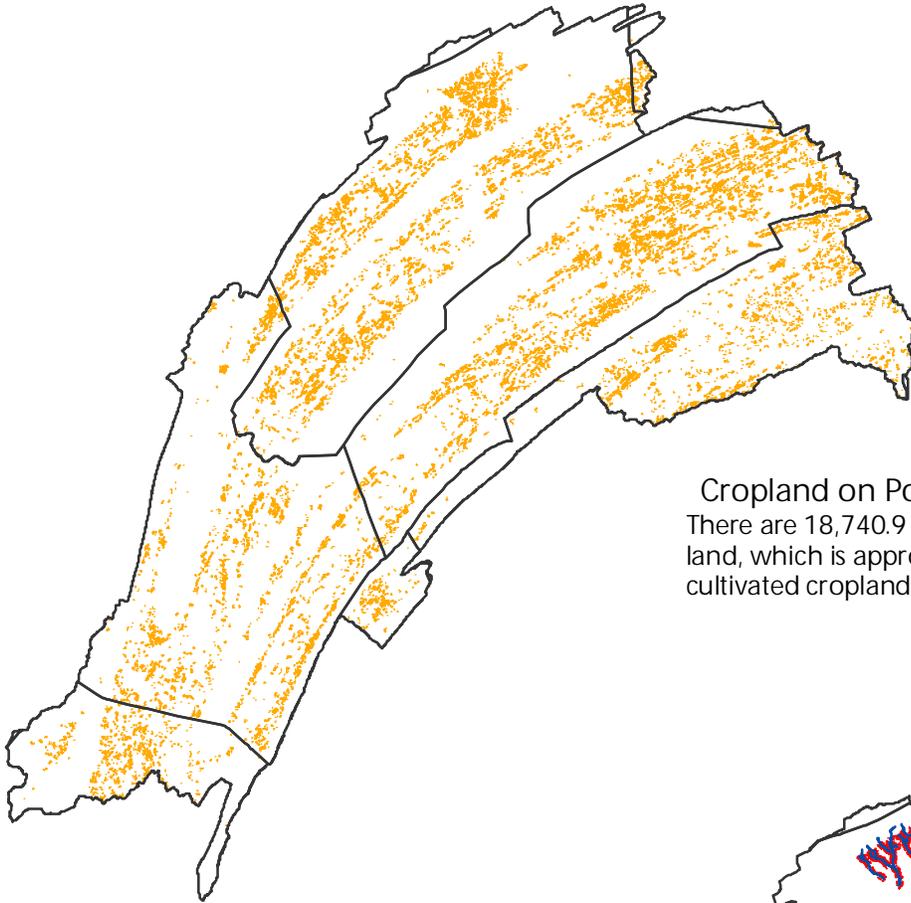


**Cropland on Highly Erodible Land**

There are 30,446.2 acres on highly erodible land, which is approximately 34.7% of all the cultivated cropland in the watershed.

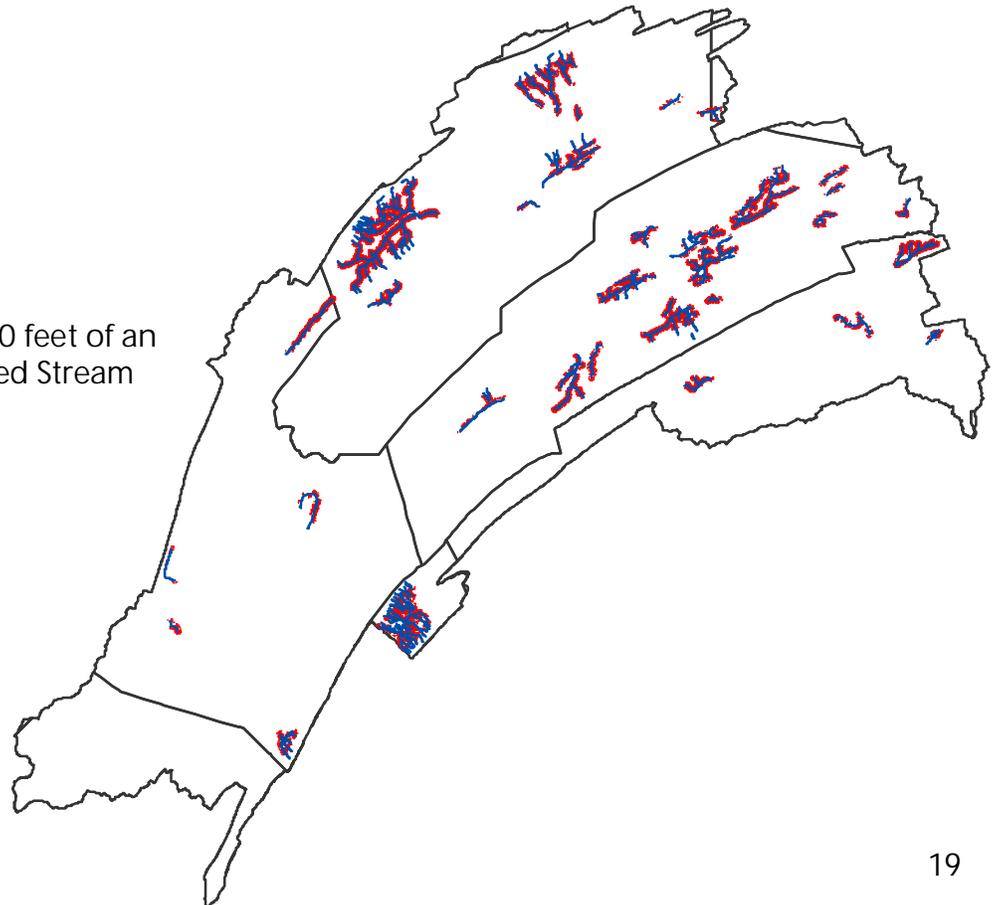
**Cropland on Hydric Soils**  
There are 4886.3 acres on hydric soils, which is approximately 5.6% of all the cultivated cropland in the watershed.





**Cropland on Poor or Unsuited Soil**  
There are 18,740.9 acres on poor or unsuited land, which is approximately 21.3% of all the cultivated cropland in the watershed.

**Cropland within 1000 feet of an Agricultural Impaired Stream**





### Resource Concerns

Major resource concerns in the area include:

- erosion
- maintenance of organic matter
- soil productivity
- sedimentation

### Conservation Practices

Common conservation practices for cropland:

- contour farming
- cover crops
- nutrient management
- conservation tillage
- residue management



PRS Performance Measures<sup>17</sup>

	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
Total Conservation Systems Planned (acres)	9853	11,690	10,603	8849	11,925	NA	6044	8544	67,508
Total Conservation Systems Applied (acres)	1737	7051	8003	8842	7741	NA	5197	4903	43,474
Waste Storage Facility (number)									
	0	33	28	8	5	1	4	2	81
Riparian Forest Buffer (acres)									
	1	810	187	243	316	109	101	59	1,826
Erosion Control Total Soils Saved (tons/year)									
	127	3985	5743	5820	6076	NA	NA	NA	21,751
Nutrient Management (acres)									
	330	5247	4500	7350	6735	1982	1228	595	27,967
Pest Management (acres)									
	0	559	0	0	155	0	226	346	1,286
Prescribed Grazing (acres)									
	23	1730	744	521	387	325	435	155	4,320
Tree and Shrub Establishment (acres)									
	0	173	92	94	69	5	9	29	471
Residue Management (acres)									
	112	2544	3678	3588	2744	1855	926	1518	16,965
Wildlife Habitat (acres)									
	5	163	168	2827	2577	826	2861	1291	10,718
Wetlands Created, Restored, or Established									
	0	0	10	15	33	0	10	9	77
Conservation Technical Assistance									
Planned	7230	9524	8125	6522	9095	NA	4202	6918	51,616
Applied	1694	6608	7724	6920	6330	NA	2022	3486	34,784
Conservation Reserve Program									
Planned	1208	1358	405	1834	2237	NA	1757	645	9,444
Applied	105	1395	277	1682	1248	NA	2866	1418	8,991
Environmental Quality Incentive Program									
Planned	89	1201	0	0	0	NA	413	746	2,449
Applied	0	771	170	0	0	NA	286	179	1,406
Farmland Protection Policy/Farm and Ranch Lands Protection Program									
Planned	0	0	247	0	0	NA	0	0	247
Applied	0	0	247	0	0	NA	0	0	247
Forestry Incentive Program									
Planned	0	0	0	3	0	NA	0	0	3
Applied	0	0	0	16	0	NA	0	0	16
Grasslands Reserve Program									
Planned				0	0	NA	0	0	0
Applied				0	0	NA	0	0	0
Grazing Lands Conservation Initiative									
Planned	271	764	1482						2,517
Applied	0	499	1708						2,207
Wildlife Habitat Incentive Program									
Planned	0	0	27	36	0	NA	0	0	63
Applied	39	40	53	36	0	NA	0	0	168
Wetlands Reserve Program									
Planned	0	0	0	0	0	NA	0	0	0
Applied	0	0	0	0	0	NA	0	0	0

NA - Reporting was unavailable by Hydrologic Unit Code



Social and Census Data <sup>18</sup>

	Centre	Franklin	Fulton	Huntingdon	Juniata	Mifflin	Perry	Snyder	Total
Farms (number)	5	44	134	326	597	719	271	33	2,129
Land in farms (acres)	661	7,587	23,937	55,073	79,910	86,505	46,473	4,201	304,347
Total cropland (acres)	418	5,924	12,755	30,085	50,791	58,399	32,230	3,012	193,614
Principal operator by primary occupation - Farming (number)	2	30	73	194	402	507	165	20	1,393
<b>Farms by Size</b>									
1 to 9 acres	0	4	8	23	67	44	17	3	166
10 to 49 acres	2	10	16	70	142	170	57	9	476
50 to 179 acres	2	16	65	141	243	367	115	15	964
180 to 499 acres	1	12	36	73	127	118	68	5	440
500 to 999 acres	0	2	7	15	14	16	11	1	66
1,000 acres or more	0	1	1	5	5	4	3	1	20
<b>Livestock and Poultry</b>									
Cattle and calves inventory (farms)	2	28	73	176	328	510	132	18	1,267
Cattle and calves inventory - Beef cows (farms)	1	9	53	105	120	184	58	5	535
Cattle and calves inventory - Milk cows (farms)	1	15	13	47	144	300	44	8	572
Hogs and pigs inventory (farms)	0	3	11	18	49	86	19	3	189
Sheep and lambs inventory (farms)	0	2	7	14	26	88	12	2	151
Layers 20 weeks old and older inventory (farms)	1	5	12	29	54	93	21	4	219
Broilers and other meat-type chickens sold (farms)	0	1	1	0	57	16	5	3	83
<b>Crops Harvested</b>									
Corn for grain (acres)	66	598	916	2723	7412	11,067	2985	559	26,326
Corn for silage or greenchop (acres)	37	1612	1475	5663	8029	10,071	4049	375	31,311
Wheat for grain, all (acres)	15	234	345	571	2041	1384	1441	119	6,150
Oats for grain (acres)	9	39	343	581	1289	1673	672	92	4,698
Barley for grain (acres)	2	181	236	173	528	250	526	30	1,926
Soybeans for beans (acres)	35	431	65	1079	4540	3320	2501	332	12,303
Forage - land used for all hay and all haylage, grass silage, and greenchop (acres)	151	2,114	6,595	12,892	18,273	21,803	12,893	927	75,648
Vegetables harvested for sale (acres)	12	22	4	159	43	191	127	37	595
Land in orchards (acres)	2	121	5	28	367	186	26	26	761
Total cropland harvested (acres)	324	5,111	9,716	23,843	41,376	47,671	25,032	2473	155,546
<b>Farm Operator by Ethnicity</b>									
White	7	66	196	477	844	1005	380	48	3,023
Black or African American	0	0	0	0	0	0	0	0	0
Asian	0	0	0	0	1	0	0	0	1
Hispanic	0	0	1	3	1	4	0	0	9
American Indian/Alaskan Native	0	0	0	0	0	0	0	0	0
Pacific Islander	0	0	0	0	0	0	0	0	0
Women	2	16	42	130	208	224	98	11	731



### Partnership Groups:

A cooperative project involving NRCS and conservation partners, including:

- State Conservation Commission
- Pennsylvania Department of Environmental Protection
- Pennsylvania Game Commission
- Pennsylvania Grazing/Forage Lands Conservation Coalition
- Pennsylvania Fish & Boat Commission



## Footnotes/Bibliography

All data is provided "as is". There is no warranties, express or implied, including the warranty of fitness for a particular purpose, accompanying this document. Use for planning purpose only.

- 1. Common Resource Area**  
Common Resource Area (CRA) delineation is defined as a geographical area where resource concerns, problems, or treatment needs are similar. More information can be found online at <http://soils.usda.gov/survey/geography/cra.html>
- 2. National Elevation Dataset (NED)**  
The NED is a seamless mosaic of the best-available elevation data. The primary source data were the USGS 7.5-minute (30-meter or 10-meter resolution) DEM's. A hillshade grid was also created using the DEM and used to create a 3-D effect. More information on NED can be found online at <http://ned.usgs.gov/>
- 3. Land Use / Land Cover 2001**  
Land Use / Land Cover map was created using the National Land Cover Dataset. The National Land Cover Dataset was compiled from Landsat satellite TM imagery with a spatial resolution of 30 meters and supplemented by various ancillary data (where available). More information can be found online at <http://landcover.usgs.gov/>
- 4. Average Annual Precipitation**  
The average annual precipitation data for this map layer were produced through a partnership between NRCS and the Spatial Climate Analysis Service at Oregon State University (OSU). The average annual precipitation is from 1961 through 1990. More information can be found online at <http://www.ncgc.nrcs.usda.gov/products/datasets/climate/index.html>
- 5. National Wetlands Inventory (NWI)**  
The NWI maps do not show all wetlands since the maps are derived from aerial photointerpretation with varying limitations due to scale, photo quality, inventory techniques, and other factors. More information can be found online at <http://www.fws.gov/nwi/>
- 6. Impaired Streams**  
Impaired Streams were derived from Pennsylvania Department of Protection Office of Water Management, 2006 list on Non-Attaining Streams. More information can be found on DEP website at <http://www.depweb.state.pa.us/dep/site/default.asp>
- 7. Water Quality Testing Points**  
Water Quality Testing Points monitor water quality with emphasis on stream acidity in Pennsylvania with an associated database. The database contains more than 33,466 records on water quality from 1986 to the present from 622 testing sites throughout Pennsylvania. Information in the records includes alkalinity and Ph and includes nitrates and phosphates for some sites since 1996. The information is maintained by the Alliance for Aquatic Resource Monitoring. More information can be found online at <http://alpha.dickinson.edu/storg/allarm/allarm%20projects/database.htm>



## Footnotes/Bibliography

### 8. Abandoned Mine Land

Abandoned Mine Land data was received from the Office of Surface Mining. The data set shows the approximate location of Abandoned Mine Land Problem Areas containing public health, safety, and public welfare problems created by past coal mining. More information can be found online at <http://www.osmre.gov/osmaml.htm>

### 9. Exceptional Value and High Quality Streams

Exceptional Value and High Quality Streams were taken from the Chapter 93 data layer received from Pennsylvania Department of Environmental Protection. For more information on what qualifies a stream as exceptional value or high quality or any information on Chapter 93 streams go to <http://www.pacode.com/secure/data/025/chapter93/chap93toc.html>

### 10. Pennsylvania Trout Waters

Pennsylvania Trout Water data is compiled by the Pennsylvania Fish and Boat Commission. This layer was created based on the 1:24000 National Hydrography Dataset (NHD) water bodies layer. More information can be found online at <http://www.fish.state.pa.us/fishpub/summary/troutwaters.html>

### 11. Water Resource Points

A Water Resource is a DEP primary facility type related to the Water Use Planning Program. More information can be found <http://www.depweb.state.pa.us/dep/site/default.asp>

### 12. Natural Heritage Inventory Sites

The Natural Areas polygons were developed by the Pennsylvania Natural Heritage Program (PNHP) County Natural Heritage Inventory (CNHI) Program. Natural Areas were identified using map and air photo interpretation, aerial reconnaissance, and field surveys. More information and county reports can be found online at <http://www.naturalheritage.state.pa.us/>

### 13. Pennsylvania Breeding Bird Atlas

Data was taken for the 1st Pennsylvania Breeding Bird Atlas (1992). For this watershed assessment, fourteen bird species were chosen to be focused on. More information about all bird species can be obtained at <http://www.carnegiemnh.org/atlas/home.htm>

### 14. Important Bird Areas

The Important Bird Areas Program (IBA) is a global effort to identify and conserve areas that are vital to birds and other biodiversity. For more information nationally and/or on the state level go to <http://www.audubon.org/bird/iba/>

### 15. Important Mammal Areas

Important Mammal Areas Project, IMAP, the first program of it's kind, was created by the Mammal Technical Committee of the Pennsylvania Biological Survey (PaBS). For more information go online to <http://www.pawildlife.org/imap.htm>



## Footnotes/Bibliography

### 16. Soils

Soil Survey spatial and tabular data were used for the following survey areas:

- Centre County (PA027)
- Franklin County (PA055)
- Fulton County (PA057)
- Huntingdon County (PA061)
- Juniata County (PA605)
- Mifflin County (PA605)
- Perry County (PA099)
- Snyder County (PA109)

Spatial and tabular data can be downloaded at <http://soildatamart.nrcs.usda.gov/>

### 17. Performance Results System (PRS)

PRS data was extracted from PRS by year, conservation system, conservation practice, and programs by hydrologic unit code. More information can be found online at the PRS homepage

<http://ias.sc.egov.usda.gov/prshome/>

### 18. Social and Census Data

Ag census data and ethnicity data were downloaded from the National Agricultural Statistics Service (NASS). The data was adjusted by percent of Hydrologic unit in the county. More information can be found online at [http://www.nass.usda.gov/Census\\_of\\_Agriculture/index.asp](http://www.nass.usda.gov/Census_of_Agriculture/index.asp)