

## 4.0 Biological Resources

### 4.1 Critical Land Areas

#### Natural Areas Inventory Sites

Important natural features of the Cherry Creek watershed were first identified in 1991 with the completion of the *Monroe County Natural Areas Inventory*. This inventory was the result of a combined effort between the Department of Community Affairs, The Nature Conservancy, and Monroe County. An update of this report was conducted in 1999 in conjunction with the development of the Monroe County Open Space Plan, adopted in June 2001.

The emphasis of the *Monroe County Natural Areas Inventory* is upon locations for species listed as rare, threatened, or endangered in Pennsylvania and exemplary natural communities. A few of these species are listed by The Nature Conservancy as globally imperiled Exemplary Natural Communities. NAI sites are shown on the map of *Sensitive Lands* (Figure 4.1). NAI sites located within the watershed include:

- Hartman's Cave
- Mansfield Seep
- Cherry Creek Valley
- Aquashicola Creek Wetland
- Cherry Creek Fen
- Appalachian Trail (including the Big and Little Offset Barrens)
- Tott's Gap
- Mount Minsi
- Delaware Water Gap
- Delaware Water Gap View
- Cliff South of Lake Lenape

#### Natural Treasures Registry Sites

The Monroe County Open Space "Natural Treasures Registry" (NTR) project was initiated during preparation of the County Open Space Plan to allow County citizens and other interested individuals to suggest or identify areas of special interest or unique natural features that could be considered for eventual protection. Using a *Natural Treasures Registry* referral form, individuals and organizations were asked to identify and register "lost" natural areas that may not be included in existing County or state natural areas inventories. This effort is ongoing. The whole of Cherry Valley was nominated due to its unique bucolic and scenic quality and its important contribution to biodiversity at the state and federal level of importance.

#### The Nature Conservancy's Conservation Plan

The Nature Conservancy is a private not-for-profit organization that works to maintain biodiversity and protect endangered species and exceptional natural areas. With funding

from the Pennsylvania Fish and Boat Commission, The Nature Conservancy has recently conducted a wetland habitat management and monitoring plan.

The Valley's many special habitats include hillside seeps, limestone fen wetlands, and a bat hibernaculum. Located along the northern side of the Kittatinny Ridge, it is part of a premier bird migration corridor in North America, especially for birds of prey. Wolf Rocks, one of the most spectacular vistas along the Appalachian Trail, overlooks the Valley.

The Nature Conservancy's work to date in Cherry Valley includes the following activities:

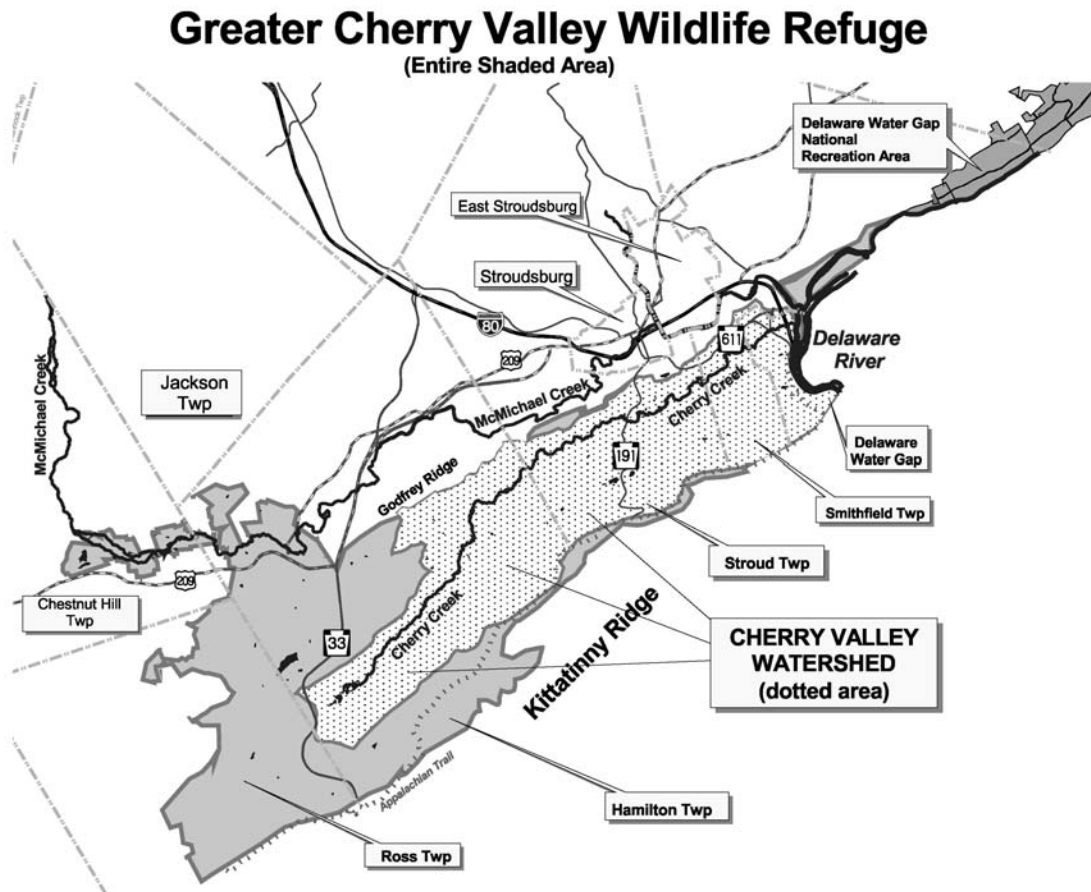
- Conducting inventories of rare plants, animals, and natural communities
- Helped the Pocono Heritage Land Trust preserve 110 acres on Lower Cherry Valley Road
- Acquired the 45-acre Domotor property (with more than a dozen springs and frontage along Cherry Creek)
- Acquired the 271-acre Blakeslee Farm (with extensive wetlands and approximately 3/4 mile frontage on both sides of Cherry Creek).
- Acquired a 165 acre conservation easement in the middle of the Valley.
- Begun removal of purple loosestrife, an invasive plant which rapidly spreads throughout wetland areas eliminating habitat for other plants and animals
- Developed a biological monitoring and management plan to guide wetland conservation, restoration, and management work
- Began wetland restoration and management at key sites throughout the Valley.
- Helped local land owners apply to the Monroe County Agricultural Preservation Program for the sale of agricultural easements
- Discussing additional conservation options with landowners throughout the Valley

### **Greater Cherry Valley Wildlife Refuge**

Due to the unique and rich diversity of the watershed biological resources and with the support of many organizations, such as the local municipalities, the Pocono Heritage Land Trust, The Nature Conservancy, the Monroe County Agricultural Land Preservation Board and the Monroe County Conservation District, a citizen's group "Friends of Cherry Valley" is spearheading an effort to establish a National Wildlife Refuge, which would allow interested landowners to sell land or conservation easements to the U.S. Fish and Wildlife Service on a strictly voluntary basis. The boundary of this Greater Cherry Valley Wildlife Refuge identifies an area of over 33,000 acres of potential interest. The centerpiece of this is 13,000 plus acres in the Cherry Valley Watershed (see map insert below). A letter and petition campaign was initiated during the summer of 2003 in order to approach Congress for this designation. A National Wildlife Refuge will provide local landowners with one additional tool to contemplate as they consider the future of their land. And, importantly, it could bring significant financial resources to help meet the

area's conservation challenges. In addition, a National Wildlife Refuge could provide additional staff resources to help inventory, manage, and restore habitat for native plants and wildlife.

The National Wildlife Refuge System is the only national network of public lands in the world set aside specifically for the conservation of fish, wildlife, and plants. Its mission is to administer a national network of lands and waters for the conservation, management and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. Comprising more than 500 refuges in 50 states and five U.S. territories and encompassing 93 million acres, the Refuge System boasts more units than the National Forest System and more acres than the National Park System. National Wildlife Refuges are special places with significant natural resources where the US Fish and Wildlife Service acquires land and/or conservation easements. Each refuge has an 'Acquisition Boundary' within which the Service can acquire land from willing sellers. Land that is acquired by the Service comprises the 'Refuge Boundary'. Lands within the Refuge Boundary are managed for wildlife and habitat conservation.



### **Guiding Principles of the National Wildlife Refuge System**

We are land stewards, guided by Aldo Leopold's teachings that land is a community of life and that love and respect for the land is an extension of ethics. We seek to reflect that land ethic in our stewardship and to instill it in others.

Wildlands and the perpetuation of diverse and abundant wildlife are essential to the quality of the American life.

We are public servants. We owe our employers, the American people, hard work, integrity, fairness, and a voice in the protection of their trust resources.

Management, ranging from preservation to active manipulation of habitats and populations, is necessary to achieve Refuge System and U.S. Fish and Wildlife Service missions.

Wildlife-dependent uses involving hunting, fishing, wildlife observation, photography, interpretation, and education, when compatible, are legitimate and appropriate uses of the Refuge System.

Partnerships with those who want to help us meet our mission are welcome and indeed essential.

Employees are our most valuable resource. They are respected and deserve an empowering, mentoring, and caring environment.

We respect the rights, beliefs, and opinions of our neighbors.

### **Important Bird Areas (IBA)**

IBA is a bird habitat conservation project administered by the National Audubon Society. The IBA program is a global effort to identify the areas that are most important for maintaining bird populations, and focus conservation efforts at protecting these sites. IBAs are cited by the PA Department of Conservation and Natural Resources (DNCR) as important to consider during the development of a Pennsylvania Watershed Conservation Plan.

Important Bird Areas are sites that provide essential habitat for one or more species of bird. IBAs include sites for breeding, wintering, and/or migrating birds. IBAs may be a few acres or thousands of acres, but usually they are discrete sites that stand out from the surrounding landscape. IBAs may include public or private lands, or both, and they may be protected or unprotected.

To qualify as an IBA, sites must satisfy at least one of the following criteria. The site must support:

- Species of conservation concern (e.g. threatened and endangered species);
- Restricted-ranges species (species vulnerable because they are not widely distributed);

- Species that are vulnerable because their populations are concentrated in one general habitat type or biome; or
- Species, or groups of similar species (such as waterfowl or shorebirds), that are vulnerable because they occur at high densities due to their congregatory behavior.

Audubon Pennsylvania's Important Bird Areas Program was the first to develop a state IBA program in the United States. Based on strict scientific criteria, a group of scientific advisors (known as the Ornithological Technical Committee) selected 73 Important Bird Areas encompassing over one million acres of public and private lands. These sites include migratory staging areas, winter-feeding and roost areas, and prime breeding areas for songbirds, wading birds and other species. They also include critical habitats, such as spruce-fir bogs, tidal saltmarsh, bottomland hardwood swamps, and open grasslands. A technical committee selects IBA sites on an ongoing basis in Pennsylvania.

The entire Kittatinny Ridge (#51) is considered an Important Bird Area, encompassing 280 square miles of forested ridge. This ridge forms the southern boundary of Monroe County, and is a major land feature of the Cherry Creek watershed. The Kittatinny Ridge is the premier raptor migration corridor in the northeastern United States.

## **4.2 Wildlife**

The biologic quality of Monroe County in general and especially of the greater Cherry Valley area is recognized not only by the county itself, but also by the Commonwealth of Pennsylvania, the U.S. Environmental Protection Agency, and the Nature Conservancy. In a preliminary evaluation, the U.S Environmental Protection Agency has identified Monroe County as an area of high biodiversity within the Middle Atlantic Region of the United States. Biodiversity is defined by the EPA as "the variety and variability among living organisms and the ecological complexes in which they occur".

### **Terrestrial Wildlife**

The landscape of the Cherry Creek watershed, with its forests and streams, ponds, and bogs, provides valuable habitat for wildlife. The most well-known mammal species are game animals, including black bear and white tailed deer. Squirrel, raccoon, woodchuck, skunk, and opossum are found in the more developed areas of the watershed. Common furbearers include mink, muskrat, beaver, and otter, all of which are associated with and depend upon clean water. A 1995 study of Monroe County found a total of 231 species in the county: 40 species of herpetofauna, 147 species of birds, and 44 species of mammals. Based on observations of Randy Schuler, local trapper, and bat hibernaculum investigations by James Hart the Cherry Creek watershed supports the following mammals:

#### **Marsupials:**

- Virginia Opossum (*Didelphis virginiana*)

### **Insectivores**

- Eastern Mole (*Scalopus aquaticus*)
- Star-nosed Mole (*Condylura cristata*)

### **Bats**

- Eastern Small-footed Myotis (*Myotis leibii*) – Threatened
- Little Brown Myotis (*Myotis lucifugus*)
- Northern Myotis (*Myotis septentrionalis*) – Rare
- Eastern Pipistrelle (*Pipistrellus subflavus*)
- Big Brown Bat (*Eptesicus fuscus*)

### **Lagomorphs**

- Eastern Cottontail (*Sylvilagus floridanus*)
- Snowshoe Hare (*Lepus americanus*)

### **Rodents**

- Eastern Chipmunk (*Tamias striatus*)
- Woodchuck (*Marmota monax*)
- Gray Squirrel (*Sciurus carolinensis*)
- Red Squirrel (*Tamiasciurus hudsonicus*)
- Northern Flying Squirrel (*Glaucomys sabrinus*) – Restricted
- Beaver (*Castor canadensis*)
- Common Muskrat (*Ondatra zibethicus*)
- Porcupine (*Erethizon dorsatum*)

### **Carnivores**

- Coyote (*Canis latrans*)
- Red Fox (*Vulpes vulpes*)
- Gray Fox (*Urocyon cinereoargenteus*)
- Black Bear (*Ursus americanus*)
- Raccoon (*Procyon lotor*)
- Ermine (*Mustela erminea*)
- Long-tailed Weasel (*Mustela frenata*)
- Mink (*Mustela vison*)
- Striped Skunk (*Mephitis mephitis*)
- Northern River Otter (*Lutra canadensis*) – At Risk

### **Even-Toed Hoofed Mammals**

- White-tailed Deer (*Odocoileus virginianus*)

### **Reptiles and Amphibians**

A wide variety of amphibians and reptiles inhabit the woods, meadows, wetlands, and waters of the Cherry Creek watershed. Amphibians evolved from fishes about 350 million years ago to become earth's first terrestrial vertebrates and are still dependent upon clean water in one important way – for reproduction. Jelly-like eggs are laid in

water, hatch into gilled larvae or tadpoles, and later metamorphose into air-breathing amphibians. These adults are still dependent upon water for their survival – they need to maintain moist skins even in their terrestrial lives. Amphibians are often dependent upon “vernal pools” for their reproduction. Formed by spring runoff in wooded depressions, these pools lack predatory fish and turtles and provide a safe area for breeding before drying up in mid-summer. Reptiles evolved about 300 million years ago from amphibians. They are completely terrestrial in their breeding and inhabit both terrestrial and aquatic habitats. Research at selected properties in Cherry Valley by Herpetological Associates in 2002 and 2003 included five turtle species, five snake species, and 12 amphibian species which are listed below. This is by no means a comprehensive list of the Valley's reptiles and amphibians, but does represent definitive species found on specific properties in the Valley:

Turtles:

- Common Snapping Turtle (*Chelydra s. serpentina*)
- Eastern Box Turtle (*Terrapene c. carolina*)
- Eastern Painted Turtle (*Chrysemys p. picta*)
- Spotted Turtle (*Clemmys guttata*)
- Wood Turtle (*Glyptemys [Clemmys] insulpta*)

Snakes:

- Eastern Garter Snake (*Thamnophis s. sirtalis*)
- Eastern Ribbon Snake (*Thamnophis s. sauritus*)
- Eastern Milk Snake (*Lampropeltis t. triangulum*)
- Northern Brown Snake (*Storeria d. dekayi*)
- Northern Water Snake (*Nerodia s. sipedon*)

Frogs & Toads:

- American Toad (*Bufo americanus*)
- Northern Spring Peeper (*Pseudacris c. crucifer*)
- Bullfrog (*Rana catesbeiana*)
- Green Frog (*Rana clamitans*)
- Pickerel Frog (*Rana palustris*)
- Wood Frog (*Rana sylvatica*)

Salamanders:

- Red Spotted Newt (*Notophthalmus v. viridescens*)
- Northern Dusky Salamander (*Desmognathus f. fuscus*)
- Redback Salamander (*Plethodon cinereus*)
- Longtail Salamander (*Eurycea l. longicauda*)
- Northern Two-lined Salamander (*Eurycea bislineata*)
- Northern Red Salamander (*Pseudotriton r. ruber*)

The biggest problem facing reptiles and amphibians in the watershed is loss of habitat. Motor vehicles also kill a large number of amphibians and reptiles as they cross roads.

### **Aquatic Wildlife**

The Cherry Creek watershed supports coldwater fishes throughout most of its length. A total of fifteen fish species were collected from four sampling stations in September 2000. The number of taxa declined in a downstream direction with ten species in the western two sampling sites, nine at the site just east of mid-valley and seven at the easterly sampling site located in Delaware Water Gap. Three species (wild brown trout, white sucker and American eel) were found at all four stations.

The Creek has a reproducing wild trout population along its entire length, but numbers decrease from source to mouth, likely due to a decline in habitat quality, and perhaps because of warmer water temperatures. The decrease is attributed to the lack of pools, the scarcity of boulders and cobbles to support aquatic macroinvertebrates, sand-gravel deposits that cause low-velocity flats, and the paucity of instream refuge and foraging sites for trout of all sizes.

The estimated biomass of wild brown trout in the two sampling stations nearer the source of Cherry Creek greatly exceeded the PA Fish and Boat Commission's standard for Class A trout streams (44 pounds per acre), at 312 pounds per acre near the hatchery and 154 pounds per acre several miles downstream (at the Cherry Valley Methodist Church). Wild and hatchery-bred brown, brook and rainbow trout were found together only at the sampling station near the hatchery. The full report by Aquatic Resources Consulting is included in *Appendix D - Fishery Survey of Cherry Creek*

### **Avian Wildlife (Birds)**

Bounded on the north by Godfrey's Ridge to the south by the Kittatiny Ridge, the Cherry Creek watershed, in southern Monroe County, PA is home to a rich and varied avifauna. The geologic history of uplift and folding of the earth's crust, combined with more recent periods of glaciation and present day hydrologic forces, have created a diversity of habitats, ridge top hardwood forests, intact riparian life zones and a mosaic of wetland types that provide for birds during all stages of the annual cycle.

The Kittatiny Ridge (Blue Mountain) is the southern boundary of the Cherry Valley. Perhaps most famous for the fall migration of diurnal raptors recorded along its length from places like Hawk Mountain, the Kittatiny Ridge provides excellent nesting habitat for a variety of neotropical migrants and resident species alike. Recent surveys conducted by the Pocono Avian Research Center indicate that the Cerulean Warbler, a species showing severe population declines across much of its historic breeding range, is doing well on the Kittatiny Ridge. Scarlet Tanager, Yellow-throated Vireo and Worm-eating Warbler were also found in good numbers during breeding bird surveys along the ridge.

In the bottomland forests and wetlands associated with the main stem of Cherry Creek there are varying degrees of human land uses which are indicative of an agrarian community, along with burgeoning residential development. The Pocono Avian Research Center has conducted two years of breeding bird surveys at various locations along Cherry Creek. The results of these studies indicate that there are a good number of Neotropical migrants, and resident birds using these habitats for breeding, including Wood Thrush, Veery, Ovenbird, Golden-crowned Kinglet, Acadian Flycatcher, Ruby-

throated Hummingbird and Blue-headed Vireo. Many of these birds are listed on the National Audubon Society's *Watchlist* for PA. Preliminary interpretation of the surveys showed that sites with human alterations showed greater species diversity, primarily grassland, and edge species, while the undeveloped tracts with intact riparian zones had higher densities of neotropical migrants.

The Kittatiny Ridge is world renowned for its use by fall migrating diurnal raptors. Every species of diurnal raptor found in the northeastern United States and Canada, including Northern Goshawk, Peregrine Falcon and Northern Harrier, has been recorded along the Kittatiny Ridge. Reports of Bald Eagle and Osprey are becoming much more frequent not just from the ridge top but along Cherry Creek. Evidence is also building that the Cherry Valley and Kittatiny Ridge are providing critical stop over habitat during spring and fall migration for many birds not just raptors. Owls and Nightjars are found throughout the watershed. The most common of the nocturnal raptors is the Barred Owl, which is associated with swamps and bottomland forests. In the dryer forests and in more developed areas the Great-horned Owl and Screech Owl are found. There is some evidence that the smallest of our nocturnal raptors, the Northern Saw-whet Owl, uses the valleys of the Cherry Creek Watershed as migration corridors. The nocturnal bird of concern now is the Whip-poor-will, which seems to be disappearing from the forests of the watershed and the entire region at an alarming rate.

During the annual Christmas Bird Counts conducted by the Pocono Audubon Society the Cherry Creek watershed is one of the few places in the region to regularly report Yellow-rumped Warbler and Bluebirds. Depending on conditions, several species of northern finches such as the Evening Grosbeak, Pine Siskin, Common Redpolls and Crossbills can be found in the watershed. The heavily forested nature of the watershed makes it prime habitat for woodpeckers and several of the rarer species are found here including the Red-headed Woodpecker, the Pileated Woodpecker and the Yellow-bellied Sapsucker.

Game birds can be found throughout the watershed. Mourning Dove, Ruffed Grouse, Ring-necked Pheasant and Wild Turkey all call the fields, forests and hedgerows of the valley home. In addition shorebirds can be seen foraging throughout the emergent wetlands and on along the widely meandering banks of Cherry Creek.

Non-migratory Canada Geese, domestic ducks and geese are a growing problem within the watershed. They pollute the waters with fecal matter, damage crops, and create unsanitary environments along water edges, Starlings and House Sparrows are not the problem in the Cherry Creek watershed that they are in some other agrarian communities but they are still causing problems for other cavity nesting birds. The Brown-headed Cowbird's impact on overall bird populations in the watershed is not yet known.

Due to its unique natural history and varied habitats, the Cherry Creek watershed is home to a wonderfully diverse avifauna. The greatest threat to bird populations in the Cherry Valley is habitat manipulation as either fragmentation or outright loss. Continued research by the Audubon Society and Pocono Avian Research Center will be invaluable

in recording the changing dynamics of avian populations in the watershed and monitoring the effectiveness of resource management on a habitat scale.

### ***4.3 Pennsylvania Natural Diversity Inventory Species***

The Pennsylvania Natural Diversity Inventory (PNDI) database was established in 1982 as a joint effort of the Pennsylvania Science Office of The Nature Conservancy, the Pennsylvania Department of Environmental Resources (now the Department of Conservation and Natural Resources), and the Western Pennsylvania Conservancy. Since its development, the PNDI database has become Pennsylvania's chief storehouse of information on outstanding natural habitat types (natural communities). Its focus is on species rarity and areas of highest natural integrity in order to protect the full range of biological diversity in region. A complete listing of PNDI species obtained from the Pennsylvania Natural Heritage Program is contained in *Appendix E - PNDI List for Cherry Creek Watershed*.

The US Fish and Wildlife Service has identified 80 species and natural communities of concern in the Greater Cherry Valley Area including:

- 3 Federal Endangered Species (1 is historic)
- 3 Federal Threatened Species
- 9 PA Endangered Species
- 7 PA Threatened Species
- 3 PA Rare Species
- 2 species suspected of decline in PA
- 1 national Critically Endangered Ecosystem
- 1 national Endangered Ecosystem
- 1 national Threatened Ecosystem
- 3 PA Special Concern Natural Communities
- 3 US Fish and Wildlife Service Aquatic Species of Special Concern
- 23 US Fish and Wildlife Service Nongame Species of Management Concern
- 8 North America Wetland Conservation Act Priority Waterfowl Species
- 16 US Fish and Wildlife Service Bird Species of Regional Concern

#### **Important Habitats**

The emphasis of both the Pennsylvania Natural Diversity Inventory (PNDI) database and the *Monroe County Natural Areas Inventory* is upon locations for outstanding natural habitat types, exemplary natural communities, and rare, threatened, or endangered species. NAI sites are shown on the map of *Sensitive Land Areas* (Figure 4.1).

Cherry Valley is part of a major flyway for birds of prey along Blue Mountain (Kittatinny Ridge) including but not limited to:

- peregrine falcon (US Fish And Wildlife Service nongame species of management concern),
- red-shouldered hawk (US Fish And Wildlife Service nongame species of management concern),
- northern harrier (US Fish And Wildlife Service nongame species of management concern),
- American kestrel (US Fish And Wildlife Service species of regional concern)

Kittatinny Ridge migration corridor is considered a National Endangered Ecosystem and “Riparian Forest” as found in the watershed is considered a National Threatened Ecosystem.

The Cherry Creek watershed also provides habitat for numerous other bird species including:

- 23 US Fish and Wildlife Service Nongame Species of Management Concern
- 8 North American Wetland Conservation Act Priority Waterfowl Species
- 16 US Fish and Wildlife Service Bird Species of Regional Concern;

...and many other local species of mammals, reptiles, amphibians, and insects.

## ***4.4 Vegetation***

The Valley's many special habitats include hillside seeps, limestone fen wetlands, and a bat hibernaculum. Located along the northern side of the Kittatinny Ridge, it is part of a premier bird migration corridor in North America, especially for birds of prey. Wolf Rocks, one of the most spectacular vistas along the Appalachian Trail, overlooks the Valley

### **Land Cover**

The entire watershed is heavily forested, and agricultural use is limited to the drier sections of the floodplain extending back to the base of the mountains, mostly in the upper and mid-valley region.

### **Wetland/Aquatic Community**

Cherry Valley was formed as a result of glaciers, glacial lakes and lake bottom sediment. Some have said that the mud in the valley is as much as 80 feet deep in some spots. The resultant numerous, high-yield springs throughout the valley help create and maintain a unique system of wetlands. Limestone rock provides a high pH parent material that produces soils supporting a diversity of special plants and natural communities.

According to the Nature Conservancy, at least ten rare plant species exist in the Valley including:

- *Carex bebbii*, Bebb's sedge
- *Carex flava*, yellow sedge
- *Conioselinum chinense*, hemlock-parsley
- *Epilobium strictum*, downy willow-herb
- *Eriophorum viridicarinum*, thin leaved cotton-grass
- *Lobelia kalmii*, brook lobelia
- *Parnassia glauca*, grass-of-Parnassus
- *Ranunculus trichophyllus*, water-crowfoot
- *Troillius laxus*. Spreading globeflower
- And, the Hillside graminoid fen plant community

The Nature Conservancy began taking an interest in the valley in 1999, and they have had scientists complete an on-the-ground inventory of rare plants and animals found here. One of the rare species uncovered is the small aquatic buttercup that occurs in Cherry Creek. The buttercup looks like seaweed in the water and prefers clean streams in limestone valleys. Another plant on the Pennsylvania list of rare species found here is grass-of-Parnassus as well as many others, more fully described below. Limestone wetlands or fens also are present in Cherry Valley, as well.

### **Invasive Species**

Exotic plants are a serious threat to the watershed. These species grow aggressively, spread, and displace native plants that have more value as forage and habitat for indigenous animal species. In addition, invasive species can disturb or alter natural communities within an ecosystem, often upsetting the natural balances required to keep these systems functioning properly. Endangered, rare, and threatened native species are especially at risk.

Invasive plants are generally undesirable because they are difficult to control. Most invasive plants arrived from other continents and as such are often referred to as "exotic," "alien," "introduced," or "non-native." Invasive plants are noted for their ability to grow and spread aggressively. They can be trees, shrubs, vines, grasses, or flowers. Invasive plants have the ability to reproduce rapidly by roots, seeds, shoots, or by a combination of all three. They also have the ability to adapt to a diverse range of growing conditions and once established, exploit or colonize these areas. Second to habitat loss from development, invasive plants are the next major factor contributing to the decline of native plants in the watershed.

Recognition of invasive plants, understanding the potential damage they can cause, managed control, and most importantly, avoiding the use of them in plantings, is essential to stopping their spread and protecting native vegetation.

The following species have been documented by DCNR Bureau of Forestry as serious threats in Northeastern Pennsylvania and are present in the Cherry Creek watershed:

Amur Honeysuckle	<i>Lonicera maackii</i>	Shrub - seeds spread by birds
Autumn Olive	<i>Elaeagnus umbellata</i>	Shrub - seeds spread by birds
Bull Thistle	<i>Cirsium vulgare</i>	Noxious Weed – seed in open fields
Canada Thistle	<i>Cirsium arvense</i>	Noxious Weed – seed in open fields
Garlic Mustard	<i>Alliaria petiolata</i>	Noxious Weed – seed in woodland understory
Jap. Honeysuckle	<i>Lonicera japonica</i>	Vine – seed spread by birds
Jap. Stilt Grass		
Multiflora Rose	<i>Rosa multiflora</i>	Shrub – seed spread by birds
Norway Maple	<i>Acer platanoides</i>	Tree – straight species spread by seed
Oriental Bittersweet	<i>Celastrus orbiculatus</i>	Vine – spread by seed
Purple Loosestrife	<i>Lythrum salicaria</i>	Wetland Flower - root or seed in waterways
Reed Grass	<i>Phragmites australis</i>	Wetland grass - forms huge colonies
Reed Canary Grass		
Tatarian honeysuckle	<i>Lonicera tatarica</i>	Vine- seed spread by birds
Tree of Heaven	<i>Ailanthus altissima</i>	Tree – spread by seed
Jap. Knotweed	<i>Polygonum cuspidatum</i>	Noxious Weed - dense stands in wet areas

There is a native strain of *Phragmites* which appears to not be a threat to native plant communities. The foreign strain is, however, one of the most significant invasive plant threats. Several *Phragmites* patches in the valley appear to not be exhibiting invasive behaviors and may be native strains. These patches shall be monitored.

The Nature Conservancy has been working with volunteers to remove Purple Loosestrife at critical areas in Cherry Valley. To date these efforts have been rather effective at significantly reducing Purple Loosestrife and encouraging native vegetation. Future efforts will examine other invasives at key sites including *Phragmites australis*, Reed Canary Grass, and Japanese Stilt Grass



[Insert map of Sensitive Lands]

