

IMPORTANT RESOURCES OF THE HOPEWELL BIG WOODS

AND THE POTENTIAL IMPACTS
OF PIPELINE DEVELOPMENT
ON THE LANDSCAPE



*Prepared for: East Nantmeal Township, North Coventry Township,
South Coventry Township, Union Township, Warwick Township, West Vincent Township*

By: French & Pickering Creeks Conservation Trust, Green Valleys Association, Natural Lands Trust

May 2013





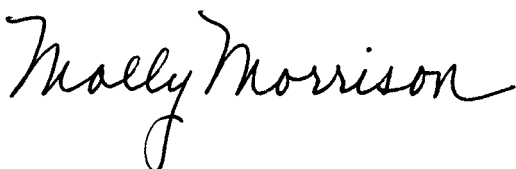
Hopewell Big Woods

At a joint public meeting of the Boards of East Nantmeal, North Coventry, South Coventry, Union, Warwick, and West Vincent Townships on February 20, 2013, the Supervisors requested a report summarizing the important natural, cultural, and recreational resources of the Hopewell Big Woods. The report was also to include a discussion of the potential impacts of the proposed Commonwealth Pipeline corridor that may pass through the Hopewell Big Woods landscape. We are pleased to present that report as an informational resource for the Township governing bodies.

As the details contained in the following pages indicate, the Hopewell Big Woods is a globally-significant landscape that provides a wide variety of important ecological, economic, and quality of life benefits for local communities and beyond. Given the volume of study and planning that has been conducted in the Hopewell Big Woods, a comprehensive report of what is known would be unwieldy. Therefore, we have chosen to highlight only the most important and pertinent information.

As non-profit organizations that have worked in the Hopewell Big Woods landscape for decades and active participants in the formation of the Hopewell Big Woods partnership in 2001, we are particularly committed to protecting the ecological integrity of the area. As always, our interest is in seeking a balanced approach to conservation and economic development that minimizes negative impacts on the most important resources.

Nothing in this report should be interpreted as an official statement of position by our respective organizations regarding the proposed Commonwealth Pipeline or any other energy transmission corridor. Nor should it be considered an endorsement of the positions or actions of the Townships to which the report is being provided. Rather, it is a summary of our collective knowledge about the Hopewell Big Woods and of the potential impacts of natural gas pipeline developments that pass through it.



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Conservation Trust



Bobcats inhabit the Hopewell Big Woods

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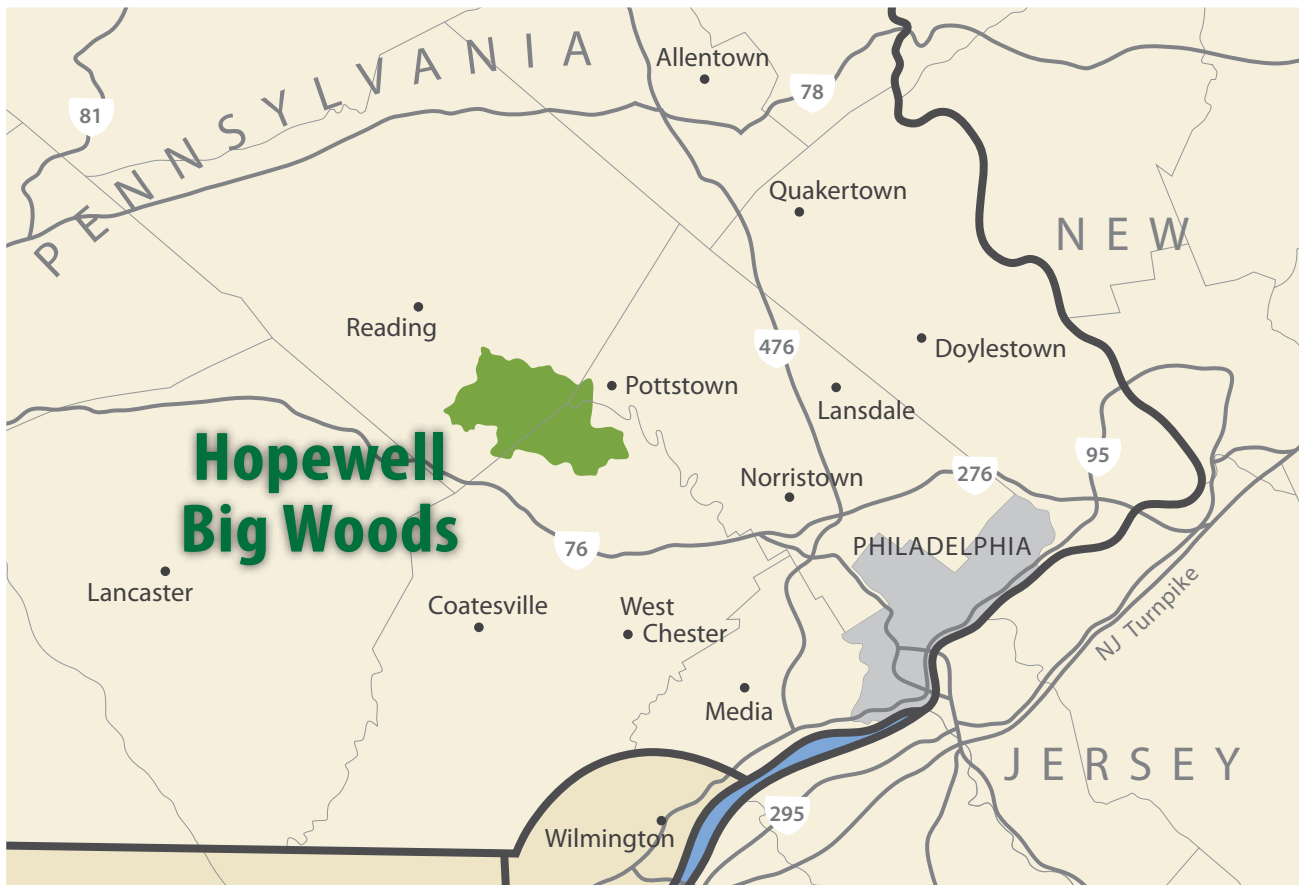


The intact forest of the Hopewell Big Woods includes sugar maples

I ABOUT

The largest remaining contiguous forest in southeastern Pennsylvania, the Hopewell Big Woods has been recognized as one of the most important natural areas in the region. The 73,000-acre landscape spans portions of northern Chester and southern Berks Counties.

The intact forest here provides valuable wildlife habitat for a variety of species, including Federally-listed endangered species, migrating neotropical songbirds, and native mammal species that have largely been pushed out of the extended Philadelphia area by suburban development. The forests also contribute to a



significant number of Exceptional Value and High Quality watersheds.

After two national conservation organizations identified the Hopewell Big Woods as an important conservation priority in 2001, a broad public-private partnership formed to encourage conservation of additional open space, protect high quality waters, encourage compatible economic development, and promote awareness of the many recreational opportunities in the landscape. Today, the Hopewell Big Woods partnership consists of 47 federal, county, state and local officials, non-profit conservation organizations, and concerned citizens.

More than 24,000 acres of the Hopewell Big Woods are set aside as publicly-owned or privately-preserved open spaces. Nearly half of the 28,000 acres of contiguous forest contained within the landscape has been preserved to date.

Tens-of-millions of dollars in federal, state, county, local, and private investments have been made in the preservation of land in the Hopewell Big Woods. Millions more have been spent on responsible natural resource management, park development, historic preservation, trail creation, and promotion of the area as a recreation and tourism destination. The area has also been the subject of considerable study and planning to ensure the most efficient and effective use of conservation, recreation, and restoration funds.

Hopewell Big Woods makes substantial economic contributions to the region. A 2010 study of the economic value of open space in the Philadelphia region found that the Hopewell Big Woods contributes \$47 million annually in environmental benefits such as clean water, stormwater control, and carbon sequestration. The study also found that homes within a quarter-mile of the Hopewell Big Woods are worth an average of \$8,270 more because of their proximity to the conservation area.



Birdsboro Waters

II

IMPORTANT RESOURCES OF THE HOPEWELL BIG WOODS: LAND

The single most distinguishing characteristic of the Hopewell Big Woods is its contiguous forest. At approximately 28,000 acres, it is the largest unbroken forest habitat area between New York City and Washington, D.C. The woodland here was identified as a globally-significant natural area based on a study by The Nature Conservancy and World Wildlife Fund in 2001.

HIGHLIGHTS

- The Hopewell Big Woods is part of the federally-designated Highlands, a 3.5 million-acre area of forested mountains and hills that stretches across Connecticut, New York, New Jersey and southeastern Pennsylvania.
- There are more than 24,000 acres of public and protected lands in the Hopewell Big Woods. Of those, 12,630 are in the contiguous forest area.

- The Hopewell Big Woods is known to contain one globally significant plant species, the Bog bluegrass (*Poa paludigena*), which the PA Natural Heritage program classifies as 'globally rare' (G3).
- Field surveys have indicated the presence of state designated plant species including nodding trillium (*Trillium cernuum*), a state imperiled species.
- Hopewell Big Woods is home to Pine Swamp, a biologically-rich acidic broadleaf swamp that is considered an imperiled natural community with fewer than one hundred such communities remaining in the world.



St. Peter's Village

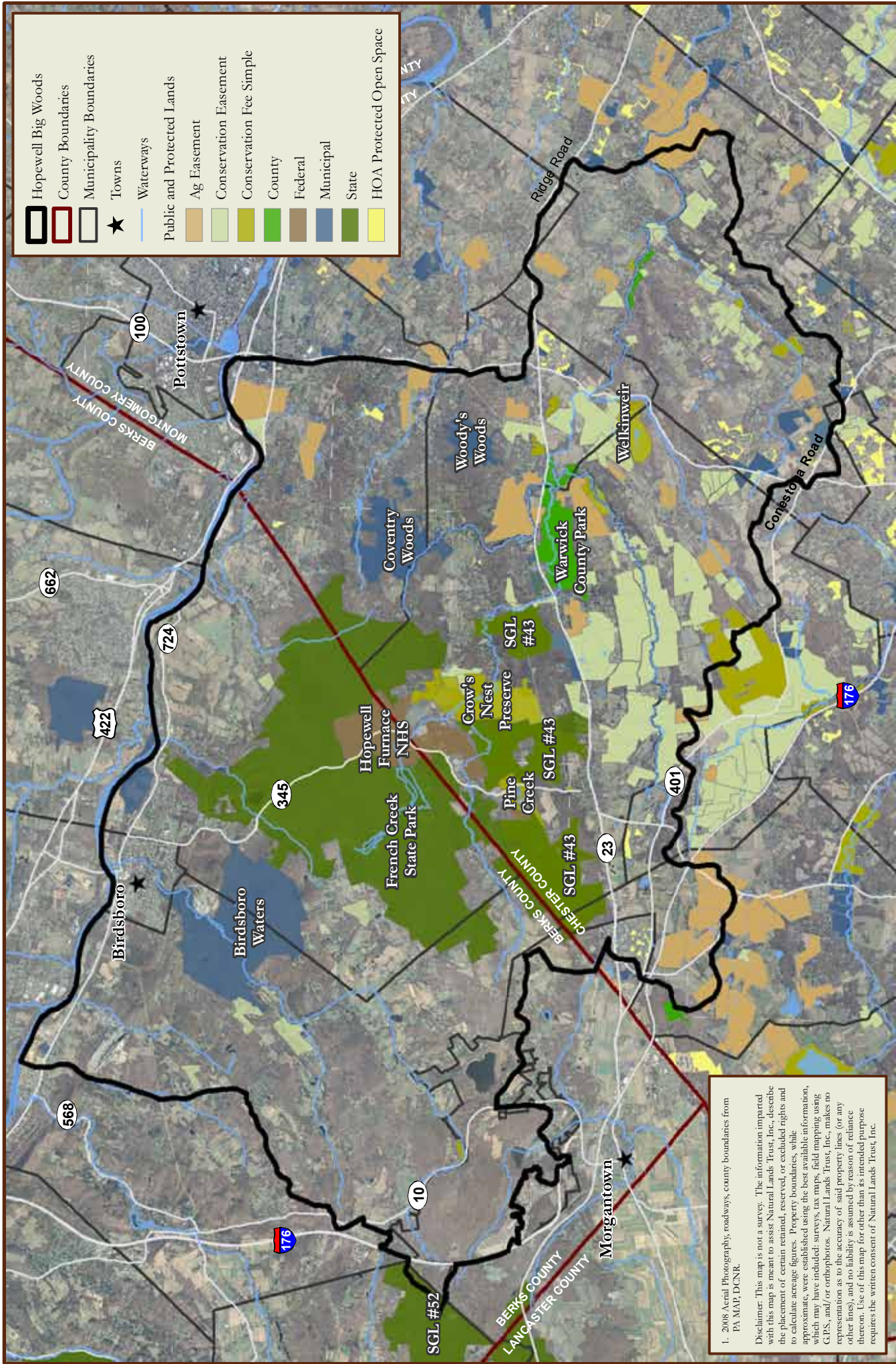
PUBLIC AND PROTECTED LANDS IN THE HOPEWELL BIG WOODS		
PROPERTY	SIZE (ACRES)	RESPONSIBLE ENTITY
Hopewell Furnace National Historic Site	848	National Park Service
French Creek State Park	7730	Commonwealth of Pennsylvania, DCNR
PA State Game Lands #43	2000	Commonwealth of Pennsylvania, Game Commission
Warwick County Park	648	County of Chester
Birdsboro Waters	1800	Birdsboro Municipal Authority
Coventry Woods	600	North Coventry Township
Woody's Woods	200	South Coventry Township
Crow's Nest Preserve	612	Natural Lands Trust
Welkinweir	197	Green Valleys Association
Other non-profit protected lands	5820	Berks Conservancy, French & Pickering Creeks Conservation Trust, Hay Creek Watershed Association, Natural Lands Trust



Nodding trillium



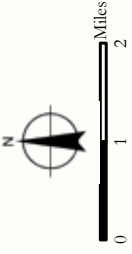
Pink lady's slipper orchid



Public and Protected Lands

HOPEWELL BIG WOODS (+/- 73,200 acres)

Berks and Chester Counties, Pennsylvania



Compiled By: MEB 04/17/13

1. 2008 Aerial Photography, roadways, county boundaries from PA MAP, DCNR.
 Disclaimer: This map is not a survey. The information imparted with this map is meant to assist Natural Lands Trust, Inc., describe the placement of certain retained, reserved, or excluded rights and to calculate acreage figures. Property boundaries, while approximate, were established using the best available information, which may have included: surveys, tax maps, field mapping using GPS, and/or orthophotos. Natural Lands Trust, Inc., makes no representation as to the accuracy of said property lines (or any other lines), and no liability is assumed by reason of reliance thereon. Use of this map for other than its intended purpose requires the written consent of Natural Lands Trust, Inc.

III

IMPORTANT RESOURCES OF THE HOPEWELL BIG WOODS: WATER

The principle watersheds in the Hopewell Big Woods are French Creek, Hay Creek, Sixpenny Creek, Angelica Creek, and Pigeon Creek.

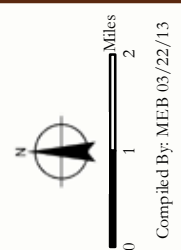
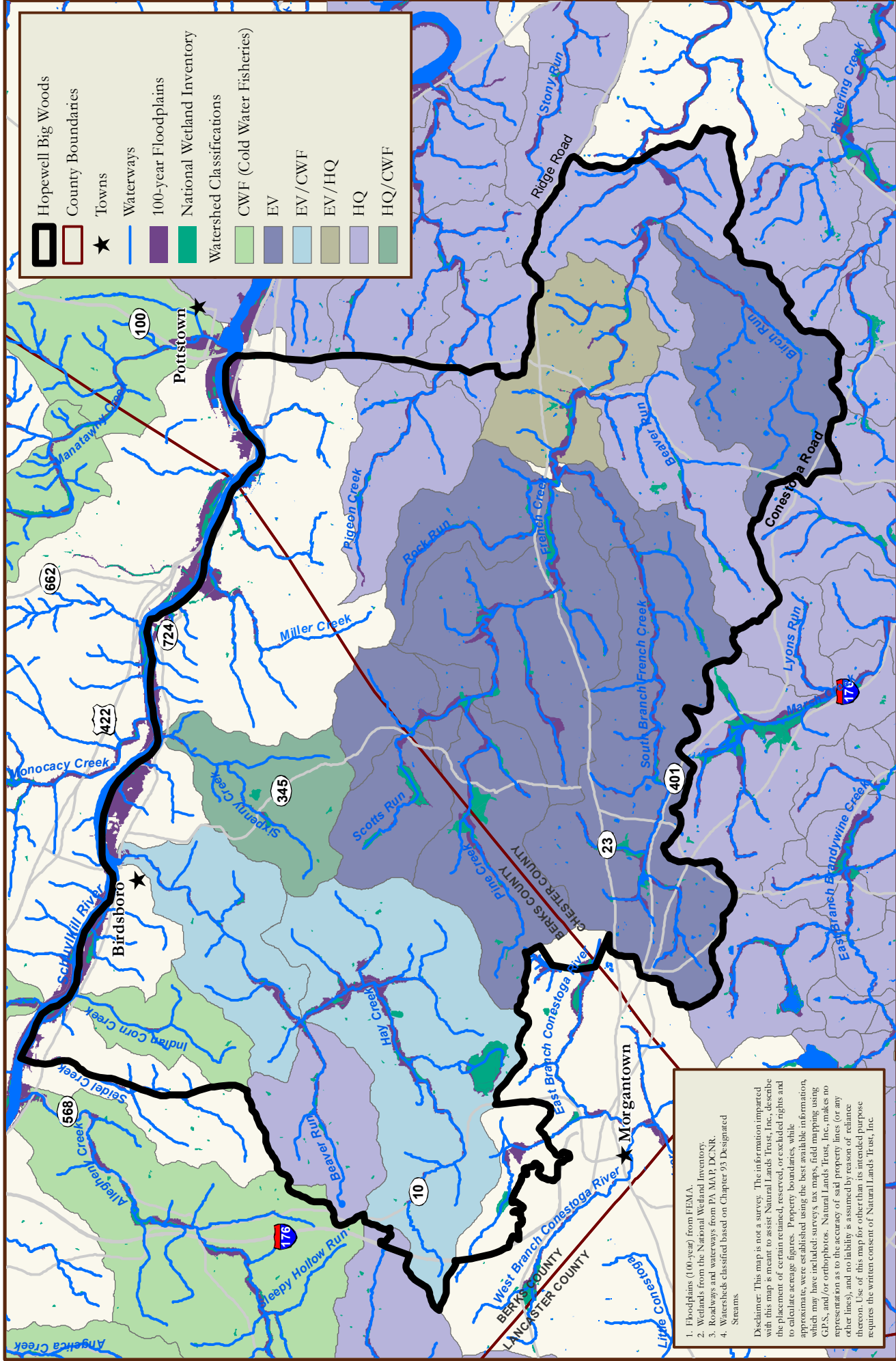
HIGHLIGHTS

- Over 71% of the watersheds in the Hopewell Big Woods are designated as either Exceptional Value (EV)¹ or High Quality (HQ)²; together they make up an intact region of healthy watersheds that is unique in Southeastern PA and notable at the state level.
- The 81 square miles of EV and HQ watersheds in the Hopewell Big Woods are subject to federal and state protections under the Clean Water Act of 1972.
- The watersheds of the Hopewell Big Woods are part of the Schuylkill River Watershed which provides drinking water to 1.5 million people in eastern Pennsylvania, most of whom live in the Philadelphia metropolitan area.
- These watersheds provide a variety of ecosystem services including “water filtration and storage, air filtration, carbon storage nutrient cycling, soil formation, recreation, food, and timber.”³ A study by the Delaware Valley Regional Planning Commission and GreenSpace Alliance valued these services at \$47 million annually.⁴



French Creek, Crow's Nest Preserve

¹ HQ is a Pennsylvania term equivalent to the federal designation of “Tier 2”; ² EV is a Pennsylvania term equivalent to the federal designation of “Tier 3”; ³ http://www.lcbp.org/PDFs/2012economic_benefits_factsheet2.pdf; ⁴ Return on Environment, Economic Value of Protected Open Space in Southeastern Pennsylvania, 2011



Compiled By: MEB 03/22/13

Hydrologic Features

HOPEWELL BIG WOODS (+/- 73,200 acres)

Berks and Chester Counties, Pennsylvania

1. Floodplains (100-year) from FEMA.
 2. Wetlands from the National Wetland Inventory.
 3. Roadways and waterways from PA MAP, DCNR.
 4. Watersheds classified based on Chapter 93 Designated Streams.

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IV

IMPORTANT RESOURCES OF THE HOPEWELL BIG WOODS: WILDLIFE

The large blocks of interior forest in the Hopewell Big Woods provide essential and increasingly rare habitat for a variety of wildlife species, including two Federally-listed endangered species, migrating neotropical songbirds, and a wealth of native mammals.

HIGHLIGHTS

- The Hopewell Big Woods supports two species protected by the Endangered Species Act (ESA): Indiana bat (*Myotis sodalis*) which is listed as Endangered, and the Bog Turtle (*Glyptemys muhlenbergii*) which is listed as Threatened.¹ The Hopewell Big Woods supports the most significant populations of Bog Turtles in southeastern Pennsylvania.
- The Commonwealth of Pennsylvania recognizes Jefferson salamander (*Ambystoma jeffersonianum*), and spadefoot toad (*Scaphiopus holbrookii*) as rare species. Both are found in Hopewell Big Woods.
- Portions of the Hopewell Big Woods have been designated as the Hay Creek/French Creek and Glen Morgan Lake Important Bird Areas (IBAs) by Audubon due to their exceptional diversity of birdlife and the presence of many species that are regionally rare. At least 170 species have been recorded here, including large numbers of forest

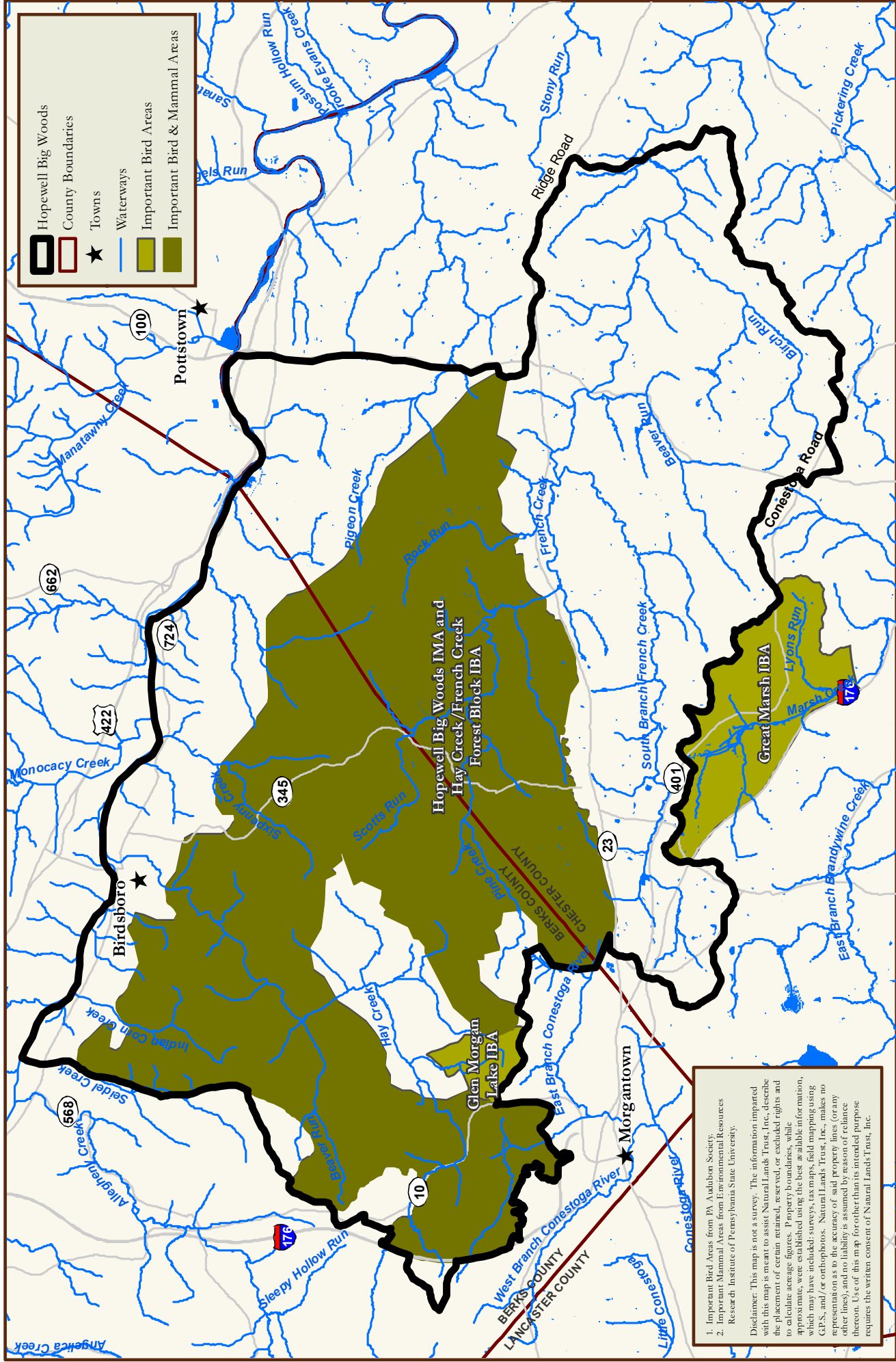
interior bird species and some in steep decline, such as the Cerulean Warbler and the Kentucky Warbler. (For a complete list of bird species spotted in the IBAs, see the Appendix.)

- The Pennsylvania Important Mammals Areas Project has designated the Hopewell Big Woods Important Mammal Area in recognition of its status as the largest network of remaining forest habitat for mammals in the Piedmont region of southeastern Pennsylvania. At least 45 of the 62 native mammal species in Pennsylvania inhabit the landscape, including American mink, river otter, bobcat and gray fox.²
- The Pennsylvania Natural Heritage Inventory lists 28 sites of importance in the landscape (for a full list, see Appendix).



Threatened bog turtle

¹ U.S. Fish & Wildlife Service Information Planning and Conservation System; ² http://www.landincommon.org/files/Layout_3_1_.pdf



Hopewell Big Woods

County Boundaries

Towns

Waterways

Important Bird Areas

Important Bird & Mammal Areas

0 1 2 Miles

Compiled By: MEB/04/17/13

Important Bird and Mammal Areas

HOPEWELL BIG WOODS (+/- 73,200 acres)

Berks and Chester Counties, Pennsylvania

1. Important Bird Areas from PA Audubon Society.
 2. Important Mammal Areas from Environmental Resources Research Institute of Pennsylvania State University.

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IMPORTANT RESOURCES OF THE HOPEWELL BIG WOODS: RECREATION

The vast natural resources of the Hopewell Big Woods offer a host of outdoor recreation opportunities. The parks, preserves, trails, and waters are popular for hiking, cycling, fishing, hunting, camping, rock climbing, horseback riding, birding, and more. The landscape's proximity to the Philadelphia metropolitan area makes it a particularly valuable recreational resource for the region's more than six million residents.

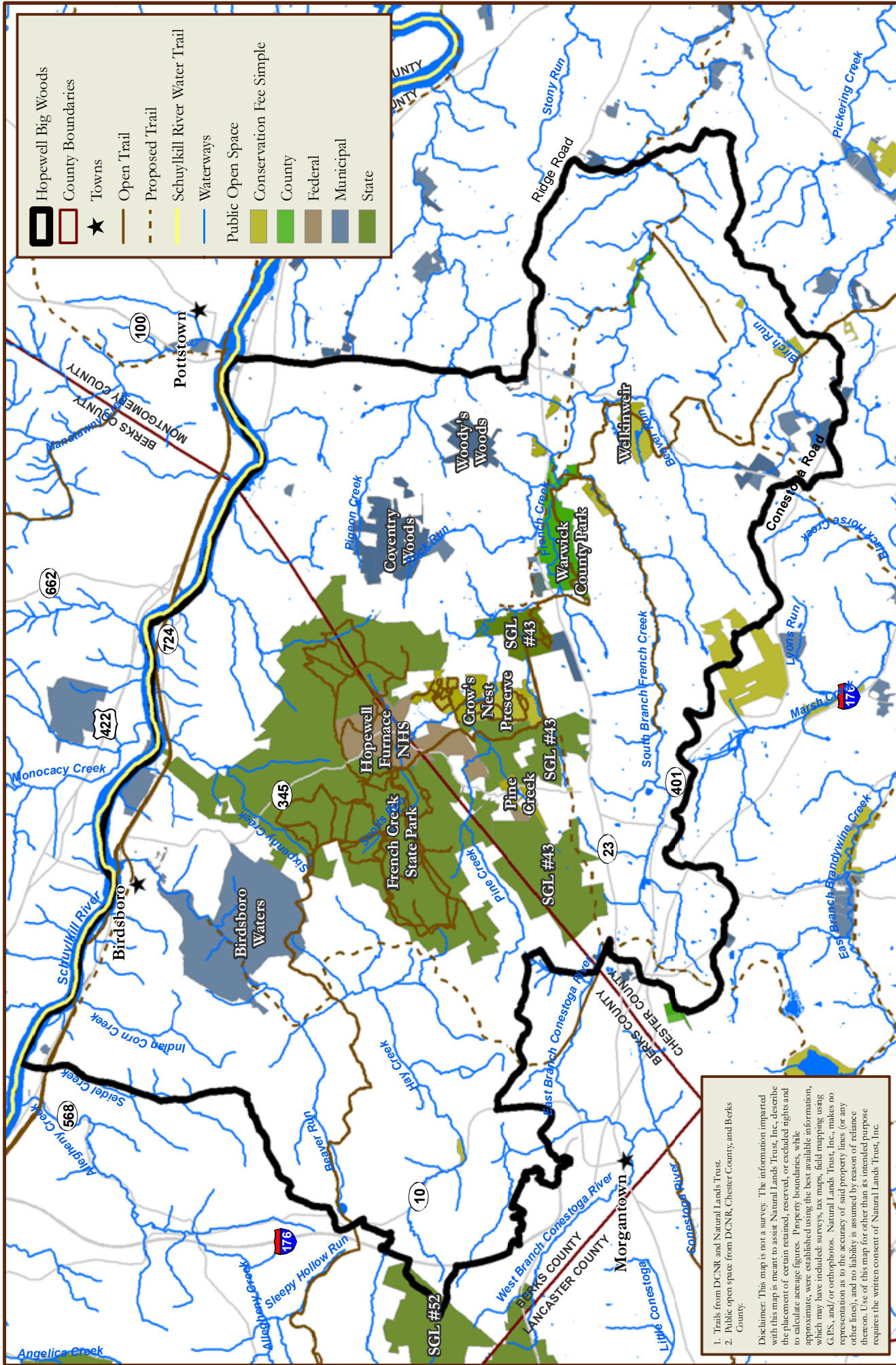
HIGHLIGHTS

- French Creek State Park is both the centerpiece of the contiguous forest here and the most popular recreational destination. The two lakes, 35 miles of trails, and more than 200 camping sites attract an average of 850,000 visitors each year.
- More than 116 miles of trails traverse the landscape. The Schuylkill River, Horse-Shoe, French Creek, and still-developing Boars Back Trails not only provide hiking opportunities within the Hopewell Big Woods, they are part of a regional trail network that extends to Center City Philadelphia and beyond.
- Public open spaces such as Coventry Woods, Warwick County Park, Birdsboro Waters, and Crow's Nest Preserve offer extensive trail networks.
- The Schuylkill River Water Trail—which stretches from Pottsville to Philadelphia—passes along the northern edge of the Hopewell Big Woods and provides several public access points for kayak and canoe enthusiasts.



- Bicycling is a very popular activity in the landscape—from road biking on the area’s scenic roads, to mountain biking in French Creek State Park and Birdsboro Waters. The area hosts tour events such as the French Creek Iron Tour. Bike Pottstown provides free bike rentals for use on the Schuylkill River Trail and in surrounding areas.
- More than 8,000 acres of public land in the area are open to hunting.
- The lakes and pristine streams of the Hopewell Big Woods provide excellent fishing opportunities. For example, French Creek is one of the most popular destinations in southeastern Pennsylvania for trout fishing, and is stocked each year with rainbow and brown trout.
- Birdsboro Waters contains a popular collection of sport climbing routes. These 100+ routes vary in level and difficulty for beginner and advanced climbers.
- Recreational activity in the Hopewell Big Woods has spurred the creation and growth of local businesses. St. Peter’s Village, listed on the National Register of Historic Resources, is a late-nineteenth century mining town that has been redeveloped and is now home to an inn, restaurant, café, and other amenities that attract recreationalists and tourists.





Recreation Resources

HOPEWELL BIG WOODS (+/- 73,200 acres)

Berks and Chester Counties, Pennsylvania



W

IMPORTANT RESOURCES OF THE HOPEWELL BIG WOODS: HISTORIC

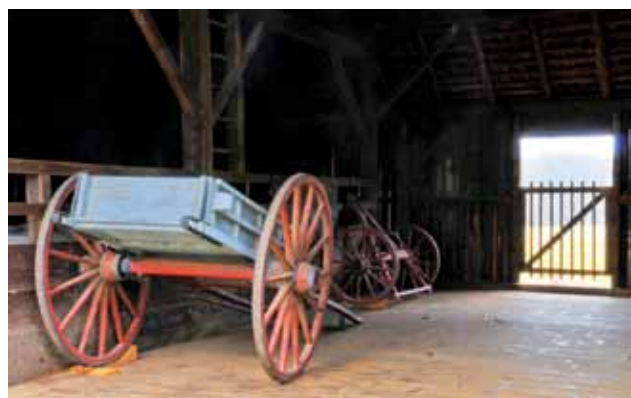
Hopewell Big Woods has a rich history, linked in large part to the presence of an iron industry that played an important role in the Revolutionary War and the early industrialization of the Philadelphia area. The expansive forest was an essential renewable resource needed to help make charcoal to fuel the furnaces where iron was made.

HIGHLIGHTS

- The Hopewell Furnace National Historic Site is located near the center of the Hopewell Big Woods. It offers interpretation and educational programs about the early iron production at the site. Approximately 70,000 residents and tourists visit Hopewell Furnace each year and visitorship increased 19% in 2012.
- The Schuylkill River National and State Heritage Area was designated by Congress in 2000 to celebrate its “unique contribution to the cultural, political, and industrial development of the United States.”¹ A significant portion of the Heritage Area is located within the Hopewell Big Woods.
- There are at least 35 sites in the Hopewell Big Woods that are listed on the National Register of Historical Places.² These include

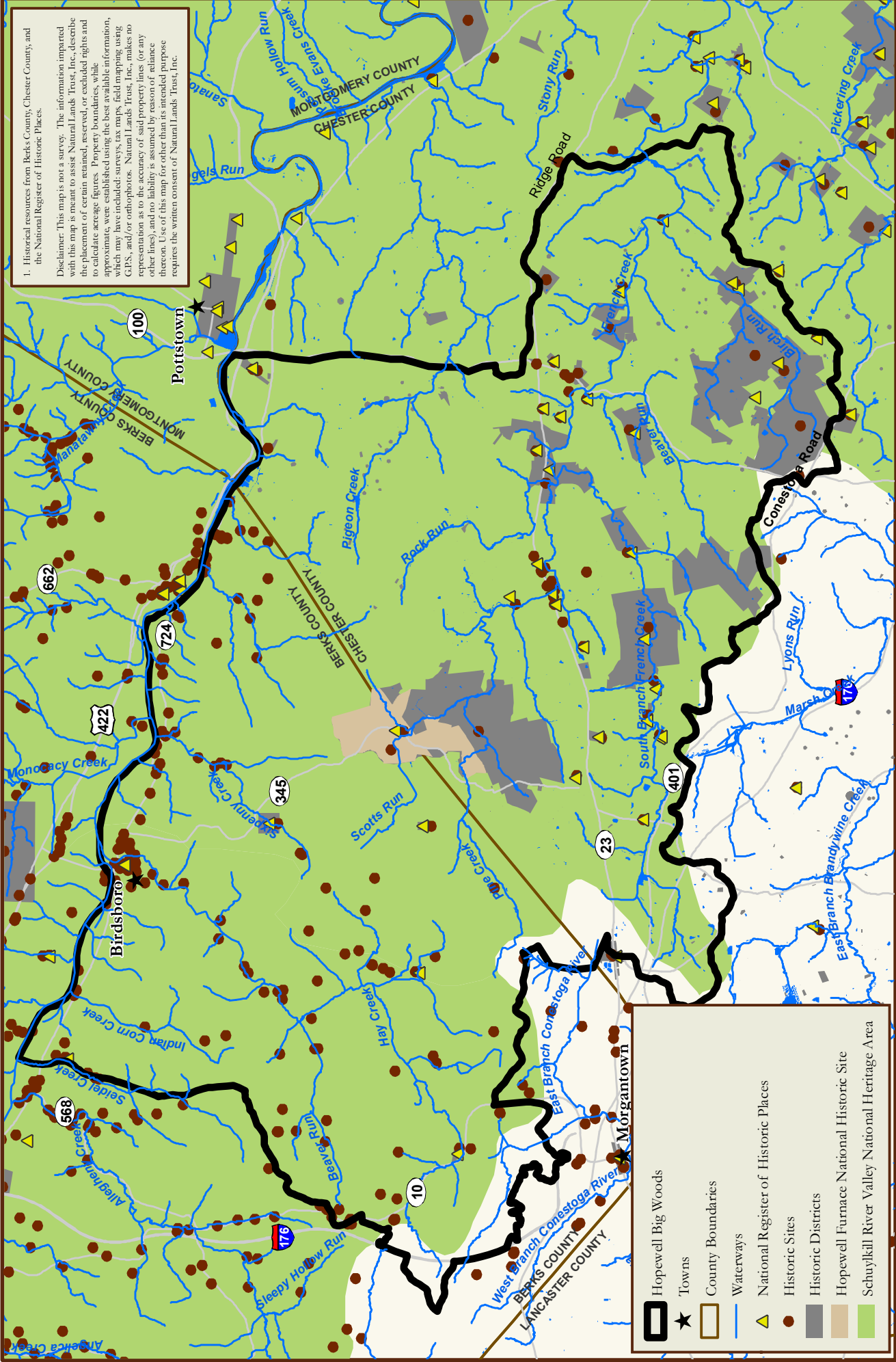
diverse sites such as the St. Peter’s Historic District (the largest and most complete Victorian village on the Register), the John Knauer House and Mill, the Welkinweir estate, and the Joanna and Warwick Furnaces.

- An additional 138 historic sites and local historic districts are contained within the Hopewell Big Woods. (See the appendix for a detailed list of relevant historic resources.)
- A series of Iron and Steel Heritage Tours have been developed by the National Park Service and local non-profit partners to build tourism and highlight the vital role that these industries played in the development of the United States. The “Forging Freedom” tour centers on the furnaces and related historic sites within the Hopewell Big Woods.



Hopewell Village

¹ Schuylkill River Valley National Heritage Area Act, 2000; ² National Park Service data, <http://nrhp.focus.nps.gov/natreg/docs/Download.html>



1. Historical resources from Berks County, Chester County, and the National Register of Historic Places.

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- Hopewell Big Woods
- Towns
- County Boundaries
- Waterways
- National Register of Historic Places
- Historic Sites
- Historic Districts
- Hopewell Furnace National Historic Site
- Schuylkill River Valley National Heritage Area



Historic Resources

HOPEWELL BIG WOODS (+/- 73,200 acres)

Berks and Chester Counties, Pennsylvania



Compiled By: MEB 04/17/13

APPLICABLE FEDERAL LAWS, DESIGNATIONS, AND ASSETS

FEDERAL LAWS APPLICABLE TO THE LANDSCAPE

ENDANGERED SPECIES ACT

As noted previously, the Hopewell Big Woods contains two species covered by the Endangered Species Act (ESA): Indiana bat (*Myotis sodalis*) which is listed as Endangered, and the Bog Turtle (*Glyptemys mühlenbergii*) which is listed as Threatened.¹

The purpose of the ESA is to protect and recover imperiled species and the ecosystems upon which they depend. Under the ESA, species may be listed as either endangered or threatened. “Endangered” means a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future.²

The ESA makes it unlawful for a person to take a listed animal without a permit. Take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” “Harm” may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”³

CLEAN WATER ACT

Seventy-one percent of the watersheds in the Hopewell Big Woods are protected by provisions of the Clean Water Act. The watersheds are designated as:

EXCEPTIONAL VALUE (TIER 3) WATERSHEDS

Federal policy provides that EV (Tier 3) designation maintains and protects water quality in Outstanding National Resource Waters (ONRWs). Pennsylvania regulations add several additional pathways under which a surface water may be designated EV. Except for certain temporary changes, water quality cannot be lowered in EV waters.

HIGH QUALITY (TIER 2) WATERSHEDS

Federal HQ (Tier 2) designation maintains and protects “high quality” waters—water bodies where existing conditions are better than necessary to support CWA § 101(a)(2) “fishable/swimmable” uses. Water quality can be lowered in such waters. However, State programs identify procedures that must be followed and questions that must be answered before a reduction in water quality can be allowed. In no case may water quality be lowered to a level which would interfere with existing or designated uses.

NATIONAL HISTORIC PRESERVATION ACT

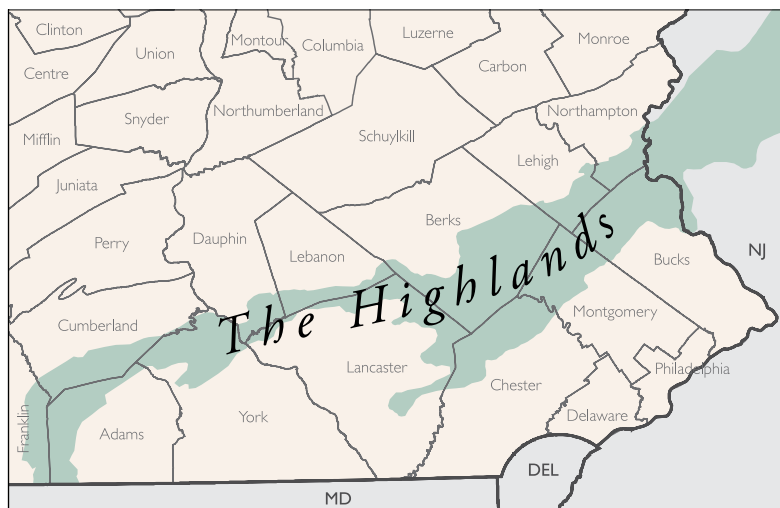
There are a minimum of 38 sites within the Hopewell Big Woods that are listed on the National Register of Historic Places. When Congress passed the National Historic Preservation Act, it established the National Register of Historic Places to document and protect districts, sites, buildings, structures, and objects significant in American history. Section 106 of the NHPA requires all Federal agencies, including the Federal Energy Regulatory Commission, to take into account, prior to authorizing an undertaking, the effect of the undertaking on cultural resources listed or eligible for the National Register. The agency must also afford the Advisory Council on Historic Preservation an opportunity to comment on the undertaking.⁴

SCHUYLKILL RIVER VALLEY NATIONAL HERITAGE AREA ACT

The Act established the Schuylkill River National and State Heritage Area in 2000. "The purposes of this Act are (1) to foster a close working relationship with all levels of government, the private sector, and the local communities in the Schuylkill River Valley of southeastern Pennsylvania and enable the communities to conserve their heritage while continuing to pursue economic opportunities; and, (2) to conserve, interpret, and develop the historical, cultural, natural, and recreational resources related to the industrial and cultural heritage of the Schuylkill River Valley of southeastern Pennsylvania."⁵

HIGHLANDS CONSERVATION ACT

The Highlands Conservation Act was established "to recognize the importance of the water, forest, agricultural, wildlife, recreational, and cultural resources of the Highlands region, and the national significance of the Highlands region to the United States."



Hopewell Big Woods is a critical element of the Pennsylvania portion of the 3.2 million-acre Highlands region.

¹U.S. Fish & Wildlife Service Information Planning and Conservation System; ²U.S. Fish & Wildlife Service, <http://www.fws.gov/endangered/laws-policies/index.html>; ³Ibid; ⁴Federal Energy Regulatory Commission, "Guidelines for Reporting on Cultural Resources Investigations for Pipeline Projects," December 2002; ⁵Schuylkill River Valley National Heritage Area Act, 2000

FEDERAL ASSETS, DESIGNATED AREAS, AND INVESTMENTS

HOPEWELL FURNACE NATIONAL HISTORIC SITE

A federally-owned, 848-acre historic site dedicated to preserving and interpreting a Revolution-era iron furnace.

SCHUYLKILL RIVER NATIONAL & STATE HERITAGE AREA

A National Heritage Area is a place designated by the United States Congress where natural, cultural, historic and recreational resources combine to form a cohesive, nationally distinctive landscape. The Schuylkill River received this designation from Congress in 2000.

FOREST LEGACY GRANTS, USDA

A \$300,000 Forest Legacy program grant helped to preserve the Birdsboro Waters property.

HIGHLANDS CONSERVATION ACT GRANTS

In 2010, \$646,666 in Highlands Conservation Act funding was allocated to land preservation in the Hopewell Big Woods.

LAND AND WATER CONSERVATION FUND GRANTS

\$3,187,810 in grants from the Land and Water Conservation Fund have been used to preserve land and water resources and enhance recreational assets in the landscape.

LAND AND WATER CONSERVATION FUND GRANTS	
PROJECT	GRANT AMOUNT
Daniel Boone Homestead	233,611
French Creek State Park	1,997,340
South Birdsboro Park	15,664
French Creek, West Vincent Township	272,155
Coventry Woods addition	59,040
Warwick Township Land Acquisition	610,000
TOTAL	3,187,810

The above listing is intended to provide a representation of the scope of federal issues related to the Hopewell Big Woods. Therefore, it includes some laws and designations that may have no direct bearing on federal permitting of natural gas pipelines or other form of energy transmission corridor. There may be additional federal regulations that are applicable to transmission corridor siting. Municipalities and landowners are encouraged to seek qualified legal counsel before pursuing appeals or legal action in relation to

VIII

STATE AND LOCAL INVESTMENTS AND PLANS

STATE, COUNTY, AND LOCAL INVESTMENTS

The Hopewell Big Woods has been the focus of more than \$63 million in state, county, and local investments in open space conservation, agricultural preservation, and park and trail improvements. Typically, these public grants leverage substantial private donations from landowners as well as individual and institutional donors.

HIGHLIGHTS

- The Commonwealth of Pennsylvania has provided grants in excess of \$8 million to preserve more than 3,200 acres of natural areas and parklands.¹
- From 2004 to 2011, Chester County granted \$6.2 million to land trusts and municipal governments to preserve open space and develop parks and trails.²
- During the same time period, Chester County invested \$4.8 million in farmland preservation in the landscape.³

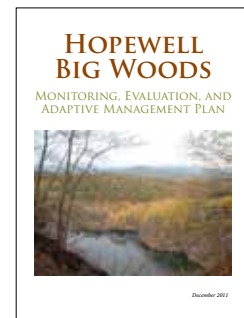
- Five municipalities located in the Hopewell Big Woods have established voter-approved open space funding programs worth a total of \$44 million. On average, the associated ballot measures passed by a 2 to 1 margin.⁴

RELEVANT PLANS

Over the past decade, the Hopewell Big Woods has been the subject of extensive study and planning by public agencies and non-profit organizations. Federal, state, county and local studies have identified dozens of high priority land and water resources in the landscape. More than a dozen plans have been developed to set priorities for land conservation, natural resource management and restoration, recreational asset improvement, and compatible economic development. The Hopewell Big Woods and areas within are highlighted as priorities in several plans.

HIGHLIGHTS

- Schuylkill Highlands Greenway Plan (2012)
- Schuylkill Highlands Compatible Economic Development Plan (2012)
- Hopewell Big Woods Monitoring, Evaluation, and Adaptive Management Plan (2011)
- Hopewell Big Woods Trails and Recreation Concept Plan (2009)
- Natural Resource Inventory and Management Recommendations for French Creek State Park (2008)
- Hopewell Big Woods Landscape Stewardship Plan (2006)
- Hopewell Big Woods Landscape Protection Plan (2006)
- Coventry Woods Conservation and Stewardship Plan (2004)
- Hopewell Big Woods Landscape Conservation Plan (2003)
- Pennsylvania Outdoor Recreation Plan, 2009–2013
- Chester County Landscapes 2
- Chester County Watersheds Plan
- Berks County Greenway Plan
- Parks, Recreation, and Open Space Plan 2012, The Federation of Northern Chester County Communities



Crow's Nest Preserve

¹Interactive grants map, PA Dept. of Conservation and Natural Resources (<http://www.gis.dcnr.state.pa.us/brc/grantprojectsmap.html>); ²County of Chester Open Space Program; ³ibid; ⁴landvote.org

POTENTIAL IMPACTS OF ENERGY TRANSMISSION CORRIDOR DEVELOPMENT

Transmission corridor development can pose significant threats to the health and integrity of natural areas—particularly forests. According to the “Pennsylvania Energy Impacts Assessment” conducted by The Nature Conservancy in 2012, “pipeline rights-of-way often create a significant and permanent fragmenting feature through natural habitats.”

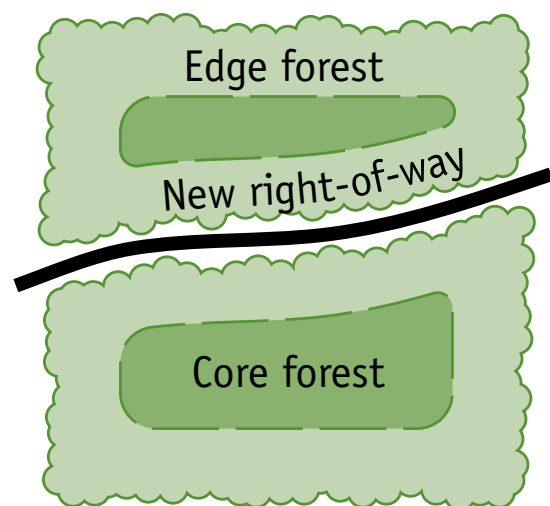
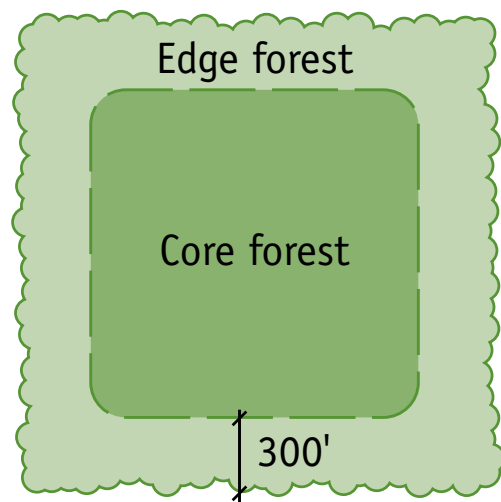
The primary negative impacts of pipeline construction and rights-of-way include:

DISTURBANCE OF HABITAT FOR ENDANGERED SPECIES

Construction and permanent rights-of-way can disturb breeding and feeding habitat for endangered species and create unsafe conditions along travel corridors. Underground pipelines can impact groundwater flow and thus negatively affect species that depend upon springs and high water tables for habitat.

FOREST FRAGMENTATION

Each mile of a 100-foot right-of-way directly disturbs 528,000 square feet or approximately 12 acres and creates an additional 72 acres of new forest edge. New forest edge deprives interior forest species, such as black-throated blue warblers, salamanders, and many woodland flowers, of the habitat conditions that only deep forest environments can provide.¹



Rights-of-way in contiguous forests reduce core forest habitat and create new edge habitat.

EROSION AND SEDIMENTATION

Extensive soil disturbance during construction can increase the risk of erosion and sedimentation if controls are not carefully designed and implemented. Risks are particularly high on steep slopes, near water bodies, and during heavy rains. Stream and wetland crossings can cause erosion and sedimentation that degrades water quality downstream. "Open cut" crossings – in which a trench is dug across the stream – pose a particular risk of significant erosion and increased sedimentation."²

INVASIVE SPECIES DISPERSION

Invasive plant species can out-compete native plant species leading to loss of critical breeding and feeding resources for wildlife. Pipeline construction activities can spread invasive plant seeds from one site to another where the plant had not been introduced previously. The forest openings created by permanent rights-of-way create ideal conditions for the spread of invasive plants.

UNAUTHORIZED ATV ACTIVITY

Natural gas pipeline corridors have proven to be attractive to ATV riders and unauthorized use is a common challenge. Noise from ATVs has the potential to cause wildlife to avoid the area. In addition, ATVs can spread invasive plant species.



New edge areas created by rights-of-way provide ideal conditions for the spread of invasive plants.

¹ *Natural Gas Pipelines, Excerpt from Report 2 of the Pennsylvania Energy Impacts Assessment, 2011;* ² *Ibid*

IMPACTS OF THE PROPOSED COMMONWEALTH PIPELINE

Based on the available maps of the proposed Commonwealth Pipeline, the new right-of-way has the potential to negatively impact the Hopewell Big Woods. Potential impacts include:

DISTURBANCE OF HABITAT FOR THE THREATENED BOG TURTLE

The Hopewell Big Woods supports the most significant populations of the federally listed Bog Turtle in southeastern Pennsylvania. Construction and maintenance of permanent rights-of-way in the landscape has the potential to seriously degrade essential breeding habitat and travel corridors for the species.

FRAGMENTATION OF THE UNBROKEN FOREST

The unfragmented forests are the most important natural resource feature of the Hopewell Big Woods. The Hopewell Big Woods Landscape Conservation Plan (2003) notes, "Because internal roads, other rights-of-way and included open areas have the potential of increasing the amount of transition or 'edge' habitat, internal roads, fragmenting roads, utility rights-of-way and open area need to be minimized to maximize forest health.

EROSION AND SEDIMENTATION IN HQ AND EV WATERSHEDS

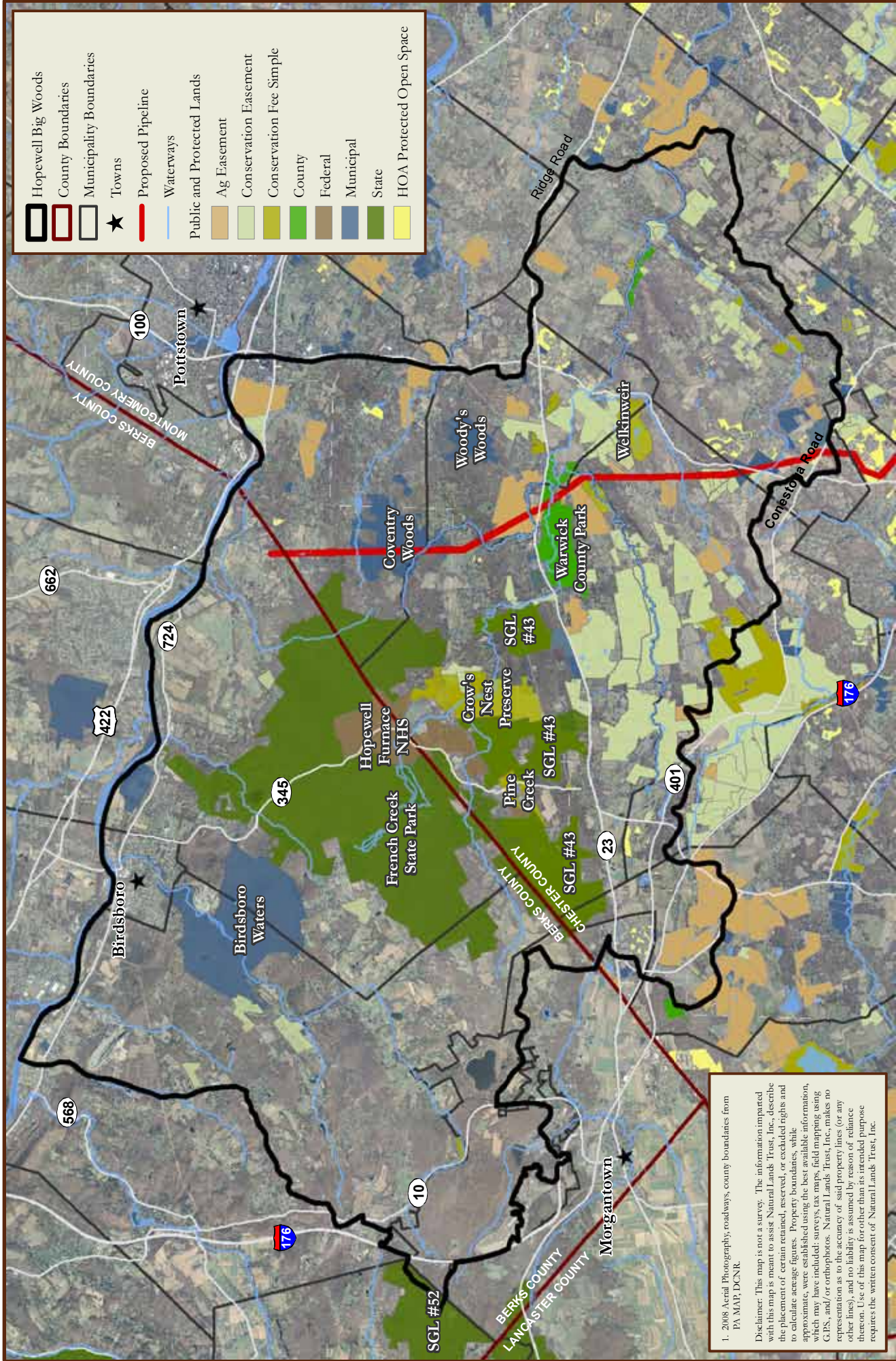
The pipeline as proposed would make 18 crossings of HQ and EV streams creating the potential for degradation of water quality through increased erosion and sedimentation.

INVASIVE PLANT DISPERSION

Invasive species are one of the most serious threats to natural habitats in southeastern Pennsylvania. Land managers spend a great deal of their time working to limit the introduction of invasive species into areas where they were not previously present. As noted above, however, both the pipeline construction process and the permanent right-of-way present opportunities for the spread of invasive species into new areas of the Hopewell Big Woods.

DISTURBANCE TO PROTECTED LANDS

The proposed path for the Commonwealth Pipeline, as currently known, would bisect protected lands including Coventry Woods, Woody's Woods, Warwick County Park, and private lands protected by conservation easements. The impact on natural resources present on these properties will vary depending on the land cover and water resources present. Coventry Woods, Woody's Woods, Warwick County Park, and other wooded properties would suffer the fragmentation effects noted above. Wetlands and other water resources—protection of which is an important purpose of conservation activity—may be degraded by erosion and sedimentation.



	Hopewell Big Woods
	County Boundaries
	Municipality Boundaries
	Towns
	Proposed Pipeline
	Waterways
	Public and Protected Lands
	Ag Easement
	Conservation Easement
	Conservation Fee Simple
	County
	Federal
	Municipal
	State
	HOA Protected Open Space

1. 2008 Aerial Photography, roadways, county boundaries from PA MAP, DCNR.

Disclaimer: This map is not a survey. The information imparted with this map is meant to assist Natural Lands Trust, Inc. describe the placement of certain retained, reserved, or excluded rights and to calculate acreage figures. Property boundaries, while approximate, were established using the best available information, which may have included: surveys, tax maps, field mapping using GPS, and/or orthophotos. Natural Lands Trust, Inc. makes no representation as to the accuracy of said property lines (or any other lines), and no liability is assumed by reason of reliance thereon. Use of this map for other than its intended purpose requires the written consent of Natural Lands Trust, Inc.

0 1 2 Miles

Public and Protected Lands

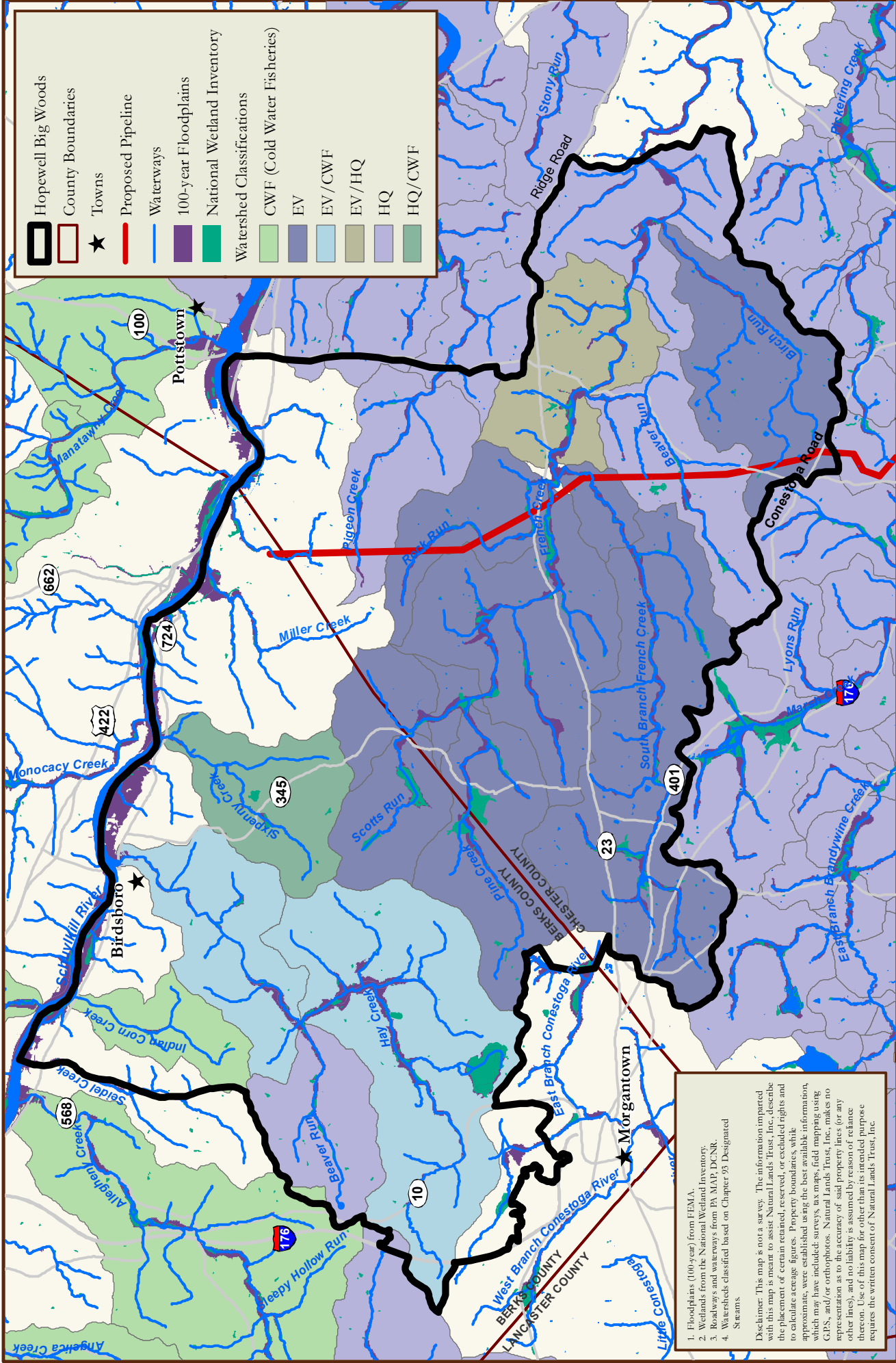
HOPEWELL BIG WOODS (+/- 73,200 acres)

POTENTIAL COMMONWEALTH PIPELINE ALIGNMENT

Berks and Chester Counties, Pennsylvania

Compiled By: MEB 04/17/13





Hydrologic Features

HOPEWELL BIG WOODS (+/- 73,200 acres)

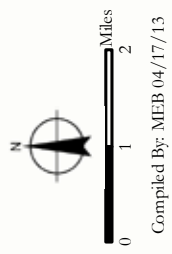
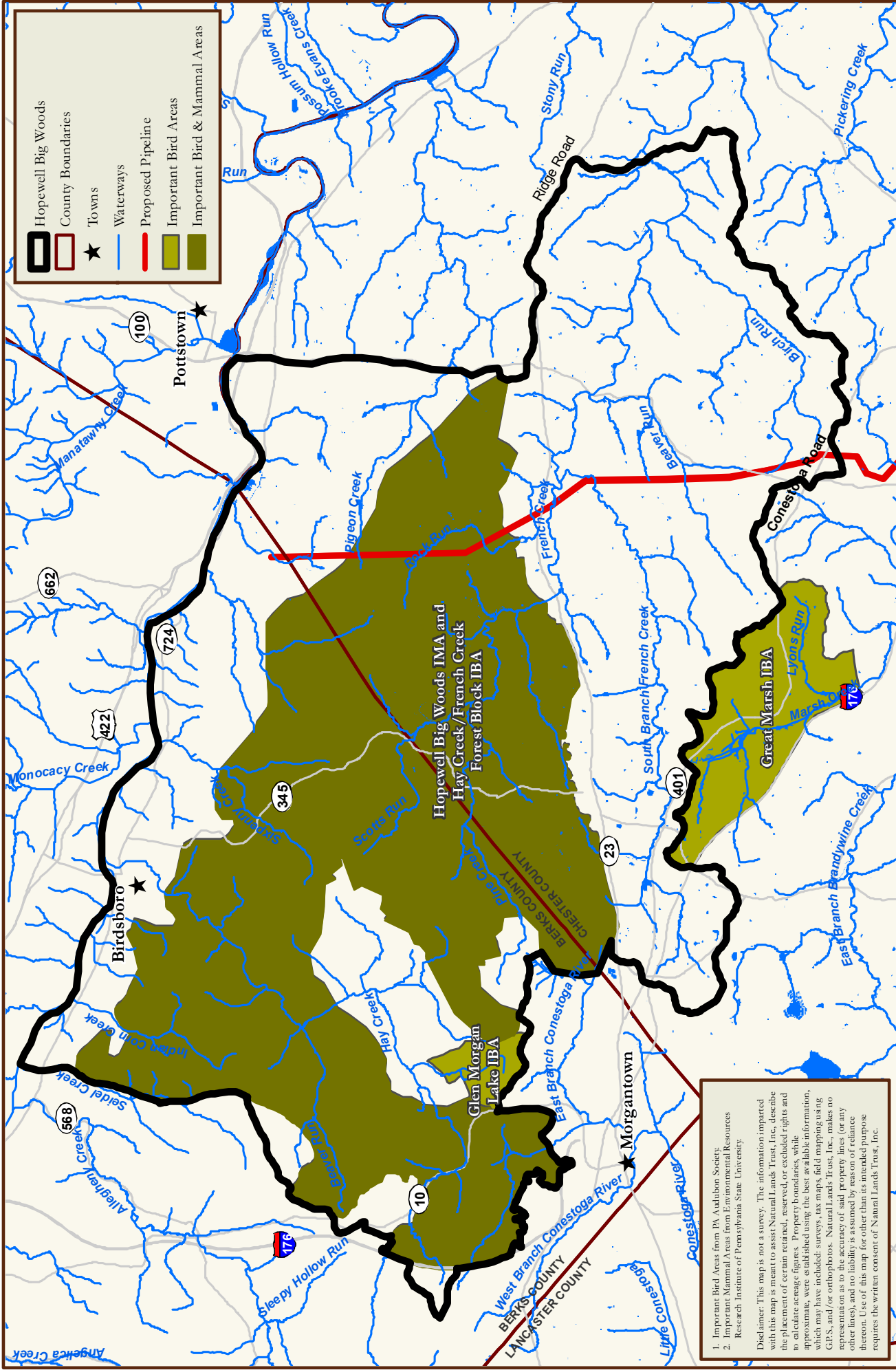
POTENTIAL COMMONWEALTH PIPELINE ALIGNMENT

Berks and Chester Counties, Pennsylvania

Compiled By: MEB 03/21/13

1. Floodplains (100-year) from FEMA.
 2. Wetlands from the National Wetland Inventory.
 3. Roadways and waterways from PA MAP, DGNR.
 4. Watersheds classified based on Chapter 93 Designated Streams.

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Compiled By: MEB 04/17/13

Important Bird and Mammal Areas

HOPEWELL BIG WOODS (+/- 73,200 acres)

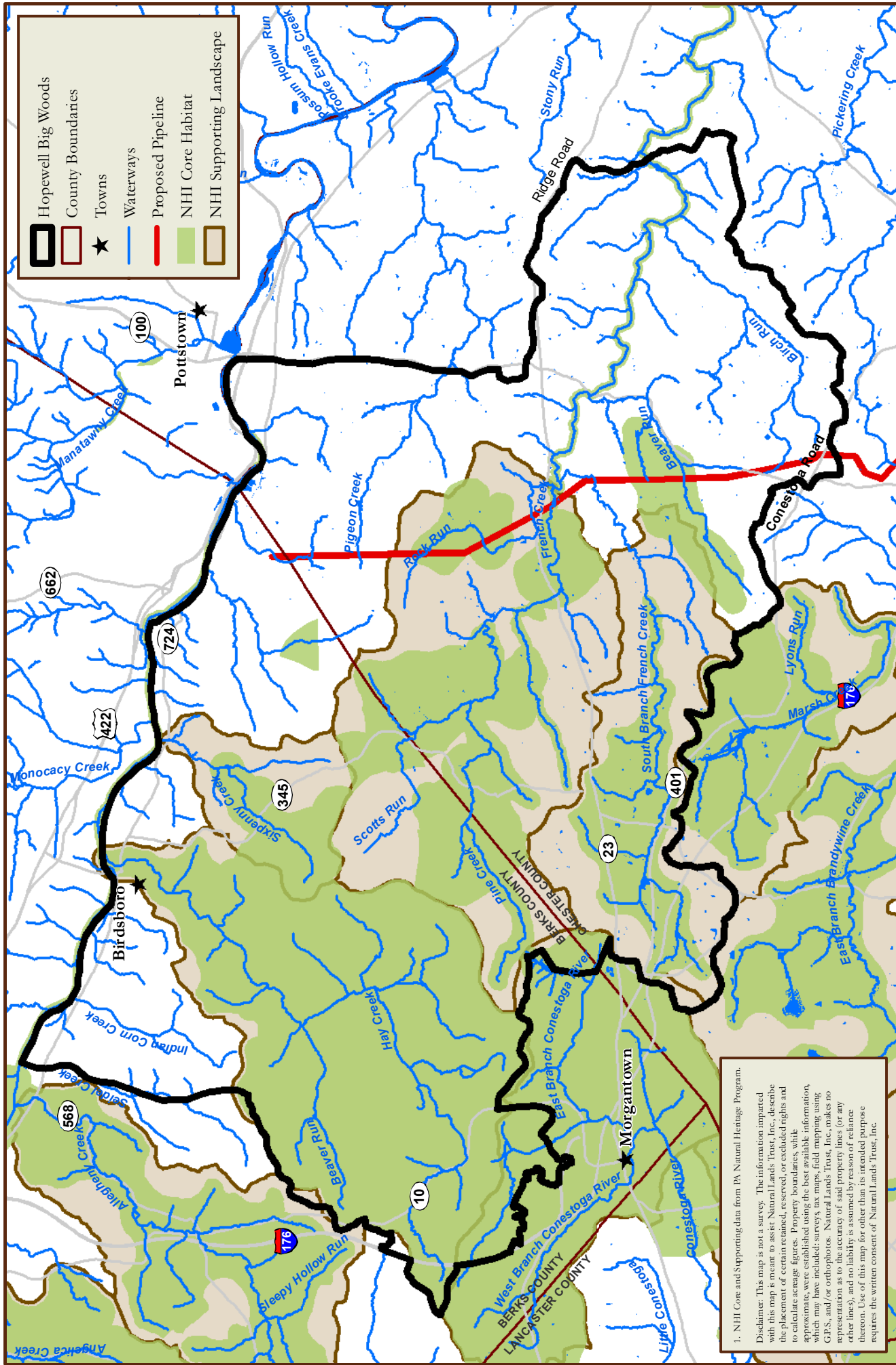
POTENTIAL COMMONWEALTH PIPELINE ALIGNMENT

Berks and Chester Counties, Pennsylvania

1. Important Bird Areas from PA Audubon Society.
 2. Important Mammal Areas from Environmental Resources Research Institute of Pennsylvania State University.

Disclaimer: This map is not a survey. The information imparted with this map is meant to assist Natural Lands Trust, Inc. describe the placement of certain retained, reserved, or excluded rights and to calculate acreage figures. Property boundaries, while approximate, were established using the best available information, which may have included surveys, tax maps, field mapping using GPS, and/or orthophotos. Natural Lands Trust, Inc. makes no representation as to the accuracy of said property lines (or any other lines), and no liability is assumed by reason of reliance thereon. Use of this map for other than its intended purpose requires the written consent of Natural Lands Trust, Inc.





PA Natural Heritage Inventory

HOPEWELL BIG WOODS (+/- 73,200 acres)

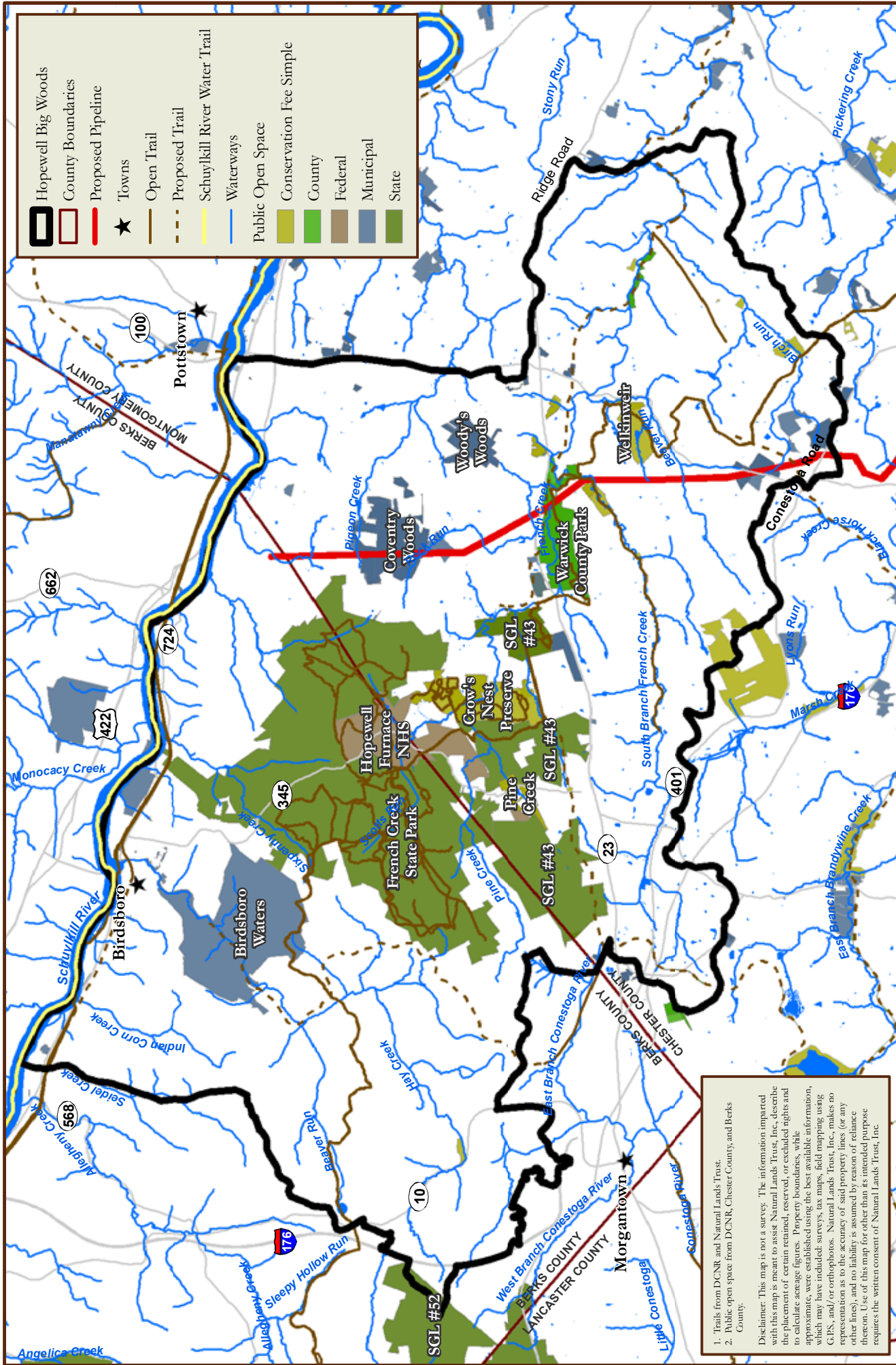
POTENTIAL COMMONWEALTH PIPELINE ALIGNMENT

Berks and Chester Counties, Pennsylvania

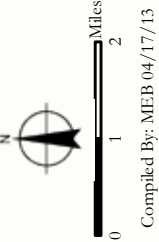
Compiled By: MEB 03/22/13

1. NHI Core and Supporting data from PA Natural Heritage Program.

Disclaimer: This map is not a survey. The information imparted with this map is meant to assist Natural Lands Trust, Inc., describe the placement of certain retained, reserved, or excluded rights and to calculate acreage figures. Property boundaries, while approximate, were established using the best available information, which may have included: survey tax maps, field mapping using GPS, and/or orthophotos. Natural Lands Trust, Inc., makes no representation as to the accuracy of said property lines (or any other lines), and no liability is assumed by reason of reliance thereon. Use of this map for other than its intended purpose requires the written consent of Natural Lands Trust, Inc.



- Hopewell Big Woods
- County Boundaries
- Proposed Pipeline
- Towns
- Open Trail
- Proposed Trail
- Schuylkill River Water Trail
- Waterways
- Public Open Space
- Conservation Fee Simple
- County
- Federal
- Municipal
- State



Compiled By: MEB 04/17/13

Recreation Resources

HOPEWELL BIG WOODS (+/- 73,200 acres)

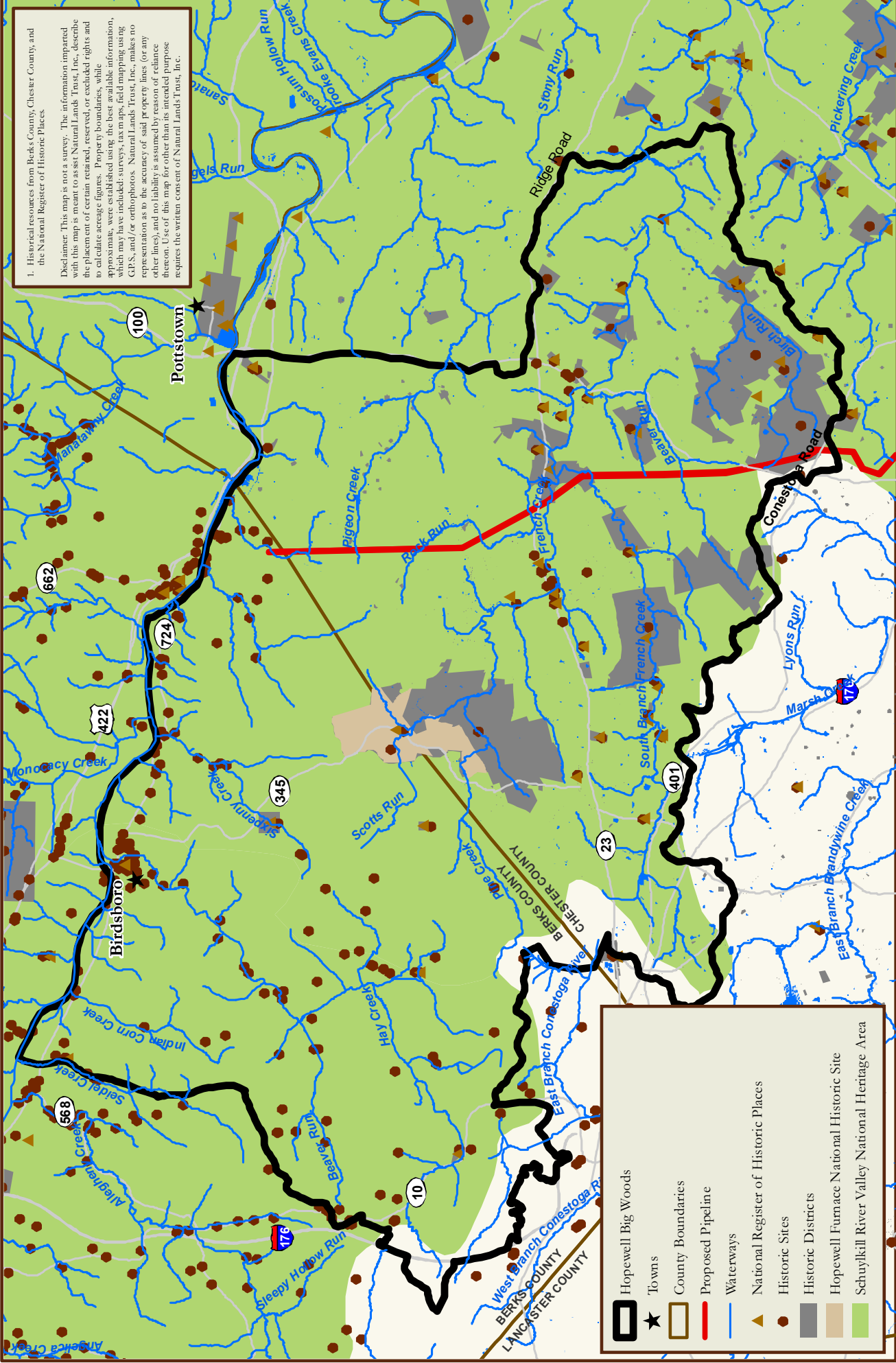
POTENTIAL COMMONWEALTH PIPELINE ALIGNMENT

Berks and Chester Counties, Pennsylvania

Disclaimer: This map is not a survey. The information imparted with this map is meant to assist Natural Lands Trust, Inc. describe the placement of certain retained, reserved, or excluded rights and to calculate acreage figures. Property boundaries, while approximate, were established using the best available information, which may have included: surveys, tax maps, field mapping using GPS, and/or orthophotos. Natural Lands Trust, Inc. makes no representation as to the accuracy of said property lines (or any other lines), and no liability is assumed by reason of reliance thereon. Use of this map for other than its intended purpose requires the written consent of Natural Lands Trust, Inc.

1. Trails from DCNR and Natural Lands Trust.
2. Public open space from DCNR, Chester County, and Berks County.





1. Historical resources from Berks County, Chester County, and the National Register of Historic Places.

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Historical Resources

HOPEWELL BIG WOODS (+/- 73,200 acres)

POTENTIAL COMMONWEALTH PIPELINE ALIGNMENT

Berks and Chester Counties, Pennsylvania

Compiled By: MEB 04/17/13



APPENDIX A

BIRD SPECIES OBSERVED IN THE HAY CREEK/FRENCH CREEK IMPORTANT BIRD AREA

Source: eBird, April 10, 2013

Acadian Flycatcher	Blue-headed Vireo	Dark-eyed Junco
American Black Duck	Blue-winged Warbler	Double-crested Cormorant
American Coot	Broad-winged Hawk	Downy Woodpecker
American Crow	Brown Creeper	Eastern Bluebird
American Goldfinch	Brown Thrasher	Eastern Kingbird
American Kestrel	Brown-headed Cowbird	Eastern Meadowlark
American Redstart	Bufflehead	Eastern Phoebe
American Robin	Canada Goose	Eastern Screech-Owl
American Tree Sparrow	Canada Warbler	Eastern Towhee
American Wigeon	Canvasback	Eastern Wood-Pewee
American Woodcock	Cape May Warbler	European Starling
Bald Eagle	Carolina Chickadee	Field Sparrow
Baltimore Oriole	Carolina Wren	Fish Crow
Bank Swallow	Carolina/Black-capped Chickadee	Fox Sparrow
Barn Swallow	Cedar Waxwing	Gadwall
Barred Owl	Cerulean Warbler	Golden-crowned Kinglet
Belted Kingfisher	Chestnut-sided Warbler	Grasshopper Sparrow
Black Vulture	Chimney Swift	Gray Catbird
Black-and-white Warbler	Chipping Sparrow	Gray-cheeked Thrush
Black-billed Cuckoo	Cliff Swallow	Great Blue Heron
Blackburnian Warbler	Common Goldeneye	Great Crested Flycatcher
Black-capped Chickadee	Common Grackle	Great Egret
Blackpoll Warbler	Common Loon	Great Horned Owl
Black-throated Blue Warbler	Common Merganser	Greater Scaup
Black-throated Green Warbler	Common Raven	Greater/Lesser Scaup
Blue Jay	Common Yellowthroat	Green Heron
Blue-gray Gnatcatcher	Cooper's Hawk	Green-winged Teal

Hairy Woodpecker	Osprey	Snow Goose
Hermit Thrush	Ovenbird	Solitary Sandpiper
Herring Gull	Palm Warbler	Song Sparrow
Hooded Merganser	Pied-billed Grebe	Spotted Sandpiper
Hooded Warbler	Pileated Woodpecker	Swainson's Thrush
Horned Grebe	Pine Siskin	Swamp Sparrow
House Finch	Pine Warbler	Tennessee Warbler
House Sparrow	Prairie Warbler	Tree Swallow
House Wren	Purple Finch	Tufted Titmouse
Indigo Bunting	Purple Martin	Tundra Swan
Kentucky Warbler	Red-bellied Woodpecker	Turkey Vulture
Killdeer	Red-breasted Nuthatch	Veery
Least Flycatcher	Red-eyed Vireo	Warbling Vireo
Lesser Scaup	Red-headed Woodpecker	White-breasted Nuthatch
Louisiana Waterthrush	Red-shouldered Hawk	White-crowned Sparrow
Magnolia Warbler	Red-tailed Hawk	White-eyed Vireo
Mallard	Red-winged Blackbird	White-throated Sparrow
Merlin	Ring-billed Gull	Wild Turkey
Mourning Dove	Ring-necked Duck	Willow Flycatcher
Mute Swan	Ring-necked Pheasant	Wilson's Snipe
Nashville Warbler	Rock Pigeon	Winter Wren
Northern Bobwhite	Rose-breasted Grosbeak	Wood Duck
Northern Cardinal	Ruby-crowned Kinglet	Wood Thrush
Northern Flicker	Ruby-throated Hummingbird	Worm-eating Warbler
Northern Harrier	Ruddy Duck	Yellow Warbler
Northern Mockingbird	Ruffed Grouse	Yellow-bellied Sapsucker
Northern Parula	Rufous Hummingbird	Yellow-billed Cuckoo
Northern Pintail	Rusty Blackbird	Yellow-breasted Chat
Northern Rough-winged Swallow	Savannah Sparrow	Yellow-rumped Warbler
Northern Shoveler	Scarlet Tanager	Yellow-throated Vireo
Northern Waterthrush	Sharp-shinned Hawk	Yellow-throated Warbler
Orchard Oriole	Short-eared Owl	

B

APPENDIX B

BIRD SPECIES OBSERVED IN THE GLEN MORGAN LAKE IMPORTANT BIRD AREA

Source: eBird, April 10, 2013

American Crow	Great Blue Heron
American Goldfinch	Mallard
American Redstart	Mourning Dove
American Robin	Northern Cardinal
Bald Eagle	Northern Flicker
Barn Swallow	Northern Mockingbird
Black-and-white Warbler	Osprey
Blue-gray Gnatcatcher	Pied-billed Grebe
Brown-headed Cowbird	Pileated Woodpecker
Canada Goose	Red-eyed Vireo
Canvasback	Redhead
Chimney Swift	Red-winged Blackbird
Chipping Sparrow	Ruddy Duck
Common Grackle	Song Sparrow
Cooper's Hawk	Tree Swallow
Double-crested Cormorant	Wood Duck
Eastern Kingbird	Yellow Warbler
European Starling	Yellow-rumped Warbler
Gray Catbird	

APPENDIX C

PENNSYLVANIA NATURAL HERITAGE INVENTORY SITES

Source: The Pennsylvania Natural Heritage Program Inventories, 1991, 1994, 2000, 2003, 2008

PNHI RANK	SITE NAME	LISTED RESOURCES
1	Warwick County Park Seeps	Supports populations of one plant species of concern Supports one animal species of concern
2	Pine Swamp	Red maple-black ash palustrine forest Acidic broadleaf swamp natural communities Supports 11 plant species of concern Supports two animal species of concern
3	Conestoga River Watershed	An animal species of concern found in 2000 Plant species of concern occurs in SGL 52
	Beaver Run/Hay Creek Watershed	Supports several plant species of concern Supports several animal species of concern
4	Hay Creek	Plant species of concern High-quality Coldwater Fishery
	Birdsboro Seeps	Fair-quality population of a plant species of concern
	Warwick Seeps	Fair to good quality Circumneutral Seepage Swamp community
5	Trythall Road Wetlands	A plant species of concern
	Trythall Woods	Circumneutral Seeps natural community
	Sportsman Club	Small populations of two plant species of concern

CONTINUED

PNHI RANK	SITE NAME	LISTED RESOURCES
5	Dorrance Estate	Small populations of two plant species of concern
	Rock Run Thicket	Small population of a tree species of concern
	Hopewell Lake Swale	Small population of a plant species of concern
	Sixpenny Creek	Plant species of concern High-quality Coldwater Fishery
	French Creek	A good population of an aquatic plant species of concern PA Scenic River
High Local Significance	Conestoga River Headwaters	A diversity of habitats Habitat for a species of concern
	French Creek	High-quality Coldwater Fishery
	Warwick County Park Floodplain Forest and Seeps	Mature trees, seepage wetlands
	St. Peter's Woods	Talus slope woodland community French Creek Falls Potential for rare species
Low Local Significance	Cold Run Seeps	Fairly mature woodland Open space for wildlife Water source for Cold Run Series of small springs emanating from a NW facing slope
Unknown	Nantmeal Powerline	The site is listed but contains no further information
	South Branch French Creek	The site is listed but contains no further information
	Unionville Creek	Large forested tract adjacent to French Creek State Park
	Rock Church Swamp	Large wetland of local significance Waterfowl and amphibian breeding habitat
	Sixpenny Lake	High-quality Coldwater Fishery Plant species of concern
	French Creek/Pine Swamp	Does not contain information as to why it is listed
	South Branch French Creek	Does not contain information as to why it is listed

D APPENDIX D

SITES LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES

Source: National Register of Historic Places, National Park Service, April 2013

SITE	MUNICIPALITY	COUNTY
Birchrunville General Store	Birchrunville	Chester
Birchrunville Historic District	Birchrunville	Chester
St. Michael's Protestant Episcopal Church, Parish House and Rectory	Birdsboro	Berks
Nathan Michener House	Bucktown	Chester
Stephen Meredith House	Bucktown	Chester
Hall's Bridge	Chester Springs	Chester
Coventryville	Coventry Hall	Chester
Robert Rookey House	Downingtown	Chester
Welkinweir	East Nantmeal	Chester
Hopewell Furnace National Historic Site	Elverson	Berks
Lahr Farm	Elverson	Chester
St. Mary's Episcopal Church	Elverson	Chester
Thomas Bull House	Elverson	Chester

CONTINUED

SITE	MUNICIPALITY	COUNTY
Warwick Mills	Elverson	Chester
Geiger Mill	Geigertown	Berks
Thompson Mill	Gibraltar	Berks
Hockley Mill Farm	Glen Moore	Chester
John Knauer House and Mill	Knauertown	Chester
Warrenpoint	Knauertown	Chester
Warwick Furnace/Farms	Knauertown	Chester
French Creek State Park: Six Penny Day Use District	Morgantown	Berks
Joanna Furnace Complex	Morgantown	Berks
Pottstown Landing Historic District	North Coventry	Chester
Jacob Winings House and Clover Mill	Phoenixville	Chester
Coventryville Historic District	Pottstown	Chester
Simon Meredith House	Pughtown	Chester
Townsend House	Pughtown	Chester
French Creek State Park: Organized Group Camp 4 District	Reading	Berks
Vincent Forge Mansion	Spring City	Chester
St. Peter's Village Historic District	St. Peters	Chester
Nicholas East House	Valley Forge	Chester
Brower's Bridge	Warwick	Chester
Reading Furnace Historic District	Warwick	Chester
Philip Rogers House	Warwick Township	Chester
West Vincent Highlands Historic District	West Vincent Township	Chester

APPENDIX E

OTHER HISTORIC DISTRICTS AND SITES

Source: Berks County, Chester County

SITE	MUNICIPALITY	COUNTY
Alice Focht United Methodist Church	Birdsboro	Berks
Birdsboro Iron Industry	Birdsboro	Berks
Brooklyn	Birdsboro	Berks
Charles & Margaret Layland Prope	Birdsboro	Berks
Chel Donia Weiler Property	Birdsboro	Berks
Cora Handwork Property	Birdsboro	Berks
Edward Brooke II Mansion	Birdsboro	Berks
E.G. Brooke Iron Co.	Birdsboro	Berks
F. M. Brown Mill	Birdsboro	Berks
Friendship Fire Co.	Birdsboro	Berks
Gristmill	Birdsboro	Berks
Hay Creek Aquaduct	Birdsboro	Berks
IOOF Lodge Hall	Birdsboro	Berks
John Hook House	Birdsboro	Berks
Levi Focht House	Birdsboro	Berks

CONTINUED

SITE	MUNICIPALITY	COUNTY
Lincoln Focht House	Birdsboro	Berks
Lockhouse	Birdsboro	Berks
Marian Millard Property	Birdsboro	Berks
Mercantile Building	Birdsboro	Berks
Mexico Historic District	Birdsboro	Berks
Mill Street Workers Houses	Birdsboro	Berks
Railroad Depots	Birdsboro	Berks
Schuylkill Navigation Lock	Birdsboro	Berks
Texas Historic District	Birdsboro	Berks
William Bird Mansion	Birdsboro	Berks
Williams Farm	Birdsboro	Berks
Graveyard	Caernarvon	Berks
Harmony Church	Caernarvon	Berks
Paul Dovin Property	Caernarvon	Berks
Camp Sankanac	East Vincent Township	Chester
E.G. Brooke Co. #3	Exeter	Berks
Seidels Steam Forge	Exeter	Berks
Jacob Geiss Farmstead	North Coventry Township	Chester
Shaner's Bakery	North Coventry Township	Chester
Bethel Evangelical Church	Robeson	Berks
Bethlehem Steel Property	Robeson	Berks
Birdsboro	Robeson	Berks
Blanche Steinmetz Property	Robeson	Berks
Brown Slow and Sure Plantation	Robeson	Berks
Buck Hollow Road House	Robeson	Berks
C. Gollub School	Robeson	Berks
C. Hyback Property	Robeson	Berks

CONTINUED

SITE	MUNICIPALITY	COUNTY
Canal Hotel	Robeson	Berks
Charles Hamilton Property	Robeson	Berks
Colomcille Log House	Robeson	Berks
Daniel Siegfried Gun Factory	Robeson	Berks
David Hoffman Property	Robeson	Berks
Do Well Forge #1	Robeson	Berks
Elizabeth Scathard Property	Robeson	Berks
Eugene Burkhart Property	Robeson	Berks
F. M. Weaver Foundry	Robeson	Berks
Fanny Fry Property	Robeson	Berks
Friends Meeting House	Robeson	Berks
Gieger Gristmill	Robeson	Berks
Graveyard	Robeson	Berks
Graveyard	Robeson	Berks
Griffith Tilt Forge	Robeson	Berks
H. Keinard Property	Robeson	Berks
Hampton Forge/Hampton Furnace	Robeson	Berks
Harold Kurtz Property	Robeson	Berks
Haycreek Forge	Robeson	Berks
Irvin Kocher Property	Robeson	Berks
Joanna Heights Camp Meeting	Robeson	Berks
John Koch Property	Robeson	Berks
Lottie Detorre Property	Robeson	Berks
Moore Forge	Robeson	Berks
Murray House	Robeson	Berks
Plow Hotel	Robeson	Berks
Plow School	Robeson	Berks

CONTINUED

SITE	MUNICIPALITY	COUNTY
Robert Redzig Property	Robeson	Berks
Scarlet's Forge	Robeson	Berks
Scarlet's Gristmill	Robeson	Berks
Schoolhouse	Robeson	Berks
Schuylkill Canal Aqueduct	Robeson	Berks
Seideltown School	Robeson	Berks
Shields Property	Robeson	Berks
St. John's United Church of Christ	Robeson	Berks
White Bear Tavern	Robeson	Berks
W. R. Updike Property	Robeson	Berks
Leah Young House	South Coventry Township	Chester
Pughtown Village Historic District	South Coventry Township	Chester
Black Bear Tavern	Union	Berks
Black Mats Schoolhouse	Union	Berks
Brower Farm	Union	Berks
Brower Store / Post Office	Union	Berks
Browerstown Village	Union	Berks
Civil War Era Foundry	Union	Berks
Clinton Forge	Union	Berks
Flannery's Tavern	Union	Berks
Geiger Farm	Union	Berks
Geigers Mill / Geigertown	Union	Berks
Geigertown Hotel	Union	Berks
Graveyard	Union	Berks
Graveyard	Union	Berks
Hahn Home	Union	Berks
Hotel / Store / Post Office	Union	Berks

CONTINUED

SITE	MUNICIPALITY	COUNTY
J. Keslo Farm	Union	Berks
John & Dorothy Ratkis Property	Union	Berks
Jones Farm	Union	Berks
Kerlin Property	Union	Berks
Kerst Farm	Union	Berks
Michael Lynch House	Union	Berks
Miller Farm	Union	Berks
Miller House	Union	Berks
Moch Farm	Union	Berks
Monocacy Furnace	Union	Berks
Monocacy Methodist Church	Union	Berks
Mt. Airy Schoolhouse	Union	Berks
Mt. Airy Village	Union	Berks
Mullen Farm	Union	Berks
Port Union Canal Store	Union	Berks
R. Jones Farm	Union	Berks
Reifsnnyder Home	Union	Berks
Root Farm	Union	Berks
Schuylkill Canal Warehouse	Union	Berks
Six Penny Bridge	Union	Berks
Sixpenny Forge	Union	Berks
St. Frisby AME Church	Union	Berks
St. Frisby Graveyard	Union	Berks
St. James Evangelical Lutheran Church	Union	Berks
St. Michael's Cemetary & Church	Union	Berks
St. Paul's Methodist Episcopal Church	Union	Berks
St. Paul's Mission Roman Catholic Church	Union	Berks

CONTINUED

SITE	MUNICIPALITY	COUNTY
Sycamore Farm	Union	Berks
Unionville Aquaduct	Union	Berks
Unionville Hotel	Union	Berks
Valentine Boyer Tract	Union	Berks
Wamsher Farm	Union	Berks
Warehouse Dock Boat Building	Union	Berks
Wenger's Mill	Union	Berks
William Kerlin's Gun Barrel Shop	Union	Berks
Christopher Knauer House & Inn	Warwick Township	Chester
Davis Knauer House (House No. 4)	Warwick Township	Chester
Johann Christopher Knauer House	Warwick Township	Chester
North Warwick Historic & Archeological District	Warwick Township	Chester
Toll House-Bennett	Warwick Township	Chester
George & Phoebe Hipple House	West Vincent Township	Chester
John Mackey Residence	West Vincent Township	Chester



Hopewell Big Woods

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Page 4 (right): Dan Barringer

Page 6: Bill Moses

Page 8: Jim White

Page 11: Mark Binder

Page 12 (left): Pam Brown

Page 12 (right): Tom Carroll

Page 14: Tom Carroll

Page 20: Bill Moses

Page 21: David Steckel

Page 43: Jim Thorne



Natural Lands Trust
Hildacy Farm Preserve, 1031 Palmers Mill Road, Media, PA 19063
610-353-5640 | www.natlands.org



FRENCH AND PICKERING CREEKS
CONSERVATION TRUST

French & Pickering Creeks Conservation Trust
511 Kimberton Road, Phoenixville, PA 19460
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GREEN VALLEYS ASSOCIATION AT WELKINWEIR

Green Valleys Association
1368 Prizer Road, Pottstown, PA 19465
610-469-4900 | www.greenvalleys.org



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