

STATE OF THE



KITTATINNY RIDGE



February, 2012

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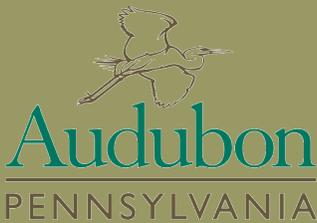
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Cover photograph: View from Pulpit Rock, Berks County; Photo by Brian Byrnes/Audubon

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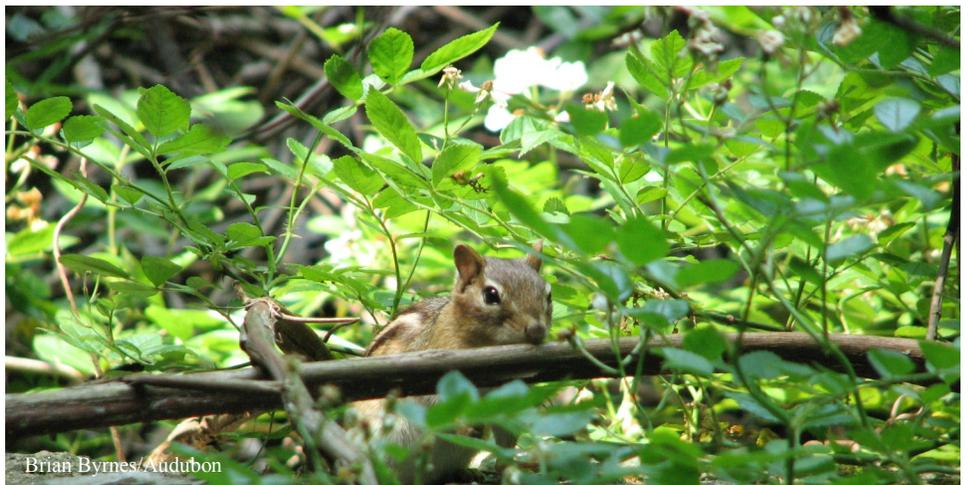
Acknowledgements



Audubon Pennsylvania and the Appalachian Trail Conservancy work in concert with a host of partner organizations and agencies along the length of the Kittatinny Ridge and appreciate their assistance in conserving the Ridge and the production of this report. The Pennsylvania Department of Conservation and Natural Resources is a primary partner. The continued commitment and dedication of each of these partners is critical to ensuring the successful conservation of the Ridge.

Each partner on the Ridge plays a unique role in advancing conservation. Land trusts are assisting private landowners in protecting their properties through conservation easements. County planning commissions/departments provide their municipalities with the tools necessary to protect their most sensitive natural resources. Municipalities, through their supervisors/council members, planning commissions and Environmental Advisory Councils, have contributed by ensuring that their ordinances and projects lay the groundwork for conservation of their portion of the Ridge.

This report was financed in part by a grant from the Community Conservation Partnerships Program, Environmental Stewardship Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation. Other funding for this project was provided by private foundations. Audubon Pennsylvania and the Appalachian Trail Conservancy are extremely grateful for the contributions of all its partners and looks forward to future collaborative efforts that will lead to greater appreciation and protection for the Kittatinny Ridge.



Brian Byrnes/Audubon

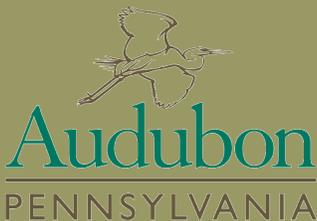
Introduction

The Kittatinny Ridge—known as Blue Mountain in some regions—runs through Pennsylvania for 185 miles, from the Delaware River to the Mason-Dixon Line. The Ridge is the first prominent landscape feature you encounter as you move north or west from Philadelphia and marks the entrance into Pennsylvania’s Ridge and Valley region. It is one of the Commonwealth’s most treasured landscapes, providing the scenic backdrop to life in twelve counties. The Ridge is home to the world-famous Appalachian Trail, Hawk Mountain Sanctuary, and many game lands, ski areas, and local parks. It is a migration corridor used by tens of thousands of hawks, eagles, and falcons each fall, and home to wildlife of all sorts.

The Kittatinny Ridge provides residents of eastern Pennsylvania with:

- clean and reliable drinking water;
- a multitude of recreational options, including hiking on the Appalachian Trail, and extensive hunting and fishing opportunities;
- an abundance of wildlife, including the spectacular fall raptor migration;
- breathtaking scenery, both from the top of the ridge and from miles away; and
- economic impact from the many visitors to the region’s parks, trails, and game lands.

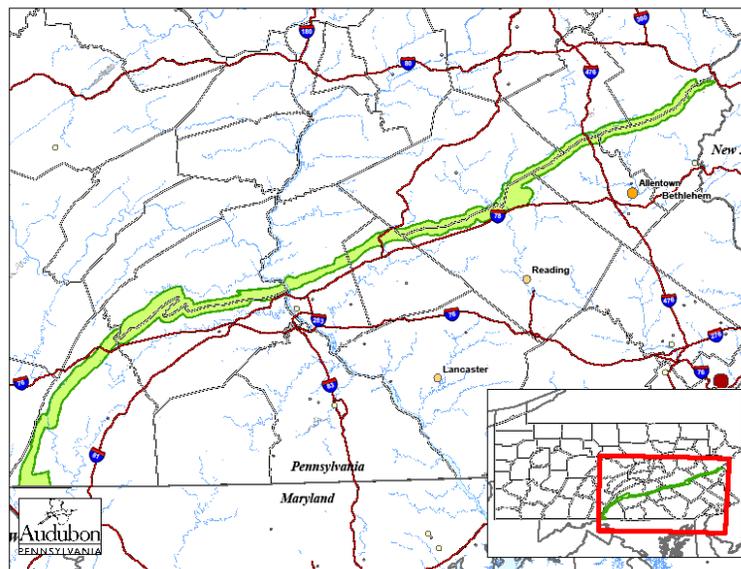
Audubon Pennsylvania and its partners seek to conserve the Ridge’s natural resources for the benefit of the region’s residents, visitors and wildlife. For more information on the Kittatinny Ridge’s resources, see Appendix 1.



Brian Byrnes/Audubon

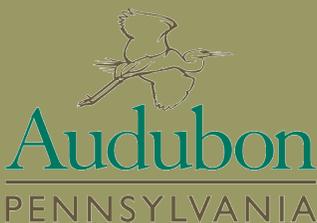
Like most natural areas along the East Coast, the Kittatinny Ridge faces a host of formidable threats, especially habitat loss from residential and commercial development. While the Ridge contains many parks and game lands, the majority of land is privately-owned and vulnerable to development.

Energy production and transmission looms as perhaps the largest threat of the next generation. Siting of wind turbines and high-voltage transmission towers has the potential to disturb large tracts of unbroken forest, degrading habitat for wildlife and decreasing water quality. Overabundant white-tailed deer, invasive exotic plant species, and a changing climate provide added stresses to this natural landscape.



The Kittatinny Ridge (in green, left), is easily accessible from many of Pennsylvania's population centers and major highways. It is the defining landscape feature in many counties, with the top of the Ridge often acting as the dividing line between counties.

Due to these threats and its unique natural resources, the Kittatinny Ridge has been the focus of conservation efforts for many years. This report is intended to give a snapshot of the Kittatinny Ridge corridor in 2011-2012; updating residents, municipal officials, conservationists, and policy makers on the progress that has been made and remaining areas of concern. It is designed to assess the state of the Kittatinny Ridge by measuring indicators of health in six critical categories: Land, Water, Wildlife, Recreation, Economic Impact, and Local Action. These measurements set a baseline for future evaluation, allowing trends to be monitored and assessed. Together, the measurements included in the report paint a picture of the "State of the Kittatinny Ridge."



Land

The Kittatinny Ridge in Pennsylvania consists of over 330,000 acres of land covering a 185-mile stretch from the Delaware River to the Mason-Dixon Line. We can learn a lot about the Ridge by looking at the condition and use of the land itself. Most of the Ridge's critical functions are dependent on having the vast majority of the Ridge remain forested.

Forests protect headwater streams, provide wildlife habitat, prevent erosion, and create scenic beauty, especially during the fall. For many species of nesting songbirds it is critical to maintain large tracts of forest habitat. It is also important to minimize the coverage of impervious surfaces such as pavement, which prevent rainwater from infiltrating and cause increased stormwater runoff and decreased water quality.



Brian Byrnes/Audubon

80% Portion of the Kittatinny Ridge covered by forest and shrub habitats. Forests are the dominant habitat on the Ridge and maintaining a high percentage of canopy cover is critical to many of the Ridge's other functions, including providing wildlife habitat and protecting water supplies.¹

33% Portion of the Ridge's land (110,374 of 333,480 acres) that is protected via ownership by federal, state or local governments, private land trusts, or conservation easements. Within the 1.7 million acre Ridge corridor, which includes lands within a few miles of the Ridge, more than 478,000 acres are protected—just over 28%. Most of the protected land in the Ridge corridor is owned by state and federal governments (including nearly 250,000 acres of State Forests and over 150,000 acres of State Game Lands). More than 7,000 acres are owned by private non-profits and over 13,000 acres are privately-owned properties protected by conservation easements.²


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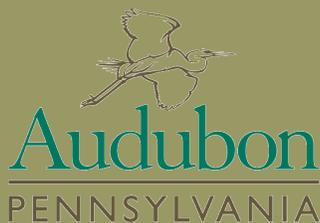

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Conservation in Action

Wildlands Conservancy and partners, Carbon County

In March of 2011, Wildlands Conservancy successfully completed the purchase of 172 acres of upland habitat on the Kittatinny Ridge and along the Appalachian Trail, protecting a key connection in an area popular with recreationists and wildlife. With native grasses and state-listed flora and fauna, the property has been a top priority of Wildlands for nearly all of the organization's 38 years. However, it took the efforts of four separate conservation groups to finally complete the deal.

The Appalachian Trail Conservancy and Lehigh Gap Nature Center nurtured a relationship with the owners, Dan and Susan Hauser, based on a shared land ethic. When the time came to sell the property, Wildlands Conservancy and the Pennsylvania Game Commission coordinated a speedy settlement and provided the required funding to make the project work. Protection of the Kittatinny Ridge—its habitat, its views and its story—is in everyone's best interest and it takes teamwork. The newly-protected land, which borders State Game Lands 217 and the Lehigh Gap Nature Center, and includes a portion of the Appalachian Trail, will eventually be transferred to the Game Commission, who will manage the land and provide permanent public access.



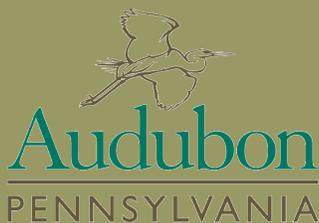
Water

The Kittatinny Ridge includes the headwaters to numerous streams, and countless seeps and springs. The Ridge's lush forests filter contaminants out of rainwater, providing a valuable service to residents in the valley who use both groundwater wells and municipal water supplies. The streams that start on the Ridge are popular fishing destinations, and provide habitat for many other species. While wetlands make up a rather small portion of the Kittatinny corridor, they include some unique habitats. Nowhere is this more evident than along the Cherry Creek in Monroe County. Cherry Valley National Wildlife Refuge - only the third such area designated in Pennsylvania - was established in 2008 to protect the 85 rare or threatened species that inhabit the area.



3 Exceptional Value Watersheds within the Kittatinny Ridge corridor. These areas with top water quality are afforded additional protections against degradation from additional development in the watershed.³

783 Miles of impaired streams in the Kittatinny Ridge corridor, out of a total of 5,774 miles of streams. While many pristine streams begin on the Ridge, over 13% of the area's streams are impaired, making it clear that there is plenty of work left to be done to restore degraded habitats and improve water quality.⁴



Conservation in Action

Bethlehem Authority and The Nature Conservancy, Monroe and Northampton Counties

In 2011, the Bethlehem Authority, managers of the watershed that provides drinking water to Bethlehem and surrounding areas, completed an agreement with The Nature Conservancy (TNC) that protects 22,000 acres of woodlands. Although located outside of the Kittatinny corridor, the City of Bethlehem depends on forests on the Kittatinny to protect its drinking water. This agreement – by acreage, the largest private conservation deal in Pennsylvania history – protects a significant portion of the headwaters to the City’s water source, preventing the need for costly water treatments.

The agreement was the first endeavor of TNC’s Working Woodlands Program, a powerful new tool to advance land protection, especially among large landholders, including water authorities, and hunting or scout camps. Working Woodlands provides forest landowners with an in-depth property management plan, and access to forest certification and carbon markets. In exchange, the landowners commit to sustainable forestry practices and grant a 60-year conservation easement.

Managing their forests sustainably will allow the Authority to obtain Forest Stewardship Council forest management certification, and forest carbon payments via Blue Source, LLC. Certification means the timber from the Authority’s lands will meet the increasing market demands for certified sustainably-produced lumber and will allow the Authority to sell carbon credits on the open market. Companies around the world purchase these credits to offset greenhouse gas emissions.

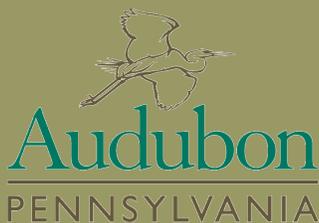
“Working forests are a keystone of The Nature Conservancy’s conservation efforts, here in Pennsylvania and around the world,” said Bill Kunze, state director of TNC’s Pennsylvania Chapter. “Harnessing the power of markets in service to the long-term ecological and economic health of our forests can yield great benefit for both people and nature.”

In the end, the deal was a win both for the environment and the Bethlehem Authority. “Our primary mission is to supply the highest quality drinking water to the 115,000 plus customers of the Bethlehem Water System as we possibly can. Preserving the pristine quality of our watershed properties supports that mission. And the Working Woodlands Program enhances our ability to do just that,” said Stephen Repasch, Executive Director of the Bethlehem Authority.

For more information on Working Woodlands, visit TNC online at <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/pennsylvania/workingwoodlands/index.htm>.



*Brian Byrnes/Audubon



Wildlife

From black bears to bog turtles, the Kittatinny Ridge is home to wildlife large and small. A well-known haven for migratory and resident birds, the Ridge also provides habitat to insects, reptiles, amphibians, and mammals. The Ridge's forests are prime habitat for nesting songbirds, provide resting places for migrant raptors, and host a diversity of other species. The streams, springs and wetlands of the Ridge are filled with tiny invertebrates that form the base of a food chain that support native brook trout. For some rare species, like the timber rattlesnake and Allegheny woodrat, it is the Ridge's rocky slopes and outcrops that provide habitat. No matter when or where you look, you will find wildlife species utilizing the abundance of food, water and shelter provided by the Kittatinny Ridge.



The sight of a Bald Eagle (left) migrating past one of the many hawkwatch sites on the Kittatinny Ridge is now much more common than it was decades ago.

7 Number of Important Mammal Areas in the Kittatinny Ridge corridor. Designated by the Pennsylvania Biological Survey, these sites harbor significant populations of mammal species of special conservation concern, including the Allegheny woodrat and several species of bats.⁵

1500+ Estimated population of the regal fritillary at Fort Indiantown Gap, a rare butterfly species that indicates the presence of high quality grasslands. See "Conservation in Action" on the following page for more details.⁶

4.7% Annual increase in Bald Eagles counted at Hawk Mountain between 1974 and 2004. One of the nation's greatest conservation success stories, counts from this site have been critical in documenting the comeback of America's national symbol.⁷


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Conservation in Action

Fort Indiantown Gap National Guard Training Center, Lebanon and Dauphin Counties

Of all of the symbiotic relationships along the Kittatinny Ridge, the dependence of the regal fritillary butterfly on military operations at the Fort Indiantown Gap (FIG) National Guard Training Center is unique.

The regal fritillary (*Speyeria idalia*) is a large, orange and black butterfly that was once common throughout the Northeast. Grassland habitat loss and alteration has reduced its range and abundance. The largest population of the regal fritillary in the eastern U.S. occurs at FIG along the Kittatinny Ridge. The current population is 1500-1800 adults and increasing due to restoration of grassland areas at FIG since monitoring started in 1998. Survival of this federal species of conservation concern and Army species at risk at FIG is dependent on military training disturbances that maintain early successional plant communities and vegetation essential to the butterfly, including violets for larvae, nectar sources for adults, and warm season bunch grasses for protection and cover.



Joseph Hovis, PA DMVA

The challenge for the Pennsylvania National Guard (PNG) is to meet their military operations needs and ease operational restrictions while sustaining and repatriating the regal fritillary population. Since the 1990s PNG has agreed to prohibit training on 219 acres of FIG to research the habitat requirements of this butterfly. They have also initiated habitat restoration and conservation measures that include seed collection and propagation of regal host and nectar plants, prescribed fire management, and selective herbicide treatments and brush removal. A three-phase approach includes the identification and assessment of potential grasslands, grassland restoration and monitoring, and regal fritillary repatriation. Repatriation will require the use of captive-reared butterflies and wild females that will be translocated once a site is adequately restored.

To date, three PA state parks and two national parks are participating in this project, and two other conservation areas have been identified as willing partners. Funding has been provided by the PA Wild Resource Conservation Program, the Department of Defense Legacy Resource Management Program, and the State Wildlife Grant Program. Partners include The Nature Conservancy, Ernst Conservation Seeds, PA Bureau of State Parks, PA Game Commission, National Park Service, PA Native Plant Network, and the Milton Hershey School. These partnerships and funds will allow for conservation of the regal fritillary both at FIG and at other suitable locations. For more information contact Joseph Hovis, Wildlife Program Manager, at jhovis@pa.gov.


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Recreation

Get Outside!

Want to experience the Ridge? Find the information you'll need here:

Birdwatching

PA Birding Trails

<http://web1.audubon.org/pabirdingt rails.org/about-us/>

PA Society for Ornithology

<http://www.pabirds.org/SiteGuide/P AStatePage.php>

Hawk watch sites

Audubon PA

<http://pa.audubon.org/kittatinny/ hawks.html>

Hiking the Appalachian Trail

Appalachian Trail Conservancy

<http://www.appalachiantrail.org>

Hiking the Tuscarora Trail

Potomac Appalachian Trail Club
guide (for purchase)

<http://www.patc.net/PublicView/Sto re/BrowseCategories/Core/Orders/p roduct.aspx?catid=15&prodid=33>

Hunting

PA Game Commission

State Game Lands maps:

http://www.portal.state.pa.us/portal /server.pt/community/state_game_l ands/11363

Licensing and permits:

http://www.portal.state.pa.us/portal /server.pt/community/licensing_p ermits_community/14314

Fishing

PA Fish and Boat Commission

Fishing locations by county:

<http://fishandboat.com/county.htm>

Fishing licenses:

<http://fishandboat.com/license.htm>

The Kittatinny Ridge is a place we go to re-connect with nature by taking part in our favorite pastimes. Hikers, photographers, painters, birdwatchers, and curiosity seekers flock to the Ridge in all seasons, but especially in the fall when the foliage is spectacular and kettles of migrating raptors fill the skies. Hunters frequent the multitude of State Game Lands on the Ridge, as well as private lands. Anglers may not visit the Ridge itself very often, but nearly every quality stream in the region has its headwaters on the Ridge. The Kittatinny Ridge has something for everyone and hundreds of thousands take advantage of this treasured recreational resource each year. See the inset to the left for more information on how you can experience the Ridge.



192,550 Visitors to four State Parks on the Kittatinny Ridge—Big Boyd, Colonel Denning, Fowler's Hollow, and Swatara—in 2010.⁸

7 Active hawk watch sites on the Kittatinny; nearly half of all the hawk watch sites in Pennsylvania. Experienced watchers keep official counts- used by scientists to monitor population levels- but also help teach beginners the keys to identifying the 16 species of raptors that regularly use the Ridge.⁹

631 Hikers completed the 2,178-mile Appalachian Trail in 2010. An estimated 3 to 4 million use some portion of the trail each year. The Keystone State hosts 229 miles of "the A.T.," mostly on the Kittatinny Ridge, and has 50 trailhead parking areas for easy access.¹⁰

60,705 Fishing licenses purchased by residents in communities along the Ridge in 2007. Most anglers in Pennsylvania travel no more than 15 to 20 miles from home.¹¹

Birds of the changing seasons at Colonel Denning State Park: Wild Turkey, Ruby-throated Hummingbird, and Sharp-shinned Hawk.



Jake Dingel/PGC



Joe Kosack/PGC



Jake Dingel/PGC

Conservation in Action

Colonel Denning State Park, Cumberland County

The following essay, contributed by Brent M. Erb, highlights many of the natural wonders that can be found at just one of the many public recreation sites on the Ridge.

Located along the Kittatinny Ridge in south-central Pennsylvania, Colonel Denning State Park is a gem for outdoor enthusiasts and wild-life viewers. Within the peculiar bend in these mountains, spring waters flow through mixed hardwood forests offering an extraordinary landscape for both residents and visitors.

Many have been coming here from near and far for hundreds of years. The ridge, a segment within a much longer mountain chain, offers food and protection as both people and animals travel what are today referred to as the Cumberland and Shenandoah Valleys. These valleys and ridges provide a north/south corridor ideal for resting and annual migrations. Trails like the Tuscarora offer wonderful opportunities to explore the area and lead to overlooks like the one at Flat Rock where spectacular views unfold from the Kittatinny Ridge down over the valley below.

Just as April showers bring May flowers, robins bring good news of spring, and the assurance of longer days. Before long, bluebirds, warblers, herons and hummingbirds arrive singing their songs and filling their bellies. Like the hunters, fishermen and vacationers, birds help tell the stories of the changing seasons. Some arrive only in the nicest, warm weather, while others brave the storms and cruel, cold temperatures. Campers and hikers are sparse during the frigid winter months when the sun warms the valley floor for only a few short hours each day. Similarly, few birds choose or are equipped to live here year round, yet the Ruffed Grouse, Wild Turkey and Great Horned Owl are here making the best of what Mother Nature has to offer, and they will share their stories with those willing to watch, wait, and listen.

Between Memorial Day and Labor Day, Colonel Denning State Park is a lively place offering camping, hiking, swimming, and of course, wild-life viewing. The park's naturalist offers educational programs and activities including nature walks, owl prowls, and night sky programs. An array of presentations by local experts, musicians and storytellers are held at the park's amphitheatre, and visitors can learn more about area plants, animals and minerals in the Nature Center.

This time of year Sharp-shinned hawks and the mighty Golden Eagle are among the most sought-after storytellers. Their stories are of the approaching winter. But to see them now, beyond the red and golden leaves, is memorable, and the essence of autumn along the Kittatinny Ridge. -BME

For more information on visiting Colonel Denning State Park, please visit <http://www.dcnr.state.pa.us/stateparks/index.aspx> and click "Find a Park."

Economic Impact

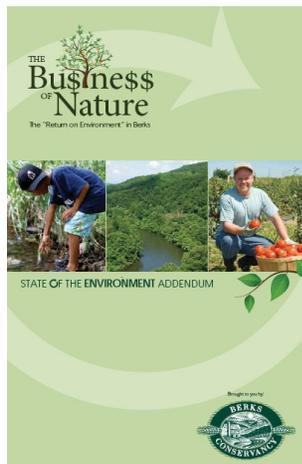
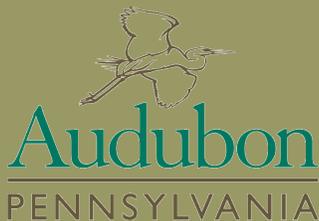
The forests, farms, and fields of the Kittatinny Ridge corridor are a boon both for the regional environment and economy. The Ridge—especially its vast network of public lands—draws visitors pursuing their outdoor interests. Each of these “eco-tourists” supports local businesses, including gas stations, restaurants, hotels, and other merchants, bringing additional revenue to the region’s small businesses and supporting jobs for local residents.

The Ridge’s forests also perform “ecosystem services” which save taxpayers from incurring large expenses. These services include decreasing flooding, preventing erosion, and filtering pollutants out of water, which eliminates the need for costly water treatments.

The Ridge also boosts local property values. Beautiful rural scenery and easy access to recreational opportunities are desirable features for many house-hunters, and national surveys have shown that they have a positive impact on property values.

\$460 Million Minimum estimate of the contribution to the Gross State Product generated by hunting, fishing, wildlife watching, birding, hiking and walking, kayaking and camping—in Berks County alone, according to a recent report from the Berks Conservancy and Keystone Conservation Trust. Although the value of specific locations is not detailed, the Kittatinny is the largest natural area in the county and is likely a primary contributor to this figure.¹²

6,000 Minimum number of jobs created in Berks County from the outdoor activities mentioned above.¹²



For more details on the “Business of Nature” in Berks County, find the entire report at www.berks-conservancy.org.

*Recent Activities of the
Duncannon A.T. Community
Advisory Committee*

- Completed Appalachian Trail Community program application and gathered letters of support from nine local and regional organizations
- Planning for a 2012 designation event and outdoor festival, themed “Saving Our Community from Nature Deficit Disorder.”
- Developed an Appalachian Trail interpretive panel for a Susquehanna Greenway Driving Tour kiosk in conjunction with Susquehanna Greenway Partnership
- Conducted a series of meetings with local and state officials, community groups and non-profit organizations to develop a strategy for the Apple Tree AlleyWalk urban greenway project, designed to promote infill and investment in the downtown area.



Conservation in Action

Borough of Duncannon, Perry County

The Appalachian Trail Community™ program recognizes communities along the trail corridor for their part in promoting awareness of the Appalachian Trail (A.T.) as an important national and local resource. The program is designed to increase local stewardship of public lands and support community initiatives for sustainable economic development and conservation planning. In the Borough of Duncannon, a historic community situated at the confluence of the A.T. and Susquehanna and Juniata Rivers, the A.T. Community Advisory Committee has been building momentum for downtown revitalization efforts and promoting the community’s natural assets and recreational opportunities.

Community leaders, business owners, teachers and trail-maintenance clubs in Duncannon came together to become the first designated A.T. Community™ along the Kittatinny Ridge corridor in fall of 2011. The involvement of state agencies and various conservation and recreation organizations in this effort signaled the Borough’s significance to regional conservation goals as a hub community sitting at the confluence of multiple greenways and trails.



Duncannon’s eligibility for the program stemmed from a variety of conservation-minded actions over its history as a well-known “trail town.” These include the passing of a municipal ordinance pursuant to PA Act 24 that supports protection of the trail corridor in land use planning and the local school district’s participation in *A Trail to Every Classroom* service-learning program.

Only the second designation in Pennsylvania, Duncannon joins a network of trail-side communities in fourteen states. Along the Ridge, this program can serve as a vehicle for achieving local conservation goals, mobilizing volunteers and building partnerships to promote and more effectively build on the presence of the A.T. and the Kittatinny Ridge as important recreational assets and drivers of local sustainable economic development.

For more information about seeking Appalachian Trail Community™ designation for your community, please visit the Appalachian Trail Conservancy’s web site at: www.appalachiantrail.org or call 717-258-5771.

Local Action

Land use decisions in Pennsylvania are made at the municipal level, so each of the 137 municipalities in the Ridge corridor plays a pivotal role in determining the future of this treasured landscape. Many of these towns have experienced significant development pressure over the past few decades, and others may see these pressures soon. The Kittatinny Ridge is critical to maintaining so many of the qualities of these towns that residents cherish: scenic beauty, clean water, rural character, and places to hunt, fish, or hike. Audubon and its partners have worked to make tools available to these municipalities to help them conserve the resources they hold most dear. Some of these tools are:

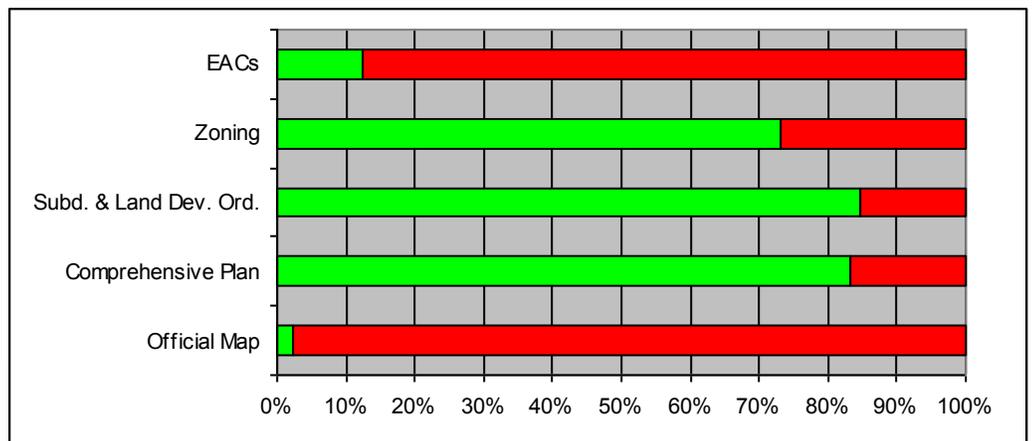
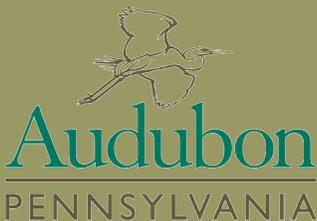
Environmental Advisory Councils (EACs): 17 Ridge municipalities have appointed local experts to advise municipal supervisors or council members with a variety of environmental issues, including everything from habitat restoration to recycling. EACs have been the impetus for many conservation advances within Ridge municipalities, and often are able to attract significant grant funding for their work.¹³

Zoning: A zoning ordinance helps manage growth and conservation by designating appropriate land uses throughout the municipality and setting standards. Without zoning, landowners can develop their properties subject only to state and federal environmental regulations. 37 Ridge municipalities do not have a municipal zoning ordinance.¹³

Subdivision and Land Development Ordinance (SALDO): A SALDO—found in 116 Ridge municipalities—applies any time a land owner proposes to subdivide a tract of land for any use or development involving a group of two or more residential or nonresidential buildings or a single nonresidential building.¹³

Comprehensive Plan: 114 Ridge municipalities have a comprehensive plan, which documents a municipality’s vision for its future. Comprehensive plans inform future decisions on land use.¹³

Official Maps: Only three municipalities are using this powerful tool to help conserve their most critical natural areas. See the story and sidebar on the following page for more information about official maps.¹³



Official Maps

Interested in a way to implement the transportation, recreation, natural resource conservation, and other recommendations in your comprehensive plan? Try an “official map.” Sixty-five municipalities in Pennsylvania are doing so. New greenways, parks, roads, and other community projects can be planned using official maps. Bushkill Township, Northampton County, is conserving riparian woodlands with their official map. Chestnuthill Township, Monroe County, in conjunction with property owners, the County, and the Department of Conservation and Natural Resources (DCNR), has protected more than 1,500 acres of land since the adoption of its official map six years ago.

In 2011, DCNR released a handbook on Official Maps that provides detail on how they can be used to protect and provide community facilities. You can find the handbook at http://conservationtools.org/libraries/1/library_items/931

Conservation in Action

Upper Bern Township Environmental and Agricultural Advisory Council, Berks County

Upper Bern Township, along the Kittatinny Ridge in Berks County, prides itself on rolling hills, the quaint village of Shartlesville, and many “Roadside America” treasures, such as a local farm stand, rodeo, and walks in the woods.

The township has taken many steps to maintain this rural lifestyle. Upper Bern is one of only three communities along the Kittatinny Ridge that has adopted an Official Map. Often used to locate sites for future infrastructure improvements, an Official Map also can be used to identify critical natural resources, including floodplains, forests, trail corridors or future park sites. Upper Bern has included agricultural and conservation lands, roads, streams, and wetlands in their Official Map. The township also has a comprehensive plan, zoning ordinance, and several overlay districts including adaptive reuse and redevelopment, Old Route 22, Interstate 78, Appalachian Trail, and historic preservation.

To support local agriculture, the township’s Environmental and Agricultural Advisory Council (EAAC) hosted a “Celebrate Local Agriculture” workshop in January 2011 (right). The workshop featured speakers from the Pennsylvania Association of Sustainable Agriculture and local farmers. Through educational offerings such as these, the EAAC hopes to raise the level of agricultural awareness and opportunity in the township and maintain a healthy environment for residents and businesses.



Howard B. Eskin

Many Pennsylvania birders got to know Upper Bern Township well in 2011, thanks to a special visitor. The first ever Anna’s Hummingbird recorded in Pennsylvania (left) remarkably spent the entire winter visiting backyard nectar feeders in Upper Bern. The hummingbird was more than 2,000 miles from its normal range along the Pacific Coast, but survived a brutally cold winter, thanks in part to accommodating hosts who set up heat lamps to prevent their hummingbird feeders from freezing.

Additional Resources

Appalachian Trail

Appalachian Trail Conservancy, <http://www.appalachiantrail.org>
Pennsylvania's Appalachian Trail Act, <http://www.apptailpa.org>

Birds

Audubon Pennsylvania, <http://pa.audubon.org>

Hawk Mountain Sanctuary, <http://www.hawkmountain.org>

Hawk Migration Association of North America, HawkCount,
<http://www.hawkcount.org>

Hawk Watch Sites on the Kittatinny Ridge:

<http://pa.audubon.org/kittatinny/hawks.html>

Pennsylvania Society for Ornithology—online site guide with directions
and descriptions for birding hotspots,

<http://www.pabirds.org/SiteGuide/PASStatePage.php>

Conservation Tools

Audubon's Kittatinny Ridge Conservation Toolbox,

<http://pa.audubon.org/kittatinny/LandConservationTools.html>

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Environmental Advisory Councils (EACs)

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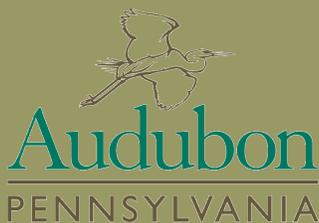
Natural Resources

Pennsylvania Department of Conservation and Natural Resources,
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Wildlife

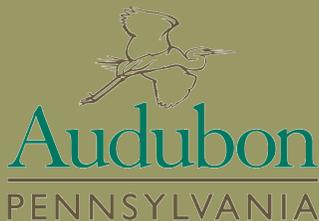
Pennsylvania Fish and Boat Commission, www.fish.state.pa.us

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7. Hawk Mountain Sanctuary and Hawk Migration Association of North America, <http://www.hmana.org/rpi/index.php>
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Appendix 1.

Background Information about the Kittatinny Ridge

The Kittatinny Ridge is the name of a long mountain ridge that runs over 250 miles from southern New York State, through northern New Jersey and eastern and south-central Pennsylvania, to Maryland. It is known locally in eastern Pennsylvania as Kittatinny or Blue Mountain, in central Pennsylvania as Blue, First or North Mountain, and in Franklin County as Front Mountain or The Tuscaroras.

The ridge was named “Kittatinny” meaning ‘the endless mountain’ by the Lenni-Lenape tribe of Native Americans that inhabited this region. The name is appropriate as the mountain extends nearly uninterrupted through New Jersey and Pennsylvania.

LAND

Approximately one-third of the ridge’s land area is owned by the public. The National Park Service administers a narrow strip down the spine of the ridge on either side of the Appalachian Trail from the Delaware River to eastern Cumberland County. Other federal lands include the Delaware Water Gap National Recreation Area, Fort Indiantown Gap National Guard Training Site, and Letterkenny Army Depot. State lands include eleven State Game Lands: 76, 80, 106, 110, 124, 168, 170, 211, 217, 230, and 235; parts of three State Forests: Weiser, Tuscarora and Buchanan; and five State Park areas: Big Spring, Fowlers Hollow, Colonel Denning, Swatara, and Boyd Big Tree Conservation Area.

Other state and federal public lands are adjacent to the ridge and fall within the wider “Kittatinny corridor.” These lands include State Game Lands 141, 210, 222, 229, 256, 257, 286, and 290, other state park and forest lands, and county and municipal parks.

Other sizable conservation areas within the Kittatinny corridor that are open to the public, but owned by private conservation organizations, include: Hawk Mountain Sanctuary (Berks and Schuylkill counties), Lehigh Gap Nature Center (Carbon and Lehigh counties), and Audubon’s Cliff Jones Field Station at Waggoner’s Gap (Cumberland and Perry counties).

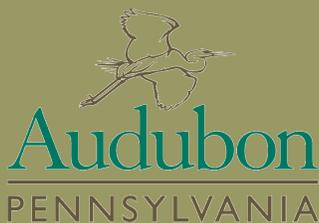
WATER

Rain and snow falling on the forested ridge fills hundreds of creeks, wetlands and seasonal ponds, and supplies the water for 13 lakes and reservoirs. Several of the rivers that run through or parallel the base of the ridge have planning and protection initiatives underway (from east to west):

Delaware River – National Scenic River Corridor, Delaware and Lehigh River Canal Heritage Corridor.

Lehigh River – Designated Pennsylvania Scenic River. Delaware and Lehigh Canal Heritage River Corridor.

Maiden Creek / Tulpehocken – The Maiden Creek originates in the fold of the Kittatinny at Hawk Mountain Sanctuary.



Schuylkill River – Pennsylvania’s first scenic river, it has also been named as a National Heritage River Corridor.

Swatara Creek – Schuylkill River Basin Commission and DCNR Chesapeake Bay source water protection initiatives. Recommendations of the Chesapeake Bay Forest Workgroup include maintaining or increasing the amount of forest cover in the Bay watershed.

Susquehanna River – The Susquehanna River Greenway project. The segment of the Susquehanna that passes through the Kittatinny is the site of Pennsylvania’s first water trail.

Conodoguinet Creek – The middle section of the Conodoguinet Creek was the focus of a DCNR-funded rivers conservation plan.

The Kittatinny Ridge corridor includes three Exceptional Value Watersheds. Through surface and groundwater, the ridge corridor includes 47 permitted surface water sources (streams and rivers used for public drinking water), 1,500 permitted wells, and more than 20,000 private wells.

WILDLIFE

The Kittatinny Ridge corridor is used by a multitude of bird species throughout the year, including many species of conservation concern. National Audubon Society’s WatchList identifies at-risk species and places them on either the Red WatchList (highest concern) or Yellow WatchList (high concern). WatchList species that use the Ridge include:

Red WatchList

Golden-winged Warbler*

* denotes a species that nests within the Kittatinny Ridge corridor

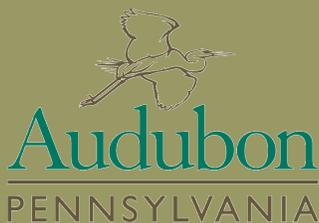
^R denotes a rare species in the Kittatinny Ridge corridor

Yellow WatchList

Semipalmated Sandpiper
White-rumped Sandpiper ^R
Stilt Sandpiper ^R
Iceland Gull ^R
Short-eared Owl
Willow Flycatcher*
Wood Thrush*
Bay-breasted Warbler
Prairie Warbler*
Cerulean Warbler*
Prothonotary Warbler
Kentucky Warbler*
Canada Warbler
Rusty Blackbird

Additionally, many bird species of conservation concern in Pennsylvania utilize habitats in the ridge corridor, including eight of the nine species considered “responsibility species” in the Commonwealth: Tundra Swan, Wood Thrush, Golden-winged Warbler, Blue-winged Warbler, Cerulean Warbler, Worm-eating Warbler, Louisiana Waterthrush, and Scarlet Tanager. Pennsylvania supports large portions of these species’ populations during part of their life cycle.

Other threatened wildlife species that find refuge on the Kittatinny Ridge include the timber rattlesnake and Allegheny woodrat. Parts of seven important Mammal Areas are found in the Kittatinny Ridge corridor: Delaware Water Gap, Cherry Valley Watershed, Hawk Mountain Sanctuary, Stony Mountain, Central Susquehanna Valley, Conodoguinet Creek, and Tuscarora/Blue Mountain South.



RECREATION

The Appalachian Trail (A.T.), the most famous hiking trail in North America, extends 2,160 miles from Georgia to Maine. A National Scenic Trail administered by the National Park Service, the A.T. follows the Kittatinny corridor for 125 miles from the Delaware Water Gap into Cumberland County. Although nearly all of the A.T. traverses public property in Pennsylvania, the protected corridor is narrow in many areas, leaving the trail vulnerable to new developments that would degrade scenic views from the trail or would allow urban noise to penetrate areas that currently provide a quiet, wild hiking experience.

Where the Appalachian Trail turns south off the ridge in eastern Cumberland County, the Tuscarora Trail begins and follows the Kittatinny Corridor west and south for 60 miles into Maryland, eventually rejoining the Appalachian Trail in Virginia. This trail exists primarily through agreements with private landowners, and is much more vulnerable to intrusions than the A.T. The Tuscarora Trail could suffer a loss of continuity if certain parcels that currently allow hikers to pass through are sold for development.

The Kittatinny Ridge is internationally-known as a destination for birdwatching, primarily for witnessing the fall raptor migration at sites like Hawk Mountain Sanctuary, the Cliff Jones Field Station at Waggoner's Gap, and Bake Oven Knob. Skilled volunteers identify and count the raptors as they pass. Counts follow a standardized protocol and are submitted to the Hawk Migration Association of North America, making them available for analysis by scientists and conservationists.

Songbirds, hummingbirds, and even butterflies also follow the Ridge during their migrations, attracting visitors during the spring and fall to state parks, game lands, and other natural areas. During the summer months, the vast forests of the Ridge host a variety of nesting songbirds, some of which are very difficult to find elsewhere in the region.

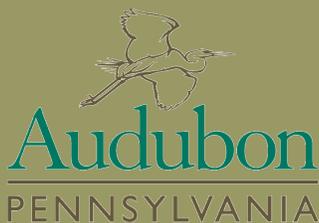
The vast network of State Game Lands (see LAND section above) and private properties provide ample opportunities for hunting throughout the Ridge corridor. Seasons, bag limits, licenses and all other regulations are set and enforced by the Pennsylvania Game Commission.

Many streams originate on the Ridge, providing the clean water necessary for fishing. Numerous fishing hotspots are found within the Ridge corridor, but even sites many miles from the Ridge may benefit from the forested headwaters provided by the Ridge. Fishing licenses and regulations are set and enforced by the Pennsylvania Fish and Boat Commission.

ECONOMIC IMPACT

The recreational activities described above all create substantial economic benefits to the communities of the Kittatinny Ridge.

Birdwatching is a boon to local economies, especially when a lot of people are attracted to a specific site. A study conducted by Hawk Mountain Sanctuary in 1995 showed economic impacts on the communities adjacent to the sanctuary in the amount of over \$5 million annually in 2012 dollars.



A 2011 report by the Berks Conservancy found that the economic impact of Berks County's natural resources is immense. Outdoor recreation is big business in the county, with walking/hiking creating \$93 million in annual income, and hunting and fishing creating \$87 and \$43 million annually, respectively. The report did not break down the contributions of individual locations to these totals, but as the largest natural area in the county, the Kittatinny Ridge contributes substantially to the local economy.

In addition to these "eco-tourism" benefits, the natural resources of the Ridge assist the local economy in many other ways. Property values are boosted by scenic views of the Ridge and proximity to recreational facilities. Homes within a quarter-mile of southern Berks County's Hopewell Big Woods area are worth an average of \$8,270 more than similar homes in more developed areas. Forests on the Ridge filter pollutants out of rainwater, preventing downstream communities from expensive treatments for drinking water. The study found that the county's forests provide approximately \$535 million annually in ecosystem services, including filtering of pollutants and controlling floods.

LOCAL ACTION

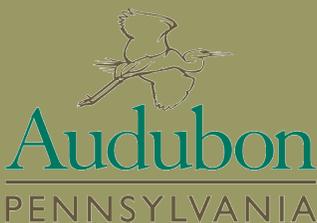
The Kittatinny Ridge corridor consists of 137 municipalities in twelve counties (see following page for entire list). In accordance with the Pennsylvania Municipalities Planning Code, each of these municipalities makes local land use decisions. Audubon's conservation efforts are focused on assisting these municipalities in their planning for the conservation of the Kittatinny Ridge and other important natural sites.

In June 2008, Governor Rendell signed Act 24, known as the Appalachian Trail Act. Act 24 states that all 58 municipalities in Pennsylvania that include a portion of the Appalachian Trail (including many on the Kittatinny Ridge) shall:

"take such action consistent with applicable law, as at least an interim measure, to preserve the natural, scenic, historic and aesthetic values of the trail and to conserve and maintain it as a public natural resource. Such action shall include the adoption, implementation and enforcement of zoning ordinances as the governing body deems necessary to preserve those values."

As part of its municipal outreach program, Audubon and its partners will assist municipalities in evaluating compliance with Act 24 and identifying methods of further protecting the Appalachian Trail corridor.

Environmental Advisory Councils (EACs) are often the catalyst behind successful municipal environmental initiatives. Audubon has helped municipalities form these volunteer panels, which are designed to assist supervisors or council members in the evaluation and implementation of a variety of environmental programs. EACs can work on everything from recycling programs to the acquisition of park lands, habitat restorations, and education of residents on stormwater management.



Municipalities of the Kittatinny Ridge corridor

Berks County

Albany Twp.
Bethel Twp.
Greenwich Twp.
Hamburg Bor.
Lenhartsville Bor.
Strausstown Bor.
Tilden Twp.
Upper Bern Twp.
Upper Tulpehocken Twp.
Windsor Twp.

Carbon County

Bowmanstown Bor.
East Penn Twp.
Franklin Twp.
Lehighton Bor.
Lower Towamensing Twp.
Mahoning Twp.
Parryville Bor.
Palmerton Bor.
Towamensing Twp.
Weissport Bor.

Cumberland County

Camp Hill Bor.
Carlisle Bor.
East Pennsboro Twp.
Hampden Twp.
Hopewell Twp.
Lemoine Bor.
Lower Frankford Twp.
Lower Mifflin Twp.
Mechanicsburg Bor.
Middlesex Twp.
New Cumberland Bor.
Newburg Bor.
Newville Bor.
North Middleton Twp.
North Newton Twp. (part)
Shiremanstown Bor.
Silver Spring Twp.
Upper Frankford Twp.
Upper Mifflin Twp.
West Pennsboro Twp. (part)
Wormleysburg Bor.

Dauphin County

Dauphin Bor.
East Hanover Twp.
Halifax Twp. (part)
Harrisburg City
Jefferson Twp.
Lower Paxton Twp.
Middle Paxton Twp.
Paxtang Bor.
Penbrook Bor.
Reed Twp.
Rush Twp.
Susquehanna Twp.
Wayne Twp.
West Hanover Twp.

Franklin County

Fannett Twp.
Hamilton Twp.
Letterkenny Twp.
Lurgan Twp.
Mercersburg Bor.
Metal Twp.
Montgomery Twp.
Peters Twp.
St. Thomas Twp.
Warren Twp.

Fulton County

Ayr Twp.
Dublin Twp.
McConnellsburg Bor.
Todd Twp.
Thompson Twp.

Lebanon County

Bethel Twp.
Cold Spring Twp.
East Hanover Twp.
Jonestown Bor.
Swatara Twp.
Union Twp.

Lehigh County

Heidelberg Twp.
Lynn Twp.
Slatington Bor.
Washington Twp.

Monroe County

Delaware Water Gap Bor.
East Stroudsburg Bor.
Eldred Twp.
Hamilton Twp.
Middle Smithfield Twp.
Smithfield Twp.
Ross Twp.
Stroud Twp.
Stroudsburg Bor.

Northampton County

Bangor Bor.
Bushkill Twp.
Chapman Bor.
East Bangor Bor.
Lehigh Twp.
Moore Twp.
Pen Argyle Bor.
Plainfield Twp.
Portland Bor.
Roseto Bor.
Upper Mount Bethel Twp.
Walnutport Bor.
Washington Twp.
Wind Gap Bor.

Perry County

Blain Bor.
Carroll Twp.
Duncannon Bor.
Jackson Twp.
Landisburg Bor.
Marysville Bor.
Penn Twp.
Rye Twp.
Southwest Madison Twp.
Spring Twp.
Tyrone Twp.

Toboyne Twp.

Toboyne Twp.
Watts Twp. (part)
Wheatfield Twp.

Schuylkill County

Auburn Bor.
Cressona Bor.
Deer Lake Bor.
East Brunswick Twp.
Landingville Bor.
New Ringgold Bor.
North Manheim Twp.
Orwigsburg Bor.
Pine Grove Bor.
Pine Grove Twp.
Port Clinton Bor.
Schuylkill Haven Bor.
South Manheim Twp.
Tremont Bor.
Tremont Twp.
Walker Twp. (part)
Washington Twp.
Wayne Twp.
West Brunswick Twp.
West Penn Twp.

