



# **ALLEGHENY COUNTY PARKS ECOLOGICAL ASSESSMENT AND ACTION PLAN BOYCE PARK**

Prepared for the Allegheny County Parks Foundation  
January, 2016





## FOREWORD

With nine parks encompassing over 12,000 acres, Allegheny County boasts one of the largest regional park systems in the country. An array of abundant recreational activities makes each park a unique destination. Nature is the common thread that connects our parks and is our most treasured asset. The abundant resources found in our parks' forests, meadows and streams provide vital habitat for flora and fauna that clean our air and water, pollinate our plants and connect the web of life. We are stewards of these natural sanctuaries and are working to protect them for future generations.

In 2015, the Allegheny County Parks Foundation together with the Allegheny County Parks Department launched a systematic evaluation of natural resources and ecological assets in the parks beginning with Boyce Park. We partnered with the Western Pennsylvania Conservancy (WPC) to conduct the first Ecological Assessment and Action Plan to provide a framework for project implementation to protect, preserve and improve the environmental health of the park.

Using state-of-the-art mapping and data collection techniques and on-the-ground field observations, WPC staff identified several plant species in Boyce Park that deserve special protection because they are on the Pennsylvania Natural Heritage Program watch list and could become rare without further conservation action. These include the Glade fern and *Crepis rattlesnake* root, James' sedge and the butternut tree. Of particular note is a small population of Shumard oak that is designated a Pennsylvania endangered species.

Among its other recommendations, WPC suggested converting some mowed areas to restoration meadows to increase wildlife habitat, planting additional trees to restore native species, constructing bioswales to manage stormwater and developing a sustainable trail plan. Each of these recommendations is described in greater detail in the report. The Allegheny County Parks Foundation is working with Allegheny County to develop a prioritized set of implementation actions.

We are deeply grateful to the PNC Foundation for providing the funding to make this report possible. We also thank the outstanding staff at the Western Pennsylvania Conservancy and the Allegheny County Parks Department for their expertise and insightful contributions to this report which is available on our website. We look forward to working with the County Parks staff and other partners to implement these recommendations and to continue this important work in all of the Allegheny County Parks.

Caren Glotfelty  
Executive Director

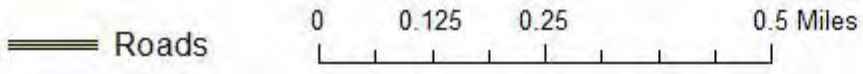
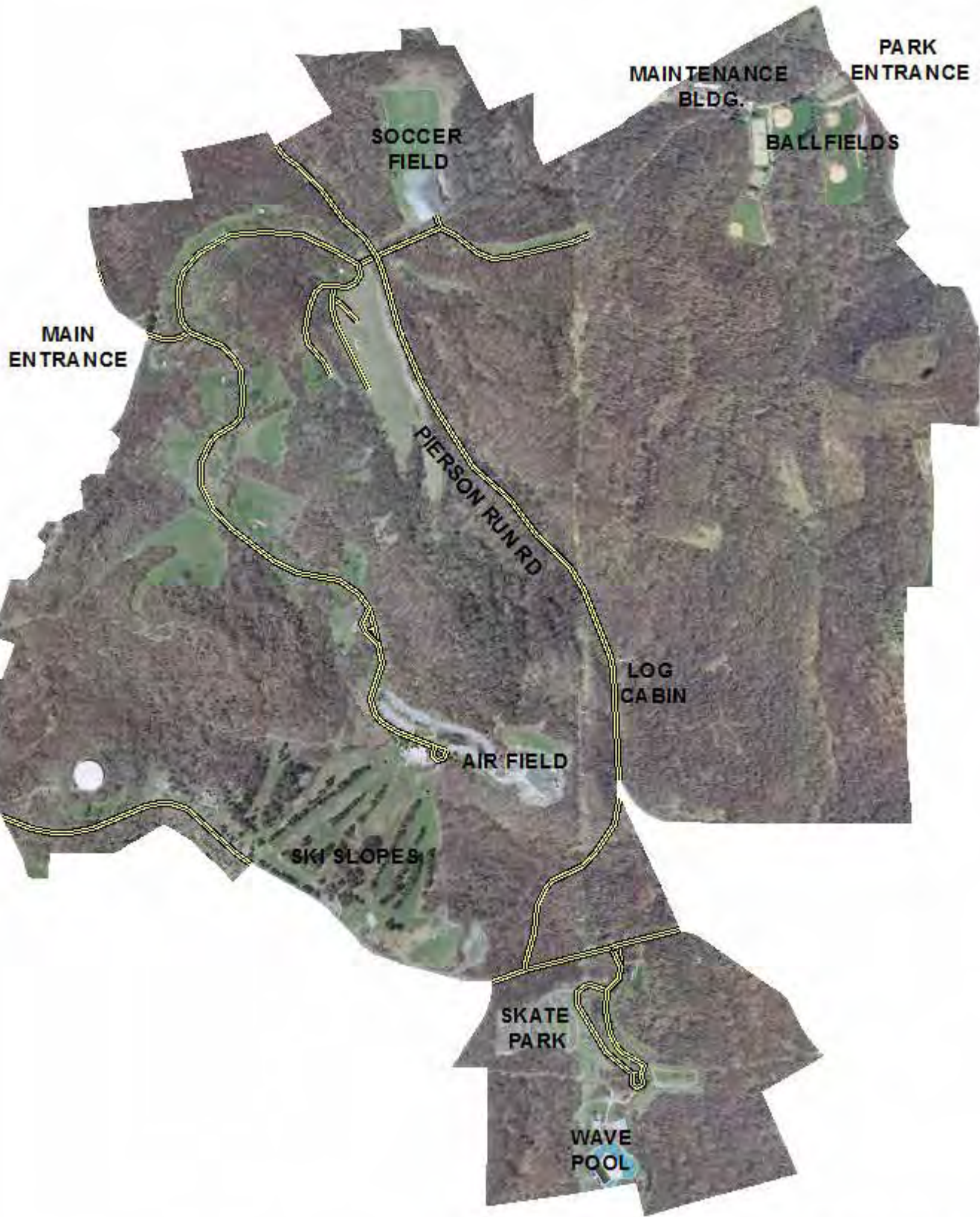
January 2016

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# Boyce Park

N



Western Pennsylvania Conservancy



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# BOYCE PARK

PARK YOUR LITTER • DON'T LITTER YOUR PARK  
1096 ACRES



**Legend**

- Green
- Sheltered Groves
- Facilities
- Restrooms
- A&D (Accessibility)
- Ramping Handicap
- ★ Playgrounds
- ★ Universal Playgrounds
- Accessibility
- \*\*\*\*\* Path Trails
- ▭ Parking Lots
- Woods Area



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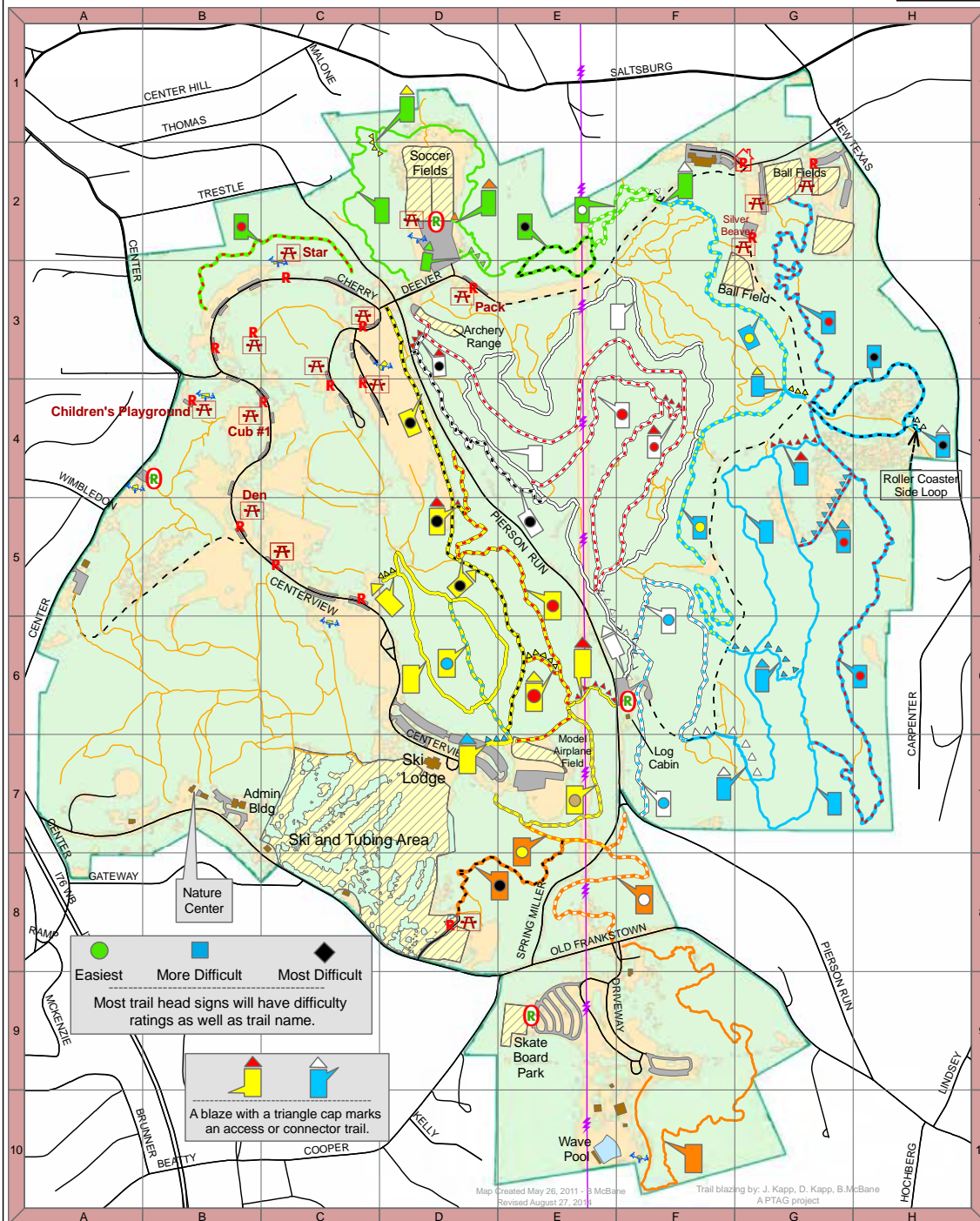
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DIVISION OF COMPUTER SERVICES  
GIS SECTION  
621 County Office Building • 443 Forbes Ave.  
Pittsburgh, PA 15219-2052  
Phone: (412) 550-4274  
Map Prepared on: March 30, 2012  
Map Prepared by: Eli Thomas

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# Boyce Park Trails



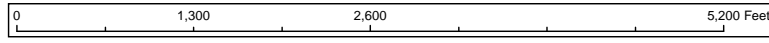
● Easiest    ■ More Difficult    ◆ Most Difficult  
 Most trail head signs will have difficulty ratings as well as trail name.

A blaze with a triangle cap marks an access or connector trail.

Map Created May 26, 2011 - B. McBarne  
 Revised August 27, 2011  
 Trail blazing by: J. Kapp, D. Kapp, B. McBarne  
 A PTAG project



Allegheny County  
 Division of Computer Services  
 Geographic Information Systems  
 621 County Office Building  
 542 Forbes Avenue  
 Pittsburgh, PA 15219  
 (412) 350-4760



1 inch = 800 feet  
 1:9,600  
 Grid squares are approximately 1000 feet long on each side.

**Rest Rooms**  
**Permanent Buildings**  
 All Year  
**Port A Johns**  
 ALL YEAR  
 SEASONAL

**Park Legend**  
 Park Boundary    Parking Lots  
 Forest    Athletic Fields  
 Shelters    Power Line  
 Unmarked Trails    Park Bldgs  
 Gravel Roads    Playgrounds



# INTRODUCTION

## 1.1 BACKGROUND

### *History of Boyce Park—Allegheny County Parks System*

In 1758 George Washington and his troops camped in the area now set aside as Boyce Park. Established in 1963, the park was named for William D. Boyce, founder of the Boy Scouts, who was born nearby. In the 1970s the park contained 26 burial sites and artifacts from a village of Monongahela people likely settled in the 14th Century AD.

Boyce Park is one of the nine parks that comprise the Allegheny County Parks, a regional system encompassing more than 12,000 acres. Rich in recreational, natural, and historic resources and located within a 15 to 20 mile radius from downtown Pittsburgh, the nine parks - Boyce Park, Deer Lakes Park, Harrison Hills Park, Hartwood Acres Park, North Park, Round Hill Park, Settlers Cabin Park, South Park and White Oak Park - serve all of the communities and citizens of Allegheny County.

### *The Allegheny County Parks Foundation*

“The Allegheny County Parks Foundation (ACPF) supports the improvement, preservation and restoration of nine county parks consisting of 12,000 acres strategically located throughout Allegheny County. The Parks Foundation assists in the transformation of these parks by assembling resources, improving assets, and mobilizing public and private stakeholders to advance strategies and aspirations to make the parks signature assets in Southwestern Pennsylvania.

“Our overall mission is to help improve, conserve, maintain, protect, preserve and restore park facilities and open spaces, and also to support educational, recreational, natural and cultural activities. These efforts all work to enhance the quality of life for county residents, promote healthy lifestyles, improve the environment, and stimulate economic growth and vibrancy for our region. In partnership with Allegheny County, we strive to enhance the park experience for all users.”

The Allegheny County Parks Foundation has commissioned this report to provide scientific and technical guidance for future enhancements of Boyce Park.

### *Western Pennsylvania Conservancy*

The Western Pennsylvania Conservancy (WPC) is one of the oldest and largest environmental organizations in the state. It has helped establish many state parks through its land protection programs, it shepherds the state’s data

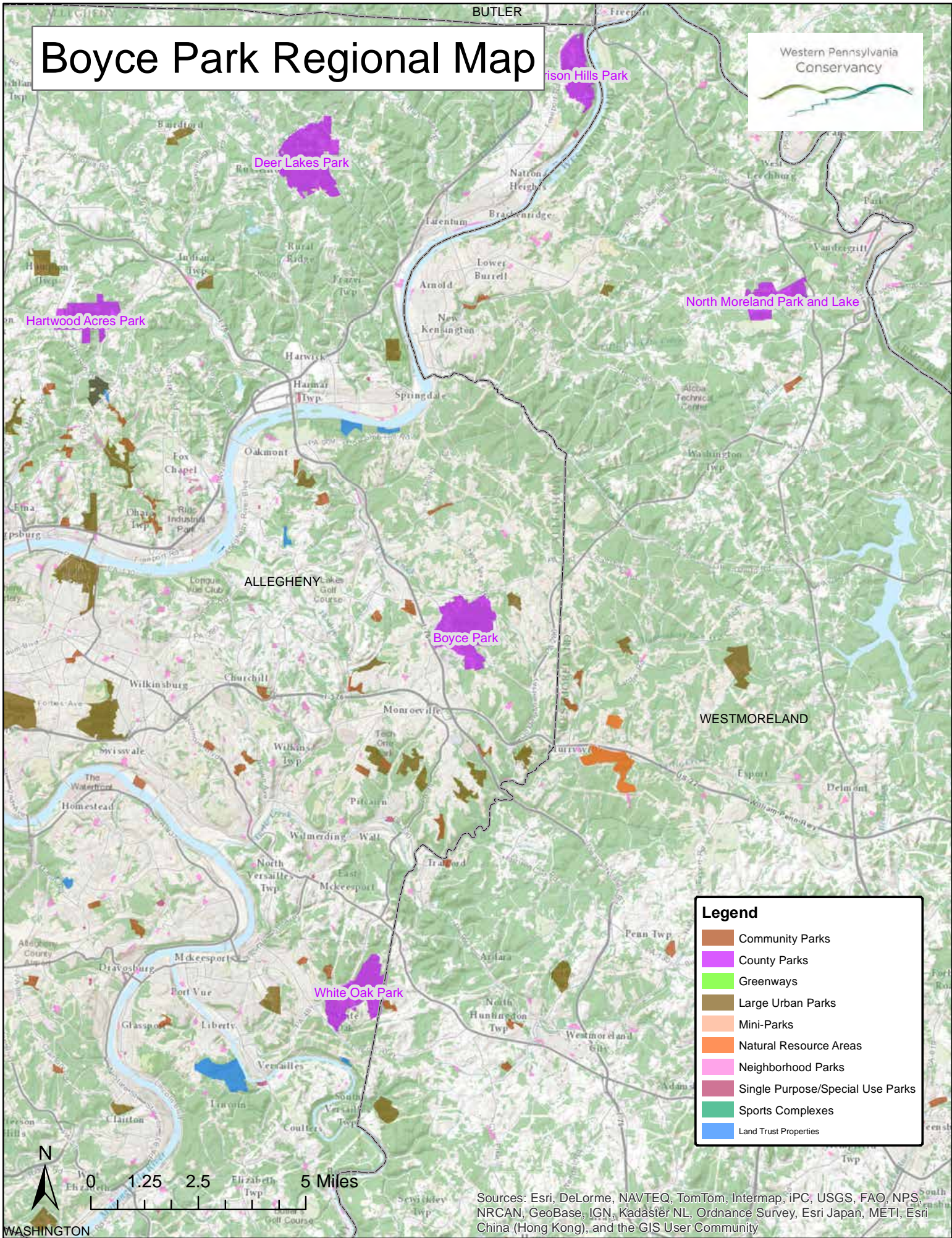
base of rare and endangered species, it provides assistance to landowners and communities wishing to protect their watersheds, and is the caretaker of Fallingwater. Its community greening program provides technical assistance and programming to communities wishing to enhance their local quality of life through green strategies including community gardens, tree plantings, and green infrastructure projects. This project has combined expertise from the WPC's Community Gardens and Greenspace Program and the Natural Heritage Program.

### *Purpose of the Project*

The purpose of this project is to provide information on the current ecological conditions and maintenance activities of Boyce Park and present prioritized recommendations for actions that will enhance the quality and function of the park and improve the park experience for all visitors. The last assessment of the environmental conditions of the county parks was conducted for the Allegheny County Parks Comprehensive Master Plan which was released in 2002. A tremendous amount of change has taken place in the region since then. Allegheny County has been undergoing a transformation of its economy and local environment. Significant changes in the landscape are occurring due to some pests and diseases that affect trees and plants, including oak wilt and the emerald ash borer which has killed almost all ash trees in the region. Climate change is also affecting storm and weather patterns, growth and introduction of invasive plants and animals as well as air and water quality. In addition, scientific knowledge about how to manage ecological systems



# Boyce Park Regional Map



Legend	
<span style="display:inline-block; width:15px; height:15px; background-color: #8B4513; border: 1px solid black;"></span>	Community Parks
<span style="display:inline-block; width:15px; height:15px; background-color: #800080; border: 1px solid black;"></span>	County Parks
<span style="display:inline-block; width:15px; height:15px; background-color: #00FF00; border: 1px solid black;"></span>	Greenways
<span style="display:inline-block; width:15px; height:15px; background-color: #654321; border: 1px solid black;"></span>	Large Urban Parks
<span style="display:inline-block; width:15px; height:15px; background-color: #FFDAB9; border: 1px solid black;"></span>	Mini-Parks
<span style="display:inline-block; width:15px; height:15px; background-color: #FF8C00; border: 1px solid black;"></span>	Natural Resource Areas
<span style="display:inline-block; width:15px; height:15px; background-color: #FFB6C1; border: 1px solid black;"></span>	Neighborhood Parks
<span style="display:inline-block; width:15px; height:15px; background-color: #800080; border: 1px solid black;"></span>	Single Purpose/Special Use Parks
<span style="display:inline-block; width:15px; height:15px; background-color: #008000; border: 1px solid black;"></span>	Sports Complexes
<span style="display:inline-block; width:15px; height:15px; background-color: #ADD8E6; border: 1px solid black;"></span>	Land Trust Properties



Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

and stresses has changed and a new era has begun with the application of green infrastructure to solve issues related to stormwater, erosion, energy consumption and alternative transportation. All of this change brings the Allegheny County Parks to an opportune moment to reassess conditions, identify needs and opportunities, and craft recommendations for improving the parks both as living ecological systems and as beloved spaces for the many citizens who use them each year.

## 1.2 PROFILE OF BOYCE PARK

Boyce Park is located 15 miles east of the City of Pittsburgh's downtown along the eastern edge of Allegheny County in the municipalities of Plum Borough and Monroeville. Encompassing 1,096 acres, it is the 6th largest park in the county system. Boyce Park houses the only downhill skiing in the county with ski lifts and a lodge and has a wave pool and a recreational complex for skate boarding. Other amenities include 13 shelters, a nature center, a model airplane field, a soccer field, an archery range, baseball/softball fields, tennis and basketball courts, children's playgrounds and approximately 15 miles of hiking and biking trails.

The park is visited by many people each year. 35,000 people used the ski and snow tubing facilities during the 2014-2015 winter season, and 33,000 attended the wave pool. These numbers are paid visitors. In addition, facilities throughout Boyce Park were booked for events 1,284 times over the year. An untold number of additional people use the park for hiking, biking, picnicking and other outdoor uses, though numbers are not recorded.

Demographic information has not been collected since the Comprehensive Master Plan was prepared in 2002. It is important for the Allegheny County Parks Department and the Parks Foundation to know more about its visitors to help guide investment in the park's landscape, facilities, and amenities.

Depending on the age distribution of users, for instance, the park may need to provide more features for young families, or older members of the community.



## 1.3 ECOLOGICAL ASSESSMENT OF BOYCE PARK

### *Team*

The WPC team consisted of its community forestry staff, land protection specialist from the Land Conservation Program, field ecologist, senior ecologist, and senior director of the Community Gardens and Greenspace Program.

### *Approach*

The team used aerial photographs to identify likely areas with forest cover; these photos were compared to older photos to identify locations that might have longer-term growth signifying potentially more ecologically significant locations. From these preliminary indications, the



park was segmented into areas for further exploration. The field team included the WPC ecologist, community forester, and community forestry arborist. They visited the entire park and delineated sections and documented types of forest, types of understory or other features and conditions. The team used a customized GIS data collection application to map areas for documentation and analysis and inventorying existing conditions. Key environmental features were noted such as seeps, rock outcrops, slopes and open areas.

Challenges were noted including erosion, soil compaction, dangerous trees or overgrowth, conflict between users and ecosystem, A green infrastructure survey was also completed to identify the most strategic locations to apply green infrastructure to manage stormwater runoff and improve the park's ecological function, aesthetic and sustainability.

### *Intended Users*

This report and accompanying set of maps, charts and resources is intended for use by the Allegheny Parks Foundation and the Allegheny Parks Department staff to protect and restore Boyce Park's natural assets.



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## **2.1 ECOLOGICAL OVERVIEW**

This section provides a basic background and overview of the ecology of Boyce Park. The state of ecosystems today in the park is due to the interaction of the basic environmental conditions in the park; the plants, animals and other living organisms that inhabit our region; and land management activities.

The existing ecological character of the park reflects both the rich botanical heritage of our region, situated at the northern edge of the Appalachians, and the variety of human land uses over the past century that have had substantial impacts on the natural environment and the plants and animals that inhabit it.

About one-third of the natural landscape of the park has older, mature forests that have had relatively little disturbance; these ecosystems are unique habitats that have developed over a long period of time, and host plant and animal species that cannot be found in younger, more disturbed plant communities. About two-thirds of the park was previously cleared for agriculture or mining, and has reverted to forest in the last several decades since the park's establishment in 1963. In these much younger forest landscapes, the legacy of agriculture on the soils and the presence of invasive species pose significant challenges to the redevelopment of mature native forest communities. Mining scars and mine drainage also affect soil and water quality in the park.

## **2.2 LAND USE AND ECOLOGICAL HISTORY OF BOYCE PARK**

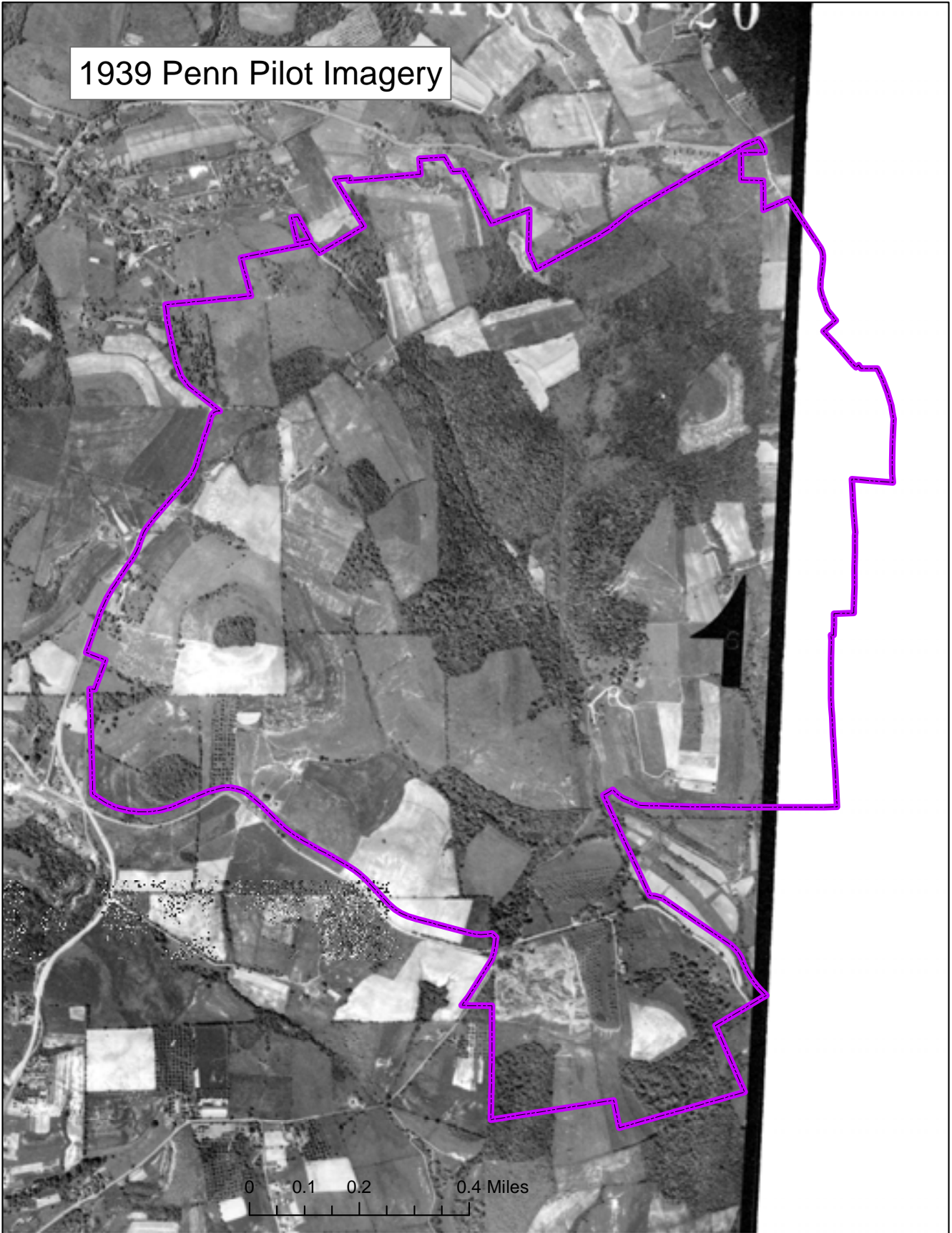
Before Boyce Park was established, the land that now falls within park boundaries had a variety of other uses, which have left a lasting legacy on its present-day ecological condition. (The development of land use in the area of the park can be seen in a series of aerial photographs taken over the course of the 20th century.)

In 1939, about 2/3 of the land that would eventually be designated as Boyce Park had been cleared for agriculture, either hay or row crops. About 1/3 of the area was forested, with the largest and most mature forest patch centered on the slopes along Pierson Run. The northeastern corner of the park had younger forest cover that was mostly contiguous with the large patch along Pierson Run, and patches of mature forest remained along Pierson Run's tributaries as well. Today, the areas where mature forest cover was visible in 1939 are the most intact forest ecosystems remaining in the park. There are many forest species which recolonize extremely slowly after agricultural land use; within Boyce Park, these species are found only in the areas which have been continuously forested since at least the early 20th century.

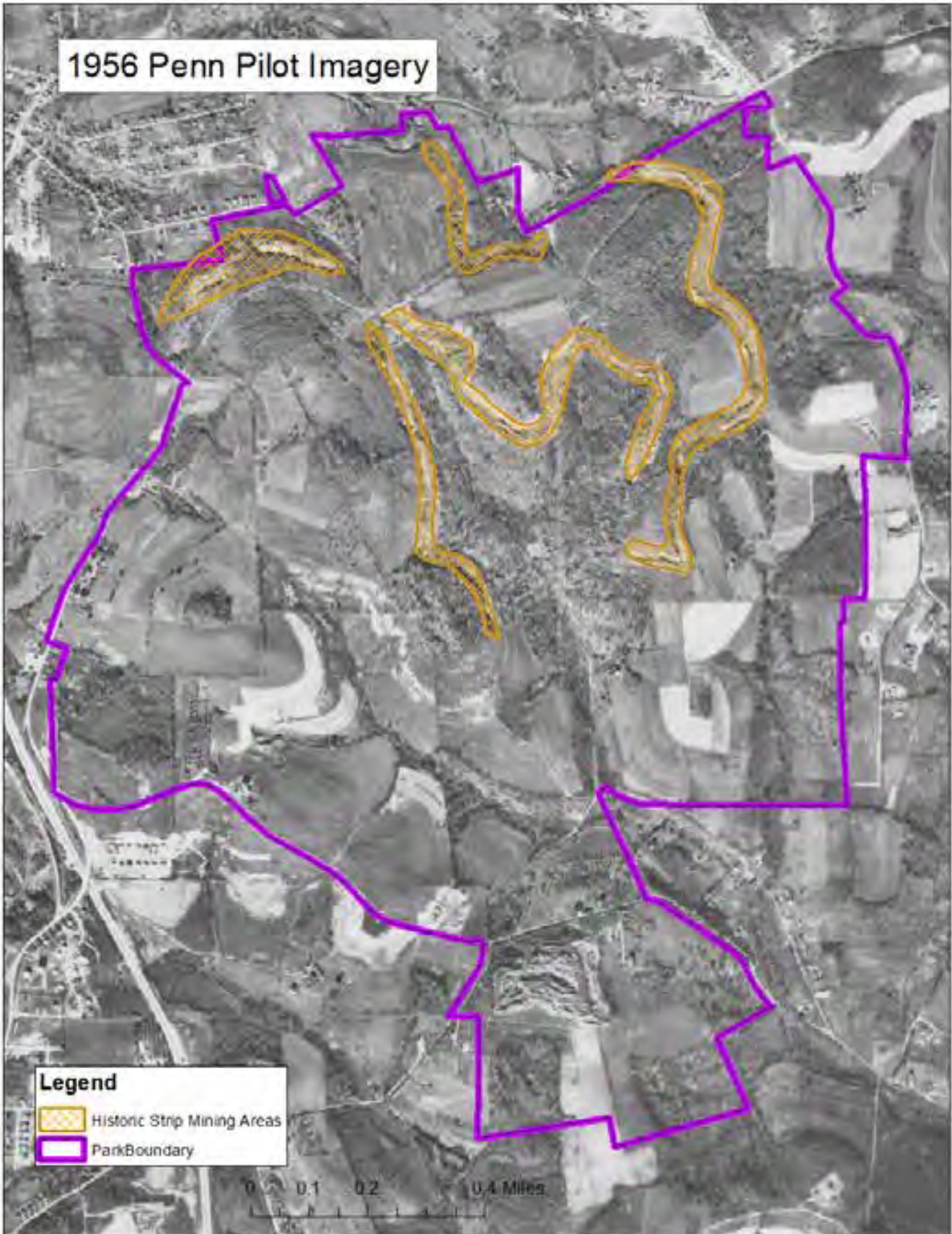
In 1956 photos, the most visible change that has occurred since 1939 are mining scars around the Pittsburgh coal seam, which weave throughout the



1939 Penn Pilot Imagery



# 1956 Penn Pilot Imagery



## Legend

- Historic Strip Mining Areas
- Park Boundary

0 0.1 0.2 0.4 Miles

park, including through some of the areas that were forested in 1939. Today, the legacy of the mid-century mining is still visible; areas that were previously mined have irregular topography and coal spoil in their soil, and there are several sites in the park where mine discharge seepage emerges, including a mine discharge treatment facility. Early-successional forest cover has regrown over most mined areas.

1967 photographs show reforestation in a few of the farmed portions of the park, but most of the agricultural areas remained unforested. Today, except for developed portions of the park such as the wave pool and ball fields, forest cover is present, though in almost all of the former agricultural lands with the park, it is less than 50 years old. Within this time span, many exotic invasive species have been introduced to the region, impeding the potential for native forest recovery. After the widespread clear-cutting that occurred in Pennsylvania in the late 19th and early 20th century, mature native forest communities redeveloped through a process of natural succession. However, since the introduction of exotic invasive species in the region, forests that regenerate naturally typically now include a high proportion of exotic invasive species, many of which thrive in open, disturbed conditions.

The problem of native forest regeneration is compounded on lands that were previously used for agriculture, or strip mined. When forests are cut but the land is not tilled, regeneration often occurs from re-sprouting of tree stumps and of the underground parts of herbaceous plants that have been disturbed, or from the seed bank. Mining and tillage remove all existing native plant material, and deeply buries the seed bank. Many native forest species have



poor capacity to spread long distances, or to establish outside of an intact forest ecosystem; for example, they may spread mainly by clonal increase, or depend on ants for seed dispersal. These species will recolonize post-agricultural landscapes extremely slowly, or not at all. Tillage also

1967 Penn Pilot Imagery



0 0.1 0.2 0.4 Miles

fundamentally alters the soil in ways that are not favorable to native forest ecosystems; the soil strata are intermingled, and the living soil ecosystem shifts from dominance by mycorrhizal fungi to dominance by bacteria. Many native species depend on mycorrhizal fungi, and either cannot germinate or grow poorly without them. In post-agricultural landscapes that are left to regenerate naturally, these soil



changes put native species at a further competitive disadvantage with invasive exotic species, which typically do not depend on mycorrhizae.

In the post-agricultural and post-mining landscapes of the park, which today contain early successional forest and shrublands with a mixture of native and exotic species, mature native forest communities are unlikely to develop again without intervention; in some cases, the density of exotic shrubs and vines may prevent mature forest cover of any kind from regenerating.

### **2.3 REMNANT MATURE FORESTS - CONSERVATION PRIORITY AT BOYCE PARK**




The oldest forests in the park serve as reservoirs for sensitive plant species that require intact forest habitat and do not re-establish quickly after disturbance. These species have special conservation value, because they are difficult to re-establish once lost. They can also provide seed and propagate stock for restoration efforts elsewhere in the park, if they are managed to develop healthy populations and sustainably harvested. However, these mature forest areas currently face several threats to the viability of their sensitive species populations. Deer browse has greatly reduced the herbaceous layer, to the point that some species only have a few scattered individuals remaining. In a few locations, trail development and recreational impacts threaten plant growth. Invasive species are also becoming established, which threatens to displace native species.

**Glade fern and Crepis rattlesnake root.** The glade fern (*Diplazium pycnocarpon*) and Crepis rattlesnake root (*Prenanthes crepidinea*) are listed on the Pennsylvania Natural Heritage Program (PNHP) “Watch List”, because

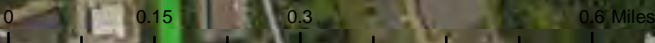
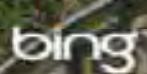
# Mature Forests - Core Areas and Buffers



## Legend

-  Park Boundary
-  Mature Forest Patches
-  400-foot buffer

Forested areas not significantly disturbed since pre-1939.



they are uncommon and possibly in danger of becoming rare without conservation action. Both require high pH soils, and therefore have somewhat limited available habitat in the region. In Boyce Park, these species are growing together in a small ravine, on moist slopes above a small tributary to Pierson Run.

#### Management Recommendations:

- Monitor and manage invasive species in the area occupied by glade fern and *Crepis rattlesnake* root, using control techniques that do not harm native species.
- Because the ravine has steep slopes and wet soils, it is a sensitive environment that could easily be degraded by excessive use. Trails are currently routed around this area, and any future trail development should continue to avoid the ravine.

**James' sedge.** James' sedge (*Carex jamesii*) is also listed on the PNHP watch list because it is uncommon and may become rare without conservation action. This species is a specialist of mesic to dry-mesic calcareous soils, and most known populations are in central Pennsylvania. Boyce Park is one of a only a handful of few locations known from southwestern Pennsylvania that harbors James' sedge. Only a few individual specimens were observed in the park, although more intensive survey work may reveal more.

#### Management Recommendations:

- The area of the park where James' sedge was observed has fairly high cover of invasive species. Control to reduce shading and competitive pressure from these species is recommended, using techniques that do not harm other native vegetation. James' sedge is particularly vulnerable to out-competition because of its small stature, only 4-12" tall.

**Butternut.** The butternut, or white walnut (*Juglans cinerea*), is listed on the PNHP watch list because it has declined dramatically in Pennsylvania due to an introduced fungal disease, the butternut canker (*Sirococcus clavigignenti-juglandacearum*). Butternut typically grows in well-drained soils on floodplains, stream banks, or lower slopes, on high-pH soils. It is shade intolerant, and requires open conditions to establish. Butternut trees were observed growing in several locations in the early-successional forest around the ski slopes. Several of the trees did not appear to show signs of butternut canker, which is very unusual. If these trees are in fact healthy despite the presence of the fungus disease in the park, they may be disease-resistant individuals with special conservation value.

## Management Recommendations:

- Monitor trees for signs of butternut canker infection. If healthy trees are present, report them to the USDA Forest Service North Central Forest Experiment Station in St. Paul, MN, as potential candidates for resistant trees.
- Monitor individuals to determine if they are fruiting. If fruits are produced, monitor for seedling establishment. Invasive shrub cover may need to be reduced in the vicinity of the fruiting trees if it appears to be preventing butternut seedlings from establishing.
- Further information on the ecological needs of the butternut can be found in the Purdue University Forestry and Natural Resources publication “Conservation and Management of Butternut Trees.”

## **2.4 BOYCE PARK MANAGEMENT ZONES, PRIORITY MAINTENANCE TASKS AND POTENTIAL PROJECTS**

Based on common usage and community practice, some of the small segments have been clustered to provide clear management zones toward which recommendations can be focused. Five distinct management zones broken down into 91 ecological units **(EU)** are depicted on the following map.

### **2.4.1 MANAGEMENT ZONE 1**

#### *Geography*

At 315.74 acres, Management Zone 1 this largest management area and contains park property east of power line right-of-way (ROW) and north of Old Frankstown Road; excludes higher quality area around Pierson Run.

#### *Summary of Contents*

- Ecological Units: 44, 45, 46, 47, 48, 49, 50, 51, 52, 54, 57, 78, 83





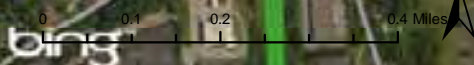
# Boyce Park Management Zones and Ecological Units

Western Pennsylvania  
Conservancy



**Legend**

- Boyce\_MgmtZones
- Ecological Units
- Park Boundary



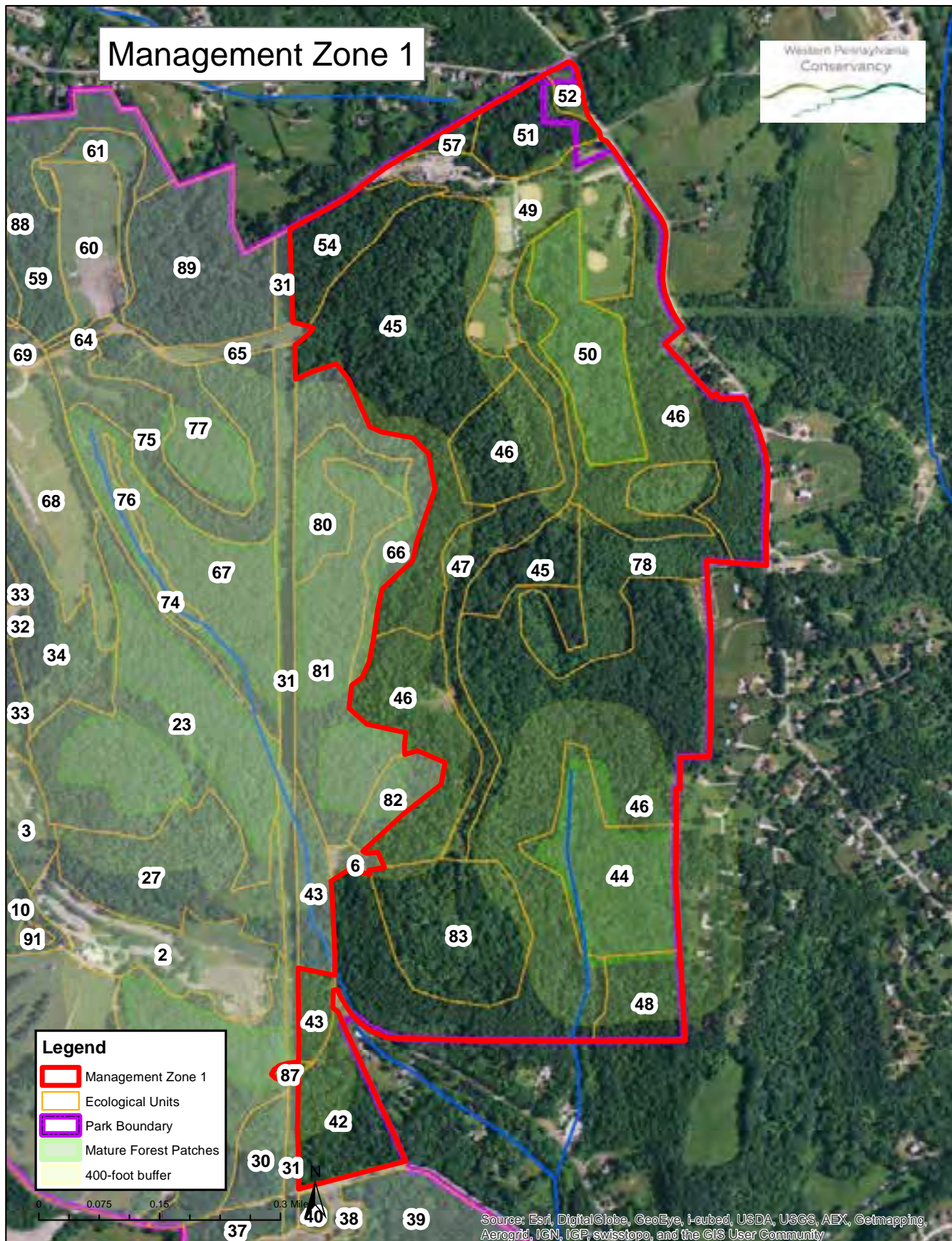
Images courtesy of USGS Earth Explorer, Pennsylvania State University, and the Pennsylvania Department of Environmental Protection  
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The majority of this zone is contiguous forested cover, mostly early successional or disturbed forest. There are 2 large areas of mature forest that are in great condition and should be a focus of preservation. The first is in the south east corner **(EU 44)** where the mature canopy is largely comprised of red oak and other mixed hardwoods. In the north corner **(EU 50)** is the second mature forest patch comprised largely of red oak and bitternut hickory trees supplemented by a healthy shrub layer of spicebush and a diverse mix of native herbaceous plants. Significant die back and mortality of ash trees has been found in the southern forest **(EU 83)** which is allowing for the spread of more invasive species through the break in canopy.

A large, elongated mown area **(EU 47)** extends from the ball fields in the north to a disturbed forested area in the south, with no facilities or hardscape present, which results in a vector of transport for invasive species through this area of the park. With that said, there are widespread invasive species in this zone including extensive mile-a-minute, Japanese knotweed and oriental bittersweet which should be a priority for control. Facilities in the northern section include: baseball fields, tennis courts and maintenance garage **(EU 49)**; there is a private roadway closed to public access between a maintenance garage and the power line ROW. With many existing parking lots and facilities, there are prospects for the installation of green infrastructure (GI) projects to help facilitate the extra runoff from the paved surfaces and allow for educational opportunities as well.



EU 44 - Mature forest patch.



### *Priority Maintenance Tasks*

- Preserve sections of mature forest (**EUs 44 & 50**) where few invasive species currently exist. There is a high risk of invasive plant species coming from nearby disturbed and early successional forest patches.
- Control invasive species with highest management priority within a 400-foot buffer of mature forest patches (i.e. **EUs 46 and 48**).
- Remove a few large hazardous trees that are standing near the bleachers and roadway in **ecological unit 49** (two standing dead ash, one rotting sugar maple) and consult a professional arborist for any further major tree work in these developed areas.
- Consider reason for large amounts of mowing in the long stretch of maintained grass areas (**EU 47**), with a goal of reverting it back to forest and a more natural pathway for continued access.
- Address deutzia, which is an invasive shrub species, by eliminating the population. Only one patch was found in the entire park at the southern edge (**EU 42**).



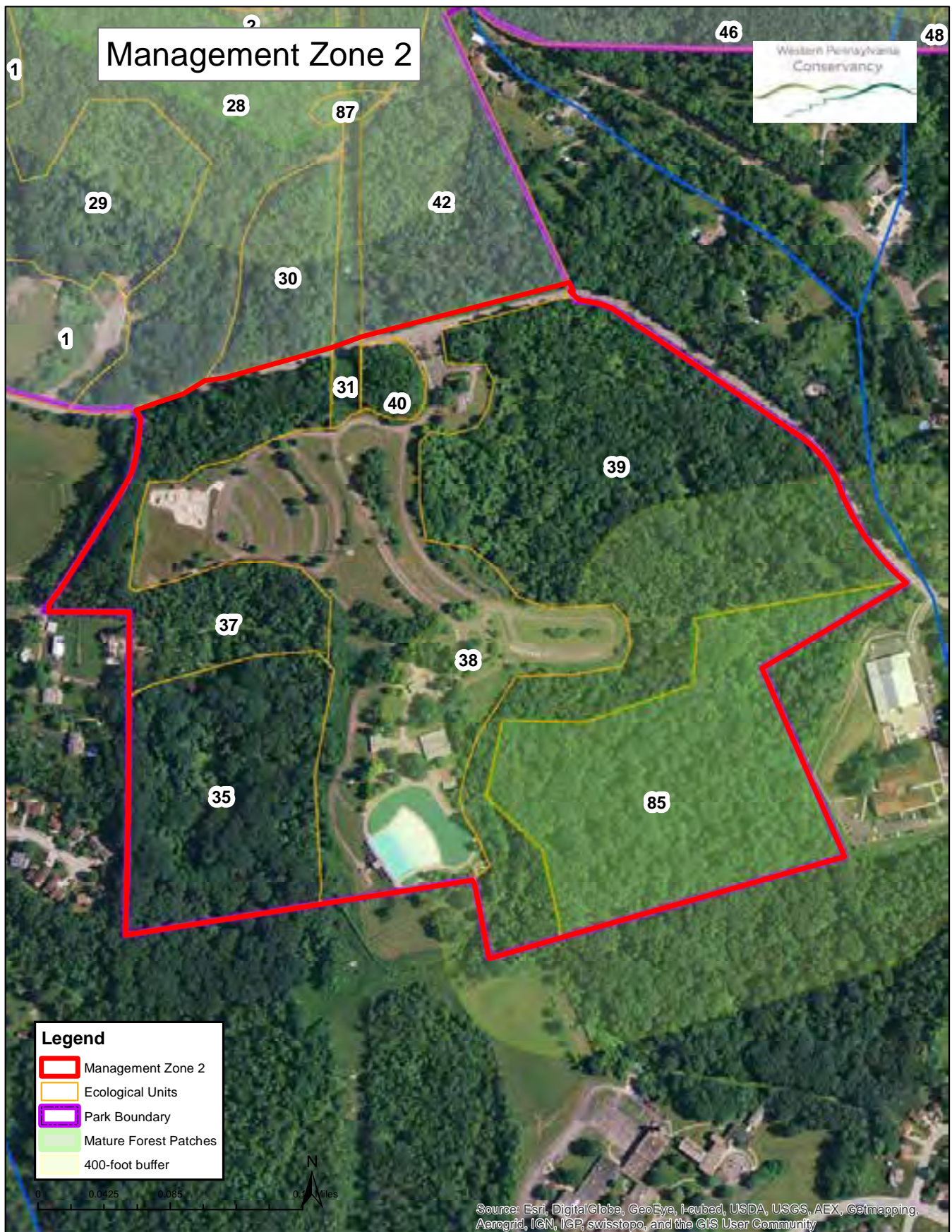
EU 49 - Potential GI project site next to parking area/tennis courts.

## Potential Projects

- Consider reforesting the seldom-used ballfield (Field 2) in **EU 49**. This area appears to be wet for a large part of the year, limiting its recreational use. It is close to a high-use area which allows for possible education opportunities in forest restoration ecology.
- Potential green infrastructure projects could be installed near the ball fields and tennis courts in **EU 49**. The existing parking areas allow for pooling water next to developments that could benefit from bioswales or rain gardens. Additional balled and burlap (B&B) tree plantings could also assist with water absorption (possible volunteer opportunity).
- A small watershed (**EU 87**) is located in the southern part of this zone. It is a unique area around the junction of small tributary streams to Pierson Run. A trail connection tunnel stretches underneath Pierson Run Road. The tunnel walls are covered with graffiti. If cleaned up a little, this could be quite nice and used as an attractive gateway to other reaches of the park.
- Reevaluate the trail network, close unnecessary or redundant trails, address erosion issues, and improve way finding methods.
- Plant reforestation trees in **EU 83** to mitigate the spread of invasive species due to the break in tree canopy created as a result of ash tree mortality.



EU 49 - seldom-used ball field.



## 2.4.2 MANAGEMENT ZONE 2

### *Geography*

Management Zone 2 is relatively small at 104.15 acres and includes all areas of the park to the south of Old Frankstown Road. This includes the wave pool, skate park, supporting parking areas, and surrounding forested areas.

### *Summary of Contents*

- Ecological Units: 31, 35, 37, 38, 39, 40, 85

Management Zone 2 hosts a lot of developed area due to the wave pool, skate park, and supporting parking areas. There is minimal tree cover in these parts of the park more heavily frequented by visitors, allowing for



EU 35 – Japanese stiltgrass (*microstegium vimineum*)

landscaping improvements to be made. In addition to the more developed areas, Management Zone 2 covers several forested ecological units, one of which was identified as a mature forest (**EU 85**). The mature forest area is a red oak-mixed hardwood forest that also includes mature sugar and red maple, shagbark hickory, red and American elm, as well as other hardwood species.

Additional forested areas within Management Zone 2 range from early successional stands of black cherry and black walnut (**EU 39**) to small areas with more mature canopy trees such as red oak and black cherry (**EU 35**). Like most areas of the park, **EU 35**, **EU 39**, and largely **EU 40** are impacted to some extent by ash mortality. Sassafras canker was noticed to impact many trees in the understory in **EU 35**. These areas are more heavily impacted by invasive species and forest pathogens than ecological unit 85. Invasive species common to these areas include Japanese stiltgrass, mile-a-minute weed, autumn olive, oriental bittersweet, Japanese barberry, wild grapevine and garlic mustard.



EU 39 - Oriental bittersweet (*Celastrus orbiculatus*) and wild grapevine (*Vitis vinifera*)



Some of these invasive are present in EU 85, but a substantial fraction of native vegetation remains due to the healthy over story.

#### *Priority Maintenance Tasks*

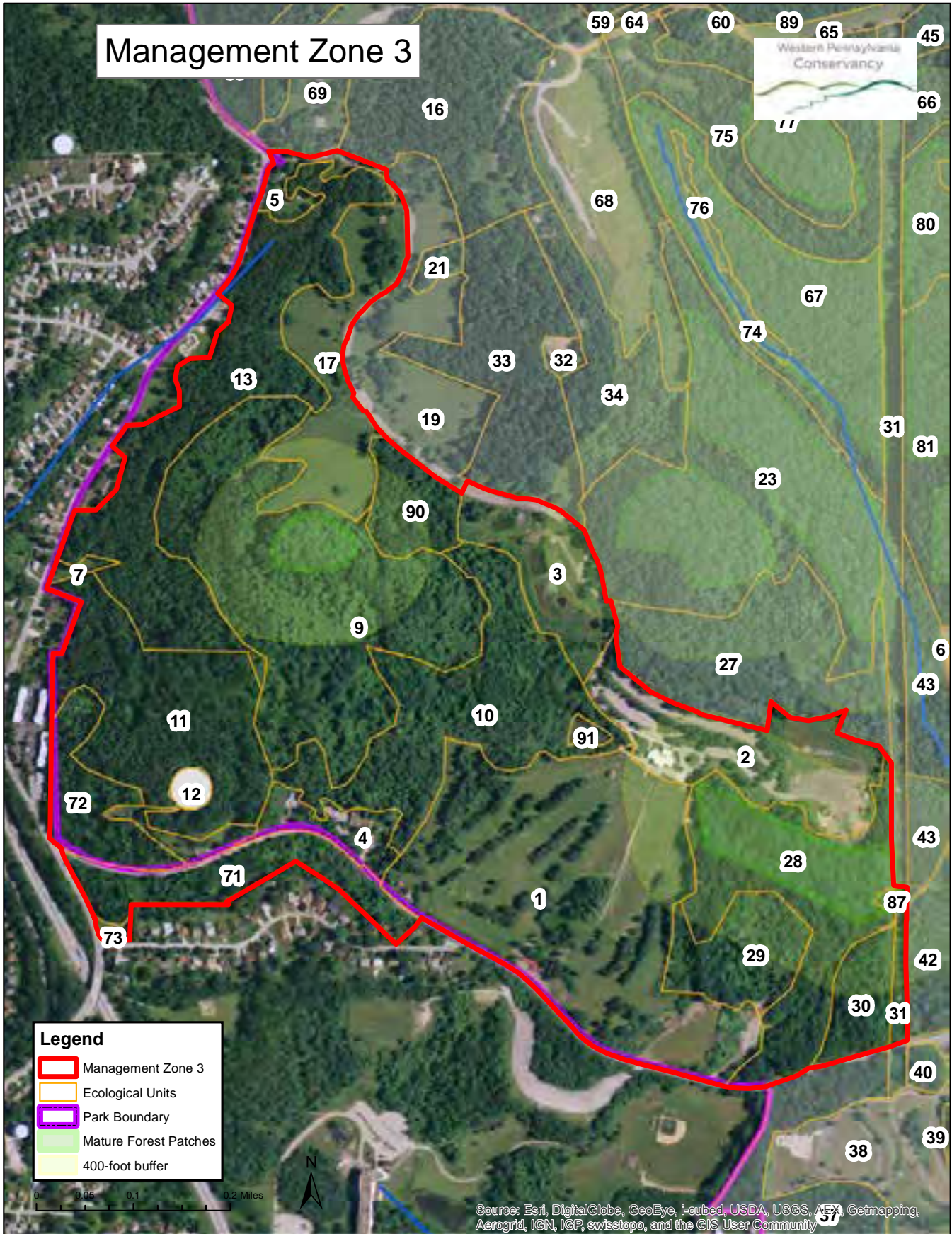
- Control invasive species with highest management priority inside and within a 400-foot buffer of **EU 85** (i.e. in south end of **EU 39**).
- Conduct edge management as a focus where invasive species are concentrated along any roads, utility corridors, neighboring properties or other vectors of entry that could bring new weed infestations into the park.
- Eliminate the Amur maple trees in **EU 39** along parking areas (on DCNR's Watch List for invasive tendencies).

#### *Potential Projects*

- Install green infrastructure features along parking lots where necessary to reduce stormwater runoff.
- Increase tree canopy cover in the frequently visited developed areas of the park, to include balled and burlap tree plantings with volunteers.



EU 85 - Native and invasive vegetation.



### 2.4.3 MANAGEMENT ZONE 3

#### *Geography*

Management Zone 3 includes a relatively large area of 272.69 acres in the southwest portion of Boyce Park. It includes the ski slopes and ski lodge, Indian Hill and surrounding areas, the nature center, and the park office building.

#### *Summary of Contents*

- Ecological Units: 1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 13, 17, 28, 29, 30, 31, 72, 90, 91

This management zone includes a varied mixture of forested areas, large mowed fields and developed areas associated with the ski slopes and model airplane field. This area also includes many of the traditional park amenities,

including picnic pavilions and groves and playground equipment.



EU 9 - Shumard oak leaf (*Quercus shumardii*)

There are two areas within Management Zone 3 considered to include mature forest. The first is the small hilltop area known as Indian Hill (**EU 9**). One notable finding within this area is a population of Shumard oak, which is designated a state endangered species in Pennsylvania. The population of Shumard oak consists of about eleven individual trees of mixed age growing within an area of early

successional forest. This area, including Indian Hill and the stand of Shumard oak, is heavily impacted by invasive weeds, including an infestation of large canopy trees by aggressive grapevine and other invasive species including Japanese stiltgrass, multiflora rose, and mile-a-minute weed.

Another area of mature forest within Zone 3 is in the small ravine southeast of the ski lodge (**EU 28**), which is comprised of a mesic forest with wetland vegetation prevalent along the stream valley. Black walnut is the dominant canopy tree species, with red oak and red maple making up most of the remaining canopy cover. This area is moderately impacted by invasive species, including multiflora rose, Japanese knotweed, Japanese stiltgrass, and Japanese barberry. One issue that could exacerbate invasive weed infestation, increase tree mortality and many other environmental stresses is the large gravel parking lot near the model airplane field. The area around the edge of the parking lot appears to serve as a refuse area for landscaping and excavating waste for the park. Over time, much of this material, which likely includes seeds of invasive weeds, is pushed down slope into the surrounding mature forest stand.

The Acid Mine Drainage (AMD) treatment site exists here (**EU 3**). There are several ponds with aquatic species thriving in this area, but the water flowing back into the waterways may possibly be out of compliance with industry standards and should be inspected. Continuing further into **EU 2** is a much more developed area with parking lots for the airfield and ski slopes. There are many opportunities here for erosion and stormwater control with the installation of GI projects and supplemental landscape tree plantings. Several of the existing trees around the parking areas are dead or dying and need to be replaced.

In the northern most section of Management Zone 3 is a dramatic mining scar (**EU 13**). A coal spoil pile is visible on the surface, and there are invasive species spreading, largely mile a minute and Norway maple and Ailanthus trees. There are many mown areas along the roadway which are used recreationally with a series of picnic groves and pavilions. In **EU 17**, there is a steep hillside that is mowed with no apparent use. The edge of this mown area consists of extensive invasive plants including mile a minute and invasive vine species. This is a potential meadow restoration area, being highly visible and in need of some type of management to limit the spread of invasive species.

#### *Priority Maintenance Tasks*

- Control invasive species with highest management priority inside and within a 400-foot buffer of the two stands of mature forest in Management Zone 3 (**EUs 9 and 28**). This will help to preserve the rare Shumard oak grove (**EU 9**) and the healthy mesic forest (**EU 28**) which is already endangered from the dump site near the airfield. Invasive species management should also be concentrated along any roads, utility

corridors, neighboring properties or other vectors to entry that could bring new weed infestations into mature forest areas.

- Contract a professional company to inspect the AMD treatment site to ensure the discharged water is in compliance with industry standards; upgrade the system if necessary.
- Preserve the small quality wetland near base of ski slope, surrounded by disturbed forest, which contains the healthy butternut.

### *Potential Projects*

- Eliminate unnecessary mowing in unused grass areas, such as Indian Hill in **EU 17** and restore to forested land or meadow.
- Organize B&B tree planting events with volunteers to improve the landscaping around parking areas and roadways.
- Install GI projects to control erosion and stormwater runoff at main parking areas near ski slope and potentially the hillside along the airfield parking lot.
- Utilize the nature center as a resource for seasonal environmental programs.
- Develop educational signage around species of interest including the Shumard oak (**EU 9**) and healthy butternut near base of ski slopes (**EU 91**).
- Reevaluate the trail network, close unnecessary or redundant trails, address erosion issues, and improve way finding methods.
- Utilize the Boyce Park Nature Center as a resource for seasonal environmental programs and nearby outdoor areas for native plant demonstration gardens.



EU 17 - large open mown area, Indian Hill; a potential restoration site.

## 2.4.4 MANAGEMENT ZONE 4

### *Geography*

Management Zone 4 encompasses the North West region of the park and is 154.67 acres, from the northern boundary of the park down to Centerview Drive. The eastern boundary of this zone is the Pierson Run Management Zone/ the roadway that takes you to shelters and groves 9-14.

### *Summary of Contents*

- Ecological Units: 14, 15, 16, 19, 21, 31, 32, 33, 59, 60, 61, 64, 69, 88, 89

The forest in Management Zone 4 is primarily early successional, this is the only management unit without any mature forest patches in it, and there are a variety of land uses in existence. One of the main gateways to the park from Monroeville Trestle Road enters here, surrounded by picnic shelters, playgrounds, soccer fields, and parking areas that see relatively high use from visitors.

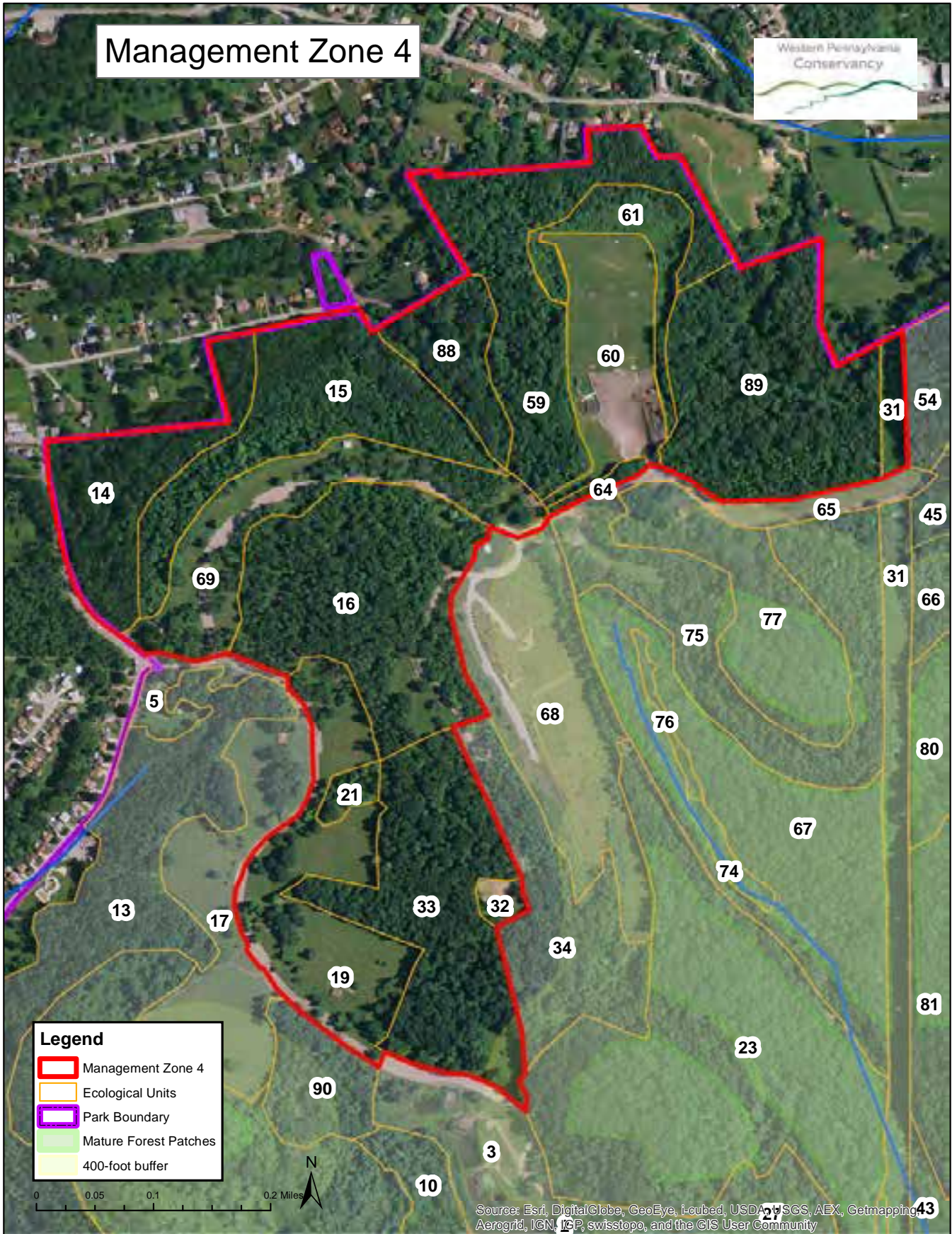


EU 60 - Soccer field parking area.

Early successional canopy averages between 30-60% in most areas, allowing for some invasive species to enter the park. **EU 15** is dominated by black cherry and tulip poplars, with a shrub layer including spicebush and invasive honeysuckle. **EU 16** is also largely comprised of black cherry with

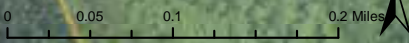
sassafras and walnut. With dense spicebush here, there is a limited herbaceous layer which includes some Japanese stiltgrass and jewelweed. **EU 89** forests have been heavily disturbed, with many early successional species such as slippery elm, red oak, walnut, and tulip poplars in addition to some black cherry. Invasive multiflora rose and spicebush are common in the shrub layer. All of these areas should be restored to healthy forest.

# Management Zone 4



**Legend**

- Management Zone 4
- Ecological Units
- Park Boundary
- Mature Forest Patches
- 400-foot buffer



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Developed areas in the park have much potential for improvement. A large space at the soccer field is parking lot (**EU 60**). This space can be transformed into a more inviting space if proper landscaping and GI techniques are utilized. This will make the area more appealing and also reduce its environmental impact. **EU 69** has significant drainage problems just north of the entire roadway that passes through it (downhill side). There was evidence of erosion issues that should be resolved utilizing GI techniques as well. Landscape trees can also be incorporated to provide shade and habitat in both of these areas.

### *Priority Maintenance Tasks*

- Contact certified arborist to address hazardous trees in developed areas, especially the standing dead ash trees in northern portion of **EU 19**.
- Control the small patch of giant knotweed (not same as Japanese knotweed) found in NE section of **EU 59 and EU 61**.
- Conduct edge management as a focus where invasive species are concentrated along any roads, utility corridors, neighboring properties or other vectors of entry that could bring new weed infestations into the park.
- Address erosion along main access road; install GI methods.



EU 69 - Erosion issues from roadway.



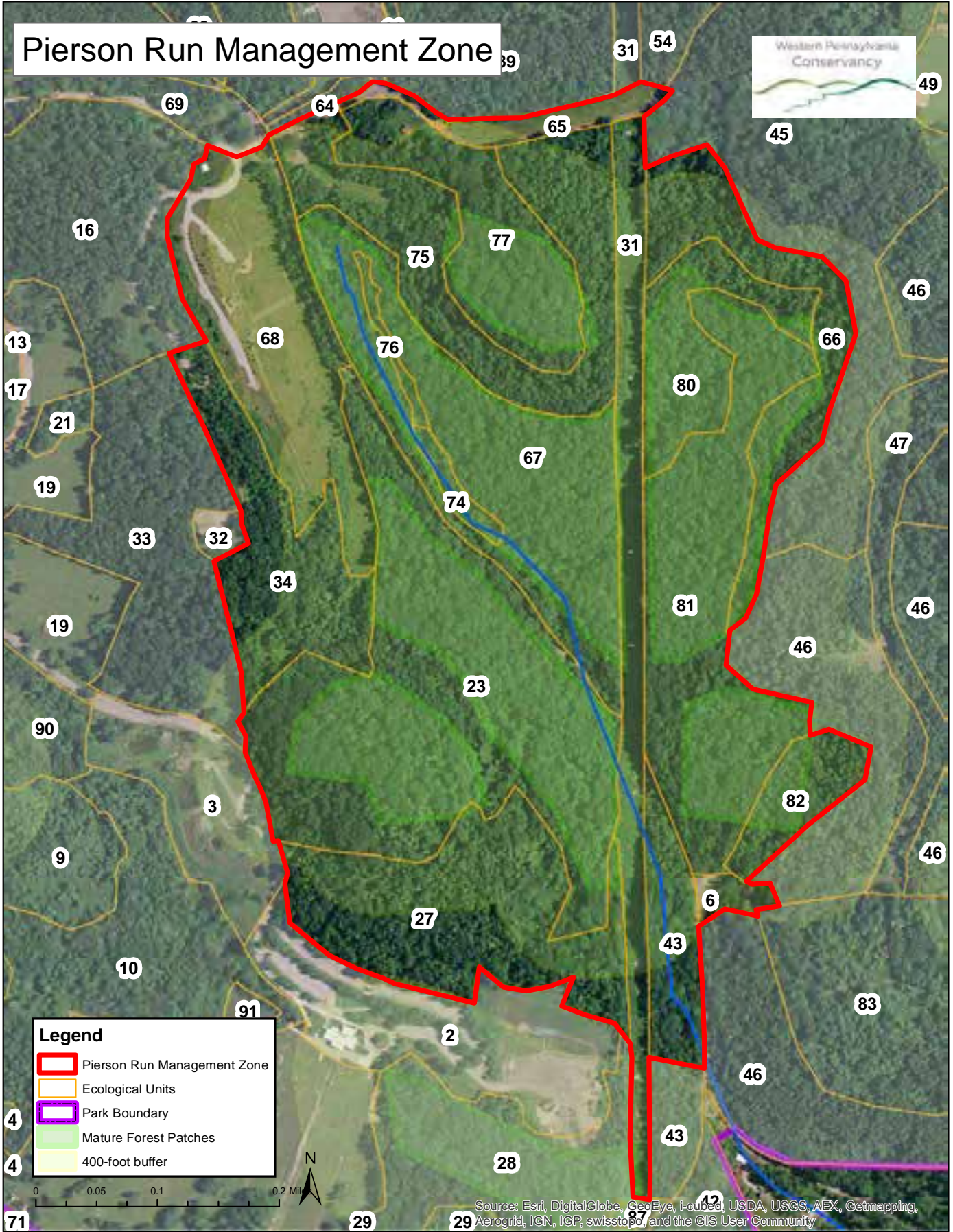
### *Potential Projects*

- Investigate potential to install a 'green' parking lot at the soccer fields to reduce stormwater runoff and heat island effect **(EU 60)**.
- Install bioswales or rain gardens along roadway in **EU 69** to lessen stormwater flow from sloped hillside and off paved surfaces.
- Plant landscape trees along roadways, parking lots and around play spaces with staff and volunteers to limit heat island effect, provide shade, curb erosion, and provide habitat in the area.
- Install educational signage on path near paw paw grove (only one found in the park).
- Reevaluate the trail network, close unnecessary or redundant trails, address erosion issues, and improve way finding methods.



EU 19 - stand of dead and dying Ash trees.

# Pierson Run Management Zone



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

## 2.4.5 MANAGEMENT ZONE 5 - PIERSON RUN

### *Geography*

Management Zone 5, also referred to as The Pierson Run Management Zone, consists of 212.05 acres of predominantly high quality forests and exists in the heart of the park. It is the only management zone to not touch the park boundary and is intersected by both Pierson Run Road and the power line ROW. Centerview Drive borders the northern boundary and the ski slope parking area borders the southern portion.

### *Summary of Contents*

- Ecological Units: 6, 23, 27, 31, 34, 43, 65, 66, 67, 68, 74, 75, 76, 77, 80, 81, 82

The Pierson Run Management zone is the largest area of contiguous high quality forest in the park and presents the highest priority for preservation and maintenance. Large, intact areas of mesic and upland hardwood forests have covered this region since at least the 1930s. As a result, invasive plants and fragmentation are less problematic here compared to the remainder of the park.

The headwaters of Pierson Run are located in the northwest corner of this zone, near the four-way intersection with Pierson Run Road and Cherry Lane. A previous land history of strip mining in the northern portion is evidenced by old mining scars and a more open forest comprised of early to mid-successional species. **EU 75** is an early successional tulip tree dominated forest with lesser stocking of black cherry, black locust, and American elm. The shrub and herbaceous layer is a mix of native and exotic species and invasive plant management should be directed towards eradicating multiflora rose, autumn olive, and garlic mustard. **EU 77** transitions from an open forest into a semi-open red oak hardwood forest with a dominate understory layer of spicebush. Pockets of multiflora rose and Japanese stiltgrass should be targeted for invasive control.

As Pierson Run flows further south it is confined by more mixed hardwood forest (**EU 67**) to the east. Here the upland forest is dominated by red oak and older tuliptree throughout and a higher component of sugar maple on the western slopes. The understory layer is dominated by a fair diversity of native species. AMD was observed in small tributary streams and significant erosion from runoff along Pierson Run Road had created large washes leading down to the stream. The culvert system along the roadway needs to be addressed immediately to prevent further erosion.

A diverse canopy of mesic species is found across the road in **EU 23** where red

elm and sugar maple are the dominant tree species. A mix of other species not seen as commonly throughout the park can be found here, including: hickories, hackberry, and cucumber magnolia. Some wetland species and trilliums were only observed in this unit. This unit is directly bordered to the south by a heavily disturbed forest in management zone 3 that has been overtaken by invasive plants.

Nestled directly along the stream bottom is an open floodplain forest (**EU 76**) dominated by American elm with multiple wet channels meandering across the forest floor. Just downstream it opens up into a wet meadow (**EU 74**) with pooled channels and many standing dead trees. Small patches of invasive species, primarily Japanese knotweed, have taken advantage of the more open canopy and should be a focus for treatment while the infestations are limited.

The power line ROW (**EU 31**) completely intersects this management zone and is a sizeable vector of entry for many invasive plants. The interior of the ROW is crowded with multiflora rose and exotic honeysuckles which are spreading into the abutting forests. To the east of the power line is a continuation of



EU 31 - Power line right of way that has been disturbed and contains many invasive species.

mixed mesic and upland forests (**EUs 80, 81, and 82**). Here there are more mountain bike and equestrian trails with erosion issues on steeper topography.

A small developed site is located at the old log cabin along Pierson Road. This area has the makings of a trail head, with parking, picnic tables, and a map kiosk. A meadow landscape exists on the site of an old orchard in the extreme northwest corner of this management zone (**EU 68**). Autumn-olive is dominant but scattered among the tall grasses and can be managed relatively easily. A few planted oaks, sweetgums, and maples have begun to naturalize on the meadow edges. The surrounding landscape is mowed with nearby pavilions, parking, and roadways. Restoration of this unit for open habitat with native wildflowers and other pollinator species is advised and should begin with the removal of invasive species, particularly the autumn-olive.

#### *Priority Maintenance Tasks*

- Invasive plants are the least problematic in this management zone and control measures should be completed immediately to prevent further spread. Control should be directed to the 400 foot buffer zones located



EU 68 - Open meadow with autumn olive (*Elaeagnus umbellata*).

around the high quality areas. Bordering management zones and the intersecting vectors of entry contain much higher populations of invasive plants and pose a high risk to the integrity of this region.

- The Pierson Run watershed is affected by two other issues, acid mine drainage and significant erosion. Suspected deposits of aluminum and iron were observed in many small tributaries to Pierson Run which degrades the water quality. Furthermore, extensive erosion from culverts along Pierson Run Road are creating large washes and depositing sediments into the watershed.
- Examine AMD treatment sites and implement remediation.
- Reevaluate the trail network, close unnecessary or redundant trails, address erosion issues, and improve way finding methods. Due to the streams in this zone, and the steep topography, erosion is especially problematic along these trails.



EU 74 - evidence of AMD problems in wet meadow area.

## *Potential Projects*

- Restore the open meadow landscape in **EU 68** with native grasses and wildflowers as habitat for native pollinators and ground nesting birds. This area is also a prime location for the addition of artificial chimney swift columns.
- Refurbish the area around the log cabin as central trail head (**EU 6**). This could include larger informative signs and map kiosks, planting small flowering trees and other attractive plants. The Allegheny Foothills Historical Society conducts tours of the log cabin during the months of May through September. Consider restoring the cabin to expand its use.
- Target invasive species in and around the management zone. Containable levels of invasive plants make this area attractive for training on identification and treatment techniques.



EU 75 -Wooded trail



TreeVitalize staff and volunteers plant restoration trees at Hartwood Acres,



### **SECTION III - OBJECTIVES, ISSUES AND OPPORTUNITIES:**

3.1	Maintain and improve ecological function and quality of mature forest patches	45
3.2	Enhance the ecological value and visual appeal of currently mowed areas	50
3.3	Reduce erosion, flooding and other downstream environmental impacts	54
3.4	Enhance user access and experience in undeveloped areas	58

**3.1 Objective:** Maintaining and improving ecological function and quality of mature forest patches in Boyce Park.

The existing mature forest patches in Boyce Park are some of the best representations in the park and surrounding communities of the forests and plant communities native to western Pennsylvania. Despite being surrounded a highly fragmented and developed suburban landscape with a history of significant resource extraction, a century or more of minimal disturbance to these small remnant patches of forest has protected much of the native flora and ecological function.

**Issues:**

- Invasive plants
  - The most severe and widespread ecological issue facing Boyce Park's existing mature forest stands and the native plant communities they host is infestation by invasive weeds. While several of the mature forest stands in the park have relatively moderate infestations in their core, the surrounding woodlands that have a history of more intense uses (such as mining and agriculture) are heavily impacted by canopy-destroying vines – like oriental bittersweet and wild grapes – and invasive understory shrubs and herbs like multiflora rose, mile-a-minute weed, and Japanese stiltgrass.
- Deer over-browse
  - Boyce Park's location near the suburban residential communities of Plum and Monroeville place it within a landscape where deer thrive. The mature forest areas of Boyce Park contain good habitat and food sources for deer. Unfortunately, many of these food sources are native plants that are decimated by pressure from an overabundance of deer. Over time, the mature forest areas of the park will lose much of the native plant species in the forest understory unless deer browsing pressure is contained.
- Balancing recreational use with conservation
  - More intense recreational uses like mountain biking and horseback riding can severely damage sensitive botanical areas, especially when trails through such areas are not adequately designed and regulated. For the most part, only foot traffic should be permitted on trails through sensitive botanical areas unless special considerations are made.

- Possible new utility rights-of-way
  - This issue was raised by County Parks staff during meetings held in conjunction with this project. On several occasions in the past years, the local electric utility companies inquired about placing a new transmission line running east and west through the park. Siting such a transmission line in a way that further fragments existing mature forest areas will significantly exacerbate existing ecological issues, potentially significantly compromising the ecological function of the forests and the ecosystem services they provide.
- Forest pests and pathogens
  - The ecological assessment noted several forest pest and pathogen issues in Boyce Park. The most visually and ecologically significant impact is the park-wide loss of ash trees as a component of the



Power line running through Boyce Park.

forest resulting from emerald ash borer infestation. While no serious pest or pathogen issues are heavily impacting the mature forests currently, it is important to be prepared for rapid response to any new forest pest or pathogen.

- Public appreciation and support
  - Because of its close proximity to surrounding communities, public support for conservation of the mature forest areas in Boyce Park is crucial for bringing about ongoing support for conservation activities.

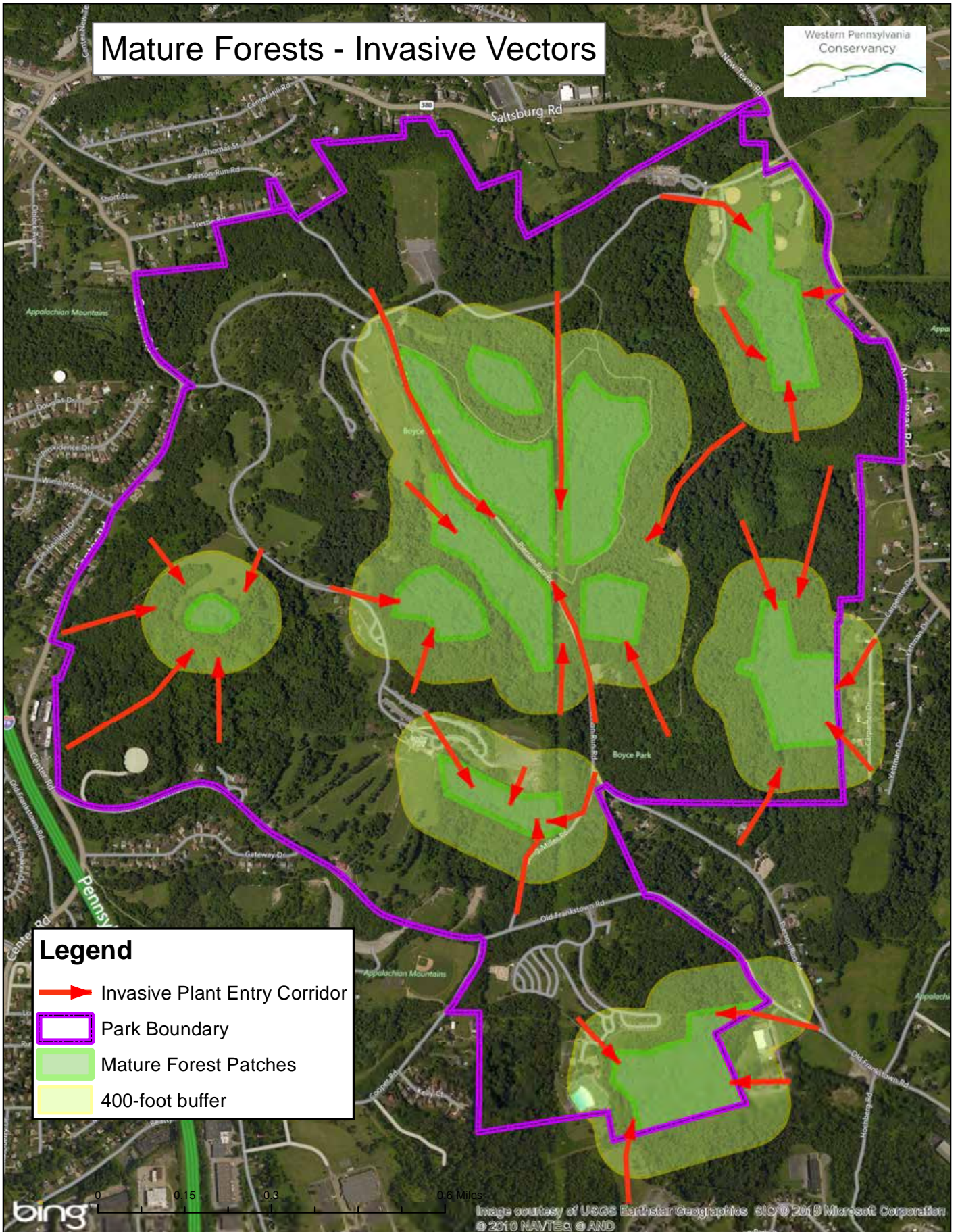
### **Opportunities:**

- Prioritizing invasive plant management and removal within and surrounding mature forest patches to establish a core areas protected by buffers where ongoing invasive plant management is conducted. Also concentrating on vectors of entry for invasive plants (i.e. road and utility corridors). Because invasive plants will continue to be a reality, this will be an ongoing management concern that will require regular attention indefinitely.



Deer fencing example. Photo courtesy of Ecological Society of America ([esapubs.org](http://esapubs.org)).

# Mature Forests - Invasive Vectors



**Legend**

- Invasive Plant Entry Corridor
- Park Boundary
- Mature Forest Patches
- 400-foot buffer

- Continuing existing deer management program in the park and partnering with surrounding landowners and communities on deer management.
- Installing deer fencing around especially sensitive areas may be a good way to stop further loss of plant diversity in combination with existing hunting program.
- Engaging proactively with utility companies, regulators, and others on planning for new and existing utility corridors that minimize ecological impacts on mature forest patches.
- Retiring and closing problematic and/or redundant trails in mature forest patches.



Deer enclosure example. Photo courtesy of Cougar Rewilding Project ([cougarrewilding.org](http://cougarrewilding.org))

- Prioritizing implementation of trail best management practices on existing trails through mature forest patches.
- Monitor and treat forest pests and pathogens when possible, particularly those that could create wide-scale impacts (oak wilt, Asian long-horned beetle, etc.) if not treated early or those that impact any rare or sensitive tree species (Shumard oak).
- Installing interpretive signage about the natural history of the mature forest areas – such as requests not to pick flowers or other native vegetation and to refrain from damaging recreational activities – may help with public cooperation in conservation-oriented management.
- Increase outreach and education programming to the local community and to educational institutions about the mature forest areas of Boyce Park.

**3.2 Objective:** Enhancing the ecological value and visual appeal of currently mowed areas.

Reducing or eliminating mowing and establishing meadows is a simple and highly effective way to enhance the park landscape’s ability to provide ecosystem services, and can have high visual appeal if done properly. Meadows provide year-long food resources and shelter for small mammals, and birds. Wildflowers also attract hummingbirds, butterflies, and other beneficial insects.

Meadows can serve a highly important ecosystem service (especially in a suburban setting where mowed lawns and ornamental landscaping pervade) by providing sources of food and breeding habitat for native pollinating insects. Scientists across the globe are raising alarms about collapsing populations of native pollinator insects. While this is a global issue that will require global solutions, much can be done on the local level by restoring manicured, highly simplified suburban landscapes into more diverse native plant communities.

Perennial meadows are a useful and beautiful alternative to the mowed lawn. A landscape of perennial grasses and wildflowers provides a myriad of ecological benefits with very little maintenance required once established. After the plants are established, watering is virtually unnecessary, and mowing requirements are reduced to once per year at most.

Besides benefits to wildlife, the root system within a meadow slows down and infiltrates stormwater much more effectively than mowed lawn, allowing it to seep into the ground rather than gush into storm drains as a pulse of runoff. And since they require no fertilizers or insecticides, meadows cut down on the amount of excess nutrients and polluting our ecosystem.

Perennial meadows can also be more visually rewarding. In stark contrast to a static lawn, meadows constantly change throughout the seasons. Blades of tall warm-season grasses catch the sunlight as they rhythmically dance in the breeze, while colorful wildflowers produce eye-pleasing colors and textures. This landscape amenity can reduce stress and serve as topic for community environmental learning.

In addition to the ecological, visual and education benefits to establishing meadows, significant cost savings and environmental benefits can be realized through reducing or eliminating mowing. Reducing mowing will lead to savings on mower maintenance and replacement costs, fuel costs, staff costs spent on mowing, fertilizer and chemical costs and more. Reducing mowing could also significantly reduce emissions and the overall carbon footprint of park management activities.



Prairie native plantings example. Photo courtesy of Native Connections ([nativeconnections.net](http://nativeconnections.net))



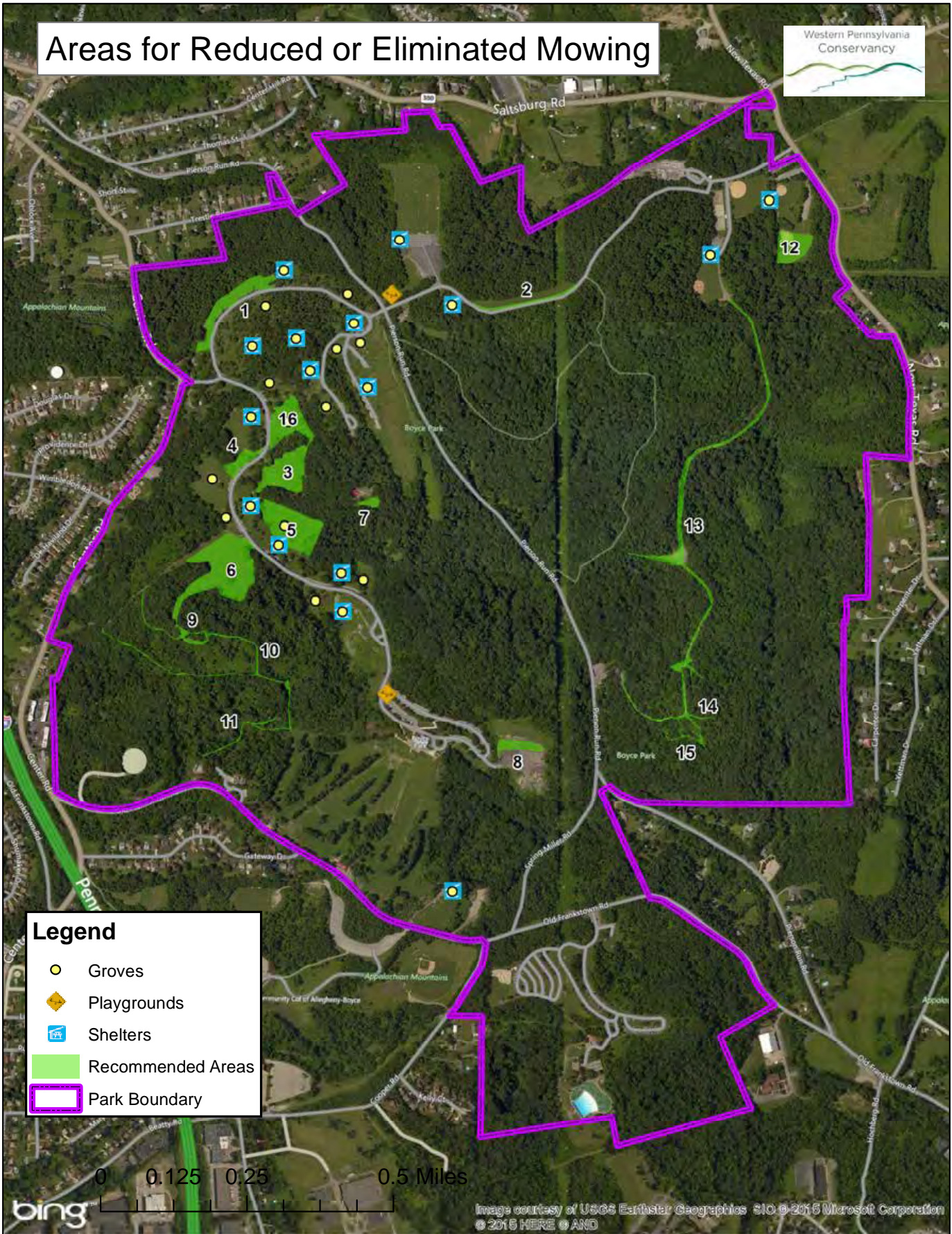
## **Issues and Challenges:**

- Public perception of meadow areas
  - Many citizens, park users, and even park staff may have negative perceptions of discontinuing regular mowing of areas that are traditionally mowed lawn. While some efforts have been well received, there have been several small controversies over some of the “field restoration” efforts across the county park system where mowing was discontinued in particular.
- Mowing ingrained in park workflow
  - Boyce Park contains over 50 acres of lawn that receives regular mowing during the growing season. Because of the volume of work involved in regular mowing of these areas, mowing is an ingrained and primary component of the seasonal flow of work within the park. Establishing meadows over time will gradually reduce the amount of staff time needed for mowing.

## **Opportunities:**

- Reducing frequency of mowing and re-seeding mowed areas with native meadow mix, especially emphasizing pollinator-friendly species and visual appeal (showiness).
- Expanding and amplifying educational and interpretive efforts regarding meadow habitat, especially as it relates to pollinators and other wildlife.
- Measure cost and carbon emissions savings realized from reduced mowing, share results widely.
- Maintain seasonal mowing and train park staff on herbicide treatment and other control strategies to prevent invasive plant infestations.

# Areas for Reduced or Eliminated Mowing



## Legend

- Groves
- Playgrounds
- Shelters
- Recommended Areas
- Park Boundary

**3.3 Objective:** Reducing erosion, flooding and other downstream environmental impacts resulting from stormwater runoff within Boyce Park.

**Issues:**

- High-energy runoff during rain events from impervious surfaces such as parking lots, sidewalks, roads, rooftops, ballfields, mowed areas (to a degree).
- Un-maintained or inadequately designed stormwater infrastructure (roads, ditches, culverts, storm drains, trails, etc.).



Bioswale at Point State Park, installed by WPC, 2015.

## Opportunities:

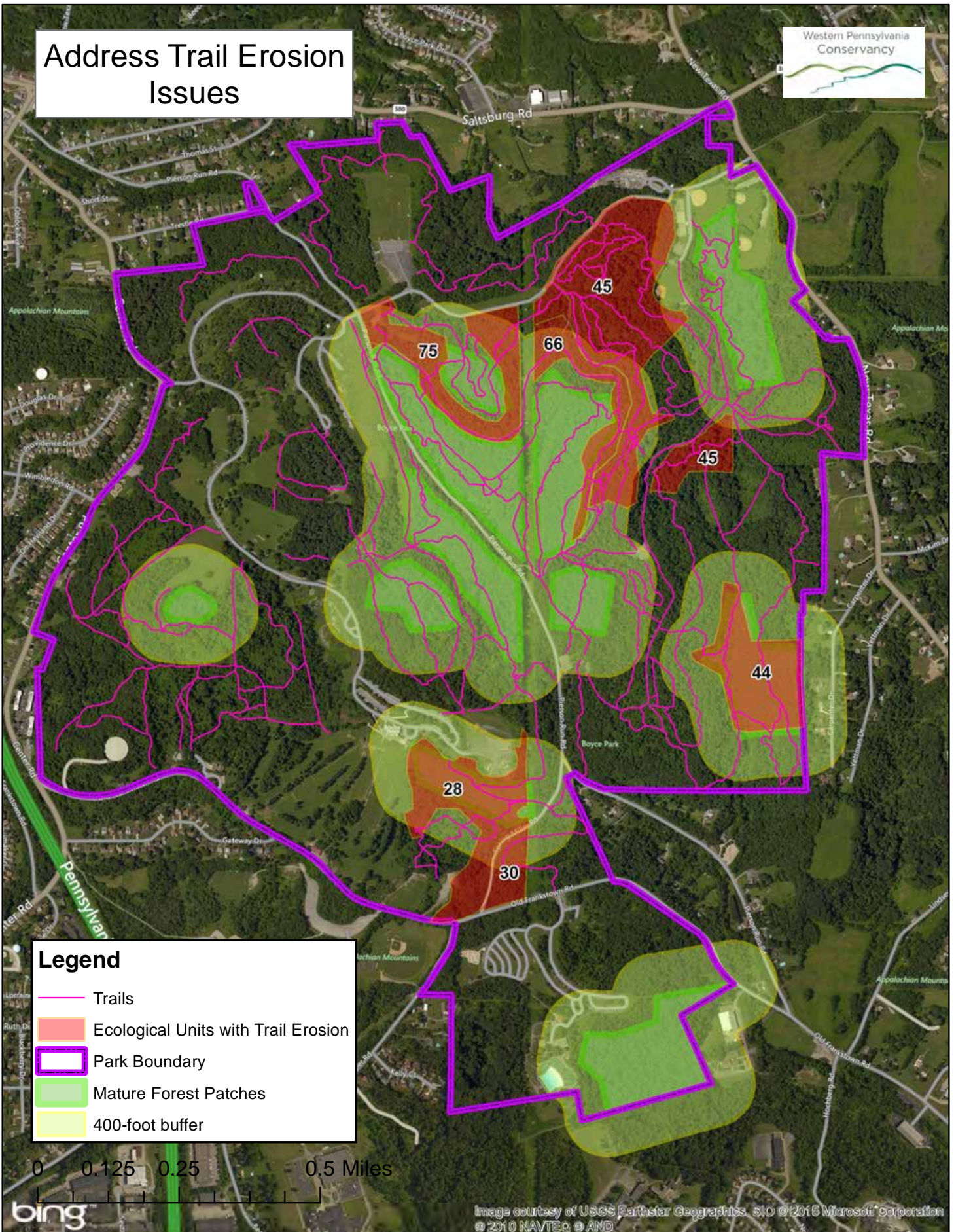
- Convert paved areas to more permeable surfaces, right-size parking lots, add stormwater capture components to all buildings to capture rooftop runoff (green roofs, rain gardens, soakage trenches, etc.).
- Conduct a broad-scale tree planting program across the park to increase canopy cover and enhance stormwater mitigation potential.

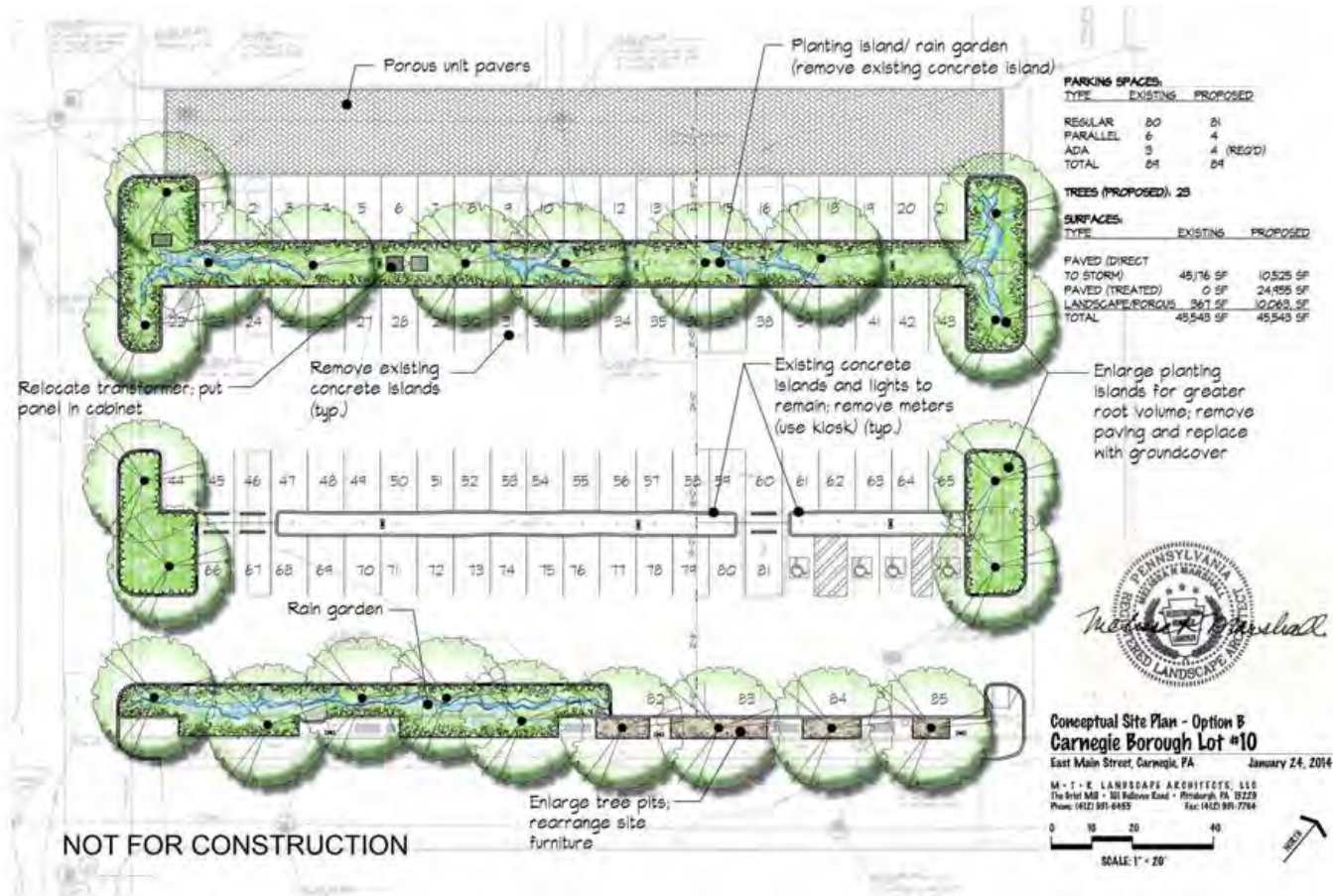


Bioswale and its signage along Hawthorne Road in Millvale, PA.

- Upgrade drainage infrastructure along Pierson Run Road to correct severe culvert erosion issues. Incorporate green infrastructure components to slow, store, and filter stormwater if feasible.

# Address Trail Erosion Issues





Rain gardens in renovated public parking lots, in Carnegie, PA, installed 2015.

**3.4 Objective:** Enhancing user access and experience in undeveloped (forests, meadows) areas of the park.

**Issues:**

- Lack of a central “trail head” where visitors can arrive and get information on trail use.
- Excessive number of informal trails causing confusion with formal trails.
- Design, redundancy and maintenance issues with formal trails.
- Inadequate way-finding on formal trails.

**Opportunities:**

- Conduct a comprehensive evaluation and assessment of the trail system to identify needed improvements for the entire trail system and for individual trails.
- Establish one or more “trail head” areas that provide convenient access to the entire trail system and where visitors can obtain trail information, rules, maps, etc.
- Retire and close problematic and/or redundant trails.
- Installing interpretive signage.
- Create closer partnerships with local school districts and other educational institutions to take advantage of Boyce Park’s value as an educational resource.



Volunteers plant restoration trees in a wooded area previously devastated by emerald ash borer.



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# 4.1 CAPITAL PROJECTS

A Capital Project is one that builds or improves park assets and infrastructure and has a lifetime of at least 10 years. For the most part, capital projects are relatively large in terms of cost (>\$10,000). Capital projects also require commitment from annual operating plans and budgets for regular maintenance to ensure the improvement lasts its entire projected lifetime or longer. These projects typically require at least some level of technical expertise such as engineering, landscape design, forestry, GIS and data management, and project management.

## 4.1.1 LANDSCAPE TREE PLANTINGS

“Landscape trees” refers to trees planted within “managed areas” of parks and open spaces and are associated with facilities and buildings as part of the landscape. By WPC’s community forestry standards, these trees are a minimum of two inch caliper (diameter of the trunk at the base of the tree) and typically stand 10 to 15 feet tall at the time of planting. The trees are balled and burlap (B&B) which means they are excavated at the nursery in such a way that they have a root ball that is then secured with natural burlap and a wire cage. These trees are typically used by WPC as park, trail, and street trees through their community forestry program because they can withstand contact with people that could damage smaller trees. Landscape trees have significant and measurable environmental, economic, and aesthetic benefits for the built environment including energy savings, stormwater control, wildlife habitat improvement, and increases in property values. The WPC community forester has recommended that up to 100 new landscape trees be planted in Boyce Park.

### *Cost Estimates*

Forestry Consultation, 80 hours:	\$50/hr
Volunteer tree planting event coordination, 80 hours:	\$50/hr
2” Caliper landscape trees	\$200 each
Mulch, stakes, tie, protection:	\$25 per tree
Open site preparation (excavation, backfill):	\$250 per tree
<b>Total Cost Estimate:</b>	<b>\$55,500</b>

### *Methodology*

WPC has developed an effective protocol for landscape tree planting that could be deployed at Boyce Park in the following stages. WPC begins the

tree planting process by conducting planting site assessments. The project forester identifies optimal planting locations using WPC's community forestry specifications which include considerations for proximity to buildings, roads, and utilities, species diversity, and other site conditions such as light exposure and soil conditions. Tree plantings occur in the spring and in the fall while the tree is dormant but the ground is not frozen. Once the planting sites are assessed and the species have been selected, the project forester hand selects each specimen from a local nursery. All of WPC trees must come from within a 150-mile radius of the Allegheny County.

WPC staff can then begin planning for the planting event. As a rule, WPC recruits and trains volunteers to help with the tree plantings. Experience has shown that this helps ensure the long-term health of the trees since volunteer-planted trees under staff supervision are planted in a superior fashion to contracted plantings using landscaping firms. Volunteer engagement also helps ensure that the community is invested in the project and better understands the value of the trees and how they should be maintained.

With all volunteer tree plantings, WPC has planting site preparation completed for each tree through contracted landscaping firms or with assistance from municipal or park staff. Because of varying soil and sub-surface conditions in urban and even park environments, it is essential to have the planting sites prepared in advance of the volunteer planting event. Relying on volunteers to hand dig the tree planting sites leaves too much to chance. Planting site preparation in "open sites" (open green spaces in parks usually) includes excavating a hole 36" in diameter and 24" deep and backfilling to surface level with a specific grade of top soil. When sites are prepared properly, WPC is able to time planting events with surprising precision. Significant cost savings can be had through training Allegheny County Parks staff to prepare tree planting sites in lieu of private contractors.

Maintenance is essential for the successful establishment of these trees. WPC could provide Allegheny County Parks' staff with a maintenance plan for the trees which will include guidelines on watering, weeding, mulching, and protecting the trees over the first three years. WPC could also provide guidance on training pruning that should occur between years 3 - 5.

### *Timeline*

WPC recommends planting 100 landscape trees in 2016 in Boyce Park, splitting the work between the spring and fall planting seasons. WPC staff would work with Allegheny County Parks and ACPF staff to plan and execute the plantings. WPC would lead all technical forestry work and plan all logistics for volunteer tree plantings.

## 4.1.2 ESTABLISH MEADOWS

This ecological assessment located approximately 27 acres of regularly mowed lawn in Boyce Park that are suitable for establishing meadows, among other possibilities including forest restoration (see below). Many, if not all of these areas are suitable for establishing meadows of native grasses and wildflowers. Meadows planted with native grasses and wildflowers have higher ecological value than mowed lawn. They provide habitat and food sources for wildlife such as ground and nesting birds, small mammals, raptors and pollinating insects. Meadows can also be quite visually appealing and require minimal maintenance relative to mowed lawn.



It is recommended that a demonstration project area be selected and converted from lawn to meadow as soon as possible. If successful, it will provide an ideal outreach and education opportunity that will be important for building support for more wide-scale establishment of meadows on mowed areas. The six-acre parcel at Indian Hill is an ideal site for the first demonstration project.

Once a site is selected, several site preparation steps should be taken to ensure the area can be enjoyed by the public and that vigorous establishment of native meadow plants occurs and is sustained.

For a demonstration project, it is recommended that County Parks engage custom machinery operators for site preparation and seeding. If the project is successful and there is a desire for broader application in mowed areas at Boyce Park and other county parks, it may be advantageous to purchase equipment needed for meadow establishment.

Equipment needed for meadow establishment projects include the following examples:



Tractor or ATV mounted herbicide sprayer



Disc tiller on trailer



Cultipacker



Grain drill

An example timeline and the steps for establishing a meadow demonstration project include the following:

1. Summer/Fall: Mark off areas where mowed lawn will be retained (i.e. trails, picnic groves, etc.).
2. Fall: Engage contractor to spray grass area to be re-seeded with glyphosate (Round-Up), repeat again in early spring if total kill not achieved.
3. Spring: (Optional) Engage contractor to disc harrow and cultipack meadow areas to break up grass root systems and to prepare site for seeding. The need for this will vary from site to site depending on soil compaction.
4. Spring: Engage contractor to no-till drill or meadow or broadcast seeds with seed mix.

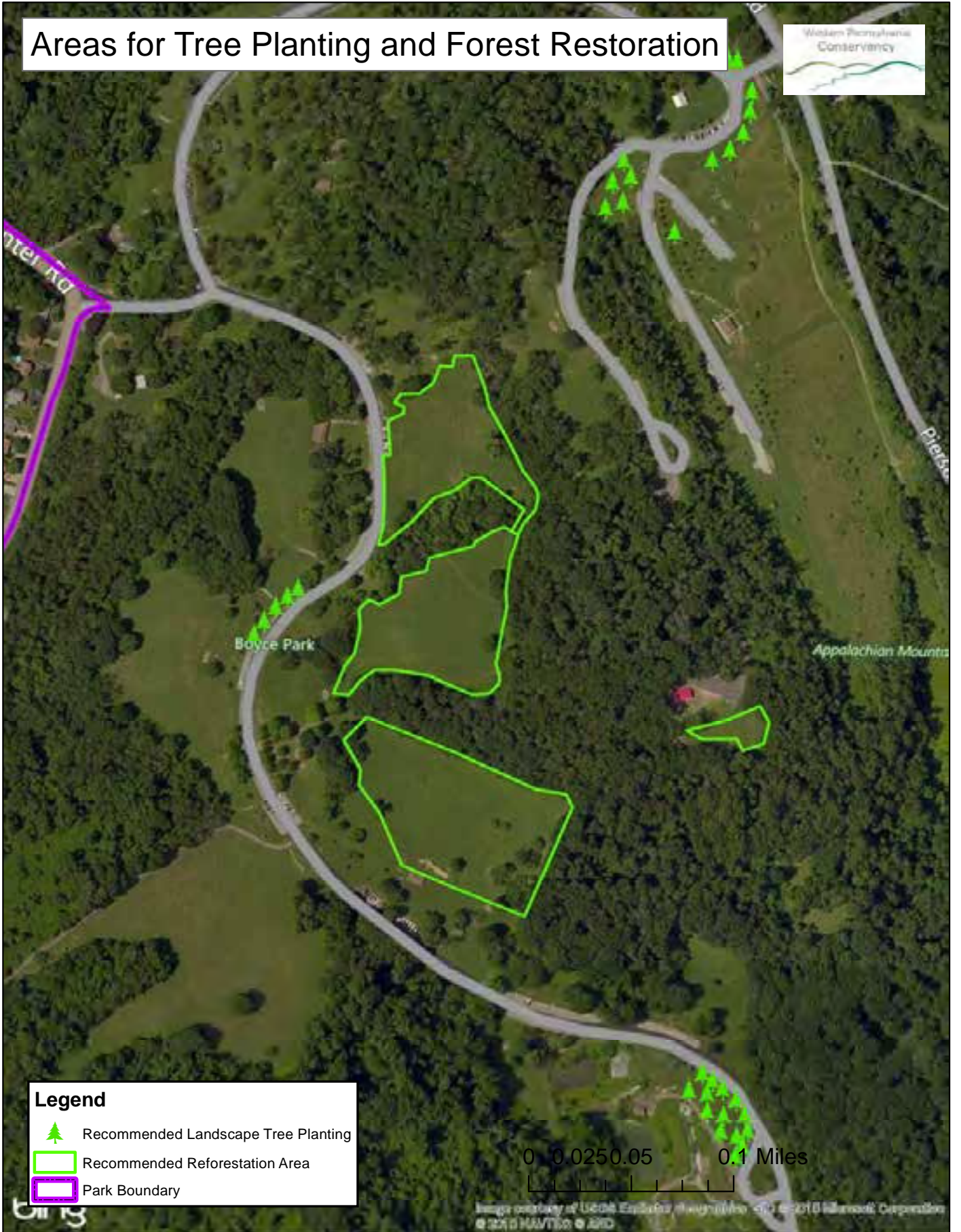
Regarding the step three above, if a no-till drill is used, it is likely a disc would not need to be used on the site before seeding – grain drills have built-in discs to turn the soil enough to implant seeds even in moderately compacted soils. However, the land would need disc tilling first if the broadcast seed method is employed. Allegheny Parks staff will need to monitor the site during the first year to see if any specific places had poor germination, as this can be a sign of too much soil compaction, bad drainage, or soil contamination.

The estimated total maximum cost for hiring custom equipment operators to establish meadows is \$300-\$1,100 per acre (including a 10% contingency) broken down as follows:

Herbicide Treatment:	\$20-35 per acre
Disc Harrow and Cultipacker:	\$20-\$25 per acre
Grain Drill:	\$27-\$35 per acre
Meadow Seed Mixes:	\$200-\$900 per acre
Seeding Rate:	\$20-\$45 per pound; 10-20 pounds per acre
<b>Totals:</b>	<b>\$300-\$1,100 per acre</b>

The total project cost will depend heavily on the seed mix selected for planting. Showier seed mixes are much more expensive than mixes that are predominantly warm season grasses.

# Areas for Tree Planting and Forest Restoration



### 4.1.3 RESTORE FORESTS

“Restoration trees” are trees that are used to reforest areas that have been affected by invasive plant species, diseases, or pests. These trees are considerably smaller than landscape trees because they are typically planted in locations such as hillsides and stream embankments where transporting a very large, heavy tree would be extremely difficult. Restoration trees range in size from 12” bare root seedlings to moderately sized plants grown in containers. In any case, they can be easily handled by one person.

#### *Cost Estimate*

Site Preparation and Layout:	\$500-\$700 per acre
Trees:	\$900 per acre (\$1.50 each @ 600 per acre)
Tubes and staking:	\$2,100 per acre (at \$2.50/ tube and \$1.00/stake)
<b>Total Establishment Cost/Acre:</b>	<b>\$3,500-\$3,700 per acre (plus training, tools and labor)</b>



Preparation for reforestation planting at WPC's Bennett Branch Forest property.



## Methodology

Several opportunities for forest restoration projects in Boyce Park were identified during this assessment and are located on the map.

The goal of restoration tree plantings is to reforest an area that has lost trees to previous land uses, forest pests and diseases, resource extraction, or where

invasive plant species are actively being removed or controlled. In any of these approaches, the strategy is to plant a suite of native trees that will over time out-compete invasive species and restore the native tree canopy. The benefits we seek are much the same as landscape tree plantings, but with more focus on restoring forest habitat. The shade provided by a restored canopy helps prevent the growth of invasive plant species that typically prefer growth in canopy gaps.



Volunteers plant native restoration trees at Bennett Branch Forest.



Volunteers plant native restoration trees at Bennett Branch Forest.



WPC has developed a reforestation planting protocol that could be implemented in Boyce Park. Once the area for restoration has been identified, the WPC forester and arborist would assign a suite of native tree species appropriate to the location. In areas where resource extraction has occurred,

WPC recommends implementing the Appalachian Regional Reforestation Initiative (ARRI) restoration approach which includes a specific type of land preparation for planting small bare root seedlings. This involves hiring a bulldozer operator to use a ripper break up hard, compacted topsoil, to expose the native seed bank (if any exists) and to expose mineral soils, which is the preferred growing medium for restoration trees. The protocol recommends 600 trees per acre. These small trees are protected with tree tubes that prevent damage from wildlife but also act as small greenhouses and promote growth. They also help in monitoring tree health since you can more easily find the tubes than the small trees. Ongoing maintenance, including watering is not part of this protocol. A more detailed description of the ARRI approach is included in the Resources package attached to this assessment.

WPC has undertaken this type of planting protocol on one of its own properties, Bennett Branch Forest in Elk County and also through a TreeVitalize planting at the Pittsburgh Botanic Gardens. WPC will monitor the success of both of these projects over time to inform future forest restoration projects. With restoration tree plantings in areas where invasive species are being removed or controlled or where there has been tree loss to disease or pests, WPC utilizes container trees that are larger than the aforementioned bare root seedlings. Using larger material is best when the strategy is to out-compete invasive plant species. These trees require fencing for protection from wildlife and should be maintained to ensure establishment. Maintenance should include watering, weeding, maintaining the fencing, and controlling invasive plants.



Volunteers plant hundreds of native trees to repopulate formally strip-mined area at the Pittsburgh Botanical Gardens.

#### **4.1.4 INSTALL DEER EXCLOSURE FENCING**

Installing deer enclosure fencing is a highly effective and relatively simple to implement way to protect sensitive botanical areas from browsing deer. With a small amount of training and instruction and using mostly hand tools, County Park staff could begin to install fencing as soon as funding is available and sensitive areas are located.

It is recommended that a demonstration area be selected and fencing installed in Spring/Summer once sensitive areas for spring ephemeral wildflowers are located and prioritized. After the demonstration project is completed, County Park staff could install additional exclusion fencing areas such as mature forests as funding and staff capacity allows.

Interpretive signage should be a component of any new deer enclosure project. The fence may appear unfamiliar and obtrusive to many park users, but signs explaining the reason for the fence (to prevent deer from eating native plants) and directing users to hiker-access gates or openings. For estimated costs to install interpretive signage, see the following recommendation.



Deer fencing enclosure along Trillium Trail in Fox Chapel.  
Photo courtesy of [navfin.blogspot.com](http://navfin.blogspot.com).

The steps for a demonstration project involved in installing a deer enclosure include:

1. Survey and identify most sensitive botanical areas to prioritize and map sites for fencing and to estimate length of fencing needed.
2. (Optional) Engage a project manager to provide design advice, staff training and project oversight.
3. Develop costs estimates for procuring tools and materials and providing project oversight and instruction to park staff at the initial fence installation.
4. Procure materials and tools and begin staff training and installation of the enclosure area.

The estimated total cost to install deer enclosure fencing is approximately \$5.00-\$5.50 per foot based on installing an 8 foot woven wire fence with 12 foot galvanized steel posts. Fence can and should be designed to allow hiking access without additional costs. A good local example of a deer enclosure fence that allows hiking access is along Trillium Trail in Fox Chapel. Gates for equipment access should also be installed, and are \$150-\$400 each depending on size. The estimated cost for project oversight and instruction to park staff at the initial demonstration project installation is approximately \$2,000-\$2,500.



Deer enclosure sign along Trillium Trail in Fox Chapel. Photo courtesy of navfin.blogspot.com.

8 foot woven wire fence and posts:	\$5.00-5.50 per foot
Gates:	\$150-\$400 per gate
Project oversight and instruction:	\$2,000-\$2,500
<b>Totals (for 1,000 feet of fence):</b>	<b>\$7,300-\$8,800</b>

## 4.1.5 INSTALL/UPDATE INTERPRETIVE SIGNAGE

Interpretive signage accompanying any new projects or park management change is a high priority because of the importance of having public understanding and support, and in some cases to provide environmental education.

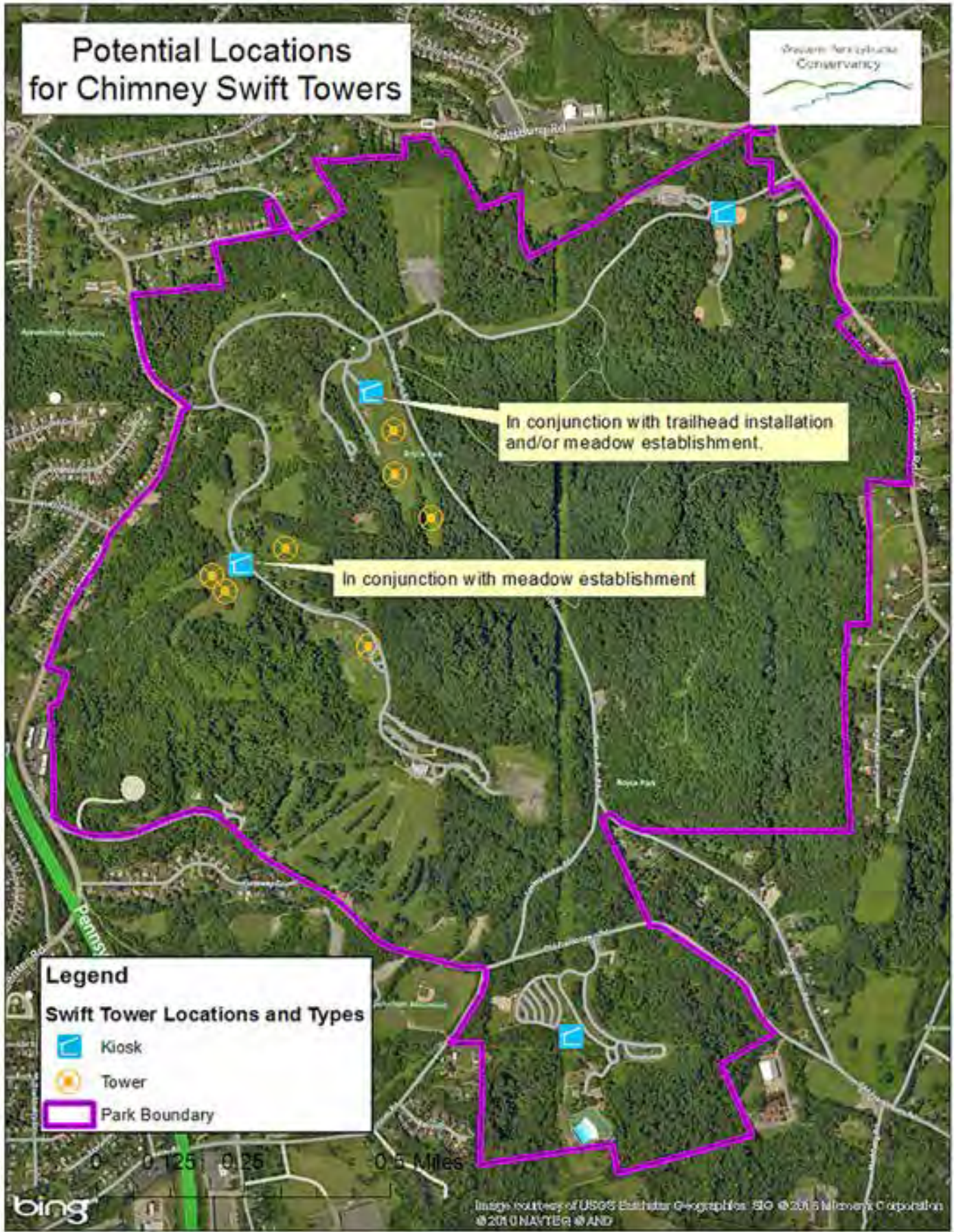


Chimney swift and kiosk in Millvale's Riverfront Park. Photo courtesy of Audubon Society of Southwest Pennsylvania.

One immediate interpretive signage opportunity where funds are already secured is in conjunction with the Audubon Society of Western Pennsylvania's initiative to install chimney swift towers across the county park system. Audubon is working with the County Parks on the project and plans to install 100 swift towers across the park system in 2016, many of which will be designed to include interpretive signage. The kiosks include interpretive panels, two of which will include information about chimney swifts and the swift tower. The remaining two panels are available for interpretive signage.

The chimney swift towers require relatively open areas 25-feet or more from a forest edge. There are two good locations in Boyce Park where the setting is suitable for the swift towers and there is or will be a need for interpretive signage related to other park projects and initiatives. One is in conjunction with the currently mowed area near Indian Hill where this report also recommends establishing a meadow.

One of the chimney swift towers with interpretive panels would be ideal at a highly visible location near the road and walking trail at the bottom of the hill. The two available panels could be used for information about the meadow establishment project. Another ideal location is in the meadow opening just



west of Pierson Run Road where this report also recommends a location for a trailhead where maps and other interpretive information would be displayed. Because the meadow establishment and trailhead project may not begin until late 2016, installing the kiosk-style chimney swift towers in these two locations in 2016 would provide immediate space for interpretive signage when the meadow restoration and trailhead projects begin.

All signage installations should be coordinated with a park-wide interpretive plan (see below), however, there may be occasional immediate need for signage before completion of a full plan.

#### **4.1.6 SKI LODGE PARKING LOT GREEN INFRASTRUCTURE**

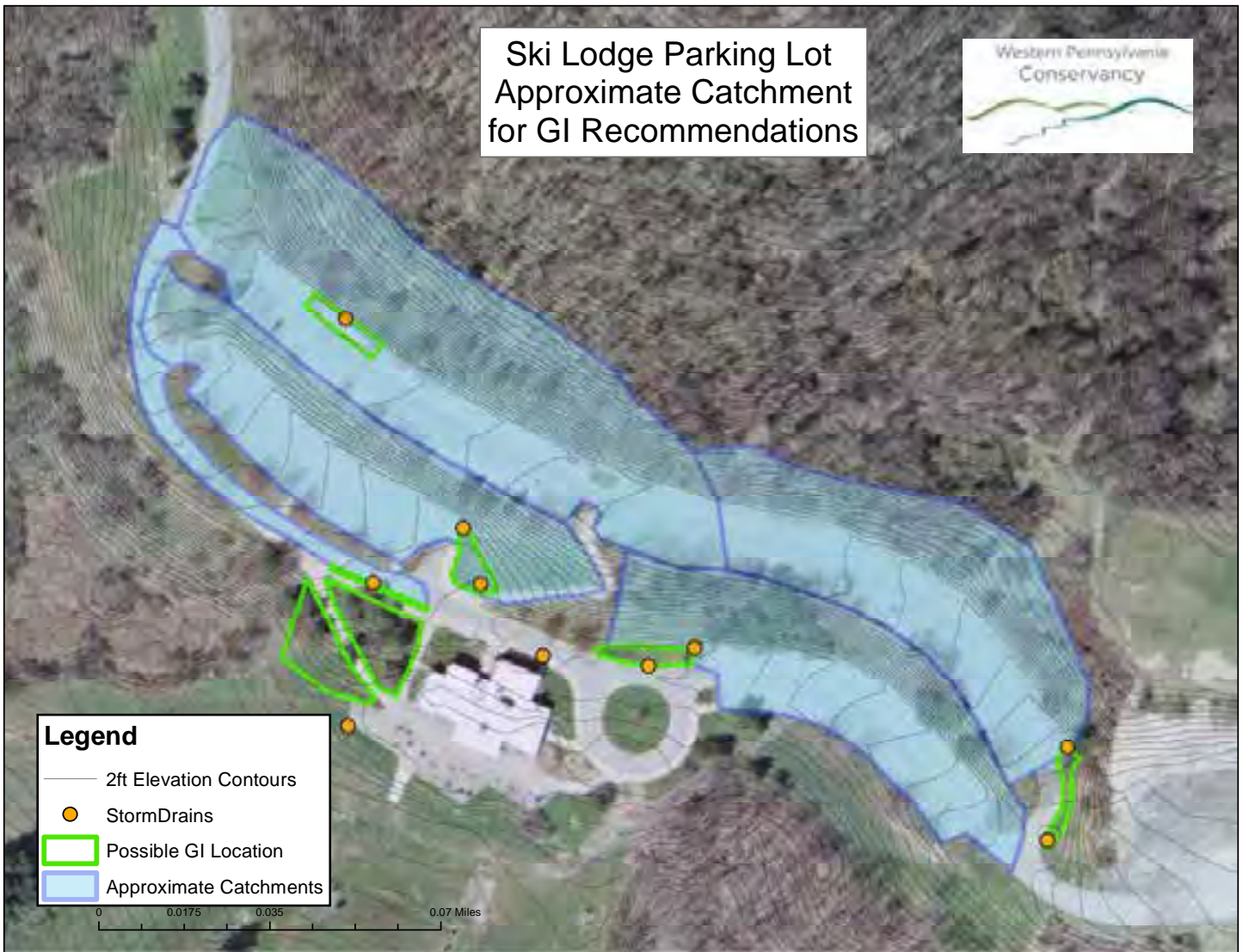
An affordable and effective strategy for managing stormwater runoff while improving water quality, green infrastructure such as bioswales capture stormwater runoff from parking lots and roads and facilitates the infiltration and filtration of runoff through engineered structures that usually include hardscaping and plants. These facilities are intended to prevent runoff from entering and inundating the sewer system during wet weather events.

##### *Methodology*

WPC has identified several potential locations for bioswales in Boyce Park with a focus on the Ski Lodge parking lots (see map) because of the extensive pavement and the opportunities for mitigating stormwater runoff. The process would begin with engineering analyses of the sites to calculate the drainage areas and stormwater capture goals. Other necessary measures would include assessing the integrity of the existing sewer systems to see if upgrades are required and to conduct infiltration tests that indicate the infiltration potential of the soils and substrate. Once these technical components are complete, design of the facility can begin. Design features can vary based on site conditions, desired stormwater capture goals, and aesthetics. The design will indicate where the runoff will enter the bioswale and what materials will be used in construction. Materials typically include a combination of rock, soil, and plants and usually feature constructed components such as concrete weirs.

##### *Timeline*

Once all contracts are in place and engineering and design are complete, construction of the facility will usually take between four to six weeks depending on the complexity and size of the bioswale.



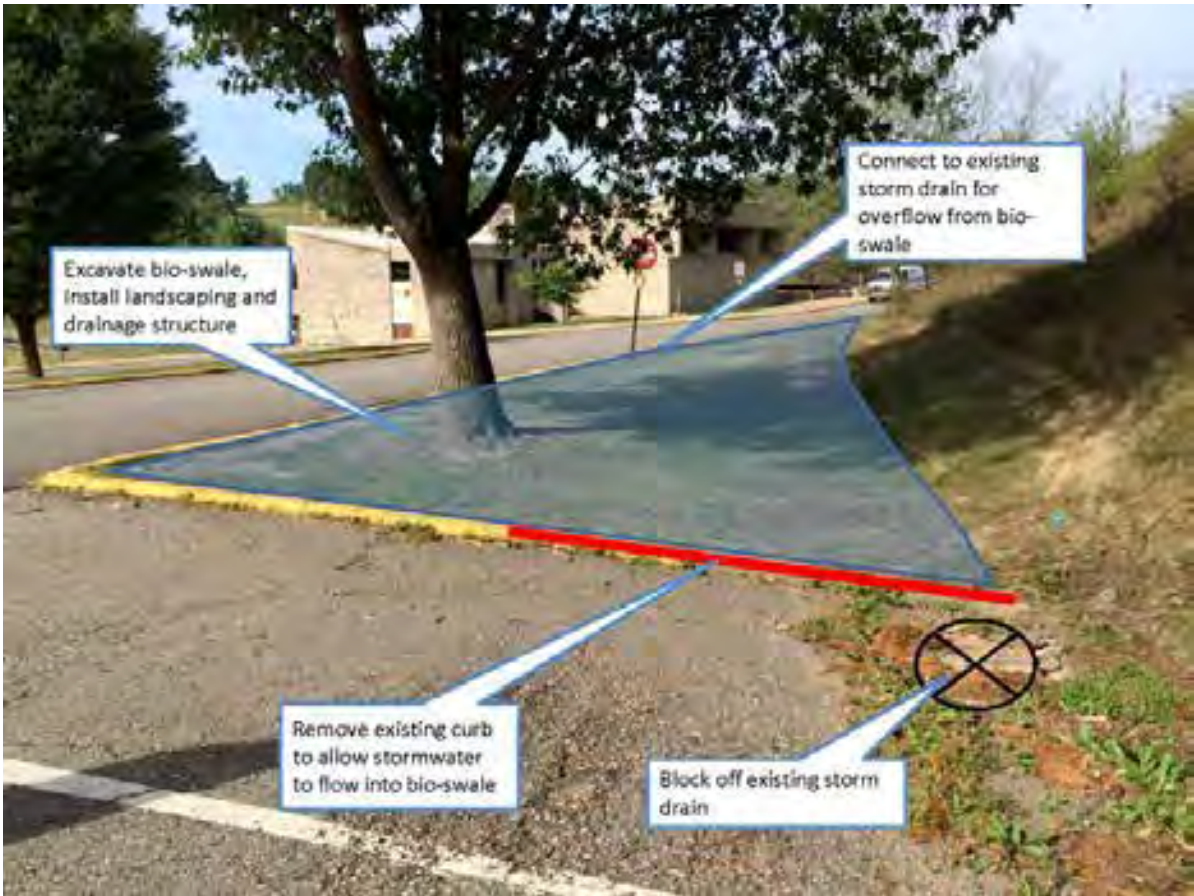
*Cost Estimates*

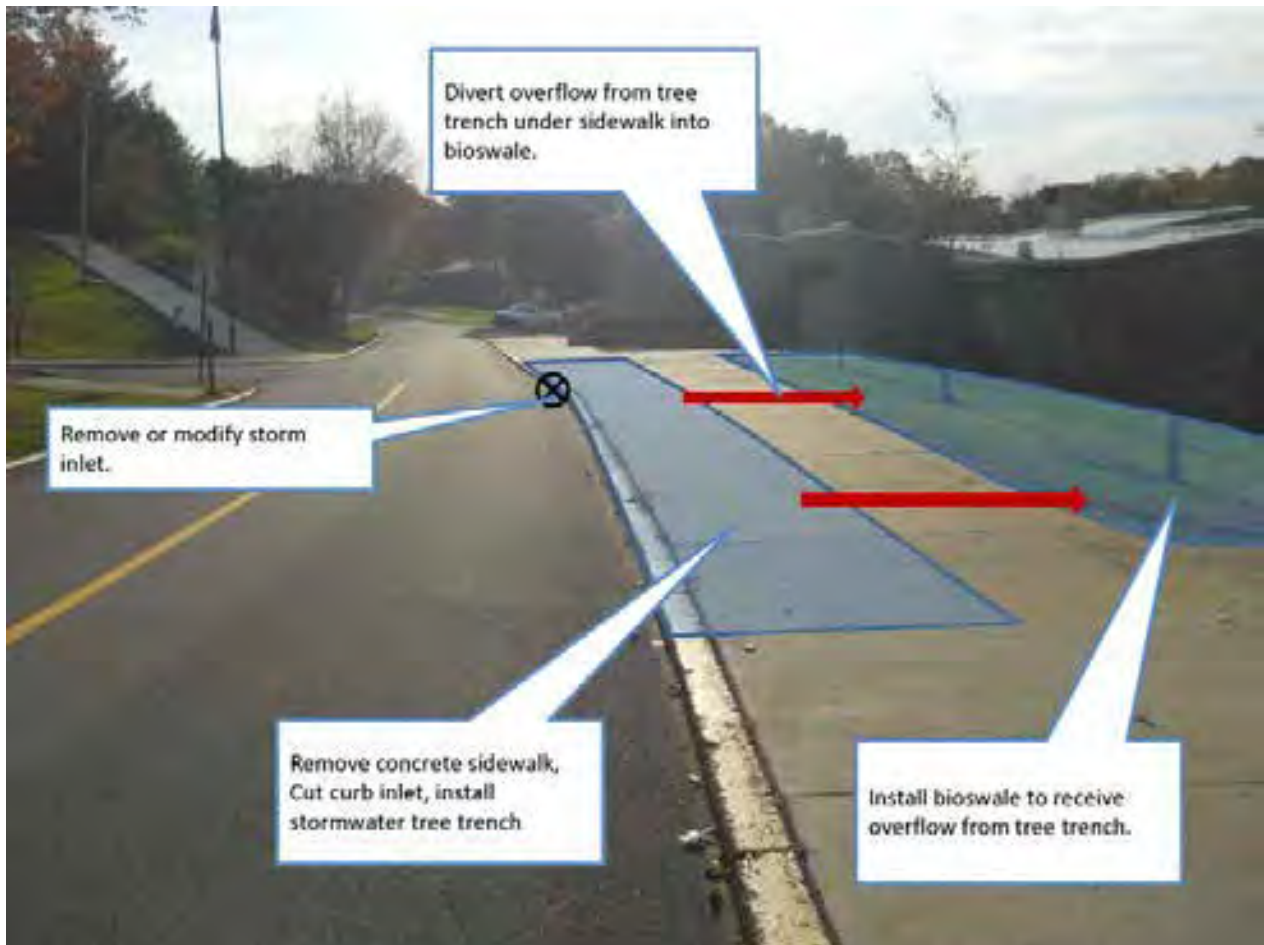
Project management: Financial management Bidding and contracts Coordination among partners and contractors Contractor oversight	\$3,750
Survey, Design and Engineering: Landscape design Hydraulic and hydrologic analyses	\$4,500
Construction: Labor Materials Equipment	\$10,500
<b>Total to control 1" of stormwater runoff per acre:</b>	<b>\$18,750</b>



These numbers are based on previous Western Pennsylvania Conservancy bioswale projects at Point State Park in Downtown Pittsburgh and in the Borough of Millvale. Project costs will decrease based on design and construction components that can be completed by County or ACPF staff or if another contractor is used.







## 4.2 MANAGEMENT/PLANNING

### 4.2.1 PARK STAFF TRAINING

#### *Invasive Species Management*

- i. Training Topics
  1. Plant identification and management strategies.
  2. Mechanical treatment methods.
  3. Chemical/herbicide treatment methods.
  4. Keeping records of infestations and management activities (iMap Invasives).



a. <http://www.imapinvasives.org/>

- ii. Training could be provided over several days during the spring and summer to coincide with seasons when weed management is needed.
- iii. Penn State Wildland Weed Management Program, WPC staff, and others could be available to provide training.

- iv. Training Topics:
  - 5. Plant ID.
  - 6. Documentation and management tracking using iMap Invasives.
  - 7. Mechanical treatment methods.
  - 8. Chemical/herbicide treatment methods.
  
- v. Cost of training is approximately \$1,800-\$2,200 per day.

*Tree Planting and Care (Tree Tender Training)*

WPC recommends that the County Parks' staff receive Tree Tender trainings as outlined below through Tree Pittsburgh in order to optimize tree plantings and tree care throughout the County Parks system. The County Parks are second only to the City of Pittsburgh Parks in the number of trees received through the TreeVitalize Pittsburgh project. And more trees should be planted on an ongoing basis as described above. Tree Tender trainings for County Parks staff will help ensure that this huge investment will be protected in the short and near terms through proper tree planting, care, and protection. Tree Pittsburgh has submitted a proposal to the Allegheny County Parks Department to undertake Tree Tender trainings. Additional resources are available from Penn State Extension and the Allegheny County Conservation District.



Volunteer "tree tenders" care for trees in Homewood, Pittsburgh.

*Trainings & Cost estimates:*

Allegheny County Parks DPW Forestry Tree Tender Trainings	Timing	Duration	Learning Objective	Total Cost @ \$50/hr
Pest and Disease Training	Summer/ Fall	2 hours	Greater awareness about existing and potential pests and diseases and how to treat them.	\$850
Developmental Tree Pruning	Late Fall	3 hours	Greater awareness about tree biology, pruning techniques, and pruning safety	\$1,050
Proper Tree Care	Spring/ Late Winter	2 hours	Greater awareness about tree care best practices	\$650
Proper Planting Techniques	Spring	3 hours	Greater awareness about proper tree planting techniques	\$1,500

**4.2.2 REDUCE MOWING, PRIORITIZE ECOLOGICAL MANAGEMENT AND MAINTENANCE OF CAPITAL PROJECTS**

Reductions to the acreage and frequency of mowing in Boyce Park will result in significant ecological, visual, education and cost savings benefits.

As capital projects are implemented over time, maintenance needs will result in the following areas:

- Invasive Weed Management
  - Managing invasive weed infestations impacting mature forest areas, particularly those that harbor sensitive species (see page 18), is a priority management concern and will continue to be into the future. Investments in tools and staff training are priority recommendations also mentioned in this section. A package of documents with very useful information about invasive weed identification and management is included in the Resources package included with this assessment.

- Trail System Maintenance
- Green Infrastructure Maintenance
- Meadows and Reforested Areas Maintenance

### **4.2.3 PROCURE TOOLS AND EQUIPMENT**

For invasive weed management, trail maintenance, meadow management, tree planting, fence building and maintenance. Procuring an adequate supply of the tools listed below could cost approximately \$20,000, depending on County procurement contracts. A publication with additional information on tools and equipment useful for trail building and maintenance, many of which will also be useful for many other park maintenance activities, is included in the Resources package included with this assessment. Both the assessment and resource documents can be found on the Allegheny County Parks Foundation website at [www.acparksfoundation.org](http://www.acparksfoundation.org).

Hand Tools:

- Hedge shears: \$20-\$75 each (depending on size)
- Hand pruners: \$15-\$45 each
- Loppers: \$20-\$80 each (depending on size)
- Bow saws: \$15-\$30 each
- Long reach pruners: \$75-\$150 each
- Picks mattock: \$15-\$40 each

Specialty Tools:

- Tree and root puller (Pullerbear): \$200
- Root Talon: \$70
- Root Buster: \$45
- Tree planting dibble bar: \$35-\$45 each
- Goat herd
  - o Use of goat herds to graze on invasive weeds has emerged locally as a potentially high impact, low cost strategy to be used in combination with other treatment methods, either chemical or mechanical. For example, spraying a systemic herbicide (i.e. triclopyr or glyphosate) immediately following grazing by goats

can create good conditions for herbicide absorb into the plants' vascular system, increasing the chances of a total kill of the weeds.

- o As of the writing of this report, there is currently one local business using goats to manage invasive species - Steel City Grazers. Fees include transportation of the goats, temporary electric fencing to contain the goats to the area being managed, and a donkey whose role is to protect the goats from predators such as coyotes and feral dogs.
- o There is the potential of acquiring a permanent goat herd. Because of recent notoriety, demand is quite high for privately owned goat herds. Acquiring a goat herd would help to ensure goats are always



Steel City Grazers goat heard eats invasive plants along Bates Street in the Oakland neighborhood of Pittsburgh, Sept. 2015.





available for weed management, and could possibly be housed at Round Hill Park since it operates a working farm.

- o Goats are relatively inexpensive to buy (sometimes even free). However, they do require good fencing, food and shelter during winter and inclement weather, transportation to and from weed management projects, protection from predators, and a knowledgeable caretaker.

*Power Tools*

Professional-grade chain saws:	\$350-\$600 each (depending on size and brand)
Professional-grade Pole saws:	\$400-\$700 each (depending on size)
Walk-behind brush cutter:	\$1,500 - \$3,000
Brush hog tractor attachment:	\$2,000 - \$4,000
Tree hole auger:	
Attachment for tractor with 3-point hitch:	\$450-\$1,000
Hand-held:	\$200-\$400

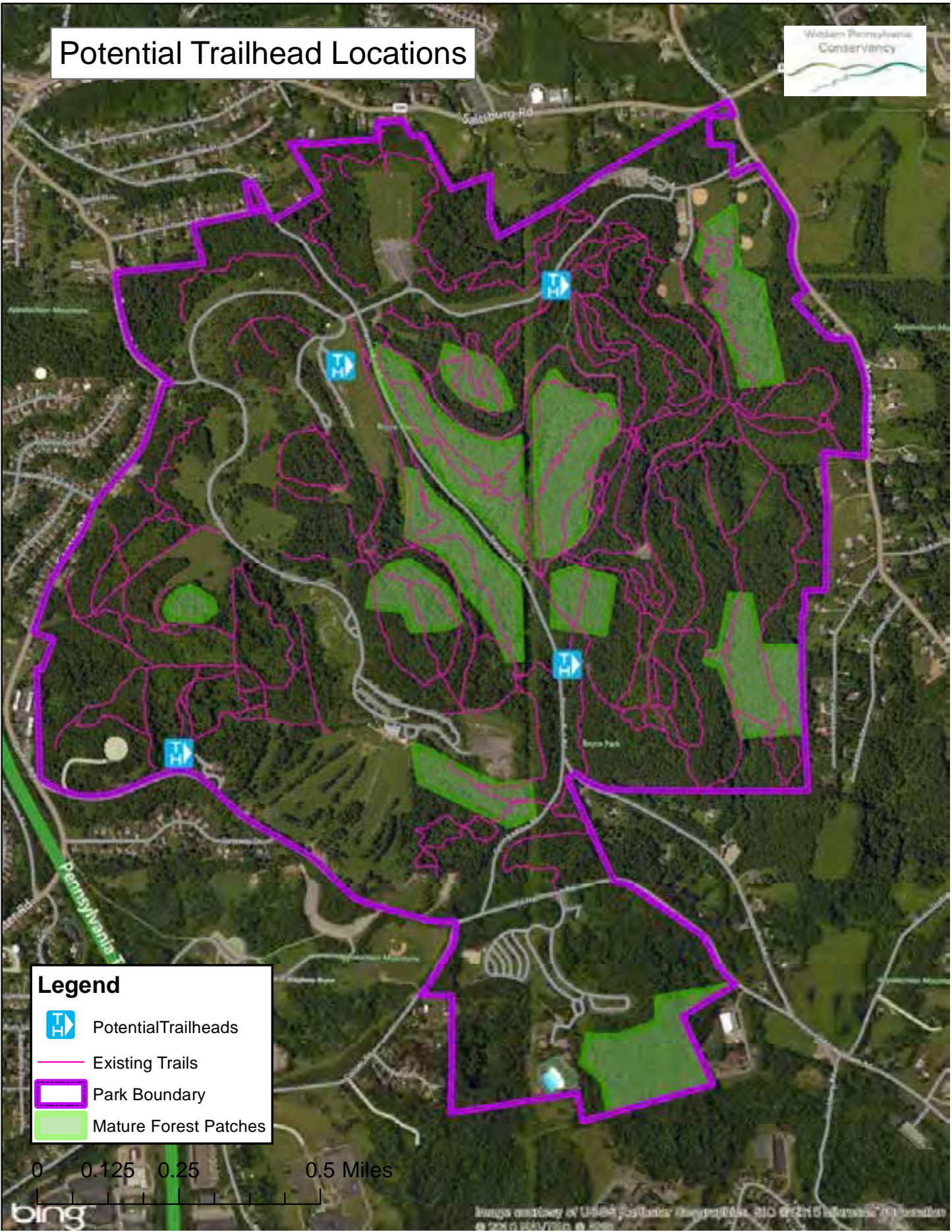
**4.2.4 DEVELOP A SUSTAINABLE TRAIL MANAGEMENT PLAN**

In conjunction with training Parks staff on trail management and maintenance, developing a sustainable trail management plan that provides a comprehensive vision and management framework for all trails in Boyce Park is a top priority. Such a plan should include broad stakeholder and public input, as well as engagement of trail design, construction and maintenance professionals.

The scope of the plan should include the following:

- Survey and evaluation of current and future trail usage.
- A comprehensive assessment and evaluation of the existing trail system by trail consultants.
- Identifying most appropriate trails for each permitted use.
- Identifying locations for development of new trailheads.
- A plan for interpretive signage and other outreach and educational assets.

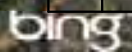
# Potential Trailhead Locations



**Legend**

- Potential Trailheads
- Existing Trails
- Park Boundary
- Mature Forest Patches

0 0.125 0.25 0.5 Miles



- Prioritizing trails/trail sections will be the focus of future maintenance efforts and developing detailed work logs.
- Garner broad stakeholder and public input.
- Training and project oversight for County Parks staff on trail construction and maintenance BMPs.
- Identifying trails to close/eliminate due to redundancy or other problems.
- Plan for accessibility in compliance with the ADA.

A more detailed budget estimate should be developed based on soliciting proposals from outside consultants, but the total cost to develop the plan is likely to cost from \$80,000 to \$120,000. The planning process would likely take at least two years to complete. For fundraising purposes, developing the Sustainable Trail Management Plan could be packaged with other recommended initiatives to develop an interpretive plan for Boyce Park and to train County Parks' staff on trail management and maintenance.

Funding for planning and trail development is available through DCNR's Community Conservation Partnership Program (C2P2) grants. C2P2 grants cover fifty percent of overall project costs. Other project matching funds can include both cash and in-kind goods and services, including the value of volunteer time contributed by stakeholders and the public during the planning process.

This type of plan could be done in conjunction plan could be done in conjunction with a broader County Parks system wide trail planning effort.

#### **4.2.5 STORMWATER MANAGEMENT PLAN**

In addition to the recommendations for green infrastructure to manage stormwater (pg. 74), Boyce Park would benefit from a stormwater management plan which could be led by County Parks and ACPF landscape architects who would engage engineers and others. A plan should include input from Monroeville and Plum with respect to implementation of their MS4 (Municipal Separate Storm Sewer System) plans required by Pennsylvania DEP under Act 167.

## **4.3 PARTNERSHIPS**

Partnerships with nonprofits, volunteers, schools and other organizations can provide benefit to various opportunities within Boyce Park.

### **4.3.1 COMMUNITY DEER MANAGEMENT**

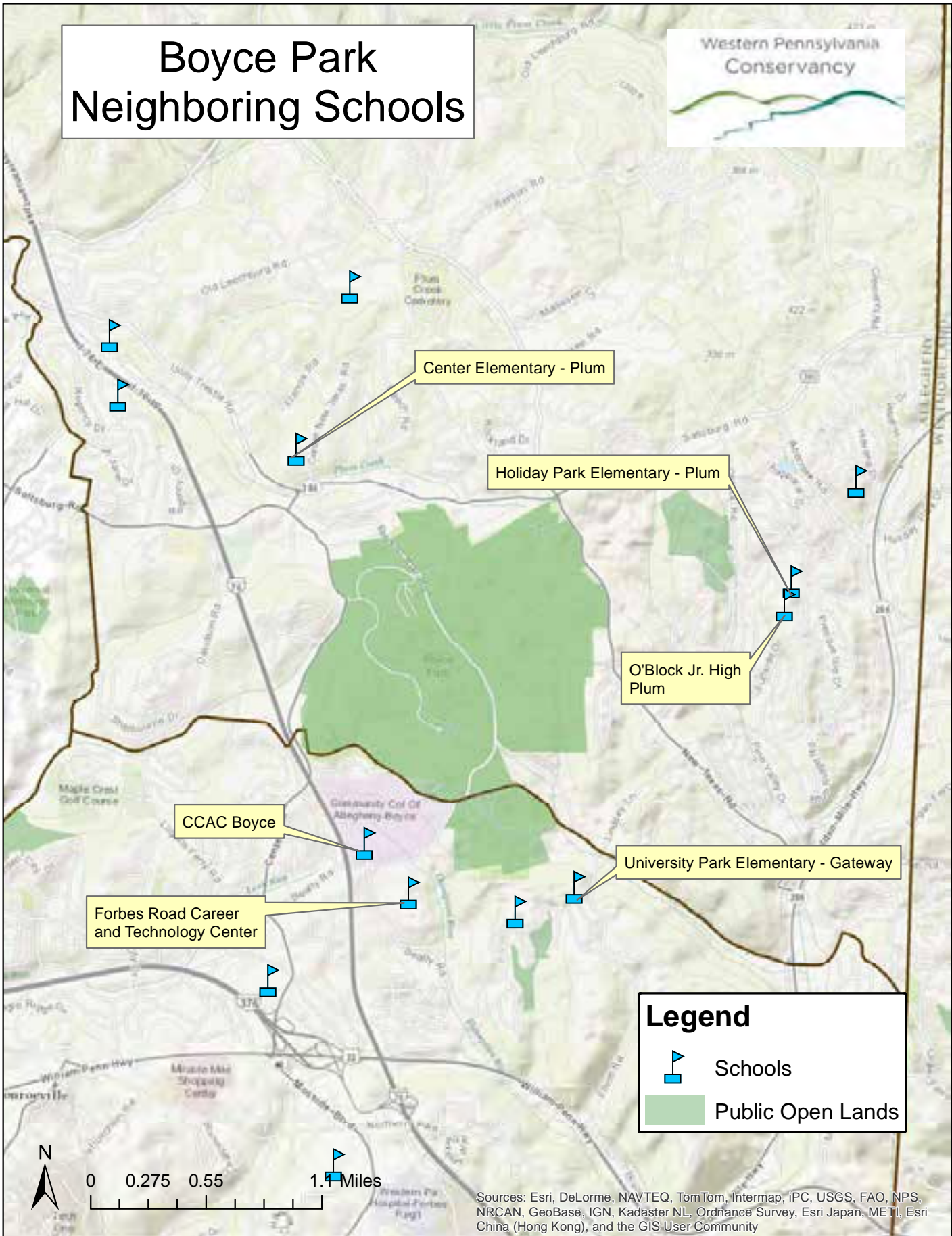
Effectively controlling the deer population impacting Boyce Park will require an integrated approach that should include partnering with Plum and Monroeville municipal governments. It is possible that the deer management approach currently being employed in the county park system could be conducive to expanding across other areas of Monroeville and Plum.

### **4.3.2 COOPERATIVE INVASIVE WEED MANAGEMENT**

Similar to managing whitetail deer impacts on Boyce Park, it is important to think about invasive weed management from a landscape-scale perspective. Partnering with local municipal governments, road managers, utility companies and others toward cooperative management of invasive weeds in the landscape surrounding Boyce Park will be very important. One approach used widely in Pennsylvania and nationally is to establish a cooperative weed management area (CWMA). CWMA's are partnerships of government agencies, Non-governmental organizations, utility companies, private individuals and businesses, and other interested groups that manage invasive species within a defined area. CWMA's often involve groups who share a common geography, weed problem, community, climate, political boundary, or land use. CWMA's can involve a broad cross-section of landowners and natural resource managers within its defined boundaries. CWMA's can help to facilitate cooperation and coordination to address an issue that does not respect jurisdictional boundaries. They are most often governed by a Steering Committee that meets regularly to discuss strategic and cooperative approaches to weed management problems. CWMA's make a long-term commitment to cooperation, usually through a formal agreement among partners.

The first step toward pursuing a CWMA in the areas surrounding Boyce Park is to reach out to Plum and Monroeville managers and/or public works directors and any other potential CWMA members to gauge interest in the concept. If there is enough interest, members should sign an MOU that lays out roles and responsibilities. Funding to pay for initial coordination and planning may be necessary, but would likely be a minimal amount (less than \$10,000). Moving forward, it will be important to designate and/or hire a CWMA coordinator. It is possible that this role could be on a part-time basis. Several documents about forming a CWMA are included in the Resources package included with this report.

# Boyce Park Neighboring Schools



Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, IPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

### 4.3.3 SCHOOL DISTRICTS AND EDUCATIONAL INSTITUTIONS

Building on the efforts of the Boyce Park Nature Center and the new Allegheny County Park Rangers “school to park” programs, Boyce Park could benefit from educational opportunities with adjacent educational institutions including:

- 1) Gateway School District
  - a. Connection with University Park Elementary (adjacent to Boyce Park)
- 2) Plum Borough School District
  - a. Center Elementary
  - b. Holiday Park Elementary
  - c. Oblock Junior High School
- 3) CCAC
  - a. Boyce Campus adjacent to Boyce Park
  - b. Engage STEM (e.g. civil engineering, drafting and design) disciplines for project based learning
  - c. Source of volunteers



- 4) Forbes Road Technology and Career Center
  - a. Engage Landscape Design Program
  - b. Welding/metal working students building invasive species removal tools
  - c. Source of volunteers

#### **4.3.4 UTILITY CORRIDOR PLANNING**

Duquesne Light owns and operates one major transmission line corridor that runs north to south through Boyce Park, and likely several other smaller utility lines. Any new proposed power line rights of way would come under the purview of Duquesne Light. It will be important for County Parks staff and other County officials to stay in close communication with Duquesne Light regarding future utility corridor planning in order to explore alternative alignments that will reduce ecological and visual impacts to Boyce Park.



A WPC ecologist provides a lesson to elementary students in an outdoor classroom and natural play area at Pittsburgh Roosevelt PreK-5.



# Boyce Park Neighboring Schools



CCAC - Boyce

Forbes Road  
Career and Technical Center

## Legend

-  Boyce Park
-  Schools



## THE POWER OF GREEN

Boyce Park is in a great position to use the power of green to enhance its immediate present and support its future. With the engagement and leadership of the Allegheny County Parks Foundation and the Allegheny County Parks, it has many of the elements that are necessary for successful greening projects. Strategic greening has the potential to be a rallying point for community improvement that can involve citizens from school children to seniors, from business owners to cultural institutions, from novices to skilled members of the community. The power of green is found in the multifaceted benefits and the profoundly satisfying experience of improving the living landscape of the community. Boyce Park has the elements in place to harness this power for all its constituents, employees and its landscape.

