

STATE OF THE



KITTATINNY RIDGE

Report prepared by:



June, 2010

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Cover photograph: a view from the North Lookout of Hawk Mountain Sanctuary, by Brian Byrnes/Audubon

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Acknowledgements

Audubon Pennsylvania works in concert with a host of partner organizations and agencies along the length of the Kittatinny Ridge and appreciates their assistance with this report. 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, including Berks Conservancy, Central Pennsylvania Conservancy, and Wildlands Conservancy, 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 planning commissions and Environmental Advisory Councils, have addressed many concerns along the Ridge by ensuring that their ordinances and projects lay the groundwork for conservation of their portion of the Ridge.

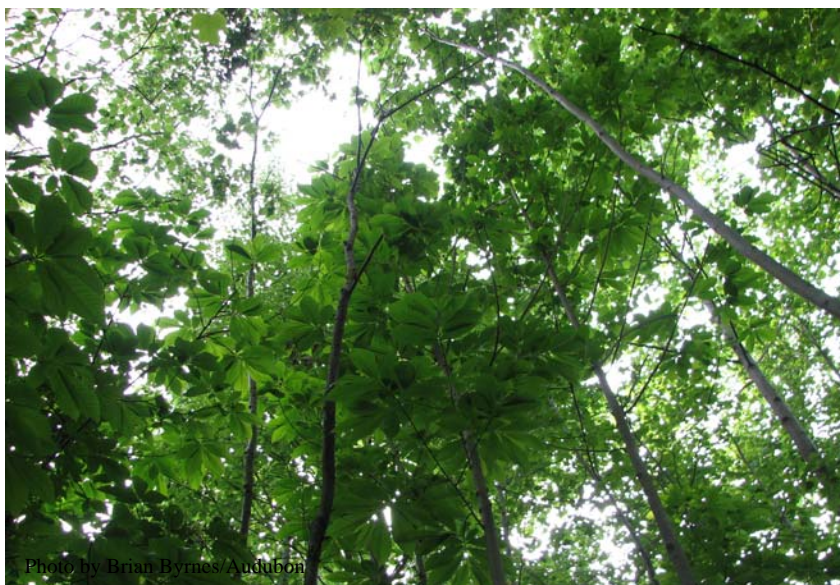


Photo by Brian Byrnes/Audubon

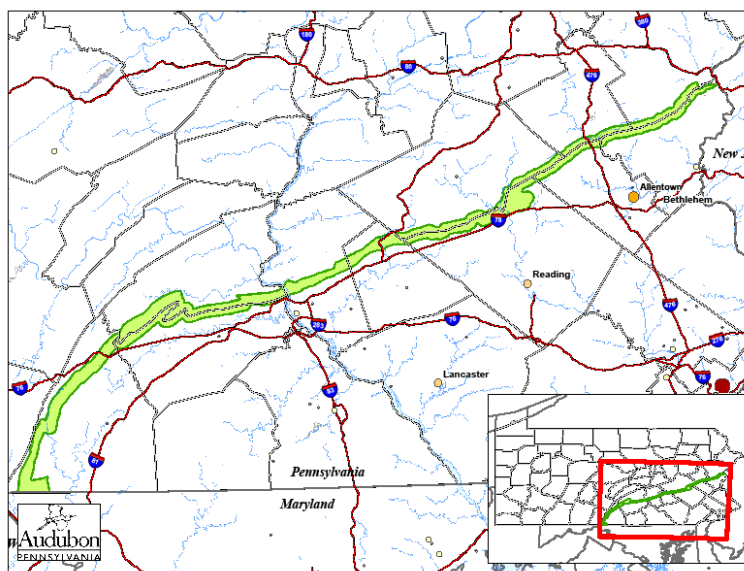
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Audubon Pennsylvania is extremely grateful for the contributions of all of its partners and looks forward to future collaborative efforts that will lead to greater appreciation and protection for the Kittatinny Ridge.



Introduction

The Kittatinny Ridge—also 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 12 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 (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.

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 world-famous 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.

Like most areas along the East Coast, the Kittatinny Ridge faces a host of formidable threats. Chief among them are habitat loss due to residential and commercial development. While the Ridge contains many parks and game lands, the majority of land is privately-owned and vulnerable to development in areas with increasing populations. Energy production and transmission looms as potentially 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.



Photo by Brian Byrnes, Audubon

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 2010; 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 consists of over 335,000 acres of land, spread out over a nearly 200-mile stretch from the Delaware River to the Mason-Dixon Line. We can learn a lot about the Ridge simply 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 forest coverage of at least seventy percent at the local scale. 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.



From many vantage points in the valley, the Kittatinny Ridge looks like a solid block of unbroken forest. The Ridge contains some of the largest remaining forested areas in the region. Wetlands, rock outcrops, and grasslands dot the landscape, as well, and much of the land adjacent to the Ridge is used for agriculture.

Photo by 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.

32% Portion of the Ridge owned by federal, state or local governments, and private non-profit land trusts. The remaining 68% of lands are primarily privately-owned and vulnerable to development.

Conservation in Action

Wildlands Conservancy, Wildlands Preservation Fund

The State Game Lands system includes a number of extensive holdings on the Kittatinny Ridge, protecting wide swaths of prime habitat from development. For nearly thirty years, the non-profit Wildlands Conservancy has used their “Wildlands Preservation Fund” to purchase parcels of land that add land and access to State Game Lands. Across eastern Pennsylvania, Wildlands has purchased over 33,000 acres, and subsequently transferred these lands to the Pennsylvania Game Commission for ongoing management. This partnership has led to additions to State Game Lands within the Kittatinny Ridge corridor in seven counties.



Photo by Jake Dingel/PGC



Photo by Joe Kosack/PGC



Photo by Jake Dingel/PGC

Beneficiaries of Wildlands Conservancy's efforts to expand game lands on the Kittatinny Ridge include wildlife of all sizes, such as white-tailed deer, raccoon, and Black-throated Green Warbler.

By enlarging existing game lands, the Conservancy is accomplishing several objectives with each transaction. They are increasing the area of land available to wildlife, which is especially critical for nesting songbird species that require large tracts of contiguous habitat. The Conservancy is also preventing future fragmentation or disturbance to the buffers of game lands, which decreases the potential of introducing invasive species into natural habitats. Public access to the State Game Lands is increased when parcel bordering public roads are acquired, allowing for new access points to be established for hunters, anglers, hikers and birders.

To learn more about the Wildlands Conservancy and their Wildlands Preservation Fund, visit wildlandspa.org.

Water

The Kittatinny Ridge includes the headwaters to numerous streams, as well as 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. The 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.

Wood Ducks (right) are common in forested wetlands and stream corridors extending out from the base of the Kittatinny Ridge. Cavity nesters, Wood Ducks benefit from standing dead trees and the placement of nest boxes in appropriate habitat.

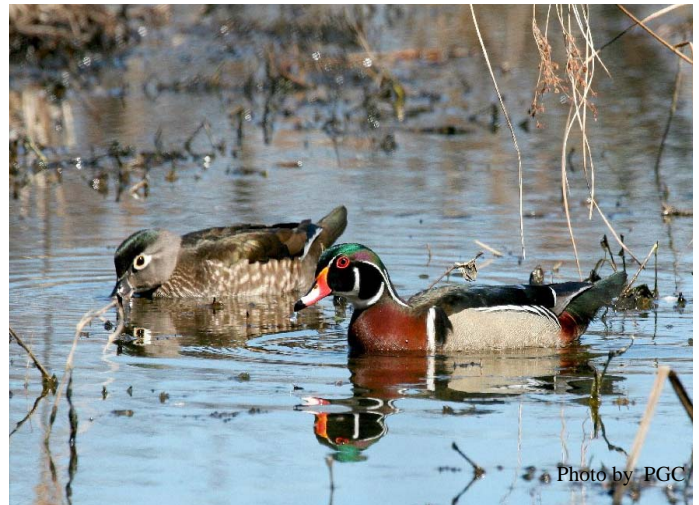


Photo by PGC

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.

798 Miles of impaired streams in the Kittatinny Ridge corridor. While many pristine streams begin on the Ridge, this measurement shows that there is plenty of work left to be done to restore degraded habitats and improve water quality.

Conservation in Action

Manada Conservancy, Dauphin County

In 2009 the Manada Conservancy, a regional non-profit land trust, assisted a Dauphin County couple in the permanent protection of their 41-acre Peter's Mountain property, which contains extensive seeps, springs and wetlands. The property's wetlands contain several rare or threatened plant species, and provide valuable habitat for amphibians and other wildlife. By placing a permanent conservation easement on their property, the landowners ensure that all future owners of the land will be bound to keep the property in its undeveloped state.

Peter's Mountain is one of a series of ridges in south-central Pennsylvania within the Kittatinny Ridge corridor. Migrating raptors may jump from one ridge to the next in order to take advantage of the best available wind conditions. All of these ridges are valuable for their roles in infiltrating rainwater and maintaining high water quality in groundwater and surface sources in the valleys.



A series of seeps and springs on this Dauphin County property creates unique wetland areas that are used by wildlife and help maintain water quality.

Photo by Manada Conservancy

Manada Conservancy, knowing the many values of this property, was eager to work with the landowners to find a solution that permanently conserved the property, but allowed the landowners to continue their current use and management of the property. A conservation easement, a voluntary agreement between a willing landowner and a qualified land trust or government, was a perfect fit.

For more information on Manada Conservancy, please visit www.manada.org, or to find a land trust near you and learn more about conservation easements, visit the Pennsylvania Land Trust Association at www.conserveland.org.

Wildlife

From black bears to bog turtles, the Kittatinny Ridge is home to wildlife large and small. A well-known haven for both 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 the timber rattlesnake and Allegheny woodrat, it is the Ridge's rocky slopes and outcrops that provide shelter to rare species. 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.



DID YOU KNOW?

Pennsylvania's forests are home to 1 in every 6 Scarlet Tanagers in the world during nesting season. These jewels of the eastern forest fare well in the large unbroken woodlands found in many portions of the Kittatinny Ridge.

Photo by Powdermill

4.7% Average 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.

-3.1% Average annual decrease in Broad-winged Hawks counted at Hawk Mountain during this same time period. Often the most abundant migrant raptor in Pennsylvania, this species is still common, but no longer fills the skies in the same numbers. It is yet unclear whether this decline is due to overall population declines or changes in migratory patterns.

5 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.



Photos by LGNC

In 2002 (left), Lehigh Gap was a barren wasteland. By 2007 (right), the Lehigh Gap Nature Center's restoration efforts had taken hold, creating new habitats for wildlife.

Conservation in Action

Lehigh Gap Nature Center, Lehigh and Carbon Counties

In the past decade one of Pennsylvania's most glaring eyesores has completed a dramatic comeback and is now home to a growing number of wildlife species. By the 1970's, decades of air pollution from zinc smelting nearby in Palmerton had left the mountainsides of the Lehigh Gap devoid of life. Trees died and, with nothing left to hold the soil in place, erosion stripped away everything but rock and enough heavy metals to qualify as a Superfund site.

After years of inactivity, in 2002 an intrepid group of volunteer conservationists purchased the property and established the Lehigh Gap Nature Center. Since then, the group has re-planted most of their 756 acres with native warm-season grasses, which have thrived under these unique conditions. Belowground the grasses hold the contaminants in place; aboveground they provide habitat for a host of wildlife species. The refuge is now a wildlife hotspot; 14 mammals, 149 birds and 43 butterflies have been identified on-site, with new discoveries coming every year. For more information on the restoration process, or to find out how to visit the site, go to www.lgnc.org.



Prairie Warblers (right), a species on Audubon's WatchList for rare and declining species, are a common sight at the Lehigh Gap Nature Center. Restoration efforts on-site are likely to bolster this local population.



Photo by Howard B. Eskin

Recreation

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.



Photo by Isaac Wiegman

Hikers on the Appalachian Trail in Pennsylvania are tempted to linger at the rock outcrops that allow magnificent scenic vistas. Running all the way from Georgia to Maine, the vast majority of trail users are day-hikers or weekend campers, but a dedicated few will hike the entire trail.

7 Active hawk watch sites on the Kittatinny; half of all the hawk watch sites in Pennsylvania. These volunteer-driven sites are gathering spots for bird lovers of all skill levels. 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.

4,986 Average total number of volunteer hours of data collection by the seven Kittatinny hawkwatches during the past five falls.

5,631 Number of hikers to complete the entire 2,178-mile Appalachian Trail between 2000 and 2009. This is more than the number of “thru-hikers” in the previous three decades (5,449). 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.

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.

Conservation in Action

The Cliff Jones Field Station at Waggoner's Gap, Cumberland and Perry Counties

After the establishment of Hawk Mountain Sanctuary in the 1930's, awareness and appreciation of birds of prey grew rapidly. One of the first places where the public's burgeoning fascination with raptors took hold was at Waggoner's Gap, approximately 80 miles south and west of Hawk Mountain on the Kittatinny Ridge.

Through the 1930's and 1940's visitors discovered that this site offered wonderful viewing during fall migration. By the early 1950's counts were being conducted by Lou Knorr, a local high school biology teacher and amateur raptor enthusiast.

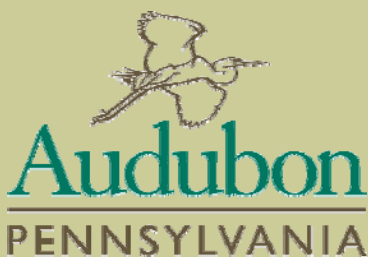


Photo by Steve Saffier/Audubon

Hawk counts, a phenomenon started on the Kittatinny Ridge, are now conducted at nearly 200 sites across North America. All of these sites follow the same guidelines for data collection, allowing scientists to confidently use this volunteer-generated information to guide conservation decisions.

This tradition continues today at Audubon's Cliff Jones Field Station at Waggoner's Gap, where volunteers collect data for the Hawk Migration Association of North America. Volunteers now spend over 1,000 hours each fall documenting the passage of migrant raptors, and count over 20,000 raptors per year. In 1987 a staggering 30,122 raptors were counted; 2007 was another banner year with 26,126 raptors.

Volunteer-collected counts of migrant raptors from Waggoner's Gap are helping scientists monitor species population trends and, thanks to the longevity of the counts, make historical comparisons. The site has also introduced countless Pennsylvania residents to the wonders of raptor migration, helping to create additional hawk watch sites and "citizen scientists," who contribute to our collective knowledge of birds of prey so that we may better conserve them. Audubon Pennsylvania has expanded this effort through education and outreach about the site's history and the ecological importance of the ridge to the regional community and visitors to the Cliff Jones Field Station at Waggoner's Gap. For more information and to learn how to visit the site, please see pa.audubon.org or www.waggap.com.



Economic Impact

The forests, farms, and fields of the Kittatinny Ridge corridor are not just good for the area's environment; they are just as important to the region's economy. Many people visit the Ridge annually to pursue their outdoor interests and each of these visitors support local businesses, including gas stations, hotels, restaurants, and many more. These "eco-tourists" bring additional revenue to the region's small businesses, supporting jobs for local residents.

The Ridge's forests also perform several "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.

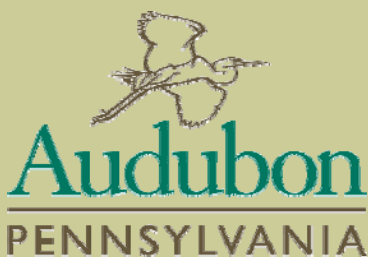


Fishing is big business in Pennsylvania. Before an angler can haul in a beautiful native brook trout (left), he or she will spend money on equipment, bait, transportation, and sometimes food and lodging, in addition to the required fishing licenses.

The economic impact of natural landscapes is a topic that requires more study, but a recent analysis of outdoor activities in Berks County by Keystone Conservation Trust provides interesting data that show the impact of the Kittatinny Ridge is immense. For example:

\$48,000,000 Estimated contribution of fishing to the Pennsylvania Gross State Product (GSP) – *in Berks County alone*. Many of the most popular streams in Berks County have their headwaters on the Ridge. Surveys show the average angler spends between \$830 and \$1350 annually on their hobby.

\$34,000,000 Estimated contribution of birdwatching in Berks County to the GSP. It is yet unclear how much of this impact is due to the Ridge, but several of the most popular areas in the County are either on the Ridge or along streams starting on the Ridge. Surveys show 31% of Pennsylvania residents participate in birdwatching either in the backyard or away from home. Wildlife-watchers, including those seeking birds and other animals, contribute approximately \$2.65 billion to the Pennsylvania economy each year.



Conservation in Action

Hawk Mountain Sanctuary, Berks and Schuylkill Counties

The world's first refuge for birds of prey, Hawk Mountain Sanctuary has long been a magnet for birders from all over the country and world. Hawk Mountain is one of the premier spots to view the fall migration of hawks, eagles, and falcons, with nearly 20,000 raptors passing through most years.

Nearby residents and business owners reap the benefits of the 60,000 annual visitors to this rural area that straddles the boundary between Berks and Schuylkill Counties. A study in 1991 found that the Sanctuary and its many visitors contributed a boost of \$2.5 to \$3.7 million annually to the local economy. Adjusted for inflation, this reflects a benefit of \$3.9 to \$5.8 million per year today. An added benefit of this type of "eco-tourism" is that most visitors come during the fall, after the peak summer season for most hotels and inns.



Photo by Brian Byrnes/Audubon

Spending a day "on the rocks" of Hawk Mountain's North Lookout is a rite of passage for ardent birders.

Although Hawk Mountain is the biggest birding destination on the Kittatinny Ridge, it is far from the only one. State parks, game lands, hawk watch sites, and other open spaces attract both in- and out-of-state birders throughout the year. Many of these visits may go unnoticed, but the cumulative economic impact of the fuel, meals, and lodging associated with them is huge. A 2006 study estimated that wildlife-watching (including birds and other animals) in Pennsylvania created over \$1.4 billion in retail sales and more than 27,000 jobs. For more information on Hawk Mountain, visit

www.hawkmountain.org.



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 are likely to see these pressures soon. The Kittatinny Ridge is critical to maintaining so many of the qualities of these towns that residents hold dear: scenic beauty, clean water, rural character, and places to hunt, fish, or hike. Audubon and several partner organizations have worked to make tools available to these municipalities to help them conserve the resources they hold most dear. Some of these tools have been widely applied by Ridge municipalities, while others have taken seen limited implementation, but hold great promise for the future.



The Kittatinny Ridge (left, in dark green) courses through 12 counties in Pennsylvania. Land use planning and decisions by all municipalities in the Ridge corridor (light green) are critical to ensuring that the Ridge remains a healthy natural landscape.

13 The percentage of municipalities that have an Environmental Advisory Council (EAC). These volunteer-driven advisory boards assist the municipal supervisors/council members with a wide variety of environmental issues, including everything from land conservation 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.

80 and 93 The percentage of municipalities that have a zoning ordinance, and a subdivision and land development ordinance, respectively. These regulations provide the basic framework for how land may be used and developed. Without them, landowners can develop their properties subject only to state and federal environmental regulations.

4 The percentage of municipalities that have adopted an Official Map. Often used to identify sites for future infrastructure improvements, an official map can also be used to identify critical natural resources, including floodplains, forests, trail corridors or future park sites. See “Conservation in Action” on the following page for an example of how this tool can be used for conservation purposes.

Recent Activities of the Bushkill Township EAC

- Completed an Environmental Resource Inventory, which identified key natural and cultural features for protection.
- Created an Official Map that was unanimously adopted by the Bushkill Township supervisors; see image and caption to the right.
- Completed a Trail Feasibility Study to link Jacobsburg Environmental Education Center to the Kittatinny Ridge.
- Coordinate the township's Open Space Program, using a township open space fund created when voters approved an Open Space Referendum in 2005.
- Petitioned to get a stream re-classified as Exceptional Value, the highest ranking in Pennsylvania. This status brings the highest standards against degradation from any future land development.
- Created a multi-municipal Regional Compost Facility for yard waste.
- Conduct MS4 annual stormwater monitoring
- Review site development plans for environmental impacts
- Hold drinking water testing events for residents
- Plan environmental education events

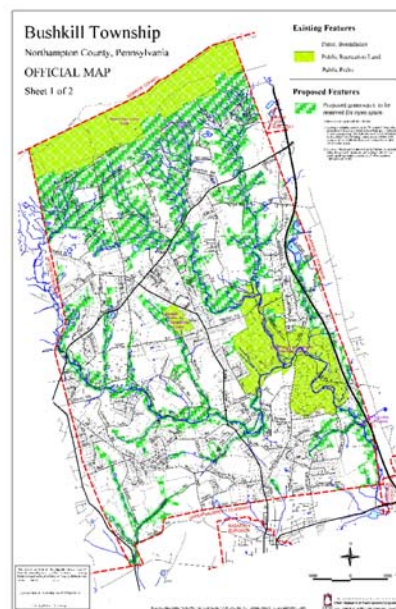


Conservation in Action

Bushkill Township, Northampton County

An Environmental Advisory Council (EAC) can help a community take great strides towards conserving their most treasured natural resources, quality of life, and ways of life. Nowhere has this been more evident than in Bushkill Township, Northampton County.

Established in 1979, the EAC is a viable and effective conservation advisory body active in current municipal and land use planning efforts. Bushkill has a strong natural and cultural heritage. In the face of a growing population and disappearance of open space, farmland, and greenway connections, maintaining this beautiful landscape is a priority to the EAC and the township. The EAC, together with Bushkill Township officials and several partners, has been the driving force behind a number of efforts to increase the protection of the township's critical natural resources and to maintain a high quality of life.



Official maps are designed to help municipalities plan for the future by identifying lands that are critical to accomplishing long-range goals. Described in Pennsylvania's Municipalities Planning Code, Official Maps are often used to delineate lands where the municipality projects new schools, roads, and other infrastructure will be located at some point in the future.

Bushkill is the first municipality in the Lehigh Valley and one of very few in Pennsylvania to use the Official Map to help protect its natural resources. The Official Map allows a municipality up to one full year following the submission of a development plan to either purchase the property at fair market value, or work with developers and landowners to create a plan that minimizes impact on stream-side woodlands and other important natural resources.

The EAC's work focuses on conserving natural resources and encouraging residents to be good environmental stewards. A sampling of their recent activities is found to the left.

Bushkill's EAC has proven to be an invaluable resource for the township's supervisors and residents. By focusing on critical resources and utilizing partnerships, this all-volunteer advisory group has made an extraordinary impact on their community's future. There are many more exemplary Environmental Advisory Councils and local conservation efforts along the Kittatinny Ridge. For more information about starting an EAC in your community, please visit the Pennsylvania Environmental Council at www.eacnetwork.org or call 1-800-322-9214.

Additional Resources

Appalachian Trail

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

Birds

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/PASitePage.php>



Photo by Howard B. Eskin

Conservation Tools

Audubon's Kittatinny Ridge Conservation Toolbox,

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

Pennsylvania Land Trust Association. Conservation Tools,

www.conservationtools.org

Economics of Nature Tourism

Birding in the United States: A Demographic and Economic Analysis.

U.S. Fish and Wildlife Service,

http://library.fws.gov/Pubs/birding_natsurvey06.pdf

2006 National Survey of Fishing, Hunting, and Wildlife-associated
Recreation. U.S. Fish and Wildlife Service,

http://library.fws.gov/pubs/nat_survey2006_final.pdf

Natural Resources

Pennsylvania Department of Conservation and Natural Resources,

<http://www.dcnr.state.pa.us/learn.html>

Wildlife

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

Pennsylvania Game Commission, www.pgc.state.pa.us

