

Rapid Watershed Assessment Pine Creek 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.



Table of Contents

Preface	1
Introduction.....	2
Common Resource Areas.....	3
Elevation.....	3
Land Use.....	4
Annual Average Precipitation.....	5
National Wetland Inventory.....	5
Agriculturally Impaired Streams.....	6
Abandoned Mine Land with Abandoned Mine Drainage Impaired Streams.....	7
Urban Runoff/Storm Sewer Impaired Streams.....	8
Streams with Other Sources of Impairment.....	8
Exceptional Value and High Quality Streams.....	9
Pennsylvania Trout Waters.....	9
Total Maximum Daily Load.....	10
Water Quality Testing Points.....	10
Water Resource Points.....	11
Natural Heritage Inventory Sites.....	12
Pennsylvania Breeding Bird Atlas.....	12
Important Bird Areas.....	13
Important Mammal Areas.....	13
Soils	
Drainage Classification.....	14
Farmland Classification.....	15
Hydric Soils.....	16
Highly Erodible Land.....	17
Capability Class.....	18
Cultivated Crops on Highly Erodible Land.....	19
Cultivated Crops on Hydric Soils.....	19
Cultivated Crops on Poor or Unsited Soils.....	20
Cultivated Crops within 1000 ft of Agriculturally Impaired Streams.....	20
Resource Concerns	21
Performance Results System Data	22
Census and Social Data.....	23
Partners.....	24
Footnotes.....	25 - 27



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 Pine Creek Watershed is located in Northcentral Pennsylvania in portions of Clinton, Lycoming, Potter, and Tioga Counties. The Pine Creek Watershed is almost 628,000 acres in size, of which over 60,000 acres is cropland. Four Service Centers of the Natural Resources Conservation Service, four county Conservation Districts and portions of the Endless Mountains and the Headwaters Resource Conservation and Development Council provide conservation assistance in this watershed.



	Acres in HUC	% Acres of HUC
Clinton	4,953	.8
Lycoming	212,283	33.8
Potter	136,534	21.7
Tioga	274,095	43.7

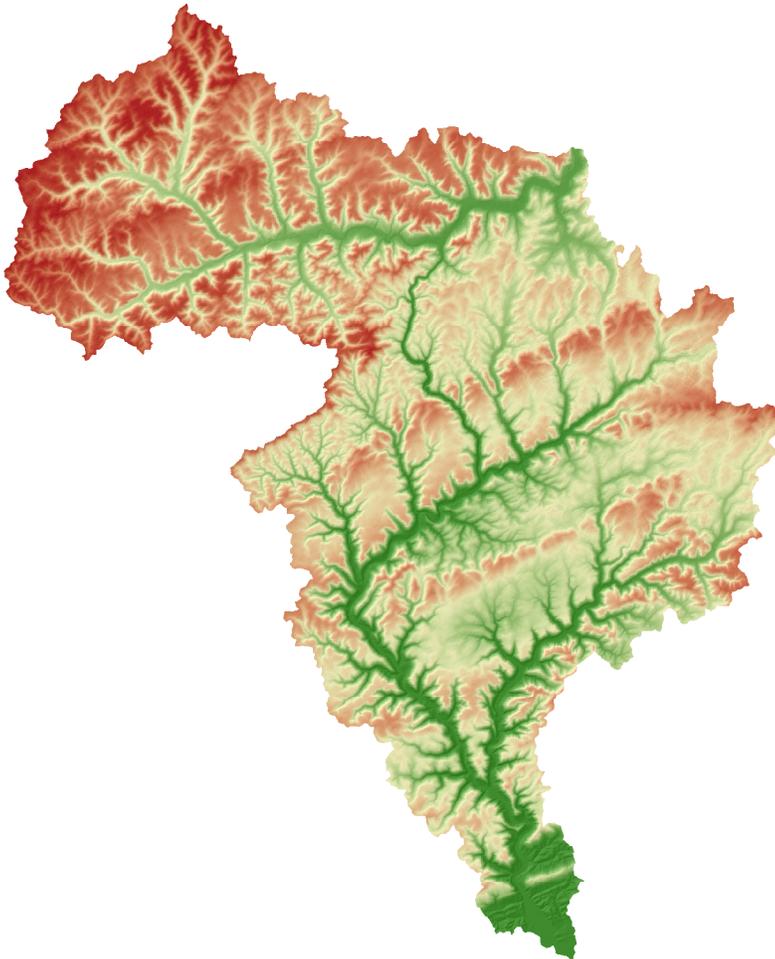
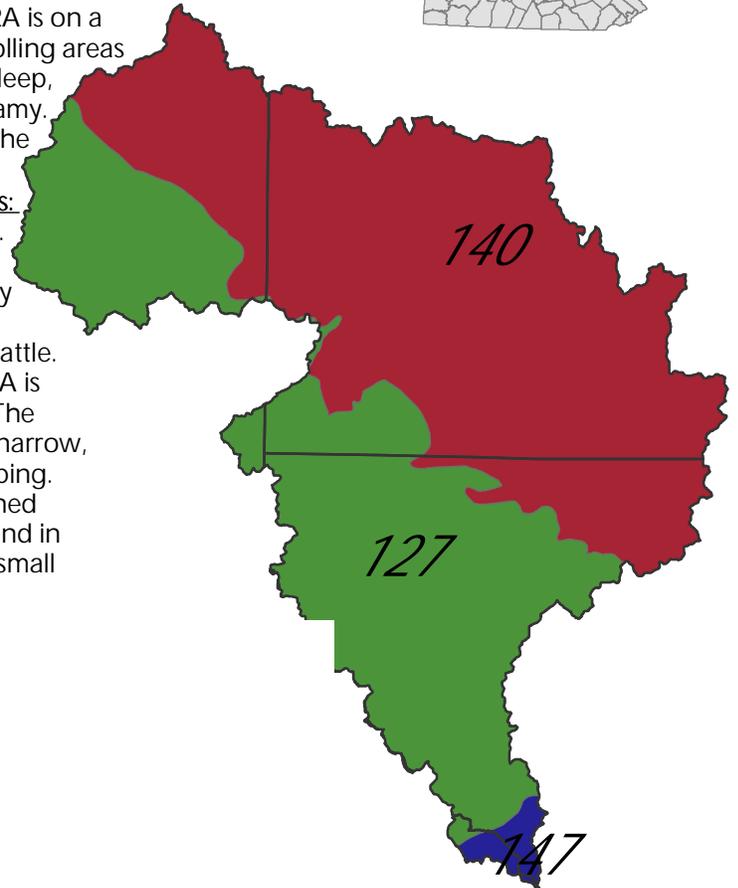


Common Resource Area (CRA)¹

127 - Eastern Allegheny Plateau and Mountains: This CRA is on a dissected plateau with steep slopes and level to gently rolling areas in the northern part. Soils are moderately deep to very deep, excessively drained to somewhat poorly drained, and loamy. Corn, small grain, and feed for dairy and beef cattle are the principal crops grown.

140 - Glaciated Allegheny Plateau and Catskill Mountains: This CRA is broad and nearly level to moderately sloping. The narrow valleys have steep walls and smooth floors. Soils are shallow to very deep, well drained to very poorly drained, and loamy or loamy-skeletal. Principle crops in the area include hay, pasture, and some grain for dairy cattle.

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.



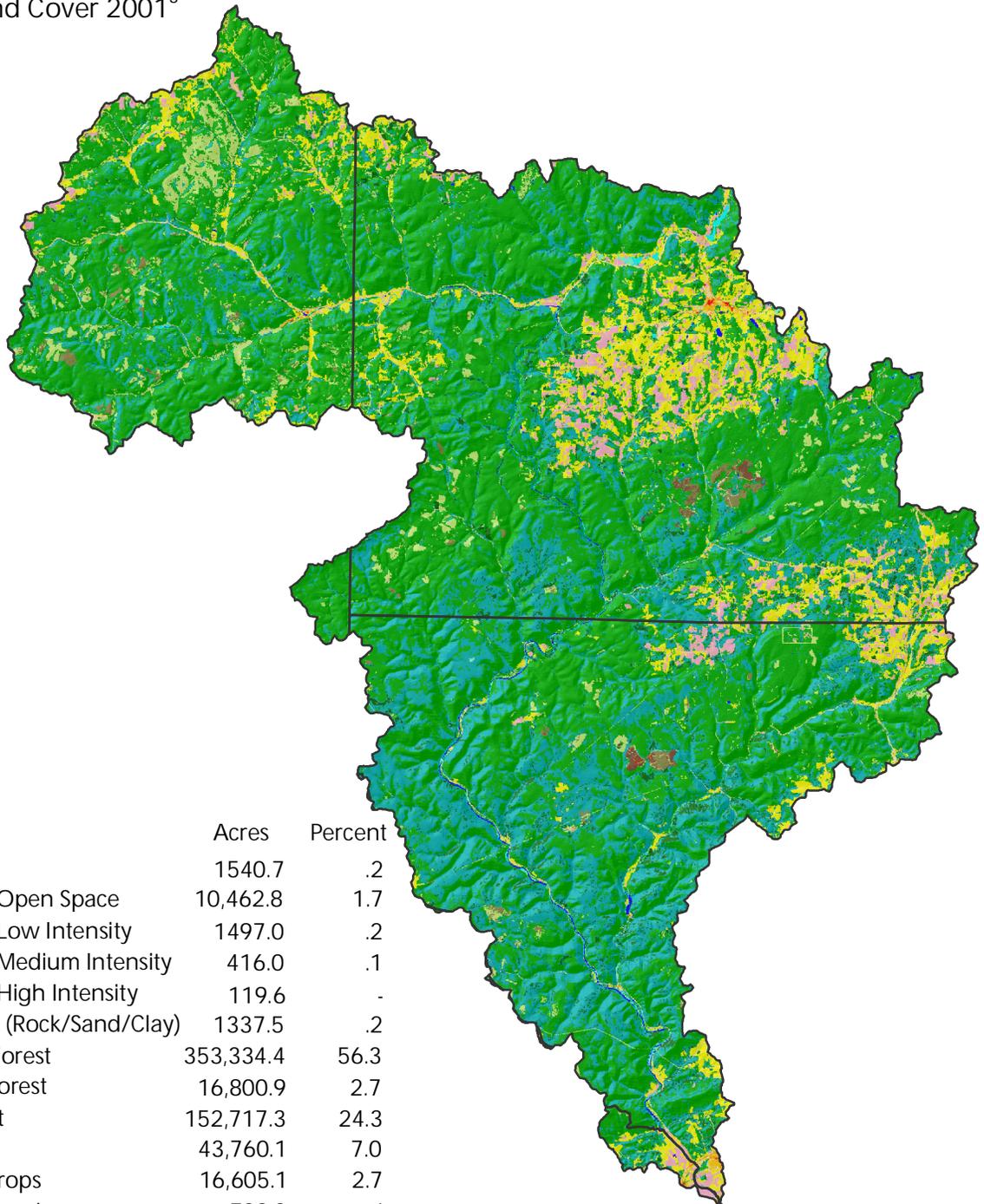
Pine Creek Watershed
 5 feet (800 meters) at
 532 feet (162 meters)

525 Feet

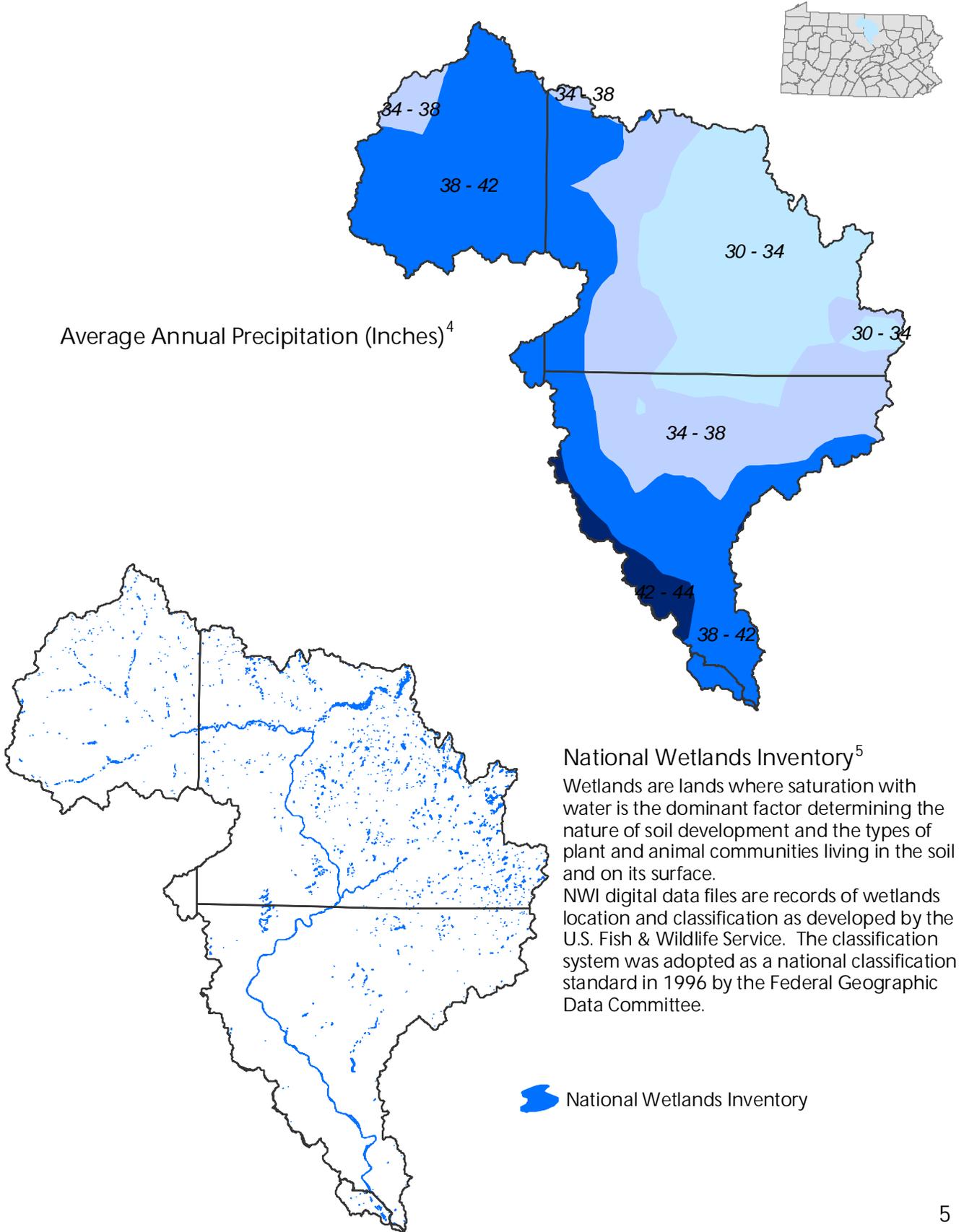
532 Feet



Land Use / Land Cover 2001³



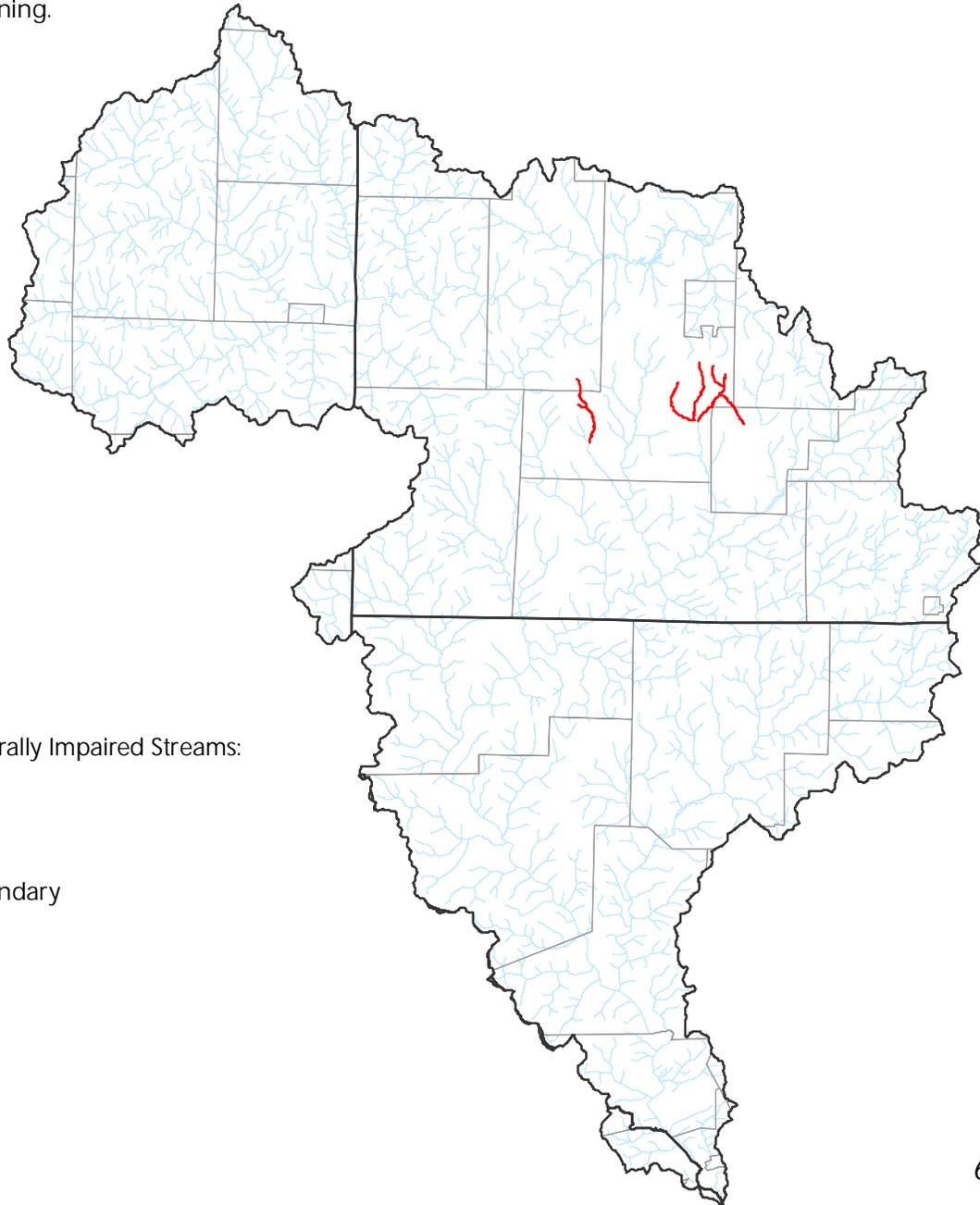
	Acres	Percent
 Water	1540.7	.2
 Developed, Open Space	10,462.8	1.7
 Developed, Low Intensity	1497.0	.2
 Developed, Medium Intensity	416.0	.1
 Developed, High Intensity	119.6	-
 Barren Land (Rock/Sand/Clay)	1337.5	.2
 Deciduous Forest	353,334.4	56.3
 Evergreen Forest	16,800.9	2.7
 Mixed Forest	152,717.3	24.3
 Pasture/Hay	43,760.1	7.0
 Cultivated Crops	16,605.1	2.7
 Woody Wetlands	729.3	.1
 Emergent Herbaceous Wetlands	1972.3	.3
 Shrub / Scrub	22,256.4	3.5
 Grasslands / Herbaceous	4119.2	.7





Impaired Streams⁶

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.



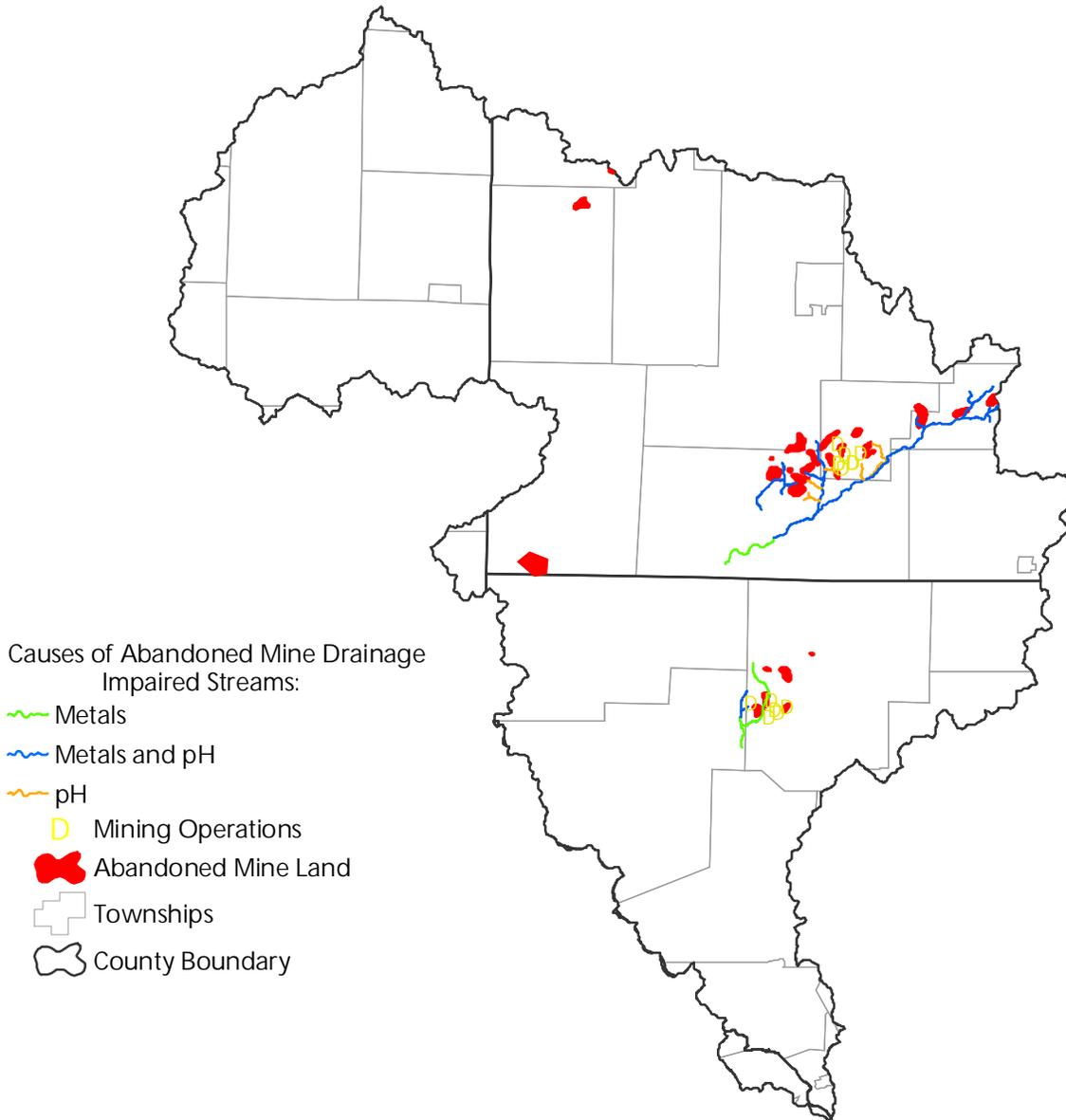
Causes of Agriculturally Impaired Streams:

-  Siltation
-  Streams
-  Townships
-  County Boundary



Abandoned Mine Land and Abandoned Mine Drainage Impaired Streams⁷

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.



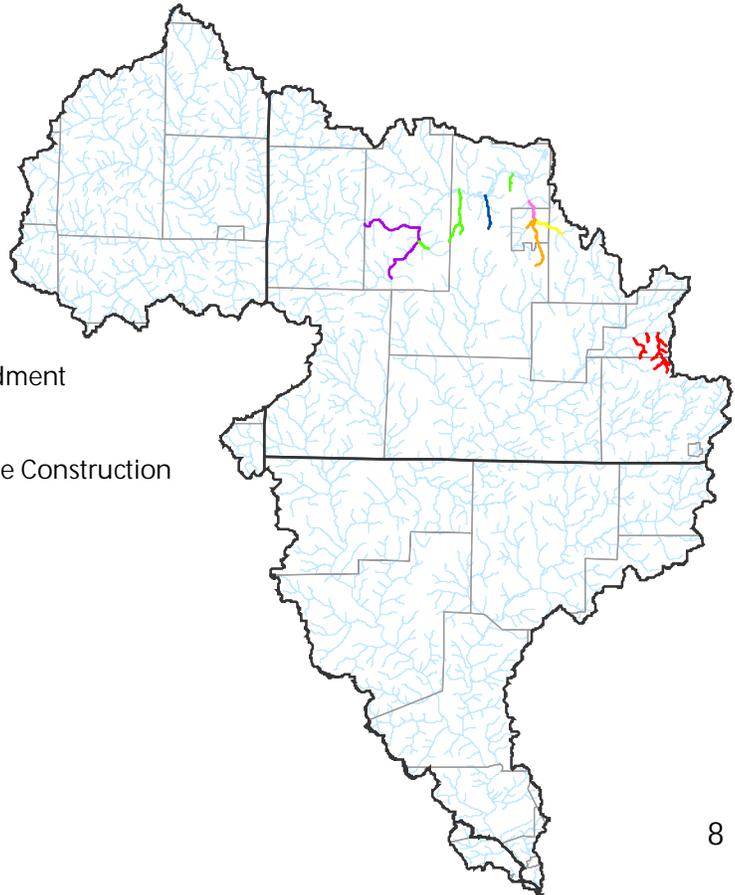


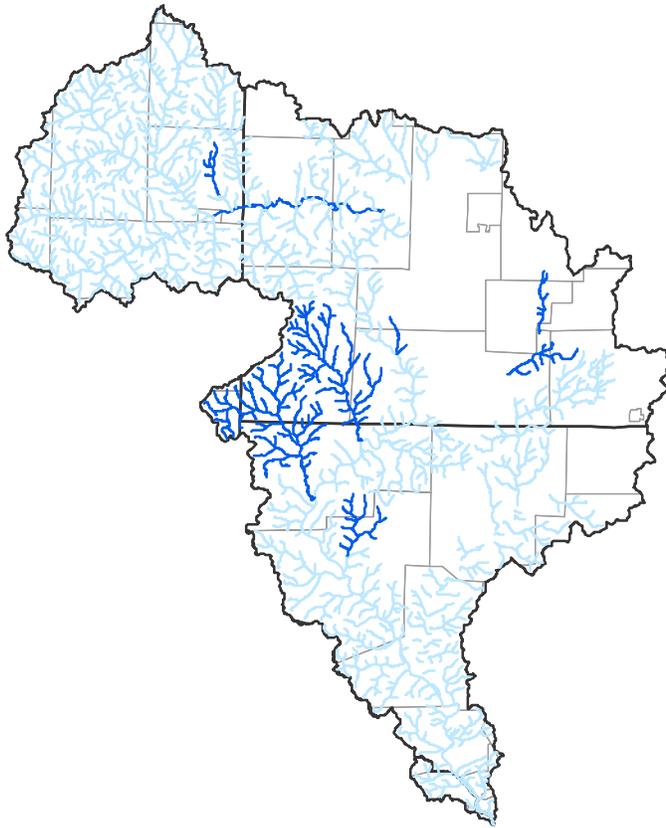
Causes of Urban Impaired Streams:

-  Siltation and Water Flow Variability
-  Streams
-  Townships
-  County Boundary

Other Sources of Impairment:

-  Atmospheric Deposition
-  Channelization
-  Channelization and Upstream Impoundment
-  Road Runoff
-  Road Runoff and Highway, Road, Bridge Construction
-  Unknown
-  Upstream Impoundment
-  Streams
-  Townships
-  County Boundary





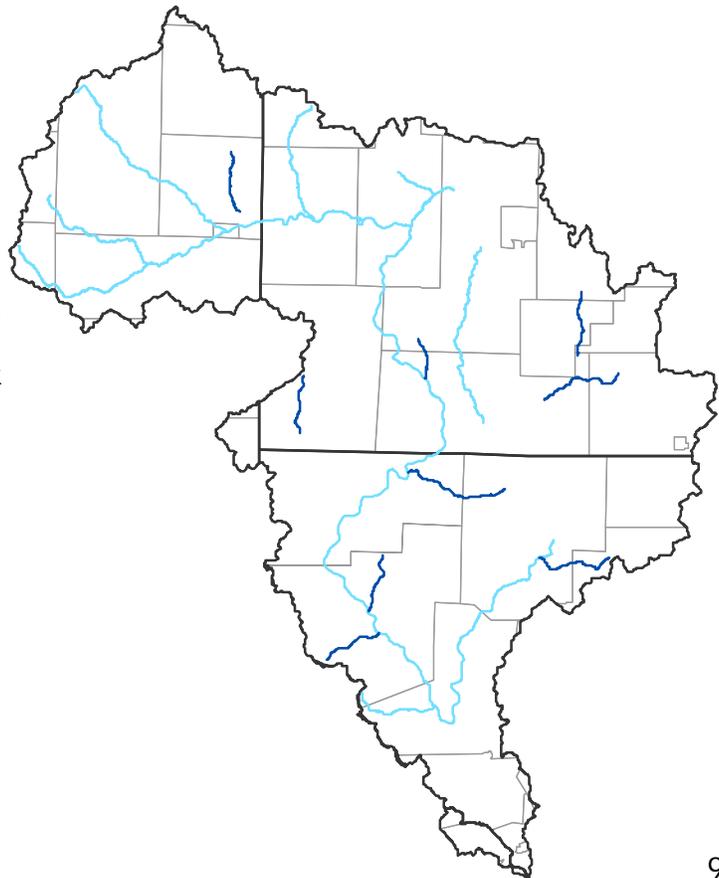
Exceptional Value and High Quality Streams⁸

In accordance to 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.

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

Pennsylvania Trout Waters⁹

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
- Wilderness Trout Streams
- Townships
- County Boundary

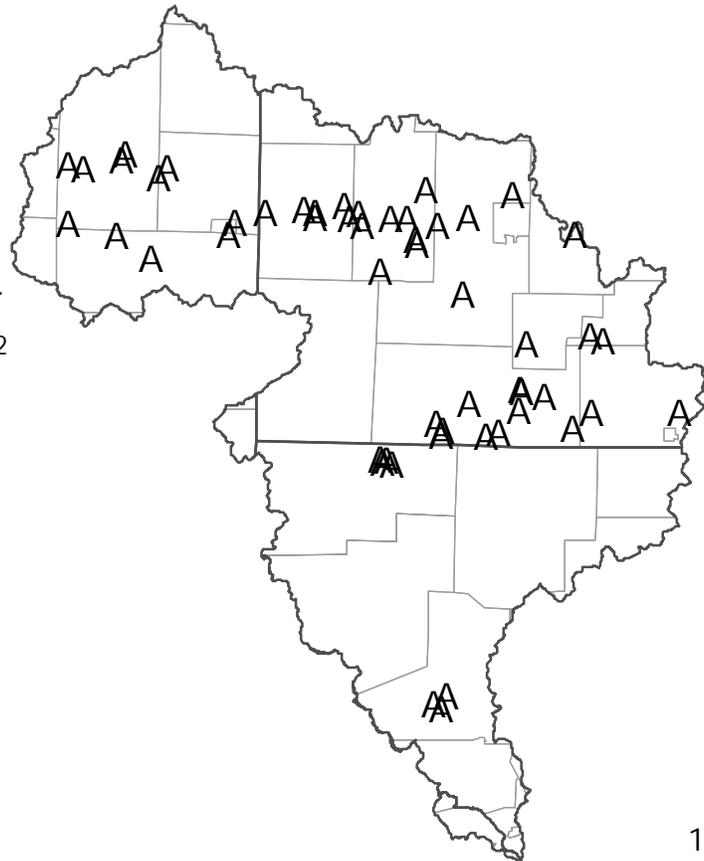


Total Maximum Daily Load¹⁰

A Total Maximum Daily Load (TMDL) sets a ceiling on the pollutant loads that can enter a water body so the water body will meet water quality standards. The Clean Water Act requires states to list all waters that do not meet their water quality standards even after pollution controls required by law are in place. For these waters, the state must calculate how much of a substance can be put in the water without violating the standard and distribute that quantity to all the sources of the pollutant on that water body. A TMDL plan includes waste load allocations for point sources, load allocations for nonpoint sources, and a margin of safety. TMDL plans were completed in the shaded areas of this watershed in 2003 due to Acid Mine Drainage.

Water Quality Testing Points¹¹

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.





Water Resource Points¹²

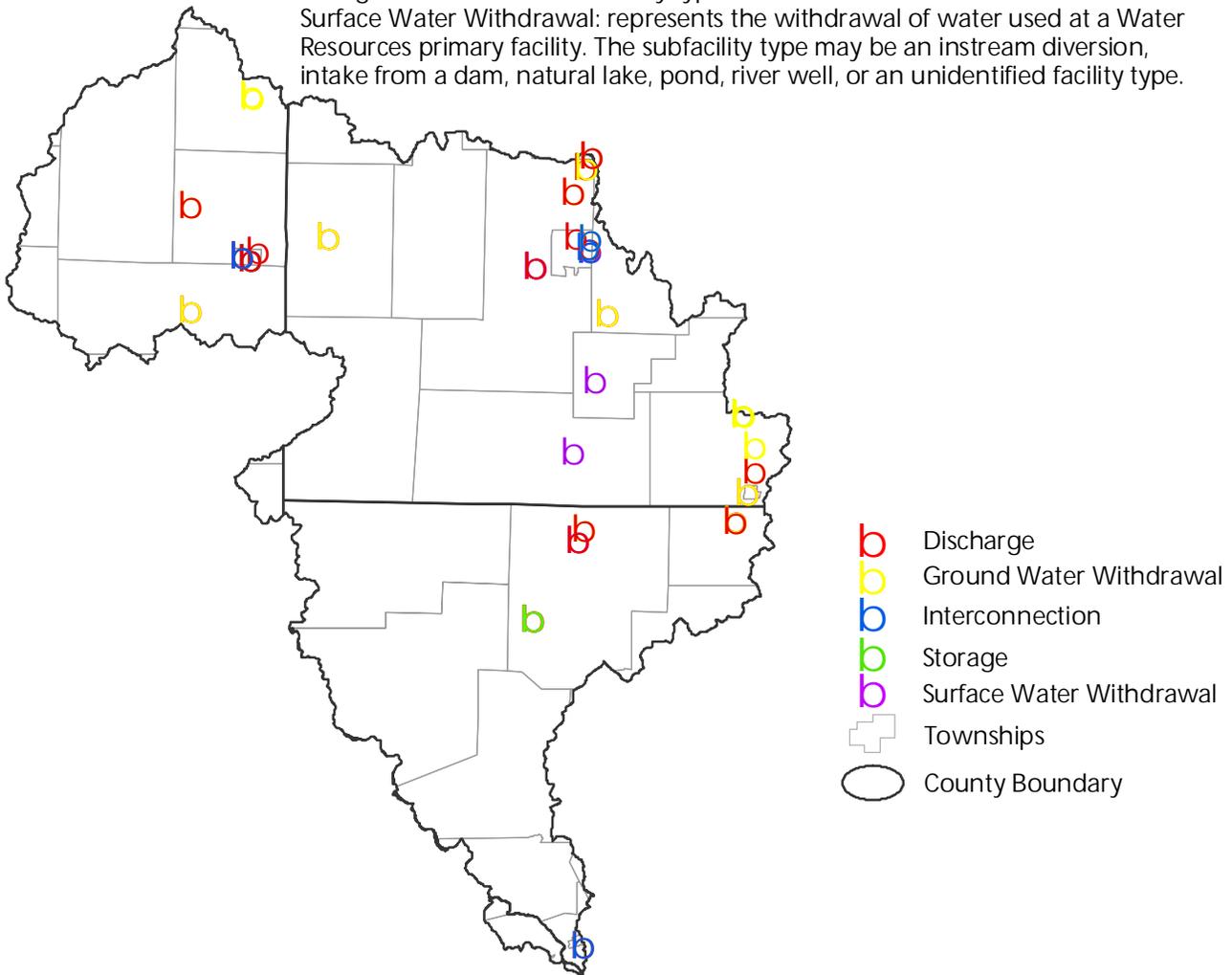
A Water Resource is a DEP primary facility type related to the Water Use Planning Program. The sub-facility types related to Water Resources that are included are: Discharge: represents the return of water used at a Water Resources primary facility. The subfacility type may be a sewage treatment plant, instream discharge spray irrigation field, groundwater recharge, on-lot septic or an unidentified facility type.

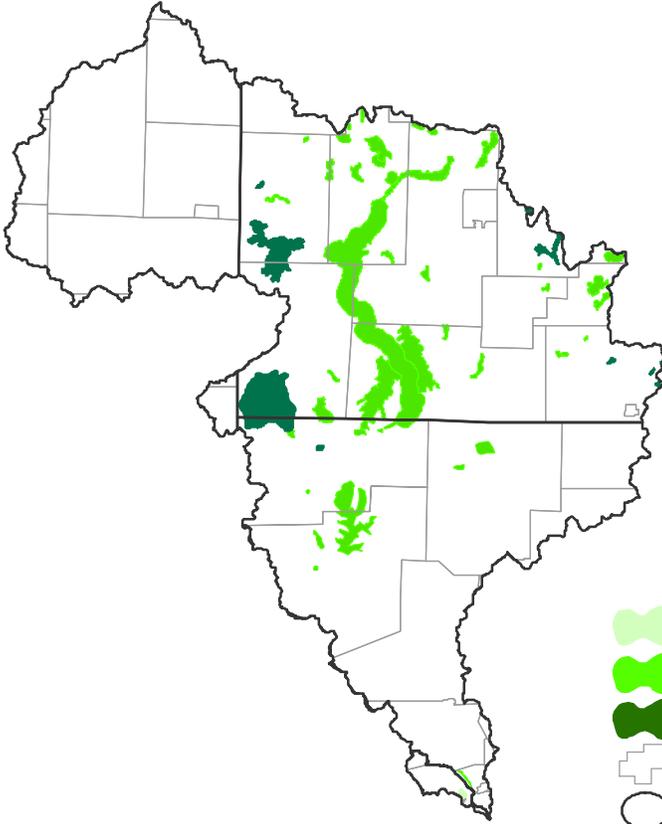
Ground Water Withdrawal: represents the withdrawal of water used at a Water Resources primary facility. The subfacility type may be a well, spring, quarry, infiltration gallery, deep mine, surface mine or an unidentified facility type.

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 Sites¹³

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.

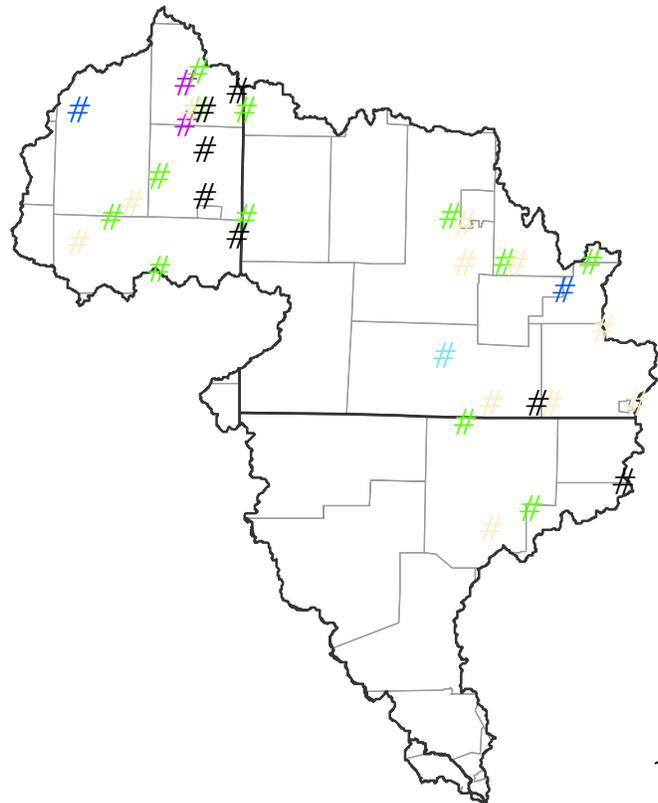
CNA - County Natural Area - this designation formerly used by the Eastern Office of PNHP for sites that contain elements - exemplary natural communities or species of concern as tracked by PNHP.

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

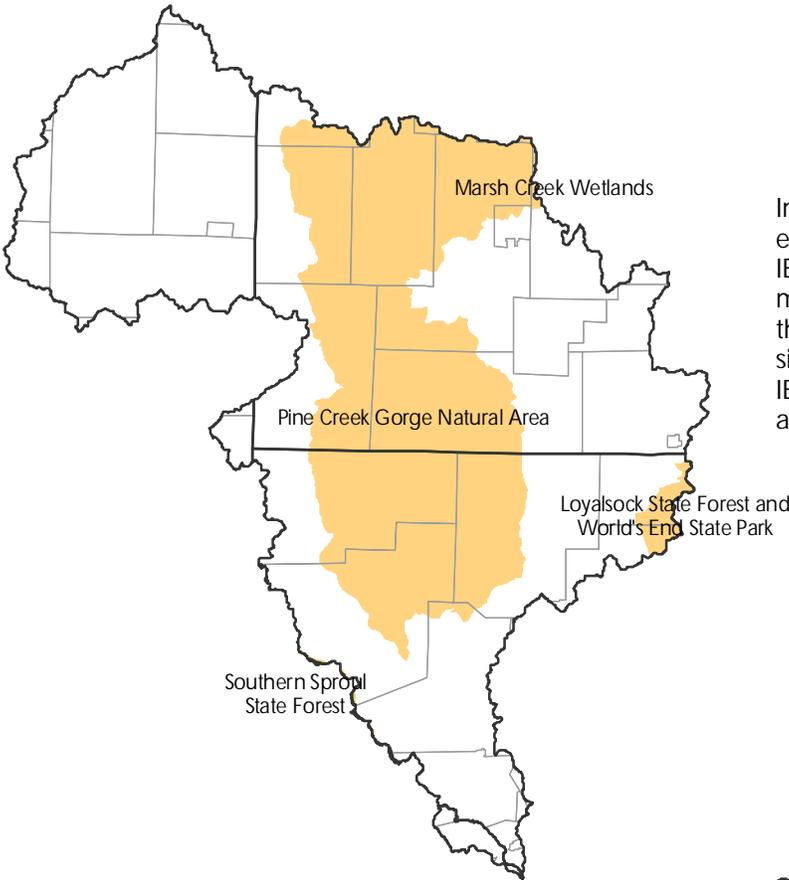
-  BDA
-  CNA
-  LS
-  Townships
-  County Boundary

Pennsylvania Breeding Bird Atlas¹⁴

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
- # Bobolink
- # Eastern Meadowlark
- # Grasshopper Sparrow
- # Northern Harrier
- # Redheaded Woodpecker
-  Townships
-  County Boundary



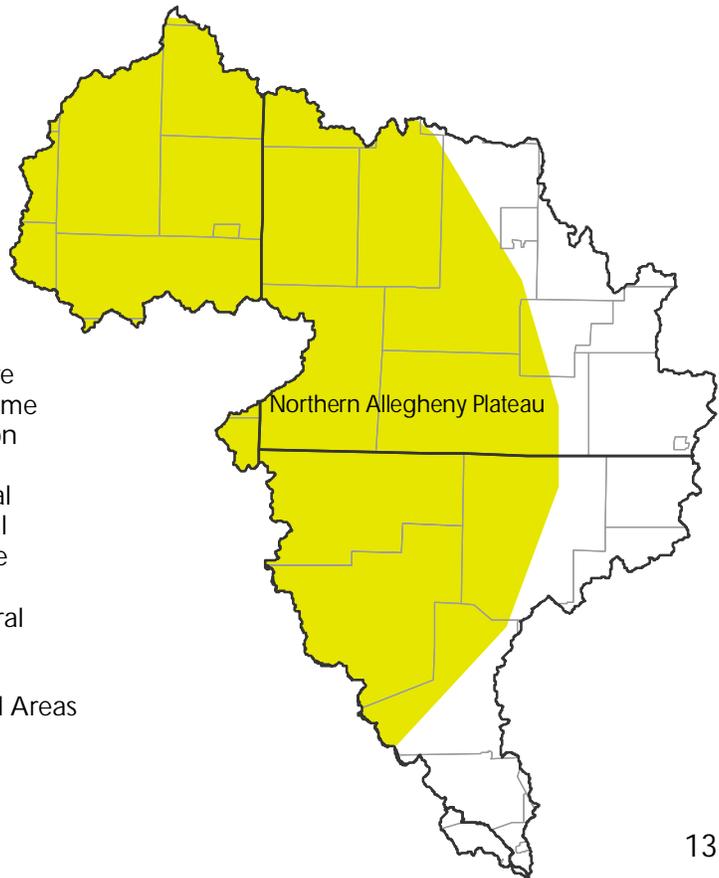
Important Bird Areas¹⁵

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 Areas¹⁶

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.



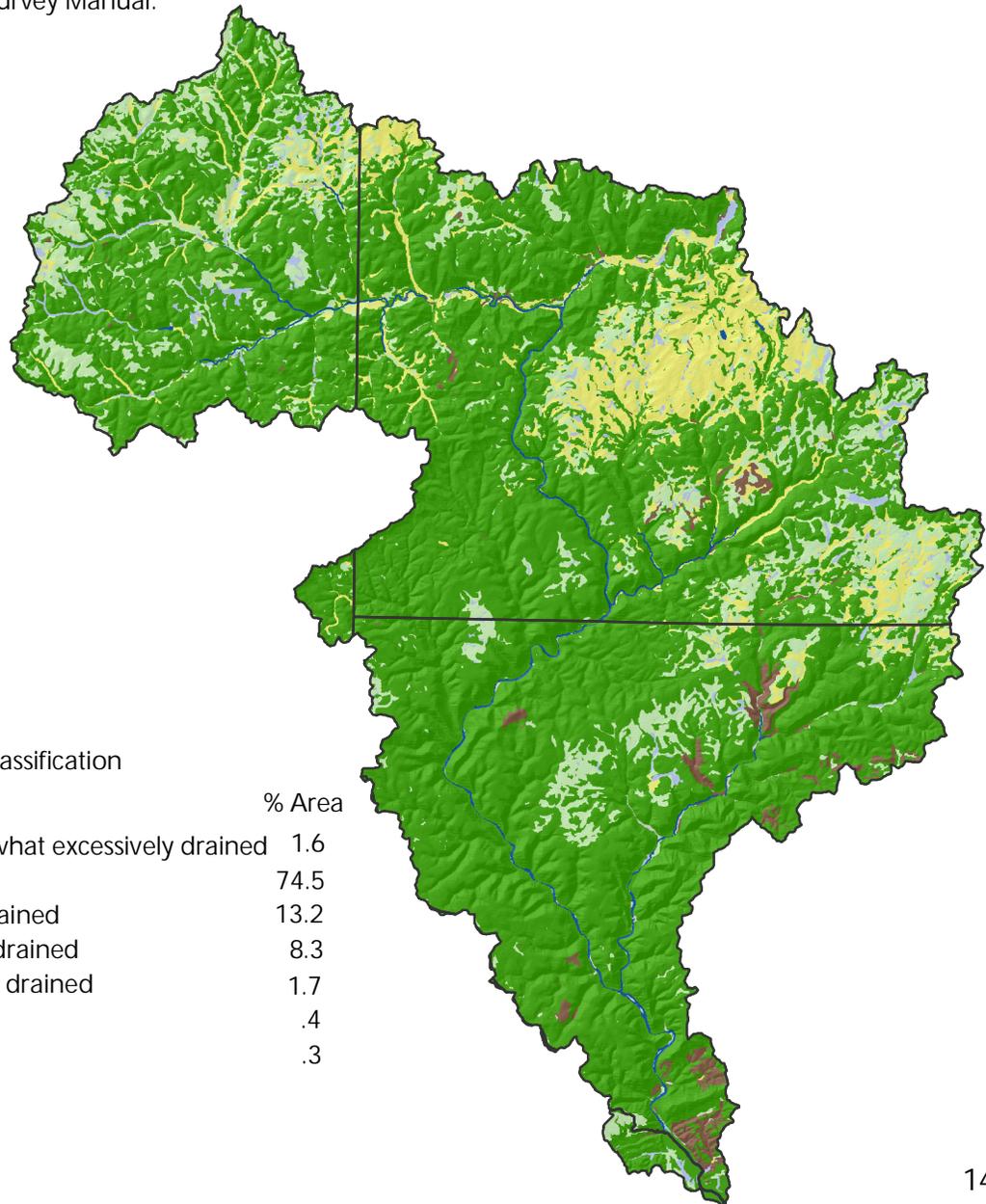
-  Important Mammal Areas
-  Townships
-  County Boundary

Soils¹⁷



Drainage Classification

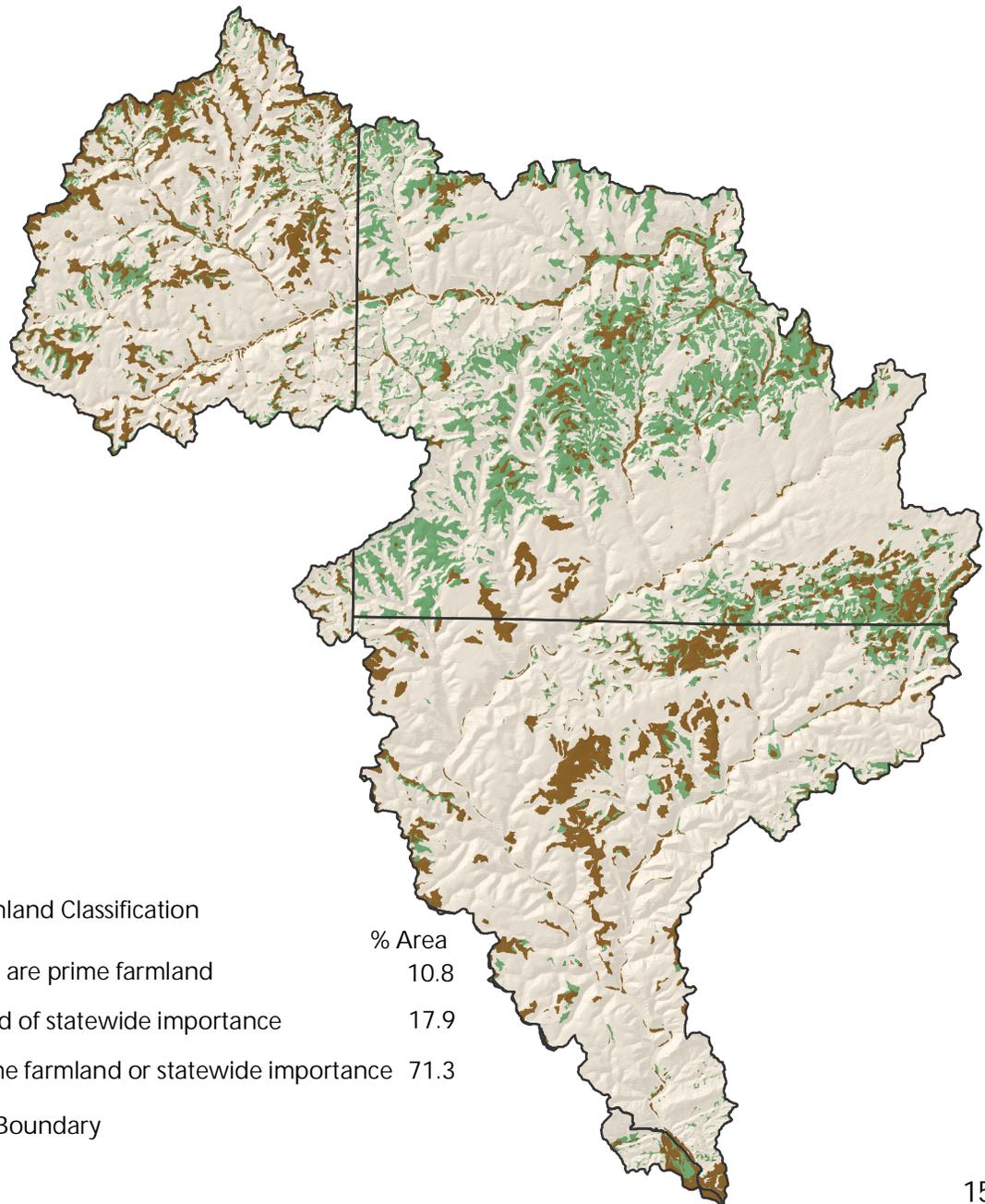
Drainage class (natural) refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology 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.

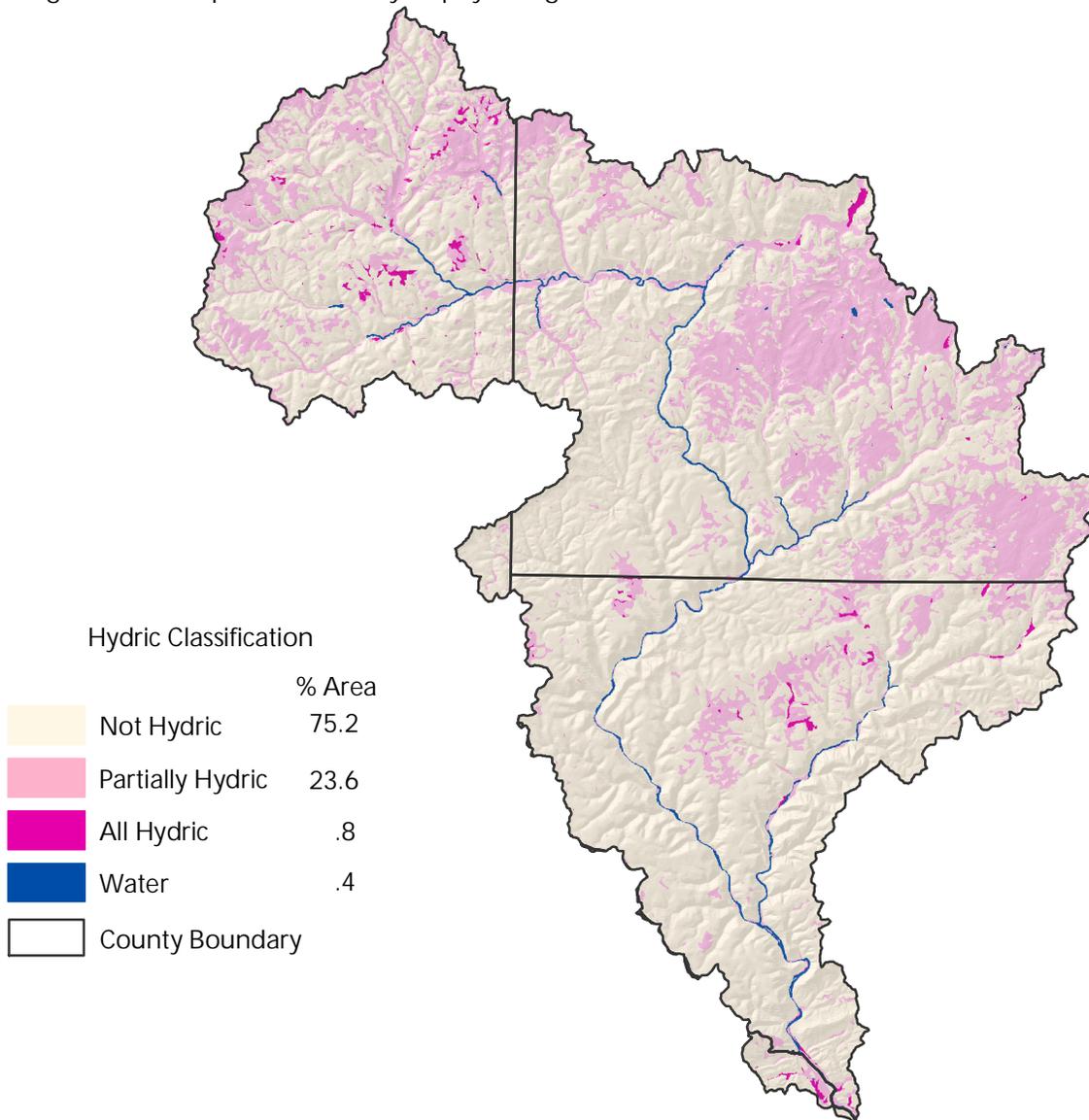


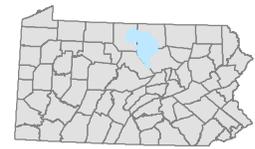


Hydric Soil Classification

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.

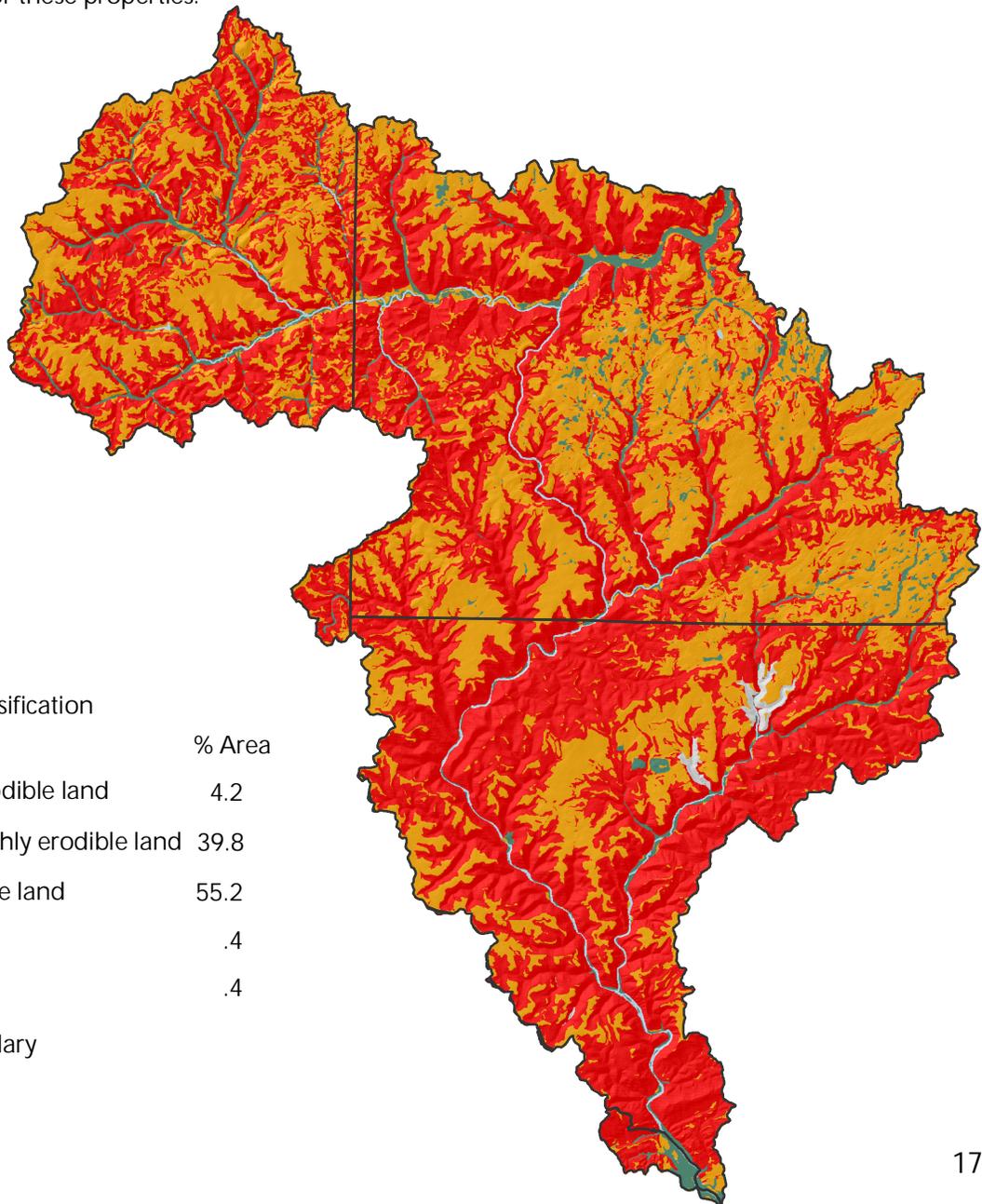
Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural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





Highly Erodible Land

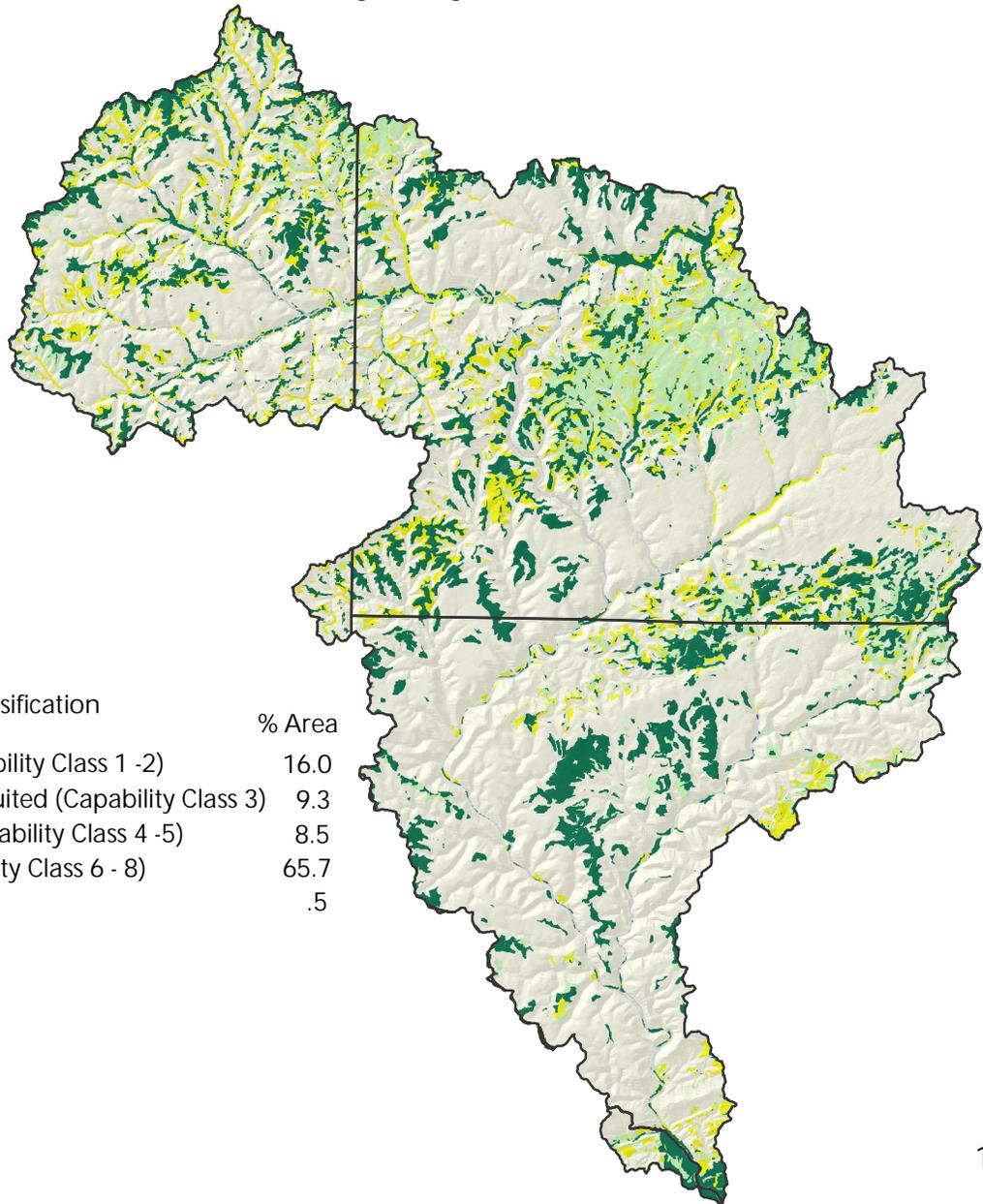
A soil map with an erodibility index (EI) of 8 or greater is considered to be highly erodible land (HEL). The EI for a soil map unit is determined by dividing the potential erodibility for the soil map unit by the soil loss tolerance (T) value established for the soil in the FOTG as of January 1, 1990. 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.

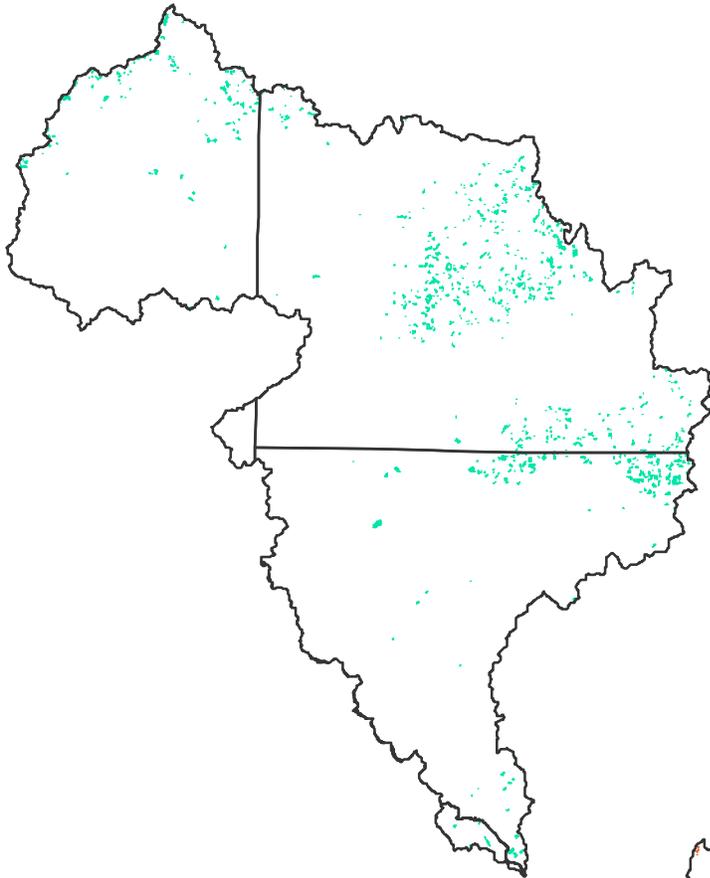




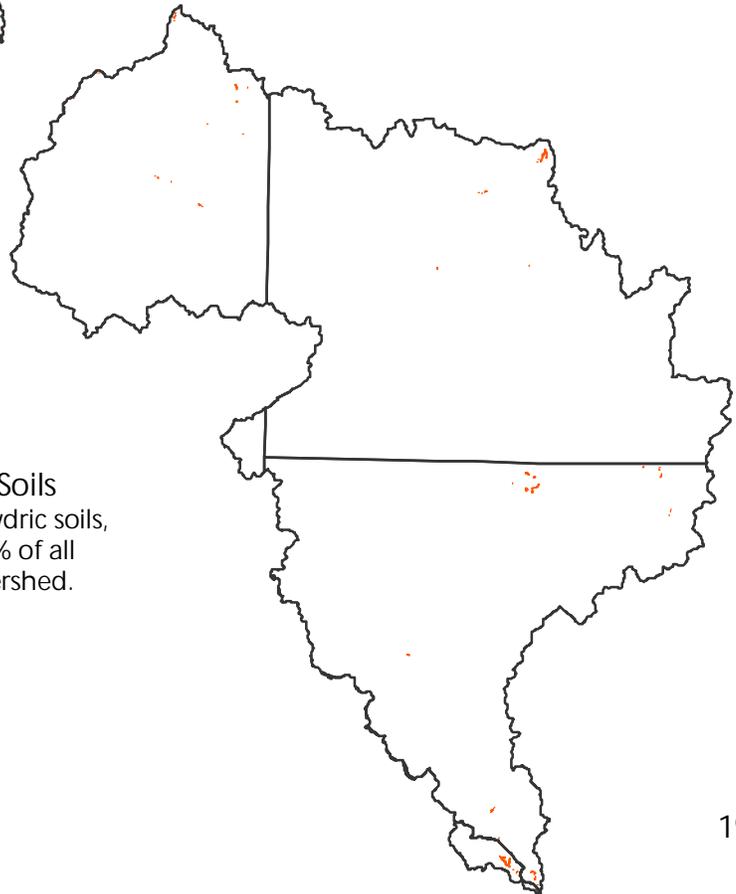
Land Capability Classification

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.

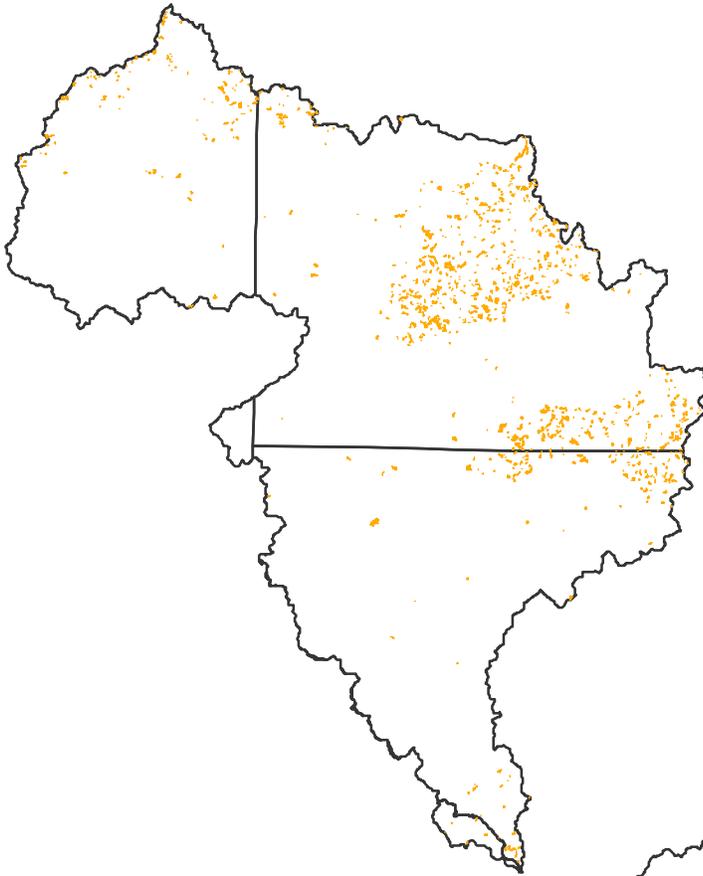




Cropland on Highly Erodible Land
There are 2399.8 acres on highly erodible land, which is approximately 14.5% of all cultivated crops in the watershed.



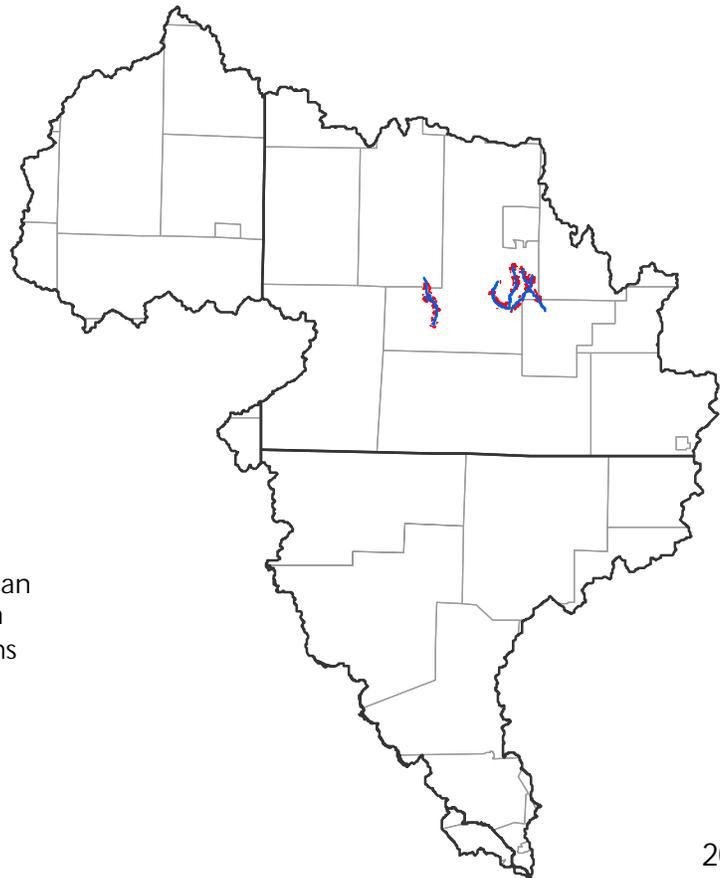
Cropland on Hydric Soils
There are 150.8 acres on hydric soils, which is approximately 1.0% of all cultivated crops in the watershed.



Cropland on Poor or Unsuited Soil

 There are 2851.5 acres on poor or unsuited land, which is approximately 17.2% of all the cultivated crops in the watershed.

Cropland within 1000 feet of an Agriculturally Impaired Stream



- Cropland within 1000 feet of an agriculturally impaired stream
- Agriculturally Impaired Streams
- Townships
- County Boundary



Resource Concerns

Major resource concerns in the area include:

- erosion
- sedimentation
- surface compaction resulting from livestock
- reduction of organic matter on cropland
- subsidence resulting from mining
- land slippage
- soil productivity
- gulying
- soil wetness

Conservation Practices

Common conservation practices for cropland:

- crop rotation
- contour farming
- nutrient management
- grassed and riparian forest buffers
- cover crops
- diversions
- grassed waterways
- hayland planting
- conservation tillage
- stripcropping
- residue management

Common pasture management practices:

- prescribed grazing
- watering systems
- fencing
- managing livestock access to streams
- nutrient management
- pasture planting



PRS Performance Measures ¹⁸

	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
Total Conservation Systems Planned (acres)	502	1721	1623	1981	2290	NA	1220	1360	10,697
Total Conservation Systems Applied (acres)	250	991	1624	1449	1706	NA	1668	1370	9,058
Key Conservation Treatments									
Waste Storage Facility (number)	3	2	3	5	0	0	0	0	13
Riparian Forest Buffer (acres)	2	46	30	86	61	12	41	51	329
Erosion Control Total Soils Saved (tons/year)	238	960	1333	898	1116	NA	NA	NA	4,545
Nutrient Management (acres)	388	161	1251	1122	124	86	161	11	3,304
Pest Management (acres)	0	113	0	53	0	0	116	11	293
Prescribed Grazing (acres)	0	154	687	478	519	0	165	0	2,003
Tree and Shrub Establishment (acres)	0	7	1	30	1	12	23	10	84
Residue Management (acres)	25	213	359	30	5	0	87	37	756
Wildlife Habitat (acres)	70	87	0	331	1095	150	1064	1007	3,804
Wetlands Created, Restored, or Established	0	0	5	68	0	48	0	0	121
Acres in Conservation Programs									
Conservation Technical Assistance									
Planned	502	1464	1523	1572	1703	NA	302	1226	8,292
Applied	250	991	1572	1273	1706	NA	428	627	6,847
Conservation Reserve Program									
Planned	39	0	29	0	0	NA	1038	396	1,502
Applied	98	0	26	0	0	NA	1163	801	2,088
Environmental Quality Incentive Program									
Planned	0	3	0	0	587	NA	25	0	615
Applied	0	0	0	0	0	NA	198	28	226
Farmland Protection Policy/Farm and Ranch Lands Protection Program									
Planned	0	0	0	0	0	NA	0	0	0
Applied	0	0	0	0	0	NA	0	0	0
Forestry Incentive Program									
Planned	0	0	0	0	0	NA	0	0	0
Applied	0	0	0	0	0	NA	0	0	0
Grasslands Reserve Program									
Planned				0	0	NA	0	0	0
Applied				0	0	NA	0	0	0
Grazing Lands Conservation Initiative									
Planned	109	138	407						654
Applied	0	127	168						295
Wildlife Habitat Incentive Program									
Planned	83	0	24	0	0	NA	0	0	107
Applied	0	5	0	176	0	NA	0	0	181
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 Data¹⁹

	Clinton	Lycoming	Potter	Tioga	Total
Farms (number)	4	353	68	367	792
Land in farms (acres)	478	47,352	18,596	75,415	141,841
Total cropland (acres)	308	27,705	8,752	42,965	79,730
Principal operator by primary occupation - Farming (number)	2	186	36	204	428
Farms by Size					
1 to 9 acres	0	15	4	9	28
10 to 49 acres	1	93	7	42	143
50 to 179 acres	2	166	27	173	368
180 to 499 acres	0	68	22	114	204
500 to 999 acres	0	8	5	24	37
1,000 acres or more	0	3	2	5	10
Livestock and Poultry					
Cattle and calves inventory (farms)	2	144	36	229	411
Cattle and calves inventory - Beef cows (farms)	1	83	25	141	250
Cattle and calves inventory - Milk cows (farms)	1	33	12	78	124
Hogs and pigs inventory (farms)	0	24	5	34	63
Sheep and lambs inventory (farms)	0	17	3	26	46
Layers 20 weeks old and older inventory (farms)	0	28	7	34	69
Broilers and other meat-type chickens sold (farms)	0	4	1	6	11
Crops Harvested					
Corn for grain (acres)	53	4914	306	2136	7,409
Corn for silage or greenchop (acres)	47	1487	882	2536	4,952
Wheat for grain, all (acres)	10	448	190	47	695
Oats for grain (acres)	3	740	216	538	1,497
Barley for grain (acres)	0	58	22	121	201
Soybeans for beans (acres)	22	1811	-	97	1,930
Forage - land used for all hay and all haylage, grass silage, and greenchop (acres)	114	9,746	4,435	28,577	42,872
Vegetables harvested for sale (acres)	3	304	382	45	734
Land in orchards (acres)	1	175	4	60	240
Total cropland harvested (acres)	251	20,017	6,658	33,874	60,800
Farm Operator by Ethnicity					
White	6	497	106	526	1,135
Black or African American	0	0	0	1	1
Asian	0	0	0	0	0
Hispanic	0	2	1	2	5
American Indian/Alaskan Native	0	1	0	3	4
Pacific Islander	0	0	0	0	0
Women	2	119	34	143	298



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. 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>
- 8. 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>



Footnotes/Bibliography

9. 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>
10. Total Maximum Daily Load (TMDL)
TMDL is the sum of the individual waste load allocations and load allocations which would not produce a violation of water quality standards. The data used is from 2003, the PA Department of Environmental Protection is currently working on updating the GIS data available. More information can be found on TMDL locations in PA at http://www.dep.state.pa.us/watermanagement_apps/tmdl/, and/or nationally at <http://www.epa.gov/owow/tmdl/>
11. 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>
12. 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>
13. 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/>
14. 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.carnegiemn.org/atlas/home.htm>
15. 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/>
16. 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

17. Soils

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

- Clinton County (PA035)
- Lycoming County (PA081)
- Potter County (PA105)
- Tioga County (PA117)

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

18. 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/>

19. 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