
CHAPTER 4. BIOLOGICAL RESOURCES

Wildlife

Terrestrial Wildlife

Background

Although an array of species inhabit its boundaries, severe habitat alterations from human activity have contributed to an historic decrease in terrestrial species diversity within the Sewickley Creek watershed. Historic data directly related to loss of habitat within the Sewickley Creek watershed is scarce; however, the destruction of key habitats has more than likely resulted in a negative impact to wildlife populations in the watershed. In fact, data for Pennsylvania reveal that the historic decrease in bird and mammal diversity in the state can be largely contributed to the degradation and loss of habitat (Gross 1998; Wright and Kirkland 1998). Continued loss of habitat on a watershed scale could lead to statewide declines in wildlife species.



*The Eastern Bluebird is a notable avian species within the watershed
(Source: Jeklin 1999)*

In addition to the Pennsylvania Game Commission's (PGC) wildlife species inventory, the Pennsylvania Herpetological Atlas Project (i.e. Atlas Project) inventories, provides distribution data, and creates a database of current reptile and amphibian species within Pennsylvania. The program is sponsored by the Wild Resources Conservation Fund along with private donations and is administered by Indiana University of Pennsylvania. The Atlas Project functions on a six-year time frame and is currently in its sixth field season.

Existing Conditions

Current land use changes and patterns remain challenging issues in terms of coexisting with terrestrial wildlife, especially in areas of rapid growth and development. Sewickley Creek watershed hosts a variety of terrestrial wildlife species from the red-tailed hawk (*Buteo jamaicensis*) to the long-tailed weasel (*Mustela nivalis*). PGC and Westmoreland Bird and Nature Club (WBNC) identified 156 bird species and 41 mammal species within the 168 square miles of the Sewickley Creek watershed (Appendix I).

The Atlas Project details amphibian and reptile species located within the Sewickley Creek watershed. Table 4-1 lists these species along with those identified by the WBNC.

Deer management has become an issue in the watershed as a result of an increase in the deer population as well as in increase in developed areas. Deer have enormous impacts on forests, agriculture, and on many other aspects of life. In the 1890s, nearly 70% of Pennsylvania's woodlands were converted to agricultural fields and deer were virtually nonexistent throughout the state. In 1970, antlerless deer received total protection, and with the regenerating forests, the deer population increased rapidly. Deer populations are currently exceeding the capacity of the environment to support it. When deer become overly abundant, they destroy not only their habitat,

but the habitat for many other species dependent on the area as well such as small game and turkey (Alt 2002).

Future Conditions and Recommendations

Strategic land use planning must be developed to avert habitat loss within the watershed and to promote biodiversity. Watershed-based land use planning is key to the conservation of habitat in conjunction with building a vibrant watershed economy. Education and a strong model of best management practices are also needed within the watershed.

In order to control deer populations, two goals must be accomplished. The first is to balance the deer herd with its environment. The second goal is to restore a more natural breeding ecology, which will lead to better buck-doe ratios, larger bucks, and greater hunter satisfaction. In order to achieve these goals, deer management plans should be implemented. A variety of methods have been proposed to control deer populations, but it is an ongoing process and needs the support of the PGC as well as the public (Alt 2002).

Terrestrial Wildlife Management Recommendations

- Encourage and provide education sessions for municipal officials on integrated land use planning incorporating habitat conservation and enhancing biodiversity.
- Develop a “model farm” demonstrating best management riparian areas that encourage prime habitat development.
- Purchase conservation easements at select prime habitat areas.
- Preserve native habitats by using strategies for land-use planning.
- Promote “Backyard” wildlife habitat program.
- Promote and support deer management strategies.

Aquatic Species

Background

The diversity, number, and type of fish and macroinvertebrates, organisms generally associated with soil or stream substrates that lack backbones and can be seen without magnification, within a stream often indicate the stream’s water quality. Water quality degradation from mining and nutrient enriching discharges has had a negative impact on native fish populations and habitat viability. For example, decreases in water quality have proven to substantially impact the historic range of the native brook trout, a species that exists within the Sewickley Creek watershed. In fact, in some areas, the non-native brown trout has overtaken the previous habitat of the brook trout, the dominant trout species (Argent et. al 1998). However, it is believed through water quality improvement projects such as mine drainage abatement, the diversity and number of fish have the potential to increase.

*Blacknose dace are common within the watershed
(Source: Schmidt n.d.)*



Table 4-1. Common reptiles and amphibians within the Sewickley Creek watershed

(Source: PA Herpetological Atlas 2002 and Westmoreland Bird and Nature Club 2003)

Common Name	Scientific Name	Common Name	Scientific Name
Eastern garter snake	<i>Thamnophis sirtalis</i>	Eastern box turtle	<i>Terrapene carolina</i>
Eastern milk snake	<i>Lampropeltis triangulum</i>	Red spotted newt	<i>Notophthalmus viridescens</i>
Northern black racer	<i>Coluber constrictor</i>	Northern dusky salamander	<i>Desmognathus fuscus</i>
Black rat snake	<i>Elaphe alleghaniensis</i>	Northern two-lined salamander	<i>Eurycea bislineata</i>
Northern ring neck snake	<i>Diadophis punctatus</i>	Northern spring salamander	<i>Gyrinophilus porphyriticus</i>
Queen snake	<i>Regina septemvittata</i>	Eastern red-backed salamander	<i>Plethodon cinereus</i>
Northern water snake	<i>Nerodia sipedon</i>	Northern slimy salamander	<i>Plethodon glutinosus</i>
Northern brown snake	<i>Storeria dekayi</i>	Eastern American toad	<i>Bufo americanus</i>
Northern copperhead	<i>Agkistrodon contortrix</i>	Northern spring peeper	<i>Pseudacris crucifer</i>
Smooth green snake	<i>Liochlorophis vernalis</i>	American bullfrog	<i>Rana catesbeiana</i>
Common snapping turtle	<i>Chelydra serpentina</i>	Northern green frog	<i>Rana clamitans</i>
Midland painted turtle	<i>Chrysemys picta marginata</i>	Wood frog	<i>Rana sylvatica</i>
Wood turtle	<i>Glyptemys insculpta</i>	Pickerel frog	<i>Rana palustris</i>

Although the mention of aquatic life typically conjures images of freshwater fish, side-by-side with fervent outdoors people and recreational anglers, tiny organisms living in the streams can be mistakenly underrated as an integral element in assessing the health of waterways. Fish require small insects and other organisms as food and various nutrients to live and thrive in waterways. For this reason macroinvertebrates are also used in determining the quality of water. Individual species of macroinvertebrates tolerate different levels of pollution. The presence of sensitive macroinvertebrates indicates good water quality because these organisms cannot tolerate much pollution.

Maintaining a healthy balance of all life forms is imperative. However, too many of these small organisms, such as toxic bacteria, can often be harmful. For example, when the bacteria *E. coli* is overabundant in the stream as a result of activities such as sewage discharges and cattle with full access to Sewickley Creek and its tributaries, moderate to severe risks to human health can result. Although nearly all municipal and on-lot water well systems provide filters to eliminate or greatly minimize the presence of organisms toxic to humans, the overabundance of these organisms can be too much for filters to handle. The result is a stream or waterway closed to swimming, fishing, and recreational use. A more detailed discussion of water quality issues is located in the Water Resources chapter.

Table 4-2. Common fish species within the Sewickley Creek watershed (Source: WPC 2001)

Common Name	Scientific Name
Blacknose Dace	<i>Rhinichthys atratulus</i>
Black Crappie	<i>Pomoxis nigromaculatus</i>
Bluegill	<i>Lepomis macrochirus</i>
Bluntnose Minnow	<i>Pimephales notatus</i>
Brook Trout	<i>Salvelinus fontinalis</i>
Brown Trout	<i>Salmo trutta</i>
Central Stoneroller	<i>Campostoma anomalum</i>
Centrarchid Hybrid	<i>Centrarchid spp. hybrid</i>
Channel Catfish	<i>Ictalurus punctatus</i>
Common Carp	<i>Cyprinus carpio</i>
Creek Chub	<i>Semotilus atromaculatus</i>
Emerald Shiner	<i>Notropis atherinoides</i>
Fantail Darter	<i>Etheostoma flabellare</i>
Freshwater Drum	<i>Aplodinotus grunniens</i>
Gizzard Shad	<i>Dorosoma cepedianum</i>
Golden Shiner	<i>Notemigonus crysoleucas</i>
Golden Redhorse	<i>Moxostoma papillosum</i>
Green Sunfish	<i>Lepomis cyanellus</i>
Johnny Darter	<i>Etheostoma nigrum</i>
Largemouth Bass	<i>Micropterus salmoides</i>
Log Perch	<i>Percina caprodes</i>
Mottled Sculpin	<i>Cottus bairdi</i>
Northern Hog Sucker	<i>Hypentelium nigricans</i>
Pumpkinseed Sunfish	<i>Lepomis gibbosus</i>
Rainbow Darter	<i>Etheostoma caeruleum</i>
Rock Bass	<i>Ambloplites rupestris</i>
Silver Shiner	<i>Notropis photogenis</i>
Smallmouth Bass	<i>Micropterus dolomieu</i>
White Sucker	<i>Catostomus commersoni</i>
Yellow Bullhead	<i>Ameiurus natalis</i>
Rosyface Shiner	<i>Notropis rubellus</i>

Existing Conditions

Fish are the most visible and often most visually spectacular of the freshwater aquatic species. The Pennsylvania Fish and Boat Commission (PFBC) stocks trout within two areas of the Sewickley Creek watershed: Sewickley Creek mainstem and Mammoth Dam. The Benners Springs PFBC hatchery near State College, PA provides trout to Sewickley Creek for pre-season and in-season stocking and to Mammoth Dam for pre-season, in-season, winter, and late winter stocking. The watershed is comprised of Warm Water Fisheries. No Class A Wild Trout Streams, PFBC Special Regulation Areas, or PA Wilderness Trout Waters exist within it. Fish species common to the Sewickley Creek watershed are listed in Table 4-2.

Two studies during the 1990s indicated changes in fish populations within Sewickley Creek as a result of the locations of abandoned mine drainage in the watershed. A 1997 study by Civil and Environmental Consultants found that the number and diversity of fish species collected below the Brinkerton mine discharge, which empties into Brinker Run, was much lower than above the discharge, before the water becomes impacted by the abandoned mine drainage (AMD).

A PFBC fish species study in the summer of 1993 (Miko and Lorson 1995) also discovered that the number of fish and fish species decreased below the Brinkerton

discharge. Although Brinkerton is not the only discharge within the watershed, the studies indicate how aquatic species can be affected by the introduction of contaminants to the stream. The Sewickley Creek watershed is riddled by many such discharges.

Future Conditions and Recommendations

Improvements to aquatic communities within the watershed would more than likely correspond to water quality improvements. Future plans for aquatic species should be correlated with water quality improvements, such as riparian buffer zone enhancement to provide shading for water temperature regulation and BMPs associated with streambank stabilization projects for habitat and riffle/pool development. Input during public meetings revealed a desire for increased fishable streams and visually enhanced aquatic habitats.

Aquatic Species Management Recommendations

- Work on AMD and sewage remediation projects to improve the viability of aquatic life in the watershed.
- Incorporate aquatic habitat improvements into streambank stabilization and water quality remediation projects.
- Evaluate present stream conditions through aquatic surveys.

Vegetation

Background

Tales of the northeastern United States prior to European settlement recall the historic vast, verdant forests inhabited by Native Americans. This portrait extends to the original setting of the Sewickley Creek watershed before major deforestation for mineral extraction and community development ensued. In the past century within the watershed, native vegetation has gone through periods of removal and regrowth as a result of uncontrolled land use practices.

The removal of native vegetation for various land use practices leaves a barren landscape, often stripped of nutrients and lighting characteristics that native plants need to grow. Because many foreign species are opportunistic and can flourish in extremely adverse conditions, land cleared of vegetation is prime ground for invasive species colonization.

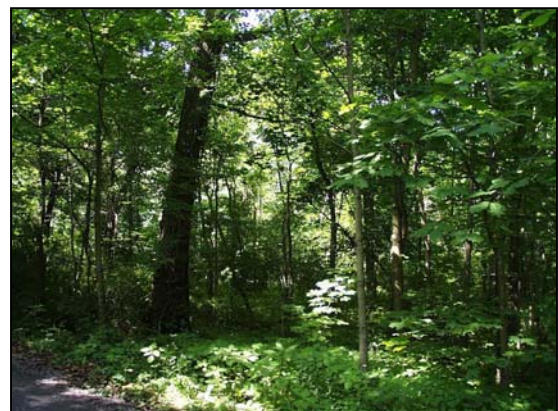
The rise of non-native species is evolving into a severe threat to Pennsylvania's native flora and those animals that depend on native plants for habitat, food, and shelter. Sewickley Creek watershed mirrors this trend. Invasive/exotic plant species have commanded the habitat of native plant populations, causing a struggle for survival among native species and impairing native ecosystems. Land development and land use alterations, such as urban growth, suburban sprawl, deforestation, road building, and wetland draining, have historically been the greatest threat to native plant communities (Thompson 2002).

Existing Conditions

Second and third growth deciduous forests, mostly located on gently rolling hillsides and steep slopes, are the dominant forest types within the Sewickley Creek watershed. According to the U.S. Department of Agriculture Forest Service's (USFS) ecoregion mapping (1994), the majority of the watershed is located within the Eastern Broadleaf Forest province, Southern Unglaciated Appalachian Plateau Section; however, a small segment of the easternmost portion of the watershed is located within the Central Appalachian Broadleaf Forest - Coniferous Forest - Meadow Province, Allegheny Mountains Section. The Southern Unglaciated Appalachian Plateau Section of the watershed is mapped as second and third growth mixed mesophytic forest and Appalachian oak forest, including mixed oak forest, oak-hickory-chestnut forest, oak-pine forest, hemlock forest,

Mixed mesophytic second and third growth forests are common within the watershed.

(Source WPC 2001)



floodplain forest, and swamp forest. The eastern portion of the watershed has been mapped by the USFS as including northeastern spruce-fir, northern hardwoods, mixed mesophytic, and oak-hickory-pine forests, all of which are significantly influenced by elevation and aspect (USFS 1994).

Native Species

Native plant species are those that occur naturally in the region. They grow and evolve and are the backbone of a healthy ecosystem. Just over 62 percent of current plant species in Pennsylvania are native to the state, and nearly 30 percent are listed as species of special concern, meaning that they are in danger of becoming extinct (Thompson 2002).

The deciduous broadleaf forest areas that remain within the watershed are predominately early successional stands with a poorly developed lower canopy. Disturbed areas, such as strip-mined lands, provide prime habitat for these early successional stands that are well adapted to nutrient-poor habitats. The fact that these early stands exist on disturbed land is a clear indication of the changes in native vegetation in the watershed.

Invasive/Exotic Species

Invasive species are the second greatest danger to our nation's plants and animals, with only the loss of habitat posing a greater threat. Sewickley Creek watershed is no exception to this threat. Invasive plants are environmentally noxious weeds that grow aggressively, spread easily, and displace other plants. They are hard to control, and if they escape from cultivation, can overtake large areas, degrading their habitat value not only for other plants, but insects, birds and other animals. Most invasive plants are non-native, meaning they were brought to North America from other continents. Some are native species that became pests when man altered their landscape, giving them an edge over other plants. The species listed below (Table 4-3) are some of the worst offenders in Pennsylvania.

Japanese Knotweed in flower

(Source: WPC 1998)



An aggressive invasive species, Japanese knotweed blankets many riparian and streamside areas along Sewickley Creek and its tributaries. As a result of its ability to spread rapidly, this highly opportunistic plant quickly colonizes streamside land cleared of vegetation. It forms dense thickets and overshadows any native species in germination thereby diminishing the opportunity for other natives to colonize the area (Remaley 2001). The root network that characterizes Japanese knotweed led to its use for erosion control and landscape screening, which aided in the spread of the species. The persistence of Japanese knotweed and its ability to grow and proliferate in a variety of adverse conditions makes it difficult to eradicate.

An invasive plant species survey is lacking within the Sewickley Creek watershed; however, Japanese knotweed (*Polygonum cuspidatum*) is most visibly prolific and appears to be invading streamside and some upland areas. The plant exemplifies the havoc invasive plants can wreak on ecosystems and streambank stability.

The Bureau of State Parks has implemented an Invasive Species Control Program, including the use of biological agents, to help alleviate the problem of invasive species. The program is of great benefit, especially when a particular species of concern or delicate natural area is in danger of attack. Furthermore, a native plant species initiative is in effect for all state parks. This initiative simply states that all new plantings will be a species native to the park.

Table 4-3. Some invasive species in Pennsylvania
 [Source: Department of Conservation and Natural Resources (DCNR) website, Keynotes Summer 1999]

Amur Honeysuckle	Autumn Olive	Beefsteak Plant
Bell's Honeysuckle	Birdsfoot Trefoil	Black Alder
Border Privet	Bugleweed	Bull Thistle
Canada Thistle	Cheat Grass	Climbing Euonymus
Common Privet	Common St. Johnswort	Crown-Vetch
Dame's Rocket	Doublefile Viburnum	Empress Tree
European White Birch	Fiveleaf Akebia	Giant Hogweed
Glossy Buckthorn	Gout Weed	Guelder Rose
Japanese Barberry	Japanese Knotweed	Japanese Spiraea
Jimson Weed	Johnson Grass	Kudzu
Leatherleaf Clematis	Linden Viburnum	Maiden Grass
Mile-A-Minute Vine	Morrow's Honeysuckle	Multiflora Rose
Orange Daylily	Paper Mulberry	Purple Loosestrife
Reed Canary Grass	Russian Olive	Shattercane
Siberian Elm	Standish Honeysuckle	Star-Of-Bethlehem
Sweet Breath of Spring	Sweet Clover	Sycamore Maple
Tall Fescue	Water Chestnut	White Mulberry
White Poplar	Wild Parsnip	Yellow Flag
English Ivy	Norway Maple	Garlic Mustard
Japanese Stilt Grass	Tree of Heaven	Mile A Minute Vine
Common Reed	Ground Ivy	Oriental Bittersweet

Tree City USA

Land use and vegetative components within urban environments assert a strong influence over water quality and quantity issues downstream. Impervious surfaces that blanket urban landscapes increase runoff and elevate subsequent contaminants entering the watershed. Healthy tree populations within urban environments lead to increased aesthetic value, water detention and infiltration, as well as decreased runoff.

As part of a National Arbor Foundation program, Greensburg, the most populated municipality within the watershed, is a designated Tree City USA. Becoming a Tree City USA requires that urban communities meet four specific criteria for systematic management of its tree resources. The requirements include:

- Development of a Tree Board or Department
- Designation of a Tree Care Ordinance
- Establishment of a Community Forest Program with an Annual Budget of at least \$2 per capita
- Observance and proclamation of Arbor Day

The Tree City designation adds to a healthier and more livable urban environment. Obtaining the designation of a Tree City provides a community with benefits in education, public image and publicity, citizen pride, financial assistance, and a framework for action.

Future Conditions and Recommendations

The collage of disturbed land in the watershed provides fertile ground for exotic species; therefore, an invasive species survey and subsequent management efforts are necessary. Preservation of native riparian areas is also called for, which would help to discourage the spread of non-native species.

Vegetation Management Recommendations

- Conduct a watershed-wide invasive species plant survey beginning at the sub-basin level, and a subsequent list of management recommendations.
- Compile an Internet database of native and exotic/invasive plant species within the watershed that can be accessed and added to by the public.
- Encourage other watershed municipalities, to become Tree Cities.
- Promote native tree plantings as part of surface mine reclamation plans.

Pennsylvania Rare, Threatened, and Endangered Species

Background

Within Pennsylvania, Rare, Threatened, and Endangered Species of plants and animals are tracked through the Pennsylvania Natural Diversity Inventory, or PNDI. The PNDI partnership is comprised of the DCNR, PGC, PFBC, U.S. Fish and Wildlife Service (USFWS), and the Pennsylvania Biological Survey, and conducts inventories and collects data to identify the Commonwealth's most sensitive and significant organisms and features. The purpose of the PNDI effort is to provide recent, accurate data on ecological resources for planning, conservation, and natural resource management throughout Pennsylvania.

Existing Conditions

The PNDI search for the Sewickley Creek watershed indicated that nine Pennsylvania Rare, Threatened, or Endangered Species exist within its boundaries (Table 4-4). Although a PNDI search showed seventeen species of concern within the watershed, those not listed in Table 4-4 had either no legal Pennsylvania PNDI status and/or were classified as having a tentatively undetermined status. A complete PNDI listing with Pennsylvania Status, Pennsylvania Rank positions, and descriptions of Pennsylvania Status and Ranks is included in Appendix J. The location and

*Tall larkspur is a PA
Endangered plant found
within the watershed*

(Keener 2001)



identification of individual species cannot be provided in order to protect the species. For more information, contact Western Pennsylvania Conservancy Natural Heritage Program.

Future Conditions and Recommendations

The PNDI list for the Sewickley Creek watershed should be an integral part of development planning within the watershed. Incorporating the species list and locations of the organisms into watershed land use planning efforts provides a unique and innovative use of this information, and links the watershed approach to local planning.

Table 4-4. PNDI species within the Sewickley Creek watershed (Source: Western Pennsylvania Conservancy 2001)

Scientific Name	Common Name	PA Status
<i>Bartramia longicauda</i>	Upland Sandpiper	PA Threatened
<i>Cuscuta cephalanthi</i>	Button-Bush Dodder	Tentatively Undetermined
<i>Delphinium exaltatum</i>	Tall Larkspur	PA Endangered
<i>Dryobius sexnotatus</i>	Six-Banded Longhorn Beetle	
<i>Erigenia bulbosa</i>	Harbinger-Of-Spring	PA Threatened
<i>Gomphus fraternus</i>	Brotherly Clubtail	
<i>Helianthus hirsutus</i>	Sunflower	No Legal Status - Proposed Tentatively Undetermined
<i>Lithospermum latifolium</i>	American Gromwell	PA Endangered - Proposed PA Rare
<i>Lycaena hyllus</i>	Bronze Copper	
<i>Nelumbo lutea</i>	American Lotus	PA Endangered
<i>Neotoma magister</i>	Allegheny Woodrat	PA Threatened
<i>Passiflora lutea</i>	Passion Flower	PA Endangered
<i>Penstemon laevigatus</i>	Beard Tongue	No Legal Status - Proposed Tentatively Undetermined
<i>Pyrolaria pubera</i>	Buffalo Nut	PA Rare
<i>Pyrolaria pubera</i>	Buffalo Nut	PA Rare
<i>Ranunculus micranthis</i>	Small Flowered Crowfoot	
<i>Speyeria idalia</i>	Regal Fritillary	No State Status
<i>Trillium nivale</i>	Snow Trillium	PA Rare
<i>Trillium nivale</i>	Snow Trillium	PA Rare
<i>Trillium nivale</i>	Snow Trillium	PA Rare

PA Rare, Threatened, and Endangered Species Management Recommendations

- Encourage and implement management of biologically sensitive plant species and faunal habitats.
- Develop a partnership and build on lessons learned from the Kiski-Conemaugh River Basin Alliance and National Park Service invasive species control project.
- Promote education and outreach to schools on biological diversity within the watershed and the vital importance of vegetation and animal protection.
- Appoint a liaison to work with a member of the Pennsylvania Biological Survey to submit recent identifications of rare, threatened, and endangered species within the watershed and to report any harm to these species' habitats.

Important Habitats

Natural Heritage Areas

Background

County Natural Heritage Inventories (CNHIs) are Pennsylvania's method of assessing areas of important flora, fauna, and ecological communities within each county. After a complete assessment and analysis of floral and faunal communities, a CNHI report is developed describing each Natural Heritage Area, its local and ecological significance, threats and stresses to the communities, and non-regulatory recommendations for management. Natural Heritage Inventories are conducted only within interested counties, with the county administering the study and WPC conducting the research in western Pennsylvania. The inventories are *non-regulatory*, meaning that they are not enforceable and hold no power in land use planning. However, the inventories can serve as efficient and practical tools to use for biological diversity management and enhancement, ecological protection, land use planning, and educational purposes.

Existing Conditions

During the Westmoreland County Natural Heritage Inventory, seven Natural Heritage Areas were identified within the Sewickley Creek watershed, including six Biological Diversity Areas (BDA's). The Natural Heritage Areas within the watershed, listed in Table 4-5 and shown on Figure 4-1, include:

1. Ann Rudd Saxman Nature Park

The historical and conservation value of the area designated as Ann Rudd Saxman Nature Park makes it an outdoor educational and recreational asset within the watershed. The Nature Park includes a maintained trail network and is located just east of Greensburg behind the recently refurbished Donohoe Center, which houses the

*Entrance to the Ann Rudd Saxman
Nature Park*

(Source: WPC 2002)



Westmoreland Conservation District. The Park is located within a semi-forested stream valley, including stands of American Beech (*Fagus grandifolia*), tulip poplar (*Liriodendron tulipifera*), maple (*Acer sp.*), black cherry (*Prunus serotina*), and red oak (*Quercus rubra*), along with an open meadow upland area. No specific recommendations were issued in the CNHI for the Nature Park, most likely because of its status of being maintained as a park.

2. Youngwood Swamp BDA

The Youngwood Swamp Biological Diversity Area (BDA) is a privately owned 50-acre remnant of a former extensive wetland valley, providing recreation and scientific education opportunities through its unique plant and animal life. The BDA is located along Jacks Run adjacent to the Borough of Youngwood. A former streetcar line runs through the wetland in the form of a raised rail bed, with cattails (*Typha latifolia*) filling most of the standing water throughout the wetland.

The CNHI suggests that any activities that would alter the hydrology or water quality of the wetland could result in negative effects to the BDA. The report recommends protection of this site through collaborative partnerships among the present owner, citizens, and local organizations.

3. Welty Run BDA

Welty Run BDA is located in the upper Sewickley Creek watershed, along the upper reaches of the Welty Run stream valley, and originates at the crest of Chestnut Ridge. Logging within the BDA has resulted in a varying canopy structure with red oak (*Quercus rubra*), white oak (*Quercus alba*), red maple (*Acer rubrum*), and black cherry (*Prunus serotina*) dominating the Dry-Mesic Acidic Central Forest community. Tulip poplar (*Liriodendron tulipifera*) is more common on the lower slopes near seepage areas, and a Pennsylvania Rare shrub grows within the upper reaches of the watershed.

Welty Run BDA (Source: WPC 2002)



Changes in the light structure at this site through increased logging activities or tree removal could adversely affect the Pennsylvania Rare shrub community located in this area. The CNHI recommends forging a partnership with the landowner and PennDOT for SR 130 road maintenance, which is located adjacent to the BDA, to work on detailed management recommendations for assuring this rare plant community remains located in the Welty Run valley.

4. Lowber Slopes BDA

Lowber Slopes was designated a BDA based upon the location of a plant species of special concern located within a forested section of the area. The BDA is positioned within a forested slope on the edge of a floodplain in Lowber, near the confluence of Sewickley Creek and the Youghiogheny River. The upper and mid-portions of the slope area are wooded, with red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), black maple (*Acer nigrum*), and hackberry (*Celtis occidentalis*) dominating, and a dense coverage of the invasive multiflora rose (*Rosa multiflora*) inhabiting most of the lower slope area.

The Lower Slopes BDA is threatened by several stressors, including the lack of best management practices in livestock grazing on the lower slopes, exotic species competition, especially multiflora rose, and changes in light levels and/or hydrology. The CNHI recommends working with the landowner, developing more detailed management recommendations, restricting grazing, and eradicating the multiflora rose population within the BDA.

5. Little Sewickley Creek Slopes BDA

The Little Sewickley Creek Slopes BDA designation resulted from a plant species of special concern located at the site. The BDA extends along a one-mile corridor following Little Sewickley Creek downstream of Herminie. Most of the site has been somewhat disturbed by a former railroad grade through the BDA and potential past agricultural activities. The threats to the plant community would include changes in light levels, woody plant species competition, disturbance to the roots and soils, and damage by off-road vehicles. The CNHI recommends working with the landowner, developing detailed management recommendations, and conducting an additional inventory of natural features at the site.

6. Sewickley Creek Slopes BDA

The Sewickley Creek Slopes BDA is an area of steep south and southwest slopes, located where Sewickley Creek begins its northerly flow downstream from Hutchinson. Two plant species of special concern are located in the BDA: one Pennsylvania Endangered and one Pennsylvania Tentatively Undetermined. Small stream valleys line the slopes, which are dominated by a Dry Mesic Calcareous Central Forest primarily of three oak species (*Quercus sp.*), redbud (*Cercis Canadensis*), and flowering dogwood (*Cornus florida*). The surrounding areas are mostly residential and agricultural areas. Another plant species of special concern, a Pennsylvania Rare plant, exists in the most downstream of the tributary valleys.

Several threats to the species of special concern in this area exist, including accelerated erosion, alterations in light levels, herbicides, exotic species, disturbance to roots and/or soils, and off-road vehicle use. Again, the CNHI suggests that management would require working with landowners in addition to adding forest buffers on the top portions of the slopes and uplands and monitoring the impacts of exotic, invasive species and off-road vehicles for increased protection.

Table 4-5. Natural Heritage Areas within the Sewickley Creek watershed (Source: WPC 1998)

USGS Quadrangle	Natural Heritage Area	Significance
Latrobe/Greensburg	Ann Rudd Saxman Nature Park	Managed Land
Mount Pleasant	Youngwood Swamp BDA	County Significance
Mammoth	Welty Run BDA	High Significance
Donora	Lober Slopes BDA	Notable Significance
Irwin/Smithton	Little Sewickley Creek Slopes BDA	High Significance
Smithton	Sewickley Creek Slopes BDA	Exceptional Significance
Smithton	Sewickley Creek Oxbow BDA	High Significance

7. Sewickley Creek Oxbow BDA

Located within agricultural fields and pasture with adjacent patches of forest, the Sewickley Creek Oxbow BDA is a wetland within a river oxbow at the base of a small linear hill. Three species of special concern, one Pennsylvania Endangered and two Pennsylvania Rare, grow in association with other herbaceous species located in forested patches along the hillsides. The BDA is a rather degraded area; however, three species of special concern make it a valuable site.

The threats to the BDA are changes in light levels, exotic species, the presence of multiflora rose (*Rosa multiflora*) and tartarian honeysuckle (*Lonicera tartarica*), and the effects on plants by poorly managed cattle grazing. Monitoring and removing exotic and invasive species, restricting cattle from the forested slopes and adjacent buffers, and working with the landowner to understand the importance and needs of the plants to help protect them are management strategies recommended by the CNHI.

Important Bird Areas

Background

Identifying and protecting outstanding habitat for avian and other wildlife species is the driving force behind the Important Bird Areas (IBA) program, established in 1996 throughout the United States. The National Audubon Society, in partnership with the American Bird Conservancy, identifies these habitats. Over 400 IBAs have been identified in the United States, including 73 in Pennsylvania alone. Important Bird Areas may be identified as critical habitats, such as spruce-fir bogs, bottomland hardwood swamps, and open grasslands, or other areas including migratory staging areas, winter feeding and roosting sites, and prime breeding habitat for multiple avian species (National Audubon Society 2001).

Scarlet tanagers are visually stunning in the wilderness (Source: LaTourrette 1983)



Although IBAs are established to conserve bird habitat, the program is also used to educate the public about habitat conservation as a whole. In addition, a stringent set of criteria is necessary to establish an area as an IBA (National Audubon Society 2001), which includes:

- Any site with a significant density and/or diversity of avian activity during breeding seasons, in winter, or during migration
- Sites that provide habitat to one or more species of Pennsylvania special concern
- Sites that provide habitat to one or more species on the Federal Threatened or Endangered species list
- Sites with representative, rare, threatened, or unique habitats, with birds characteristic of those habitats
- Sites where avian research is located

Existing Conditions

No IBAs exist within the Sewickley Creek watershed; however, the concentration of Natural Heritage Areas within the watershed could potentially lead to future classification of IBAs in the watershed.

Riparian Habitats

Background

Riparian habitats, those area adjacent to streams, are integral to the ecological health of watersheds and have been recognized for several decades as distinct ecologically significance areas as well as physical systems capable of trapping and filtering sediment, stabilizing streambanks, detaining upland runoff, and subsequently recharging groundwater supplies. Riparian areas serve as a vital link between aquatic and upland habitats and are located in varying widths along streams. Forested buffers offer greater benefits for stream bank stabilization through dense root systems, sediment and nutrient filtration, aesthetic diversity, and flood protection. Grass and shrub riparian zones also do well at filtering sediment, nutrients, pesticides, and microbes while providing economic viability and incentive for farmers who utilize stream-side land for agricultural production.

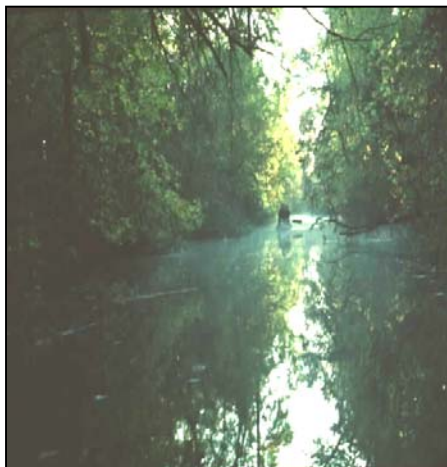
Riparian areas are ecological strongholds for food production, cover supply, and thermal protection for in-stream and riparian species. Woody and leafy debris from streamside trees of forested buffers provide food supply for aquatic fish, shellfish, insects, and amphibians, and can lower stream temperatures and provide shade during the summer months. Terrestrial wildlife also utilizes the rich habitats within riparian zones.

Existing Conditions

Within the Sewickley Creek watershed, riparian habitats have been altered by development within floodplains. The lack of vegetative buffers within the riparian areas leaves the adjacent stream, and subsequently the watershed, vulnerable to receiving increased runoff that carries

A healthy riparian area with dense streambank stabilization

(Source: WPC 2001)



nutrients, sediments, and contaminants from adjacent uplands and upstream areas. When vegetative buffers are replanted, stream quality typically increases as the streambank vegetation filters sediments, nutrients, and toxins before they reach the stream. In addition, the stream can again utilize its floodplain and decrease flood events, wildlife habitat increases, and streambanks are more stable, decreasing the amount of sediment carried to the stream.

Biotic Study Area

Background and Existing Conditions

A partnership including local volunteers, Sewickley Creek Watershed Association, the Western Pennsylvania Watershed Protection Program, the Heinz Endowments, the Katherine Mabis McKenna Foundation, Bobcat of Pittsburgh, Wilkinson's Nursery, and PGC, worked to develop a Biotic

Study Area at Westmoreland County Community College (WCCC) in Youngwood for students concentrating in environmental biology. The Biotic Study Area covers approximately 2,600 square meters (3,110 square yards) and was designed to include flora and fauna from a variety of geographic regions to provide a living laboratory for the identification of various plants, wildlife, and insects for various biology courses taught at WCCC. The joint effort provides evidence of the efficacy of partnership in habitat creation and conservation for outreach and educational advancement.

Future Conditions and Recommendations

The Westmoreland Bird and Nature Club (WBNC) and the Botanical Society of Westmoreland County (BSWC), both conservation-oriented groups active within the watershed, could recommend potential IBAs to the IBA technical committee, which reviews potential IBAs in Pennsylvania on a continual basis. The establishment of IBAs would help to enhance habitat conservation within the watershed. Riparian area ordinances would assist in maintaining designated buffer widths along all streams for any new development within the watershed. Implementation of riparian buffer ordinances would require well-coordinated efforts among municipal officials, the farming community, the Sewickley Creek Watershed Association, and scientific professionals to designate appropriate widths for varying land uses near the streams.

Other well-documented approaches to reestablishing riparian buffers in agricultural settings are streambank fencing initiatives and rotational grazing, which are becoming an anchor in agricultural communities throughout Pennsylvania. Cattle with full access to streams and the utilization of riparian areas by farm animals is not only extremely detrimental to water quality by dramatically elevating fecal coliform (*E. coli*) levels in the stream, but it also has a degrading effect to the health of the cattle by increasing the risk of injury and illness. A more detailed discussion of agricultural practices that can increase stream quality while benefiting farmers is located in the Water Resources chapter.

Important Habitats Management Recommendations

- Partner with WBNC and BSWC to identify and recommend IBAs in the watershed.
- Develop new Biotic Study Areas throughout the watershed and encourage local schools to utilize this resource, thereby fulfilling state curriculum requirements and broadening educational understanding of ecological resources.
- Utilize the Natural Heritage Inventories as a basis for multi-municipal comprehensive planning.
- Conduct public outreach and education programs on the use of CNHI's for municipal, trail, and natural resource planning with an additional focus on the opportunities CNHI's provide for increasing public understanding of the natural resources that exist within the watershed.
- Study and expand areas to be included in Natural HI's or BDA's.

