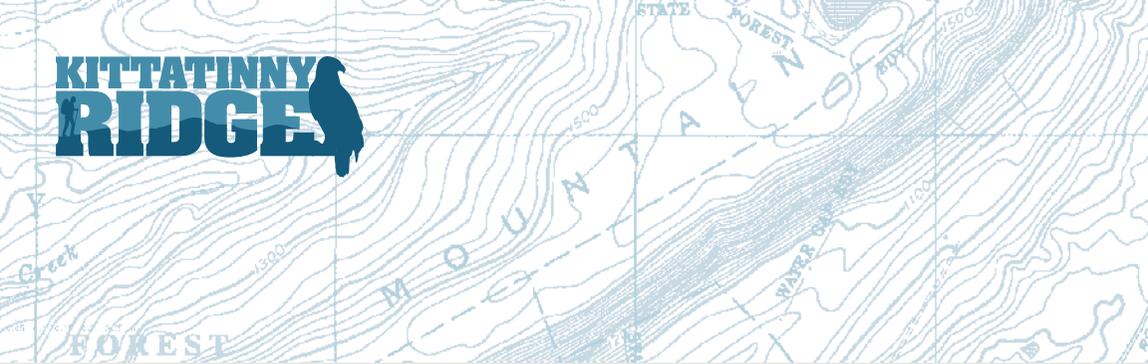
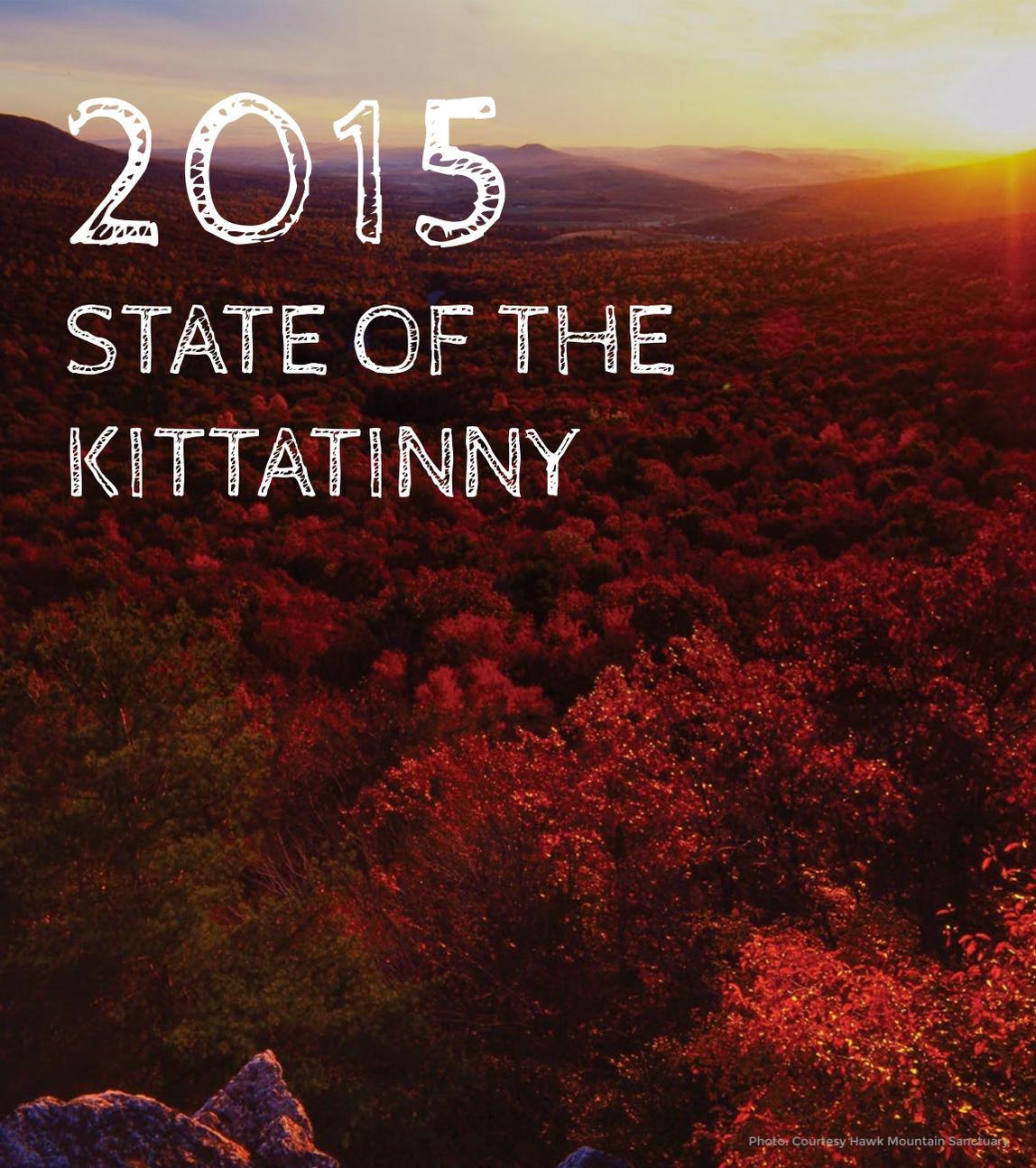


**KITTATINNY  
RIDGE**



# 2015

## STATE OF THE KITTATINNY





185 MILES.

360,000 ACRES.

80% FOREST +  
SHRUB HABITAT.

7 IMPORTANT  
MAMMAL AREAS.

GLOBAL IMPORTANT  
BIRD AREA.

# // Welcome

On behalf of the Kittatinny Coalition, welcome to the 2015 State of the Kittatinny report. Recently designated a Global Important Bird Area (IBA), the 185-mile Kittatinny Ridge is one of Pennsylvania's most critical resources, and it takes the collaboration of many community partners to preserve and protect this treasured landscape.

The culmination of our partners' efforts and achievements in support of the Coalition's mission—to preserve land, conserve native habitats, share conservation research, provide clean drinking water, protect ridge trails through municipal action, and connect citizens—are highlighted in this annual report.

A special thank-you to the Pennsylvania Department of Conservation and Natural Resources and Coalition partners for their support and dedication to the Kittatinny, and to the following contributors to this report:

**Marlin Corn, Pennsylvania Amphibian and Reptile Survey**  
**Mari-Beth DeLucia, The Nature Conservancy**  
**Laurie Goodrich, Hawk Mountain Sanctuary**  
**Dan Kunkle, Lehigh Gap Nature Center**  
**Kyle Loucks, Pennsylvania Amphibian and Reptile Survey**  
**Karen Lutz, Appalachian Trail Conservancy**  
**Brooks Mountcastle, Appalachian Trail Conservancy**  
**Jeanne Barrett Ortiz, Audubon Pennsylvania**  
**John Rogers, Keystone Conservation Trust**  
**Amy Weidensaul, Audubon Pennsylvania**  
**Bushkill Township Environmental Advisory Council, Northampton County**  
**Heidelberg Township Environmental Advisory Council, Lehigh County**  
**Moore Township Environmental Advisory Council, Northampton County**  
**Plainfield Township Environmental Advisory Council, Northampton County**  
**Upper Mount Bethel Township Environmental Advisory Council, Northampton County**  
**West Hanover Township Environmental Advisory Council, Dauphin County**

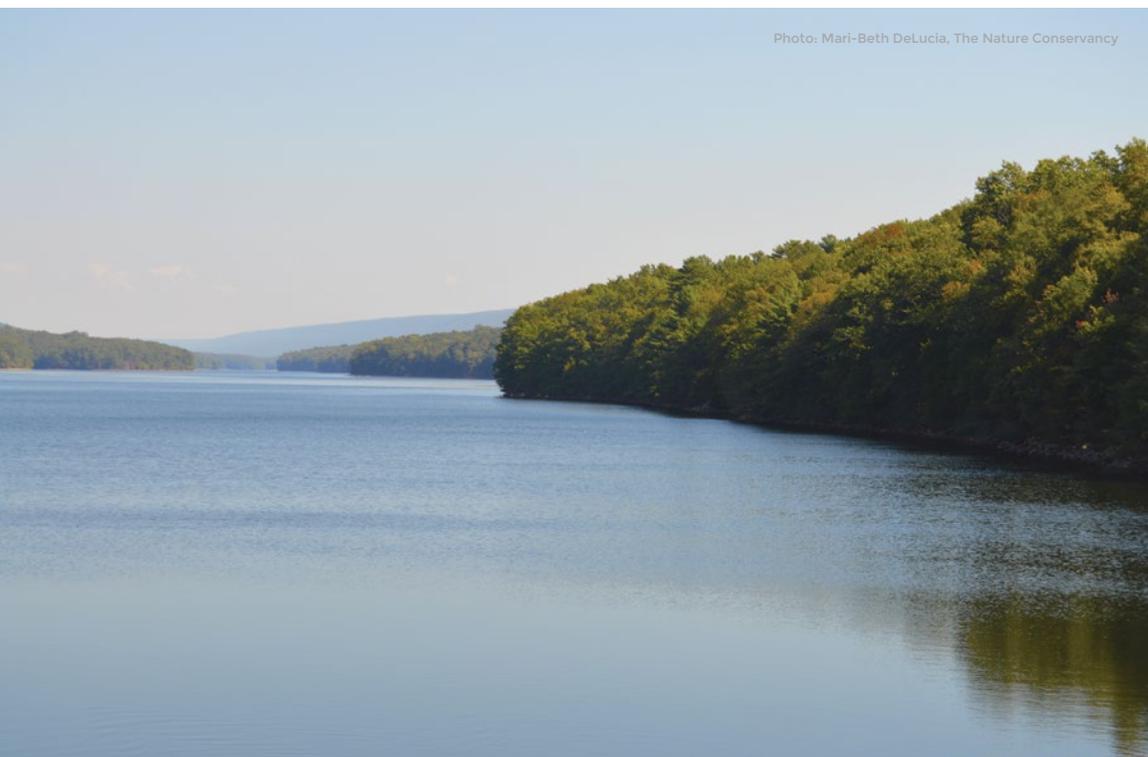
PLEASE HELP US PROTECT THE RIDGE //  
VISIT [KITTATINNYRIDGE.ORG](http://KITTATINNYRIDGE.ORG) TODAY

# 01 // CONSERVE LAND

## Partnering to protect more acreage

The Nature Conservancy (TNC) was awarded a Pennsylvania Department of Conservation and Natural Resources (DCNR) grant to conduct outreach to landowners of priority Kittatinny Ridge parcels. In partnership with Central Pennsylvania Conservancy, Berks Nature, Wildlands Conservancy, Manada Conservancy, Lebanon Valley Conservancy, and Natural Lands Trust, nearly 100 landowners have been contacted and 1,000 acres permanently protected. This brings the current protected acreage (in public or private ownership or protected with a conservation easement) in the Kittatinny Conservation Corridor to 274,722 acres (16% of the total Corridor area of 1,695,900 acres) and in the Kittatinny Ridge Important Bird Area to 120,944 acres (34% of the total IBA area of 360,458 acres).

TNC is also working with the Ward Burton Wildlife Foundation and Fort Indiantown Gap to permanently protect Harrisburg City's DeHart Watershed lands. A purchase and sale agreement was signed to grant a conservation easement restricting development on 8,200 acres. Under the agreement, TNC will hold the easement, and Capital Region Water will continue to own and manage the property for drinking water operations. Capital Region Water will receive approximately \$9 million through the Fort Indiantown Gap Army Compatible Use Buffer program for the sale of the agreement, which will help pay for upgrades to Harrisburg City's aging drinking water infrastructure.



**The high-quality watershed and forest habitat surrounding the Harrisburg City water supply in northern Dauphin County is now protected with a conservation easement.**

## 02 // CONSERVE NATIVE HABITAT + WILDLIFE

# Studying Broad-winged Hawk migration

// **Where in South America do Kittatinny-nesting Broad-winged Hawks spend their winters?**

// **What is the habitat around the trees where these hawks choose to nest?**

// **What prey are the parent birds bringing back to the nest for their young?**

Researchers from Hawk Mountain and East Stroudsburg University have been conducting a three-year study to seek answers to these questions and to understand why Broadwings may be declining along the Kittatinny Ridge, now recognized as a Global Important Bird Area.

In the summer of 2015 (year two of the study), six Broad-winged Hawk nests along the Ridge were observed closely to determine what kinds of animals the hawks were bringing back to their nestlings. More than 50% of the prey was small mammals and birds, while 11% consisted of reptiles and amphibians.

To better understand fall migration patterns, four adult females were fitted with satellite tags. One of the birds, Ridgena, who is sponsored by the Kittatinny Coalition, was tracked to Colombia over the winter. In 2016, the last year of the study, the team expects to tag four more birds, including two from northern Pennsylvania counties to see if they also migrate along the Appalachians or take another route. Updates on the project can be found on the Facebook page, The Broadwing Project. Maps following the hawks can be viewed at [hawkmountain.org/birdtracker](http://hawkmountain.org/birdtracker).

This project would not be possible without the support of generous sponsors including Pennsylvania Game Commission State Wildlife Grant Program, PA DCNR, the Kittatinny Coalition, ATAS Corporation, and many private donors.



Map of satellite data shows that most Pennsylvania birds followed the Appalachians south during migration and then traveled through eastern Mexico. Some females wintered as far south as Peru and Brazil, with one settling in El Salvador. All except one returned in the spring.

## 03 // SHARE CONSERVATION RESEARCH

# Exploring herpetology at Lehigh Gap Nature Center

The Kittatinny Science Summit concentrated on herpetology, the study of amphibians and reptiles. Referred to as “herps,” these fascinating creatures need much more study along the Ridge and throughout Pennsylvania. A herp training session was held at Lehigh Gap Nature Center and led by Kyle Loucks, volunteer Southeastern Regional Coordinator for the Pennsylvania Amphibian and Reptile Survey (PARS).

Twenty-one participants in the training session became eligible to report sightings for PARS, a similar program to the PA Breeding Bird Atlas project that was completed a few years ago. During the session, painted turtles, northern dusky and two-lined salamanders, green and pickerel frogs, and a black rat snake were spotted. The most exciting find was an eastern hognose snake.

Photo: Courtesy Pennsylvania Amphibian and Reptile Survey



Photo: Courtesy Pennsylvania Amphibian and Reptile Survey



**Top photo: Pickerel frog**

**Bottom photo: Eastern hognose snake**

# 04 // PROVIDE CLEAN + PLENTIFUL WATER

## Protecting a critical source of clean drinking water

The Ridge encompasses portions of the Delaware, Lehigh, Potomac, Schuylkill, and Susquehanna River watersheds, 13 lakes and reservoirs, and three exceptional value sub-watersheds, which are all important sources of clean and reliable drinking water for surrounding counties.

The Appalachian Trail Conservancy and Audubon Pennsylvania staff have reviewed the Coldwater Conservation Plans along the Kittatinny Corridor to identify special designations, issues that may threaten the stream, and potential partners who can work locally to protect the streams or watersheds.

A new partnership with Trout Unlimited will include assessing streams in the Delaware River watershed to determine the presence or absence of naturally-reproducing trout populations, mapping streams that have wild trout present, and educating local groups regarding wild trout stream listings and stream upgrades.

### EXISTING COLDWATER CONSERVATION PLANS FOR WATERSHEDS THAT INTERSECT WITH THE KITTATINNY CONSERVATION PROJECT REGION

COUNTY	CREEK	ON RIDGE IBA	WITHIN CORRIDOR
Berks	Mill Creek	X	
Berks	Northkill Creek		X
Cumberland	Cedar Run		X
Dauphin	Clark's Creek		X
Dauphin	South Fork Powells Creek		X
Dauphin	Manada Creek	X	
Fulton	South Branch of Little Aughwick Creek		X
Lehigh	Coplay Creek		X
Lehigh	Trout Creek	X	
Northampton	Waltz Creek + Greenwalk Creek		X
Northampton	Sobers Run		X
Northampton	Little Bushkill Creek		X
Northampton	Upper Bushkill Creek	X	
Northampton	Bertsch Hokendauqua Creek	X	
Schuylkill	Cold Run		X
Schuylkill	Beaver Creek	X	



★ LOCATION OF CREEKS IN THE KITTATINNY CORRIDOR WITH COLDWATER CONSERVATION PLANS

Visit [coldwaterheritage.org](http://coldwaterheritage.org) for more information

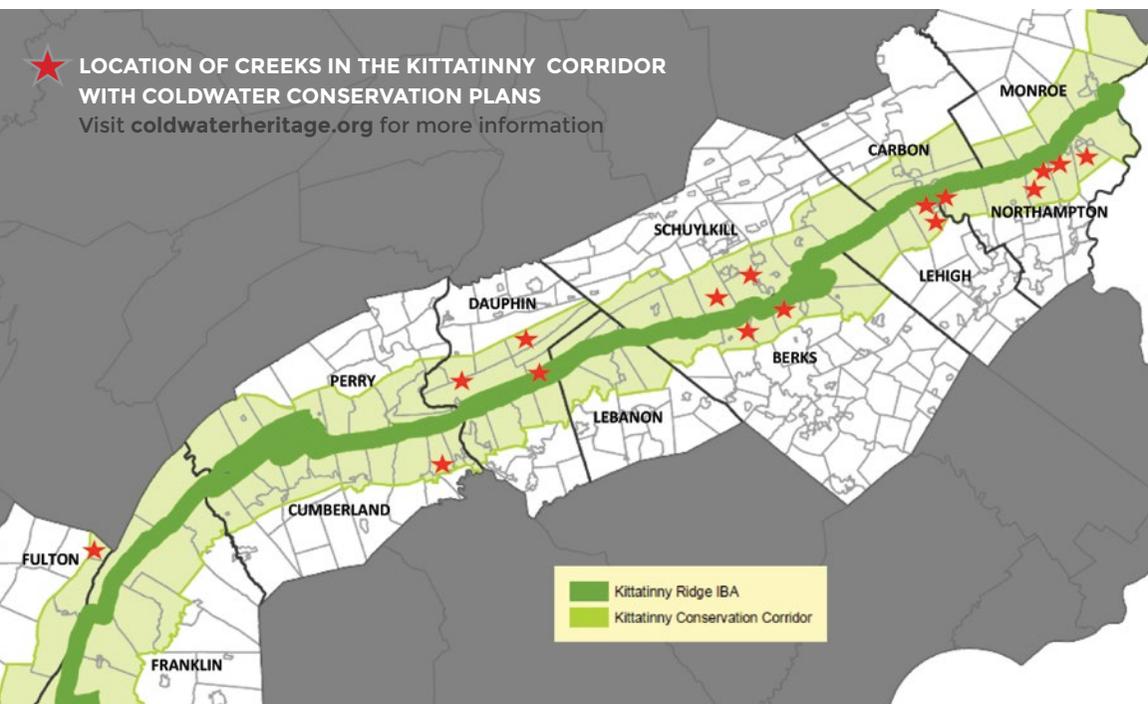


Photo: Clear streams meander through laurel woods on a protected mountain property in Dauphin County, providing clean water and unpolluted aquatic wildlife habitat.

Map: Creeks in the Kittatinny Corridor with Coldwater Conservation Plans.

# 05

## // PROTECT RIDGE + TRAIL LANDSCAPES THROUGH MUNICIPAL ACTION

# Championing local conservation efforts

Because local government officials across 136 Ridge municipalities make independent land use decisions, Environmental Advisory Councils (EAC) are key conservation collaborators. An EAC is a municipal board comprised of residents who are appointed by local elected officials to advise them and others on environmental matters. EACs help ensure a healthy quality of life in their communities and steward natural assets that transcend artificial municipal boundaries. EACs are hard at work along the Ridge, and their efforts are highlighted below. For more information on EACs or how to form an EAC in your community, visit [eacnetwork.org](http://eacnetwork.org).

### **Bushkill Township EAC | Northampton County**

// Purchased several parcels totaling 67 acres along the base of the mountain for Open Space preservation, including several thousand feet of an east-west railbed; Parcels provide a critical link for a trail connection between the Bushkill Township Trail and the Appalachian Trail and a proposed east-west trail through the upper portion of the township; The parcels support high-quality uplands and exceptional value streams and wetlands, including large vernal ponds

### **Heidelberg Township EAC | Lehigh County**

- // Awarded the Spring Scholarship for Essay on Local Environmental Issue to a Northwestern Lehigh High School Senior
- // Conducted an annual Appalachian Trail Clean up around Bake Oven Knob
- // Organized a "Pollinator Program" with a Master Gardener
- // Maintained a riparian area at the township building

### **Moore Township EAC | Northampton County**

- // Held the fifth “E-Cycling” event where scouts, members of the EAC, and other volunteers along with the Fire Police collected more than 60,000 pounds of electronics, exceeding the prior year’s record of 48,600 pounds
- // Produced a special edition township newsletter to commemorate the township’s 250th Anniversary
- // Started developing a Stewardship Plan for the Moore Township Appalachian Park, 168 acres located at the base of the Ridge, to help encourage better access for residents

### **Plainfield Township EAC | Northampton County**

- // Implemented Lehigh Valley Planning Commission award-winning Little Bushkill Creek Watershed Management Plan, a 17.5-square-mile High-Quality, Coldwater Fishery watershed impaired for recreational use; included stream monitoring/ sampling, source tracking, and development of targeted property restoration plans
- // Reviewed studies, reports, and permit applications of proposed projects with potential environmental impacts
- // Began meetings with PPL Electric Utilities and Met Ed to help them meet vegetation management goals while providing for healthy meadow and low shrub habitat that benefit bird species such as the golden-winged warbler, wild turkey, and American woodcock
- // Regularly reviewed zoning changes, drafts of ordinances, and construction plans that would impact streams
- // Reviewed the process and contents of the Municipal Separate Storm Sewer System (MS4) report and outfall inspection report, which included streets, ditches, drainage, swales, and culverts
- // Reviewed tree harvesting policies for the buffer zone along the township recreation trail and suggested changes to the existing ordinances regulating buffer zones and timber harvesting in partnership with Wildlands Conservancy

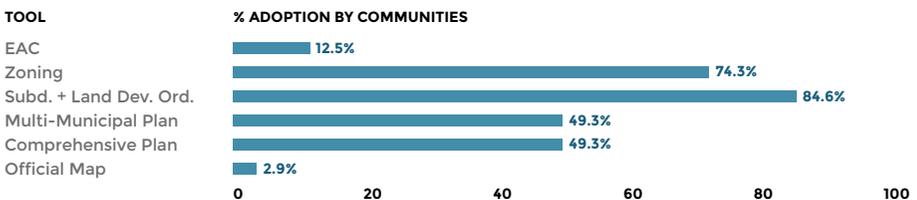
### Upper Mount Bethel Township EAC | Northampton County

- // Partnered with the township in the Landscaping for Wildlife and Communities grant administered by Lehigh Gap Nature Center; The EAC provided volunteer hours planting, mulching and watering the trees, shrubs, and perennials of the native garden designed to educate the public on the benefits of native plants in home landscaping; The EAC also funded and provided 57 metal garden stakes for engraved custom plant labels

### West Hanover Township EAC | Dauphin County

- // Developed and distributed educational materials to residents on recycling, reducing water pollution, and other environmental matters
- // Assisted with Comprehensive Plan update and development of a tree policy
- // Updated EAC web page and the Big Tree Registry for the township website
- // Prepared and submitted an MS4 report (addressing sewer and storm water issues) to the township manager
- // Helped the township minimize environmental impacts by updating the Environmental Impact Checklist used in reviews of development plans and providing comments to the Planning Commission on subdivision and land development plans
- // Led community cleanup and improvement activities, including spearheading the long-running EAC Litter Challenge with roadway cleanups, repairing a local bluebird trail, maintaining the local park's rain garden, establishing gardens around the municipal building, and conducting a stream assessment
- // Coordinated a speaker series to offer free informational programs on local environmental topics such as stormwater, riparian buffers, wildlife habitat, and native plant information

### MUNICIPAL PLANS + ORDINANCES



## WIND GAP DESIGNATED AN “A.T. COMMUNITY”

The Appalachian Trail Conservancy officially designated Wind Gap Borough as the 38th Appalachian Trail Community™. The borough is steeped in history and, as a dedicated partner in the Slate Belt Community Partnership, is committed to sustainable growth for its precious natural resources and its local businesses. Wind Gap combined its designation with the dedication of a new youth-led “On the Appalachian Trail” mural near the center of town, which is the fourth mural in the Slate Belt Heritage Mural series and the first in Wind Gap. The Appalachian Trail Community™ program is designed to recognize communities that promote and protect the Appalachian Trail (A.T.). For more information on the A.T. Community program, visit [appalachiantrail.org](http://appalachiantrail.org).

## RETURN ON ENVIRONMENT

A “Return on Environment” (ROE) report was completed in 2015 for Lehigh and Northampton counties. The table below shows some of the values derived for three Kittatinny ROE reports completed to date. Additional studies are underway. These reports will help officials account for natural systems losses and gains, e.g. restoration, as they make land use and policy decisions. The complete Return On Environment reports for each county can be found at [kittatinnyridge.org/explore/research-education](http://kittatinnyridge.org/explore/research-education).

### RETURN ON ENVIRONMENT REPORT (\$ IN MILLIONS)

COUNTY	NATURAL SYSTEM SERVICES MEAN ANNUAL AVOIDED COSTS	AIR QUALITY SERVICES MEAN ANNUAL AVOIDED COSTS	RECREATIONAL VALUE ANNUAL REVENUES	PROPERTY VALUE IMPACT AT SALE OF PROPERTY
Berks (2011)	\$ 485.1	\$ 234.4	\$ 460.0	N/A
Lehigh (2015)	\$ 153.8	\$ 77.3	\$ 444.6	\$ 932.8
Northampton (2015)	\$ 201.7	\$ 85.7	\$ 351.2	\$ 937.8

# 06 // CONNECT CITIZENS

## Linking our communities to the Ridge

### STORYTELLING

The Kittatinny Coalition produced two new videos in 2015 to begin telling the natural, recreational, and cultural stories of the Ridge. The first video describes the Kittatinny's critical role in providing clean and plentiful water to thousands of residents and businesses, and the second video introduces the Lehigh Gap Nature Center's efforts to restore a portion of the Ridge that was deforested by zinc smelting in the 1900s. View the videos at [kittatinnyridge.org/category/summit-stories](http://kittatinnyridge.org/category/summit-stories).

### AVES EN LA KITTATINNY ["BIRD THE RIDGE"]

In 2015, the annual "Bird the Ridge" hikes were expanded to include a Spanish interpreter. Known as "Aves en la Kittatinny," three English-Spanish hikes were conducted along the Ridge by Kittatinny Ridge Coalition partners: Audubon PA organized a hike at Hawk Mountain, Lehigh Gap Nature Center offered one on their Ridge-side sanctuary, and the Appalachian Trail Conservancy organized one on Peter's Mountain north of Harrisburg.

New community partners were key to the success of these hikes, introducing their Spanish-speaking members to the Ridge and the birds that call it home in the summer. The common bond for Hispanic audiences is that many of the colorful birds that nest in the Ridge's forests in summer (such as warblers, tanagers, and thrushes) migrate south to spend their winters in Central and South American countries where these new hikers have family ties.



Hike participant enjoys watching migrating birds at South Lookout.

## **TEACHING THE NEXT GENERATION**

Education programs along the Ridge are designed to either directly connect people to nature through hands-on experiences, or to train educators and leaders so they can lead outdoor experiences for students along the Appalachian Trail or elsewhere on the Ridge.

Audubon PA provided in-class programs to nearly 200 school students in Dauphin, Perry, and Cumberland counties. In addition, Audubon provided outdoor experiences on school grounds and to local parks to another 125 students in those counties. Continuing its partnership with state parks located in the Ridge Conservation Corridor, Audubon provided a birding workshop to Colonel Denning State Park for visitors and state park staff.

Teachers are important Kittatinny workshop attendees as they teach lessons and provide outdoor experiences on the Ridge to a new group of students every year. In 2015, two workshops were held for 50 teachers from Dauphin, Cumberland, and Perry counties. Workshops provide teachers with hands-on activities that bring the environment into the classroom and enhance student learning while meeting state academic standards.

The Appalachian Trail Conservancy conducted a full Trail to Every Classroom (TTEC) program in 2015. The program includes two weekend workshops and a week-long seminar at the National Conservation Training Center. The program is offered to educators from Maine to Georgia, and eight Pennsylvania teachers were selected to participate. Educators develop place-based service learning curricula across K-12 disciplines to engage their students in public land stewardship.

PLEASE HELP US PROTECT THE RIDGE //  
**VISIT [KITTATINNYRIDGE.ORG](http://KITTATINNYRIDGE.ORG) TODAY**



A group of students from Perry County explore the Kittatinny Ridge, learning about the ecology and geology of the area.



TAKE A HIKE. JOIN A CREW.  
HEAR A SONG. MAKE A RARE  
FIND. BUILD A COMMUNITY.



PLEASE HELP US PROTECT THE RIDGE //  
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Funding assistance has been provided by the Department of Conservation and Natural Resources, Bureau of Recreation and Conservation, Environmental Stewardship Fund.