

## CHAPTER 10

# Wissahickon Creek Conservation Landscape

The Green Ribbon Preserve, and its included trail system, established by the Wissahickon Valley Watershed Association is the central feature of the Wissahickon Creek Conservation Landscape. The floodplain forests along the Wissahickon Creek and Fort Washington State Park are particularly important habitat for birds because of the highly developed nature of the surrounding area.

## Description

### *Location*

The Wissahickon Creek Conservation Landscape comprises 6,517 acres extending along the Wissahickon Creek from just south of Lansdale to the Montgomery County border with Philadelphia. It includes portions of Springfield, Whitmarsh, Upper Dublin, Whitpain, Lower Gwynedd, and Upper Gwynedd Townships (Figure 10.1). The landscape is anchored by the Green Ribbon Preserve, a project of the Wissahickon Valley Watershed Association. It also includes Fort Washington State Park. It is not contiguous with any of the other conservation landscapes described in this report.

### *Hydrology*

The landscape lies completely within the Wissahickon Creek watershed. It includes portions of several tributaries including Sandy Run, Prophecy Creek, and Haines Run. The Wissahickon and its tributaries are classified as TSF (trout stocked fishery) by the Pennsylvania Department of Environmental Protection.

The hydrology of the Wissahickon Creek has been severely affected by impervious surface coverage throughout the basin. Ground water recharge is reduced due to the channeling of storm water directly into the streams. Less ground water means less base flow. During the summer many of the smaller tributaries go dry and approximately 80 percent of the flow in the Wissahickon basin is effluent from the 12 sewage treatment plants located between the headwaters and the Montgomery County line. During drought conditions the proportion of flow resulting from sewage plant effluent may reach 90-95 percent. Another source of water is discharge from the Corson Quarry, which is pumped into Lorraine Run, a tributary of the Wissahickon Creek.



Wissahickon Creek above Swedesford Road

## Geology

From its headwaters to Joshua Road, the Wissahickon Creek flows through alternating bands of the Brunswick, Lockatong, and Stockton Formation shales, siltstones, argillites, and sandstones typical of the Newark Basin. Below Joshua Road the creek enters the Whitemarsh Valley, which is underlain by Ledger Formation limestone broken by ridges formed by Chickies Quartzite (Figure 10.2).

The limestone deposits of the Whitemarsh Valley were the basis for an early local industry, which involved quarrying and operation of limekilns to produce lime for agriculture and construction. Limestone quarries are still visible along Stenton Ave.

## Forest Cover

The landscape includes 1,933 acres of forest or 30 percent, which is about average for the County as a whole. Of that, 660 acres qualify as forest interior habitat (Figure 10.3). The largest contiguous areas of forest are located in Penllyn Woods and Fort Washington State Park.

## Critical Features

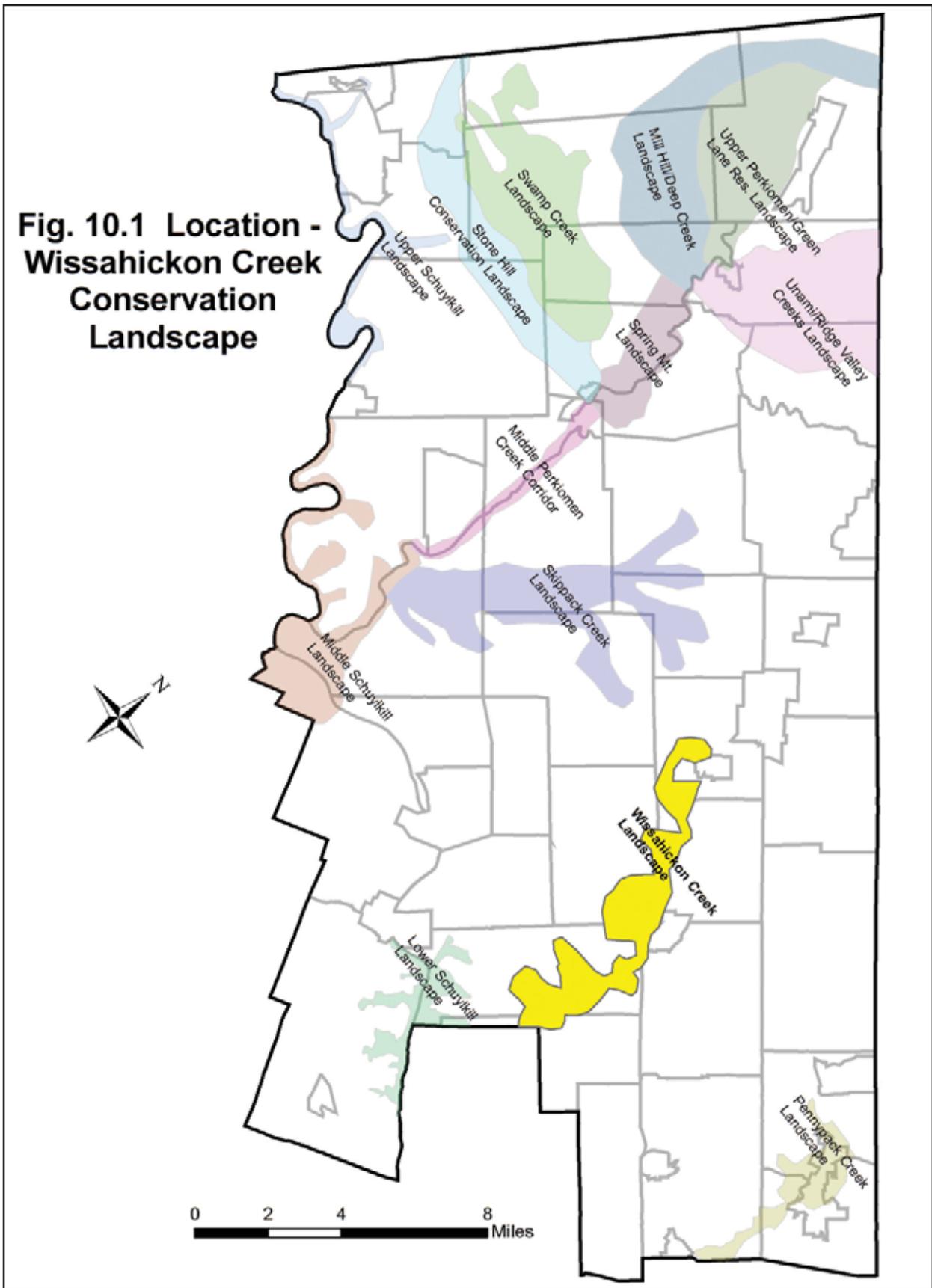
This landscape does not include any high priority sites from the 1995 Natural Areas Inventory. However, several Pennsylvania Natural Heritage Program-listed species are known within the landscape, including a stand of southern red oak at Fort Washington State Park (listed as Fort Washington Woods, a locally significant site, in the 1995 Natural Areas Inventory), and a record of black-crowned night heron at Ambler Reservoir.

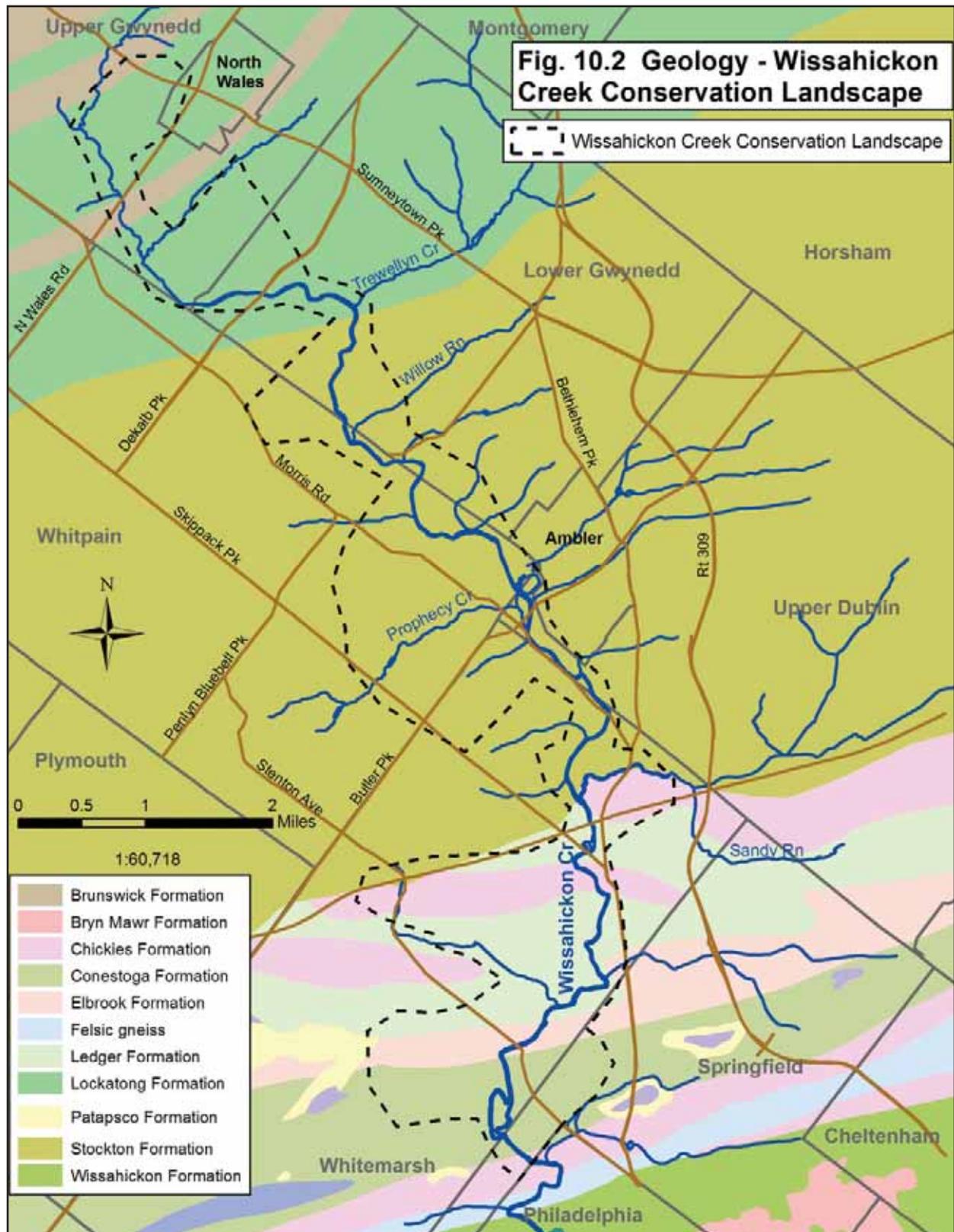
**Reptiles and Amphibians** – A preliminary survey of reptiles and amphibians by Marlin Corn for this project found 9 species in the Wissahickon Landscape, all common to the area (Table 10.1). All are native to Pennsylvania with the exception of one species of turtle, the red-eared slider, which is introduced.

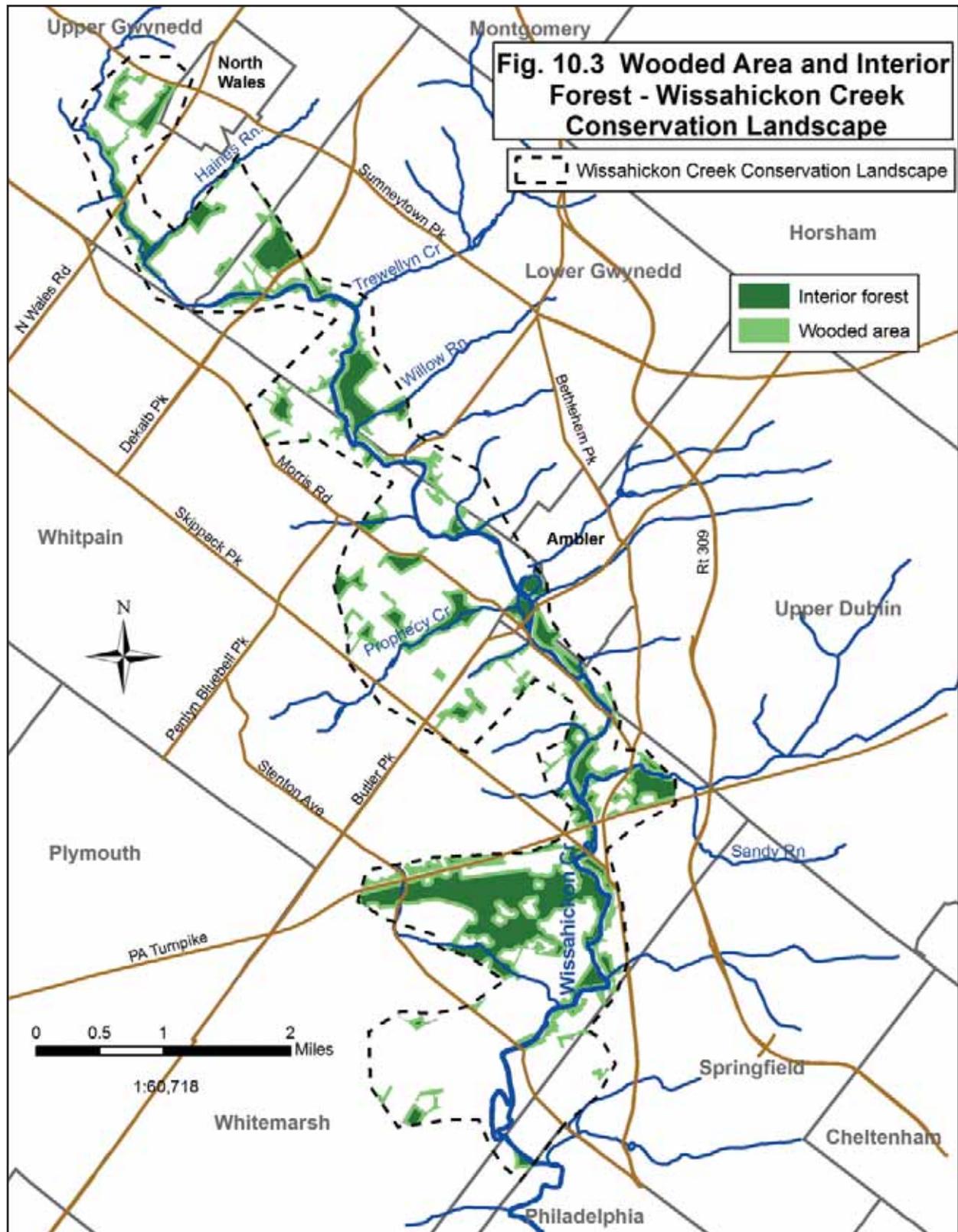
**Table 10.1 — Reptiles and Amphibians of the Wissahickon Creek Conservation Landscape**  
(Source: Data collected by Marlin Corn 2006-2007)

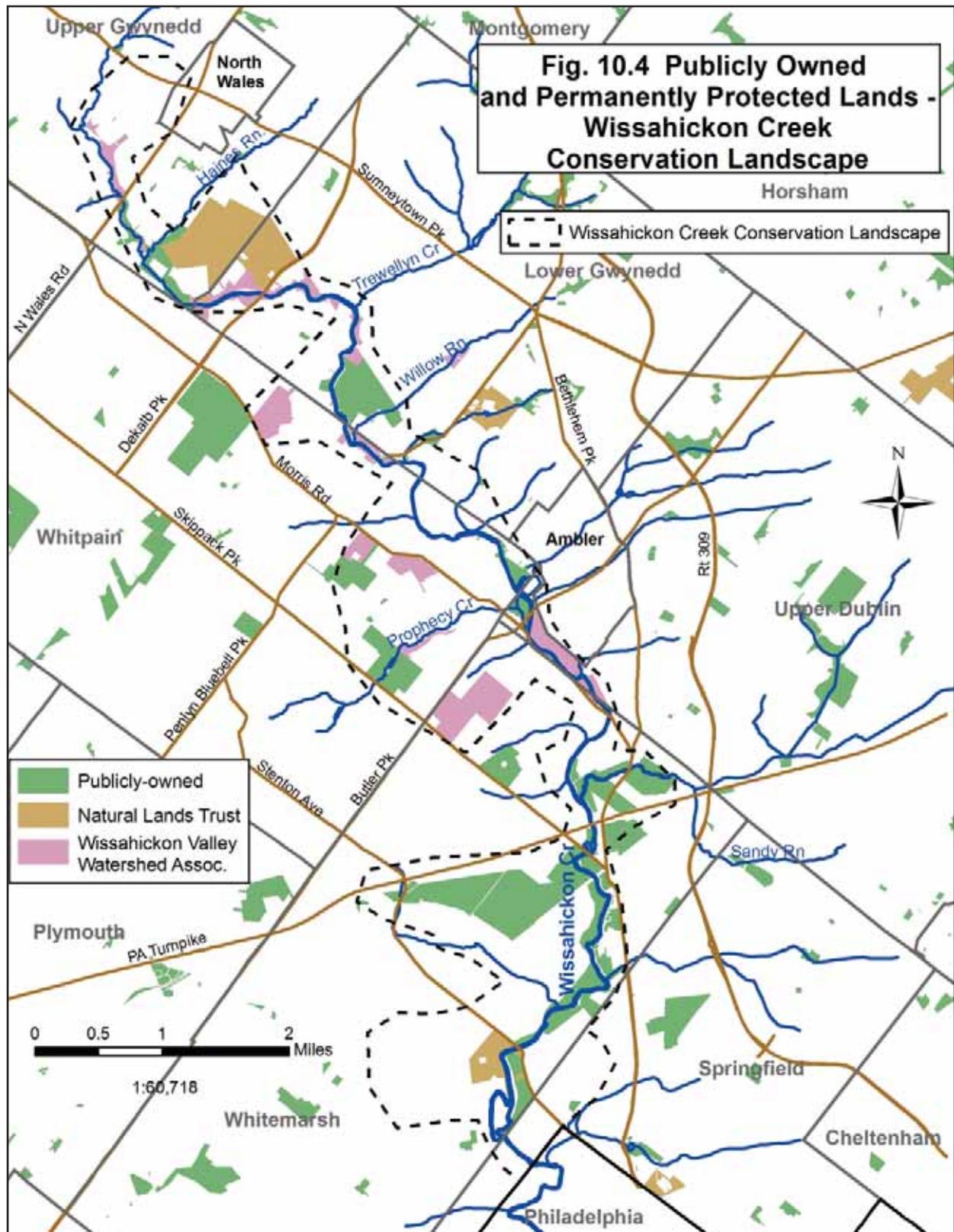
Salamanders
Northern redback salamander
Northern two-lined salamander
Frogs and Toads
American toad
Bullfrog
Green frog
Turtles
Eastern painted turtle
Red-eared slider
Snakes
Northern ringneck snake
Northern black racer

**Fig. 10.1 Location -  
Wissahickon Creek  
Conservation  
Landscape**









## *Past Uses*

The Wissahickon Valley has a long history of industrial uses; as many as 52 mills operated along its banks, 24 of which were in the Philadelphia portion of the Wissahickon Gorge. Only a few of the Montgomery County mills remain. The Evans-Mumbower Mill, located along the creek on Swedesford Road, is currently being restored by the Wissahickon Valley Watershed Association. Dating from the early 1800s, the current structure was built on the site of an earlier sawmill and fulling mill from the mid-1700s. It was operated as a gristmill until about 1930 by which time the waterwheel had been replaced by a steam or gasoline engine.

Another old mill building remaining along the Wissahickon Creek is the Springfield Mill on the Morris Arboretum's Bloomfield Farm property. Originally built in 1761 as a grist and sawmill, the Springfield Mill was operated as a gristmill as late as 1907. The building, which was rebuilt and enlarged in 1854, still contains the interior mill works. During the Morris' occupancy, the mill was adapted to pump water from the creek for farm use. The Arboretum has taken steps to stabilize the structure and is seeking funds for restoration.

Suburbanization brought major changes to the Upper Wissahickon Valley, beginning in the early 1950s. Today, little remains of the early agricultural landscape that was served by the mills. However, motorists traveling northwest on Stenton Avenue from Northwestern Avenue and west on Flourtown Road can get a glimpse of pastoral scenery of times gone by as they pass the open spaces, including pastures with sheep and cattle, maintained by the Morris Arboretum and Erdenheim Farm. The old stone arched bridge over the Wissahickon adds to the historic ambiance.

## *Preservation Status and Other Designations*

The Wissahickon Valley Watershed Association has been instrumental in the preservation of 454.8 acres in the Wissahickon Valley. Known as the Green Ribbon Preserve, the lands form a corridor along the creek from Fort Washington State Park to Lansdale, with only 3 short interruptions. A trail follows the creek through this area as well with the exception of a brief stretch between Penllyn Bluebell Pike and Mathers Road that is owned by the Cedarbrook Country Club. Penllyn Park occupies a 77-acre tract purchased by Lower Gwynedd Township in 1994 (Figure 10.4).

Fort Washington State Park contains 493 acres, including a portion of the Wissahickon Creek corridor. Adjoining Fort Washington State Park is Wissahickon Valley County Park; its 143 acres are mostly in the floodplain of Wissahickon Creek and Sandy Run. The Natural Lands Trust owns two properties in the landscape: the 134-acre Gwynedd Preserve in Upper Gwynedd Township, and a 117-acre tract at Erdenheim Farm. Following the death of F. Eugene Dixon in August 2006, efforts are underway to protect the remaining 300 acres of Erdenheim Farm.

At the south end of the corridor, the Bloomfield Farm section of the Morris Arboretum includes about 1,800 feet of frontage along the creek. A portion of the Wissahickon Green Ribbon Trail has been constructed on Arboretum property along Northwestern Avenue. Montgomery County is eager to extend the trail through the property and the adjacent Erdenheim Farm to complete the link between Fort Washington State Park and Fairmount Park. It is of historical interest that in

1913-1914 John and Lydia Morris, the owners of what is now the Morris Arboretum, served on the Committee for Wissahickon Park Extension, which lobbied for extension of Fairmount Park along the Wissahickon Creek to Fort Washington.

In 2005 Pennsylvania Audubon designated the 15-acre Ambler Reservoir site as part of the Greater Fairmount Park Important Bird Area. The reservoir site, to be known as the Wissahickon Waterfowl Preserve, is also part of the Wissahickon Valley Watershed Association's Green Ribbon Preserve.

## Core Areas

### *Green Ribbon Preserve*

Over the past 50 years, since it was founded, the Wissahickon Valley Watershed Association (WVWA) has worked to protect a corridor of open space along the entire length of the Wissahickon Creek. Now nearly complete, the Green Ribbon Preserve includes a trail that follows the creek from Fort Washington State Park to Lansdale. WVWA has also worked with large private landowners along the corridor to encourage environmentally friendly land management practices.

**Plant Communities** – Much of the preserve consists of floodplain and floodplain terrace. Forests in the most scoured areas along the creek are characterized by **sycamore – (river birch) – box-elder floodplain forest**. Species include sycamore, box-elder, slippery elm, red maple, and occasionally silver maple. The understory is sparse due to frequent scouring by floodwaters and high deer presence, but spicebush and poison-ivy are often present.

Slightly higher floodplain terrace communities contain **bottomland oak – hardwood palustrine forest** with swamp white oak, pin oak, white ash, green ash, black walnut, cottonwood, shagbark hickory, shellbark hickory, red maple, honeylocust, and tuliptree. The shrub/vine layer contains spicebush, silky dogwood, northern arrow-wood, summer grape and frost grape. This community has a strong presence of non-native invasive plants including Norway maple, obtuse leaved privet, multiflora rose, Japanese honeysuckle, false indigo, Siebold viburnum, wineberry, and Japanese barberry.

Common herbaceous species include enchanter's-nightshade, white avens, skunk-cabbage, fowl mannagrass, New York fern, sensitive fern, jewelweed, rice cutgrass, Jumpseed, and false nettle. In addition, non-natives such as Oriental bittersweet, winged euonymus, glossy buckthorn, moneywort, garlic mustard, Indian strawberry, dame's-rocket, stinging nettle, heal-all, Japanese stiltgrass, yellow iris, Japanese hops, and Japanese knotweed are common.

Higher lands along the riparian corridor contain red oak – mixed hardwood forest. Dominant species include red oak, American beech, tuliptree, mockernut hickory, white ash, white oak, and flowering dogwood. The shrub layer is dominated by spicebush, with blackhaw, northern arrow-wood, and obtuse-leaved privet. Herbaceous species include natives such as mayapple and spring-beauty as well as the non-native garlic mustard.

**Reptiles and Amphibians** – See information for the Wissahickon Creek Conservation Landscape as a whole above.

**Birds** – The Wissahickon Valley Watershed Association sponsors an annual birdathon. In 2006, 132 species were recorded including local rarities such as Peregrine Falcon, Black-crowned Night-heron, Great Egret, Bald Eagle, and Mourning Warbler. A checklist published by WVWA’s Four Mills Nature Reserve lists 141 species of which 41 are noted as confirmed breeders.

**Deer Status** – Deer overabundance is a severe problem throughout the Wissahickon Creek corridor.

**Invasive Plants** – Floodplains are especially vulnerable to invasion by non-native species due to the frequent scouring by floodwaters and the constant supply of propagules coming downstream.

The Wissahickon corridor is no exception. Some invasives have been on the scene for many years; studies conducted in the early 1970s describe an abundance of Norway maple, privet, Japanese honeysuckle, garlic mustard, dame’s-rocket, and stinging nettle. More recent additions to the naturalized flora include multiflora rose, Siebold viburnum, Japanese hops, Japanese stiltgrass, and lesser celandine.

A serious invasive species problem exists at the Ambler Reservoir site where an infestation of kudzu covers an acre or more. It has grown up over trees, fences, and even utility lines. The Pennsylvania Department of Agriculture, which has a kudzu control program, is aware of the site.

### *Fort Washington State Park and Wissahickon Valley Park*

Fort Washington State Park comprises 493 acres in the Whitemarsh Valley and adjacent uplands of southern Montgomery County. The park includes two quartzite ridges, Militia Hill and Fort Hill, and riparian areas along the Wissahickon Creek and two of its tributaries, Sandy Run and Lorraine Run. The County-owned Wissahickon Valley Park consists of 143 acres along the Wissahickon Creek. It connects the 3 separate parcels of the state park and forms an important link to the Green Ribbon Trail.

**Plant Diversity** – Fort Washington State Park contains a small population of mature southern red oak trees scattered along Militia Hill, one approximately 30 inches dbh. In addition there appear to be hybrids between southern red oak and black oak at the site. Southern red oak is classified as endangered by the Pennsylvania Natural Heritage Program.



Great Egret, photo by Howard Eskin



Over-browsed forest at Fort Washington State Park

**Plant Communities** – Mature upland forests in the park occupy most of Militia Hill. Based on canopy composition it appears to be a dry oak – heath forest association. Tree species include black oak, white oak, southern red oak, American beech, blackgum, black birch, tuliptree and red maple. Other native species present include bitternut hickory, scarlet oak, chestnut oak, wild black cherry, flowering dogwood, and sassafras. Non-native tree species include Norway maple, corktree, and European bird cherry.

Nothing remains of the shrub or understory layers except a few stubs of black huckleberry and lowbush blueberry and a few remaining pinxter-flower and witch-hazel shrubs that are tall enough to be above the reach of deer. Spicebush chewed down to less than 15 inches is present in some spots. Non-native shrubs including winged euonymus, Amur honeysuckle, obtuse-leaved privet, and wineberry are abundant in the more disturbed patches. Herbaceous species are reduced to a few scattered jack-in-the-pulpits, some sedges, and non-native invasive species including garlic mustard and Japanese stiltgrass.

Deer have decimated the understory, shrub, and herbaceous layers of the Militia Hill forest. However, native species still dominate the canopy, and if deer numbers were drastically reduced, the structure and diversity of the lower layers of the forest could return in time.

The riparian corridor along the Wissahickon Creek is characterized by a **sycamore – (river birch) – box-elder floodplain forest**. Additional species include slippery elm, silver maple, and green ash. Spicebush, multiflora rose, and poison-ivy dominate the shrub layer.

**Reptiles and Amphibians** – See information listed for the Wissahickon Creek Conservation Landscape as a whole above.

**Birds** – Birding is a major activity at Fort Washington State Park. In 2006 an observation platform was opened to support the annual fall Militia Hill Hawk Watch. Up to 20,000 raptors have been counted between September 1 and October 31 including Bald Eagles, Golden Eagles, Broad-winged Hawks, Osprey, and Peregrine Falcons.

The total bird list for the park stands at 198 species. The spring warbler migration is a highlight and includes locally uncommon species such as Mourning Warbler and Orange-crowned Warbler. According to the Delaware Valley Ornithological Club, breeding birds include Prairie Warbler, Ovenbird, Yellow-throated Vireo, Wood Thrush, Veery, and Orchard Oriole.



Hawk watch platform at Fort Washington State Park

**Deer Status** – Fort Washington State Park is severely over browsed by deer. A browse line is visible throughout and shrub and herbaceous layers of the forest are extremely sparse. There is no regeneration of forest trees, including the state endangered southern red oak.

**Invasive Plants** – Invasive plants are abundant throughout the park. Particularly prominent species include multiflora rose, winged euonymus, Amur honeysuckle, Japanese honeysuckle, obtuse-leaved privet, Norway maple, corktree, Japanese angelica-tree, wineberry, Oriental bittersweet, garlic mustard, lesser celandine, and Japanese stiltgrass.

A major infestation of five-leaf akebia is present in the western end of the park at the edge of an old limestone quarry west of the intersection of Stenton and Militia Hill Roads.



A single stem of Pinxter-flower extends above the browse line in the Militia Hill section of Fort Washington State Park

## Other Protected Open Space

### *Gwynedd Preserve*

Beginning in 1986 the Betz family donated a total of 234 acres to the Natural Lands Trust; the tract is known as the Gwynedd Preserve. The preserve contains open fields, successional forest and wetlands. It connects directly with the Green Ribbon Trail and lands owned by or under easement to the Wissahickon Valley Watershed Association as well as Upper Gwynedd Township Open Space. Haines Run, a tributary of the Wissahickon Creek flows through the property. The 72.08-acre Driscoll property across Swedesford Road has also been protected by the combined efforts of Natural Lands Trust and Wissahickon Valley Watershed Association.

NLT has a resident staff at Gwynedd; a major emphasis at the preserve has been the establishment of warm season grass meadows on former agricultural fields. Bird surveys have been conducted at the site since 1993. An apparent decline in breeding grassland species (Eastern Meadowlarks and Bobolinks) revealed by data from 1993-1996 resulted in a research program aimed at determining the most effective methods for establishing native warm-season grasses. Vigorous stands of turkeyfoot and Indian grass have resulted; however, as of 2006, the grassland birds have not returned. Research is proceeding on how to diversify the grasslands to provide more suitable bird habitat. An extenuating circumstance at this site may be the general decline in the number of open fields in the vicinity. See the introduction to the report for a more extensive discussion of grassland birds and their habitat needs.



Fire management of grasslands at NLT's Gwynedd Preserve, photo by Tara Claghorn

Forests on the preserve are seasonally wet, successional white ash stands with a spicebush understory. Invasive, non-native species including multiflora rose, obtuse-leaved privet, and wineberry are abundant.

### *Camp Woods*

Camp Woods is a 22-acre tract of mature deciduous forest located along Morris Road in Whitpain Township. Owned by the Wissahickon Valley Watershed Association, it is across Morris Road from the Cedarbrook Country Club, which borders the Wissahickon Creek. It is the site of a Revolutionary War encampment.

A grove of large tuliptrees, white and black oaks, and American beech dominate the forest; many are in the 3-4 ft. dbh (diameter at breast height) size class. However, there are no young trees except a few root shoots of beech. Norway maple is invading around the edges. Other non-native trees include sycamore maple, European bird cherry, Ohio buckeye, photinia, and Japanese angelica-tree.

The shrub layer contains spicebush and maple-leaf viburnum, but numerous non-natives are also present including wineberry, jetbead, Japanese barberry, and winged euonymus. Large areas of the forest floor are covered with common periwinkle. Common native woodland wildflowers such as mayapple, jumpseed, jack-in-the-pulpit, false Solomon's-seal, and common blue and yellow violets are also represented.

Immediate invasive plant control efforts should focus on the small population of Japanese angelica-tree, Norway maples, and a stand of poison hemlock at the trailhead.

### *Prophecy Creek Corridor*

Prophecy Creek is a tributary of the Wissahickon. Most of the creek corridor is protected between Route 73 and Morris Road, partly by inclusion in Whitpain Township's Prophecy Creek Park, and partly by the Wissahickon Valley Watershed Association. The headwaters of the creek extend west to Wings Field.

Like other small riparian corridors remaining in a suburban landscape, the valley of Prophecy Creek has been severely impacted by adjacent land use over the years. During the agricultural era the land was cleared to the floodplain. In addition, the floodplains themselves were probably used as pasture. During the conversion of the landscape to a residential area, riparian vegetation was allowed to regrow. More recently some of the adjacent upland fields have become early successional woodlands, but non-native, invasive plants are very much a part of the landscape.

The largest trees on the site are part of the **sycamore – (river birch) – box-elder floodplain forest** that extends along the scoured edges of the creek. Other native woody species of the floodplain terrace include pin oak, black walnut, red maple, white ash, frost grape, Virginia creeper, and spicebush. Prominent non-native plants include Norway maple, five-leaf akebia, Japanese honeysuckle, multiflora rose, winged euonymus, and photinia. Japanese stiltgrass and garlic mustard dominate the ground layer.

A mid-successional forest dominated by tuliptree and spicebush is present adjacent to the creek just above Morris Road.

Protection of the headwaters west of Route 73 should be sought to maintain water quality and flow in this important tributary.

### *Morris Arboretum*

Bloomfield Farm, a 72-acre tract along the Wissahickon Creek in Springfield Township, was acquired by John and Lydia Morris in 1913. The property is underlain by dolomitic limestone. It became part of the Morris Arboretum of the University of Pennsylvania after the death of Lydia Morris in 1932; but farming activity continued until the 1960s. The Chestnut Hill Community Association operates a community garden on Arboretum property along Northwestern Avenue.

Historic structures located on the property include the Flourtown Mill and associated Miller's cottage, as well as a barn and farmhouse. Today Bloomfield Farm is predominantly open fields that are mowed periodically. A small nursery and some experimental plantings and research plots are located there, as is the Arboretum's maintenance facility. Plans are being made to build a new building that will include classrooms, a large meeting room, and other educational facilities.

## Additional Site Requiring Protection

### *Erdenheim Farm*

This 450-acre property has been a horse, and later cattle, farm since the 1880s. With the death of F. Eugene Dixon in 2006, its future is now being debated. A 117-acre parcel including the corridor of the Wissahickon Creek from Stenton Road to the Morris Arboretum was bequeathed to the Natural Lands Trust (NLT) by Mr. Dixon's uncle, George D. Widener, Jr. who died in 1971, but the disposition of the remainder of the estate is yet to be determined. NLT has worked with Wissahickon Valley Watershed Association to establish a forested riparian buffer along part of the creek. A trail linking Fort Washington State Park and the Lower Wissahickon is planned, but the exact alignment is yet to be determined.



A view of Erdenheim Farm from Stenton Avenue, photo by Paul Meyer

## Recommendations

### *Land Protection and Connectivity*

- Unprotected lands, which represent gaps along the Wissahickon Green Ribbon Trail should be preserved or eased so a continuous hiking trail can be maintained along the stream corridor.

- Complete trail link between Fairmount Park and Fort Washington State Park through Erdenheim Farm.
- Cooperate with other organizations and participate in efforts to secure the protection of all of Erdenheim Farm.
- Protect the headwaters of Prophecy Creek through land acquisition, easements, and establishment of riparian buffers.

### *Land Management*

- Reduce deer density throughout.
- Address selected invasive species problems, see descriptions of individual sites above.
  - Camp Woods: Norway maple, Japanese angelica-tree, poison-hemlock.
  - Prophecy Creek: five-leaf akebia
  - Fort Washington State Park: corktree
- The NLT should continue monitoring of grassland birds at Gwynedd Preserve and pursue efforts to improve breeding habitat.

### *Education and Interpretation*

- Use the recently constructed deer enclosure in the Militia Hill section of Fort Washington State Park to educate park users about the ecological damage caused by over abundant deer.

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