

Appendices

Appendix A – Public Meeting Notes, Steering Committee Meeting Notes, and Field Trip Notes

South Mountain Preserve Study Public Meeting Pool Wildlife Sanctuary, Environmental Enrichment Center Emmaus, PA 6-15-04

Attendees:

Bernie Morris (Lehigh Valley Audubon Society), Jim Schneck (Emmaus, Trail Mapper), Gene Scharle (Allentown Hiking Club), Jim Noonan (Adjoining Land Owner), Heather Dorn (volunteer/attorney), Alisa Bauman (Sierra Club), Jonathan Logan, Wayne DeAngelis (Adjoining Landowner), Roger Persing (Adjoining Landowner - West Rock Road), Jan Keim (Resident), Karen Poshefko (Resident - Glenwood Road), Matt Fay (Scoutmaster Troop 5), Olivia Fay, Tom Gettings (Director of Special Projects – Wildlands Conservancy), Jeff Kline (Preserves Manager – Wildlands Conservancy), Dick Cary (ForestLand Consulting), Mark Bowman (South Mountain Outdoor Club, South Mountain Cycles), Tom Kerr (President - Wildlands Conservancy), Debra Lermite (Director of Land Conservation and Planning – Wildlands Conservancy), John Royer and Chris Kocher (Director of Rivers and Chief Program Officer – Wildlands Conservancy)

Opening: Debra Lermite, Director of Land Conservation and Planning at the Wildlands Conservancy, opened the meeting by welcoming the public and thanking them for their interest. She introduced the staff of the Wildlands Conservancy and the members of the South Mountain Study Steering Committee. She stated that the mission of the Wildlands Conservancy (“the Conservancy”) is to preserve, protect, and enhance the land, water, ecology, and recreational resources of the Lehigh River Watershed and beyond. Part of this mission, Lermite stated, includes the South Mountain Preserve (“the Preserve”) encompasses 283 acres and the larger Robert Rodale Reserve, totaling more than 750 acres.

Vision: Lermite said that her vision as project manager for the South Mountain Preserve Conservation, Greenways, and Trails Plan (“Stewardship Plan”) is much like that of the famous landscape architect and designer of Central Park, Frederick Law Olmstead, “to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” Lermite said that her philosophy like Olmstead’s is that people need nature to combat the stresses of life. People need a quality of place and a quality of life. She believes that South Mountain’s environment provides a natural setting for the residents of the Lehigh Valley and should for future generations through its passive and active recreation.

History: Tom Kerr, President of the Wildlands Conservancy, read the history of the South Mountain Preserve from its beginning as the Walter Tract from the Fall 1976 issue of the Wildlands Conservancy’s Newsletter, to Bob Rodale’s call to preserve the tract immediately (Fall 1977 issue), to the Rodale’s donation of the Walter’s Tract to the Conservancy (Spring

1978 issue) and, finally, to the added acreage (Summer 1978 issue). Kerr ended by quoting one issue stating that the South Mountain Preserve provides the green backdrop of our valley.

Development of the South Mountain Preserve Conservation, Greenways, and Trails Plan:

In response to a question from Matt Fay of the South Mountain Steering Committee regarding the purpose of the meeting, Lermite spoke of the recent grant the Wildlands Conservancy received from the Pennsylvania Department of Conservation and Natural Resources' (DCNR), Bureau of Recreation and Conservation to identify and document the cultural, natural, historical, recreational, ecological, and geological resources of the South Mountain Preserve. As part of the grant requirements, the Conservancy started the South Mountain Steering Committee comprised of local residents, community officials, environmental organizations, and recreation organizations. Also, the grant required the Conservancy to hold public meetings to tell the community what the Conservancy was doing, its vision and gain public input into the study. Lermite said that the Conservancy would hold three more public meetings, one in the fall of 2004, one to present the draft of the Stewardship Plan in spring 2005, and the final one to present the final Stewardship Plan in June 2005. The DNCR grant will run to June 2005. Lermite said that the Stewardship Plan will balance the ecological and environmental needs of the Preserve; provide recommendations for the recreational and educational opportunities to benefit the community; provide recommendations for the management of the property; and provide recommendations for the potential expansion of the Preserve.

The South Mountain Preserve

Lermite described the South Mountain Preserve as encompassing 283 acres that are located in the Borough of Emmaus, Salisbury Township, and Upper Saucon Township. South Mountain's ridge runs northeast- southwest. Lermite explained that regionally South Mountain's ridge is part of the Appalachian Ridge. On a smaller scale, the Blue Ridge reaches south to the Carolinas and, locally, it is part of the Reading Prong.

Lermite stated that South Mountain is also part of the Highlands Region, which runs from Pennsylvania, northeast through NJ, NY and into CT. Wildlands Conservancy is a member of the Highlands Coalition, which seeks to protect and enhance the natural and human communities in this region. South Mountain is on the Highlands Coalition's list of critical treasures in Pennsylvania. Geologically, Lermite informed the group that a receding glacier formed South Mountain 1 million years ago leaving some of the oldest boulders in Pennsylvania. These 1 billion year old boulders on South Mountain are considered a National Landmark as a natural area and referenced in many books. As a Pennsylvania Natural Area Inventory Site, South Mountain is home to five rare or threatened plant species. The forest is a maturing second growth forest. The forest had been cleared in the past for mining iron ore and for charcoal to smelt the iron ore. South Mountain provides a prime breeding habitat for amphibians and the nesting habitat for more than 59 species of birds. The forest is large enough to support songbirds that migrate through in May.

Current Research

Currently, Lermite stated that the Conservancy is underway mapping the Preserve with GIS software to examine property boundaries, municipal boundaries, preserved land, geology, soils, hydrology, topography, parcels, roadways, land use, use areas, and environmentally sensitive

areas. The Conservancy is using Global Positioning System (GPS) to accurately locate trails and important features. With this information, Lermite explained, the Conservancy will analyze the local and regional stewardship issues. Some of the top issues to be examined are identifying priority lands to be added to the Preserve, safety, destruction of environmentally sensitive areas, trespassing and vandalism, hunting, deer over-population and impact, and trail locations and conditions.

Deer Issue: In regards to the deer problem, Fay asked if the Preserve can handle a herd of 30 deer. Dick Cary of ForestLand Consulting said that the Preserve could handle a herd of two. Currently, Lermite stated there is no hunting allowed on the Preserve and that the Steering Committee is looking into how to control the deer population.

Land Acquisition: Jan Keim stated that Stewardship Plan should consider preserving a broader area than just the existing Preserve land. She read from the original Conservancy Acquisition and Planning Commission's recommendation of November 20, 1973 to the Board of Directors of the Wildlands Conservancy. She read that the recommendations stated the first priority area for action was to preserve land from the Delaware River to the western border of Lehigh County with particular attention to the urbanizing areas. Jim Noonan said that he thought tract 77 had just been sold in his area. Lermite stated that the Conservancy wants to identify priority lands (priority lands being undeveloped tracts). When asked why the Conservancy needed the study, Kerr replied that the study was necessary in order to get state grants.

Forest Issue: Wayne DeAngelis asked whether the study was considering tree harvesting to make money to buy land. Cary replied that if any tree harvesting would be recommended it would not be for the sale of timber but for new growth for the forests longevity and stewardship. Cary informed the group of the health of South Mountain's forest. He explained that all the trees on the mountain are basically the same age. There is no diversity of age. He also explained that deer are eating much of the new growth. Tom Gettings of the Wildlands Conservancy mentioned that the planning commission has strict guidelines for logging. One example for which logging is permitted is for bio-diversity. Jonathan Logan suggested that the Conservancy think of a Conservation Development Design or Open Space Development Design. A discussion arose regarding the development of greenways. Kerr and Lermite stated that with any lands acquired with state funding, public access is required.

Property Line and Signage Issue: A discussion arose about many people trespassing on private property due to the lack of property line markings, and some people posting private property signs on Preserve property. Lermite agreed that there were many trail issues and stated that the Conservancy wants to be a good neighbor. Gettings hopes the Stewardship Plan will provide for well-maintained, well-signed trails for people to follow. Lermite added that the trails should also take into account sensitive areas for bird nesting and amphibian breeding.

Fund Raising Issue: Lermite in response to a question asked by Karen Poshefko explained that the portions of the study are being conducted by outside contractors. Poshefko a United Way Fundraiser, volunteered to organize fundraisers and contact adjacent landowners to start the ball rolling to acquire funds to expand the Preserve.

Education Issue: Gettings said that it is his desire that Stewardship Plan will contain money for educational signs for the historic, geological, and environmental sites. This brought up the discussion on whether more usage will cause more problems.

Regional Issue: The Meeting ended with a discussion about how would the Stewardship Plan would fit into other regional preservation projects like the Two Rivers Project, the Greenway Plan, the Highlands Stewardship Area, the Blue Mountain - Kittatinny Ridge Conservation Project, the Delaware Historical Project and the local project to connect Emmaus to South Mountain.

South Mountain Preserve Study Public Meeting
Pool Wildlife Sanctuary, Environmental Enrichment Center
Emmaus, PA
5-11-06

Attendees: William and Rebecca Nonemaker, Chad B. Seibert, Stuart Rogers, Matt, Sharron Ettinger, Tom Kerr, Tom Gettings, Debra Lermite

Opening: Debra Lermite gave a power point presentation overview of the draft *South Mountain Preserve Study Conservation, Greenways, and Trails Plan*, focusing at the end on draft recommendations. She stated that there is a 30-day comment period for the people to provide input for the draft plan.

Comments:

Stuart Rogers: What can we [the Conservancy] do to encourage use? This will help awareness. Is it the lack of advertising?

Lermite: There are opposing views – recreation vs. ecology. We believe that both can be accomplished on the South Mountain Preserve. We need to provide more information and improve our means of communication.

Tom Getting: We would emphasize education over ecology.

Matt: Add more benches, a pavilion, or a nature lodge, perhaps fire pits made out of stone like at Big Rocks Park.

Chad Seibert: Is on the side of ecological purity. We have enough parks, benches, etc. What can we do to cut down on vandalism? Sometimes increasing population doesn't help.

Lermite: Studies have shown that the more people on the trails, the more users take ownership and are the 'eyes and ears.' It's call the 'Broken Glass Theory.' We cannot and do not plan to stop recreation; we need to have more users so that the place feels used and not abandoned.

Matt: There are frogs living in the cistern. Why do we want to cover the cistern?

Lermite: It is an attractive nuisance and needs to be addressed. There are plenty of places for the frogs to move to and live.

Rogers: Could East Penn support us in funding the educational endeavors?

Gettings: Colleges also use it as an outdoor classroom. That is a good way to go.

Final Public Meeting – June 15, 2006; 15 days to reply after that.

South Mountain Preserve Study Public Meeting
Pool Wildlife Sanctuary, Environmental Enrichment Center
Emmaus, PA

6-15-06

Attendees: Fritz Brock, Karen Poshefko, Mario Spagnoletti, Bob Harold, Dave and Sally Keehn, Debra Lermite

Opening: Debra Lermite gave a power point presentation overview of the final *South Mountain Preserve Study Conservation, Greenways, and Trails Plan*, focusing on the final recommendations. She stated that there is a 15-day comment period for the people to provide input for the draft plan.

Comments: Discussion focused on the need for the preservation of the South Mountain ridge and surrounding natural areas, with specifics about impending development projects such as the Salisbury Township School District 49-acre parcel. Concern was expressed for the quality of drinking water and the increased frequency of flooding. Suggestions were made for fundraising to help with acquisition and conservation easements.

South Mountain Study Steering Committee
Meeting Notes

10-6-04

Attendees:

Fritz Brock (Lehigh Valley Audubon Society), Heather Dorn (volunteer/attorney), Matt Fay (Scoutmaster Troop 5), Jeff Kline (Wildlands Conservancy), Tom Getting (Wildlands Conservancy), Jan Keim (resident), Gabriel Khalife (Salisbury Township), Jim Schneck (resident), Debra Lermite (Wildlands Conservancy), Maria Rodale

Unable to attend: Mark Bowman (South Mountain Outdoor Club, South Mountain Cycles), Alisa Bauman (Lehigh Valley Sierra Club), Bruce Fosselman (Borough of Emmaus), Tom Kerr (Wildlands Conservancy), Dick Carey (ForestLand Consulting), Gene Scharle (Allentown Hiking Club)

Opening: Debra Lermite started the meeting by updating the committee on the status of the studies. She mentioned that the bird and plant surveys are still on going. She said that next South Mountain Steering Committee and the next public meeting will be held in January. Lermite then passed out aerial, topographical and trail maps of South Mountain. The maps showed not only South Mountain Preserve, but also the Robert Rodale Reserve. Maria Rodale raised the question of why was the Robert Rodale Reserve listed differently than the South Mountain Preserve. Lermite said that she would research the name differences and report back to the Committee. Lermite then gave a slide presentation on the South Mountain Preserve that highlighted the major maintenance issues. A spreadsheet of 83 points, including specific maintenance issues, provided documentation of the slides in the presentation. [The Steering Committee meeting largely focused on main issues. A slide show of the trail on the South

Mountain Preserve highlighted specific maintenance issues at specific locations. Handouts included field notes from two site visits and information on deer management.]

Main issues on South Mountain Preserve:

- Property boundaries – delineation and posting
- Trail management
- Forest management
- Signage – directional, interpretative, informational
- Policies enforcement and violation

Issues discussed included:

Trail management issues and possible solutions:

- Erosion
 - waterbars across trails
 - bridges
 - stepping stones
 - new trail head
 - change trail locations
- Sedimentation into streams
 - install boardwalk(s) over wet areas and streams
 - waterbars across trails
 - create switchback trails to replace straighter trails on slopes
- Widening of trails at wet areas
 - extending or installing boardwalks
- Renegade trails
 - informational signage and clearly marked property boundaries
 - refurbish existing barriers
- Cisterns
 - cover w/ metal plate(s)

Signage issues and possible solutions:

- Lack of clear boundaries
 - clearly post boundaries
 - monitor for vandalism and false signage
- Kiosks vandalized
 - refurbish kiosks and include maps w/ “You are here.”
 - install informational and interpretative signage
- Lack of maps
 - provide posted and portable maps at key trailheads and locations
 - provide an informational/educational booklet that includes maps, history of the area, history of the park, natural features, lists of wildlife, etc.
- Name trails
- Signage for closed off areas or signage to say “Stay on the trail” - e.g. erosion control, environmentally sensitive area, Spotted and Jefferson lizard migration area

Vandalism/Abusive recreational use issues and possible solutions:

- Vandalism of kiosks, signage, etc.
 - install surveillance cameras
 - check with the Delaware & Lehigh National Heritage Corridor (D&L) and Appalachian Trail Conference (ATC) to learn how they have handled these issues
- ATVs
 - place fallen trees across trails to discourage ATV riders
 - install surveillance cameras (could also monitor deer)

Suggested Action Steps:

- Input from neighbors – especially the Girls Scout Mountain House
- Re-evaluate area to-date considered sensitive to determine validity
- Clarify the names “Robert Rodale Reserve” and “South Mountain Preserve,” and their relationship to each other

South Mountain Preserve – Field Trip Notes

Field Trip Date: 8-18-04

Attendees: Jeff Kline (Wildlands Conservancy), Dick Cary (ForestLand Consulting), Jim Schneck (Emmaus residence), Debra Lermite (Wildlands Conservancy)

The group met at the Alpine Street trailhead, and walked the major trails on the lower and middle elevations of the Preserve.

Trailhead and entrance trail:

- Receives the most foot and bike traffic

Lower elevation areas:

- Erosion evident on trails
- Trails are widened by users due to standing water and wet areas
- Renegade trails
 - Need for lower level loop trail
 - Check unofficial trailheads
- Higher population of deer
- Open meadow at one time; now overgrown
 - Use brush hog to expand meadow area to early successional meadow
 - Create loop path through it
 - Encourages biodiversity in birds and wildlife
- Exotic invasive plant species
 - Autumn olive
 - Fox grape
 - Japanese stilt grass
 - Tartarian honeysuckle
- Ashes dying out – possible future hazards

Environmentally-sensitive area

- Silt from erosion on bridge
- Trail still closed off by split-rail fence, but people going around
- Erosion off trails (including Cistern Trail) into quarries and ponds
- Trail not closed at unofficial trailhead at apartment complex

Cistern Trail

- Less usage evident
- Large, fallen tree across trail has aided in closing trail
- Erosion – water bars needed
- Open cistern
 - Attractive nuisance
 - Check with landowner about water rights (Kistler)

Boulder area

- Heavily used area
- Swinging rope put up by climbers
- Broken small trees

Switchback Trail

- Erosion at bottom of trail
 - Sedimentation into stream
 - More water bars needed
- Renegade trail created by users going to overlook

Stream crossings

- Several areas on lower level trail
- Sedimentation into streams from trails
- Bikers kick up sediment as they ride through stream crossing
- Possible solutions
 - Stepping stones
 - Boardwalks (permits needed – USACE – GP7?)
- Old stone wall near wet area – move trail on other side of wall?

Overall:

- Incorrect signage of boundaries
- Vandalism
 - Barriers (split-rail fences, etc.)
 - Signage
 - Kiosks
- Erosion on steeper trails
- Trails widened around wet areas
- Users (generally) keep the trails clear of trash
- Mapping
 - All official and unofficial access points
 - Management issue areas

South Mountain Preserve – Field Trip Notes

Field Trip Date: 9-22-04

Attendees: Jeff Kline (Wildlands Conservancy), Dick Cary (ForestLand Consulting), Jim Schneck (Emmaus residence), Debra Lermite (Wildlands Conservancy)

Rodale House – meadow:

- Miscanthus (an non-native, ornamental grass) has escaped someone's landscaping and is spreading

Old Carriage Road

- Stone gate posts, old carriage road and wall remnants need interpretative signage

Upper Cistern Trail

- Challenging hike – rough terrain
- Erosion on steeper section
- Switchbacks and/or water bars needed

Upper Trail

- Many renegade trails
- Some trails going onto adjacent properties
- Good area for demonstration are of selective timbering to thin trees for the overall health of the forest (check township ordinances about timbering)
- Understory thicker than on lower elevations, but still not enough for regeneration

Land on eastern side of PPL R-O-W

- No official trails
- Good area for regeneration demonstration (check township ordinances about timbering)
- Opportunity to connect to the Mountain House Girl Scout Camp

Main Management Issues on South Mountain Preserve:

1. Property boundaries – delineation and posting
2. Trail management – including clear markings
3. Forest management
4. Deer management
5. Signage – directional, interpretative, informational
6. Policies enforcement

Appendix B – Master List of Biota

I. Plant communities

Plants are listed in alphabetical order by scientific name and arranged by cover type. Dominant species are noted with **D** (bold type). Introduced (exotic) species are noted with [I]. Introduced and native herbs appear under separate headings within the plant lists when the number of introduced herb species within a given community is high.

Natural Communities – Plant Lists:

Red oak – mixed hardwood forest/ Tuliptree – beech – maple forest

Canopy Trees

<i>Acer platanoides</i>	Norway maple		[I]
<i>Acer rubrum</i>	Red maple		
<i>Acer saccharum</i>	Sugar maple		
<i>Betula lenta</i>	Black birch		
<i>Carya cordiformis</i>	Bitternut hickory		
<i>Carya glabra</i>	Pignut hickory		
<i>Carya ovata</i>	Shagbark hickory		
<i>Carya tomentosa</i>	Mockernut hickory		
<i>Fagus grandifolia</i>	American beech		
<i>Fraxinus americana</i>	White ash		
<i>Fraxinus pennsylvanica</i>	Red ash		
<i>Juglans nigra</i>	Black walnut		
<i>Liriodendron tulipifera</i>	Tuliptree	D	
<i>Prunus avium</i>	Sweet cherry		[I]
<i>Prunus serotina</i>	Black cherry		
<i>Quercus alba</i>	White oak		
<i>Quercus rubra</i>	Red oak		
<i>Quercus montana</i>	Chestnut oak	D	
<i>Quercus velutina</i>	Black oak	D	
<i>Ulmus americana</i>	American elm		

Understory Trees

<i>Acer platanoides</i>	Norway maple		
<i>Acer rubrum</i>	Red maple		
<i>Acer saccharum</i>	Sugar maple		
<i>Amelanchier laevis</i>	Serviceberry		
<i>Betula lenta</i>	Black birch	D	
<i>Carya glabra</i>	Pignut hickory		
<i>Carya ovata</i>	Shagbark hickory		
<i>Carya tomentosa</i>	Mockernut hickory		
<i>Castanea dentata</i>	American chestnut (sprouts)		
<i>Cornus alternifolia</i>	Alternate-leaved dogwood		
<i>Cornus florida</i>	Flowering dogwood		
<i>Fagus grandifolia</i>	American beech		

	<i>Fraxinus pennsylvanica</i>	Red ash	D	
	<i>Liriodendron tulipifera</i>	Tuliptree	D	
	<i>Nyssa sylvatica</i>	Black gum		
	<i>Ostrya virginiana</i>	Hop-hornbeam		
	<i>Prunus avium</i>	Sweet cherry		[I]
	<i>Prunus serotina</i>	Black cherry		
	<i>Quercus montana</i>	Chestnut oak		
	<i>Quercus rubra</i>	Red oak		
	<i>Sassafras albidum</i>	Sassafras		
Shrubs				
	<i>Berberis thunbergii</i>	Japanese barberry		[I]
	<i>Elaeagnus umbellata</i>	Autumn olive		[I]
	<i>Euonymus alata</i>	Winged euonymus		[I]
	<i>Hamamelis virginiana</i>	Witch-hazel		
	<i>Ligustrum spp.</i>	Privet		[I]
	<i>Lindera benzoin</i>	Spicebush	D	
	<i>Lonicera morrowii</i>	Morrow's honeysuckle		[I]
	<i>Rosa multiflora</i>	Multiflora rose		[I]
	<i>Rubus allegheniensis</i>	Common blackberry		
	<i>Rubus phoenicolasius</i>	Wineberry		[I]
	<i>Viburnum acerifolium</i>	Maple-leaved viburnum		
	<i>Viburnum dentatum</i>	Southern arrow-wood		
	<i>Viburnum prunifolium</i>	Blackhaw		
Vines				
	<i>Amphicarpaea bracteata</i>	Hog-peanut		
	<i>Lonicera japonica</i>	Japanese honeysuckle		[I]
	<i>Parthenocissus virginiana</i>	Virginia creeper		
	<i>Smilax herbacea</i>	Carrion-flower		
	<i>Smilax rotundifolia</i>	Greenbrier		
	<i>Toxicodendron radicans</i>	Poison-ivy		
	<i>Vitis spp.</i>	Grape		
Herbs (native)				
	<i>Aralia nudicaulus</i>	Wild sarsaparilla		
	<i>Arisaema triphyllum</i>	Jack-in-the-pulpit		
	<i>Asarum canadense</i>	Wild ginger		
	<i>Aster divaricatus</i>	White wood aster		
	<i>Chimaphila maculata</i>	Spotted wintergreen		
	<i>Cimicifuga racemosa</i>	Black cohosh		
	<i>Circaea lutetiana</i>	Enchanter's nightshade		
	<i>Conopholis americana</i>	Squaw-root		
	<i>Geranium maculatum</i>	Wood geranium		
	<i>Hepatica nobilis</i> var. <i>obtusata</i>	Liverleaf		
	<i>Impatiens capensis</i>	Jewelweed		
	<i>Maianthemum canadense</i>	Canada mayflower		
	<i>Medeola virginiana</i>	Indian cucumber-root		
	<i>Mitchella repens</i>	Partridge-berry		

<i>Monotropa uniflora</i>	Indian-pipe		
<i>Osmorhiza longistylis</i>	Anise-root		
<i>Oxalis dillenii</i>	Southern yellow-wood sorrel		
<i>Podophyllum peltatum</i>	May-apple		
<i>Polygonatum biflorum</i>	Solomon's-seal		
<i>Potentilla canadensis</i>	Cinquefoil		
<i>Prenanthes trifoliolata</i>	Gall-of-the-earth		
<i>Ranunculus abortivus</i>	Kidney-leaf buttercup		
<i>Sanguinaria canadensis</i>	Bloodroot		
<i>Sanicula odorata</i>	Fragrant snake-root		
<i>Smilacena racemosa</i>	False Solomon's-seal		
<i>Solidago caesia</i>	Blue-stem goldenrod		
<i>Thalictrum pubescens</i>	Tall meadow-rue		
<i>Thalictrum thalictroides</i>	Rue anemone		
<i>Uvularia perfoliata</i>	Bellwort		
<i>Uvularia sessilifolia</i>	Wild-oats		
<i>Viola pubescens</i>	Downy yellow violet		
<i>Viola rotundifolia</i>	Round-leaved yellow violet		
<i>Viola sororia</i> var. <i>sororia</i>	Common blue violet		
Herbs (introduced)			
<i>Alliaria petiolata</i>	Garlic mustard	D	[I]
<i>Allium</i> spp.	Field garlic		[I]
<i>Barbarea vulgaris</i>	Winter-ress		[I]
<i>Galium odoratum</i>	Sweet woodruff		[I]
<i>Hesperis matronalis</i>	Dame's rocket		[I]
<i>Hieraceum piloselloides</i>	King-devil		[I]
<i>Polygonum persicaria</i>	Lady's-thumb		[I]
<i>Taraxacum officinale</i>	Dandelion		[I]
Ferns and Fern Allies			
<i>Adiantum pedatum</i>	Maidenhair fern		
<i>Athyrium felix-femina</i>	Lady fern		
<i>Botrychium virginianum</i>	Rattlesnake fern		
<i>Dennstaedtia punctilobula</i>	Hay-scented fern		
<i>Dryopteris carthusiana</i>	Spinulose woodfern		
<i>Dryopteris carthusiana x intermedia</i>	Triploid wood fern		
<i>Dryopteris intermedia</i>	Evergreen wood fern		
<i>Dryopteris marginalis</i>	Marginal wood fern		
<i>Huperzia lucidula</i>	Shining clubmoss		
<i>Onoclea sensibilis</i>	Sensitive fern		
<i>Polypodium virginianum</i>	Rock polypody		
<i>Polystichum acrostichoides</i>	Christmas fern		
<i>Thelypteris noveboracensis</i>	New York fern		
Grasses			
<i>Microstegium vimineum</i>	Stiltgrass		[I]
<i>Muhlenbergia sobolifera</i>	Creeping muhly		
<i>Panicum</i> spp.	Panic-grass		

Rushes and Sedges

<i>Carex pensylvanica</i>	Pennsylvania sedge
<i>Carex radiata</i>	Star sedge
<i>Carex rosea</i>	Sedge
<i>Carex swanii</i>	Swan's sedge
<i>Carex virescens</i>	Hairy-fruited sedge
<i>Juncus tenuis</i> var. <i>tenuis</i>	Path rush

Dry oak – heath forest

Canopy Trees

<i>Betula lenta</i>	Black birch	
<i>Liriodendron tulipifera</i>	Tuliptree	
<i>Quercus montana</i>	Chestnut oak	D
<i>Quercus rubra</i>	Red oak	D
<i>Quercus velutina</i>	Black oak	D

Understory Trees

<i>Acer rubrum</i>	Red maple
<i>Carya tomentosa</i>	Mockernut hickory
<i>Castanea dentata</i>	American chestnut (sprouts)
<i>Cornus florida</i>	Flowering dogwood
<i>Fagus grandifolia</i>	Beech
<i>Prunus serotina</i>	Black cherry
<i>Quercus montana</i>	Chestnut oak
<i>Quercus rubra</i>	Red oak
<i>Quercus velutina</i>	Black oak
<i>Sassafras albidum</i>	Sassafras

Shrubs

<i>Berberis thunbergii</i>	Japanese barberry		[I]
<i>Kalmia latifolia</i>	Mountain laurel	D	
<i>Lindera benzoin</i>	Spicebush		
<i>Rhododendron periclymenoides</i>	Pinxter-flower		
<i>Rubus phoenicolasius</i>	Wineberry		[I]
<i>Rubus</i> spp.	Blackberry		
<i>Vaccinium pallidum</i>	Lowbush blueberry		
<i>Vaccinium stamineum</i>	Deerberry		
<i>Viburnum acerifolium</i>	Maple-leaved viburnum		

Vines

<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Smilax rotundifolia</i>	Greenbrier
<i>Toxicodendron radicans</i>	Poison-ivy

Herbs (native)

<i>Arabis canadensis</i>	Sicklepod
<i>Antennaria</i> spp.	Pussytoes
<i>Aralia nudicaulis</i>	Wild sarsaparilla

	<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	
	<i>Chimaphila maculata</i>	Spotted wintergreen	
	<i>Conopholis americana</i>	Squaw-root	
	<i>Goodyera pubescens</i>	Downy rattlesnake-plantain	
	<i>Hieraceum venosum</i>	Rattlesnake-weed	
	<i>Monotropa uniflora</i>	Indian-pipe	
	<i>Paronychia fastigiata</i>	Whitlow-wort	
	<i>Polygonatum biflorum</i>	Solomon's-seal	
	<i>Uvularia sessilifolia</i>	Wild-oats	
Herbs (introduced)			
	<i>Alliaria petiolata</i>	Garlic mustard	[I]
Ferns			
	<i>Dryopteris marginalis</i>	Marginal wood fern	
	<i>Polypodium virginianum</i>	Rock polypody	
	<i>Polystichum acrostichoides</i>	Christmas fern	
	<i>Pteridium aquilinum</i>	Bracken fern	
Grasses			
	<i>Microstegium vimineum</i>	Stiltgrass	[I]
	<i>Muhlenbergia sobolifera</i>	Creeping muhly	
Sedges			
	<i>Carex pensylvanica</i>	Pennsylvania sedge	
	<i>Carex virescens</i>	Sedge	

Circumneutral Skunk Cabbage Seep

Trees			
	<i>Betula lenta</i>	Black birch	
	<i>Carpinus caroliniana</i>	Hornbeam	
	<i>Liriodendron tulipifera</i>	Tuliptree	
	<i>Nyssa sylvatica</i>	Black gum	
	<i>Ostrya virginiana</i>	Hop-hornbeam	
	<i>Quercus palustris</i>	Pin oak	
Shrubs			
	<i>Lindera benzoin</i>	Spicebush	
	<i>Sambucus canadensis</i>	Common elder	
Vine			
	<i>Smilax herbacea</i>	Carrion-flower	
Herbs (native)			
	<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	
	<i>Cardamine pennsylvanica</i>	Pennsylvania bittercress	
	<i>Impatiens capensis</i>	Jewelweed	
	<i>Lycopus spp.</i>	Water hore-hound	
	<i>Ranunculus caricetorum</i>	Swamp buttercup	
	<i>Saxifraga virginensis</i>	Early saxifrage	
	<i>Symplocarpus foetidus</i>	Skunk cabbage	D
	<i>Thalictrum pubescens</i>	Tall meadow-rue	

<i>Veratrum viride</i>	False-hellebore	
<i>Viola blanda</i>	Sweet white violet	
<i>Viola cucullata</i>	Blue marsh violet	
<i>Viola sororia</i> var. <i>sororia</i>	Common blue violet	
Herbs (introduced)		
<i>Polygonum persicaria</i>	Lady's-thumb	[I]
<i>Rorripa nasturtium-aquaticum</i>	Watercress	[I]
Ferns		
<i>Adiantum pedatum</i>	Maidenhair fern	
<i>Athyrium felix-femina</i>	Lady fern	
<i>Dryopteris intermedia</i>	Evergreen wood fern	
<i>Onoclea sensibilis</i>	Sensitive fern	
<i>Osmunda claytonia</i>	Interrupted fern	
<i>Osmunda cinnamomea</i>	Cinnamon fern	
<i>Polystichum acrostichoides</i>	Christmas fern	
<i>Thelypteris hexagonoptera</i>	Broad beech fern	
<i>Thelypteris palustris</i>	Marsh fern	
Grasses and Sedges		
<i>Carex gracillima</i>	Graceful sedge	
<i>Carex radiata</i>	Star sedge	
<i>Carex styloflexa</i>	Sedge	
<i>Carex tribuloides</i>	Sedge	
<i>Glyceria striata</i>	Fowl mannagrass	

Herbaceous vernal ponds

Shrubs

<i>Alnus serrulata</i>	Smooth alder	
<i>Lindera benzoin</i>	Spicebush	
<i>Hamamelis virginiana</i>	Witch-hazel	
<i>Rhododendron viscosum</i>	Swamp azalea	
<i>Smilax spp.</i>	Carrion-flower; Greenbrier	
<i>Viburnum prunifolium</i>	Blackhaw	

Disturbed communities – Plant Lists:

Young miscellaneous forest / woodland

Canopy Trees

<i>Acer negundo</i>	Box-elder	
<i>Acer platanoides</i>	Norway maple	
<i>Acer rubrum</i>	Red maple	D
<i>Acer saccharinum</i>	Silver maple	
<i>Fraxinus pennsylvanica</i>	Red ash	D
<i>Juglans cinerea</i>	Butternut	
<i>Juglans nigra</i>	Black walnut	D

<i>Liriodendron tulipifera</i>	Tuliptree		
<i>Pinus nigra</i>	Austrian pine		[I]
<i>Pinus strobus</i>	Eastern white pine		
<i>Populus grandidentata</i>	Big-tooth aspen		
<i>Prunus avium</i>	Sweet cherry		[I]
<i>Prunus serotina</i>	Black cherry		
<i>Quercus rubra</i>	Red oak		
<i>Sassafras albidum</i>	Sassafras		
Understory Trees			
<i>Acer negundo</i>	Box-elder		
<i>Acer rubrum</i>	Red maple		
<i>Ailanthus altissima</i>	Tree-of-heaven		[I]
<i>Albizia julibrissin</i>	Mimosa		[I]
<i>Cornus florida</i>	Flowering dogwood		
<i>Cercis canadensis</i>	Redbud		
<i>Crataegus spp.</i>	Hawthorn		
<i>Juniperus virginiana</i>	Red cedar		
<i>Malus spp.</i>	Crabapple		[I]
<i>Morus spp.</i>	Mulberry		
<i>Quercus palustris</i>	Pin oak		
<i>Prunus serotina</i>	Black cherry		
<i>Sassafras albidum</i>	Sassafras		
Shrubs			
<i>Berberis thunbergii</i>	Japanese barberry		[I]
<i>Cornus amomum</i>	Red willow		
<i>Elaeagnus umbellata</i>	Autumn olive		[I]
<i>Lindera benzoin</i>	Spicebush		
<i>Lonicera morrowii</i>	Morrow's honeysuckle	D	[I]
<i>Lonicera xylosteum</i>	European-fly honeysuckle		[I]
<i>Rosa multiflora</i>	Multiflora rose		[I]
<i>Rubus allegheniensis</i>	Common blackberry		
<i>Rubus idaeus</i>	Red raspberry		
<i>Rubus phoenicolasius</i>	Wineberry		[I]
<i>Rubus pubescens</i>	Dwarf raspberry		
<i>Viburnum dentatum</i>	Southern arrow-wood		
<i>Viburnum prunifolium</i>	Blackhaw		
Vines			
<i>Lonicera japonica</i>	Japanese honeysuckle	D	[I]
<i>Parthenocissus quinquefolia</i>	Virginia creeper		
<i>Toxicodendron radicans</i>	Poison ivy		
<i>Vitis spp.</i>	Grape		
Herbs (native)			
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit		
<i>Circaea lutetiana</i>	Enchanter's-nightshade		
<i>Claytonia virginica</i>	Spring beauty		
<i>Erigeron philadelphicus</i>	Daisy fleabane		

<i>Erythronium americanum</i>	Trout lily		
<i>Fragaria virginica</i>	Wild strawberry		
<i>Geum</i> spp.	Avens		
<i>Osmorhiza longistylis</i>	Anise-root		
<i>Polygonum virginianum</i>	Jumpseed		
<i>Ranunculus abortivus</i>	Kidney-leaf buttercup		
<i>Ranunculus recurvatus</i>	Hooked crowfoot		
<i>Sanicula odorata</i>	Fragrant snakeroot		
<i>Smilacena racemosa</i>	False Solomon's-seal		
<i>Viola pubescens</i>	Downy yellow violet		
<i>Viola sororia</i> var. <i>sororia</i>	Common blue violet		
<i>Zizia aurea</i>	Golden-alexanders		
Herbs (introduced)			
<i>Alliaria petiolata</i>	Garlic mustard	D	[I]
<i>Allium</i> spp.	Field garlic		[I]
<i>Barbarea vulgaris</i>	Winter-cress		[I]
<i>Hesperis matronalis</i>	Dame's-rocket		[I]
<i>Lepidium arvense</i>	Field pennycress		[I]
<i>Ornithogalum nutans</i>	Star-of-Bethlehem		[I]
<i>Polygonum persicaria</i>	Lady's-thumb		[I]
Ferns			
<i>Onoclea sensibilis</i>	Sensitive fern		
<i>Polystichum acrostichoides</i>	Christmas fern		
Grasses			
<i>Microstegium vimineum</i>	Stiltgrass		[I]
Sedges			
<i>Carex festucacea</i>	Sedge		
<i>Carex molesta</i>	Sedge		
<i>Carex rosea</i>	Sedge		
Successional field			
Trees			
<i>Ailanthus altissima</i>	Tree-of-heaven		[I]
<i>Amelanchier</i> spp.	Shadbush		
<i>Betula lenta</i>	Black birch (seedlings)		
<i>Cornus florida</i>	Flowering dogwood		
<i>Malus</i> spp.	Crabapple		[I]
<i>Morus</i> spp.	Mulberry		
<i>Fraxinus pennsylvanica</i>	Red ash		
<i>Juglans nigra</i>	Black walnut		
<i>Juniperus virginiana</i>	Red cedar		
<i>Liriodendron tulipifera</i>	Tuliptree		
<i>Morus</i> spp.	Mulberry		
<i>Pinus nigra</i>	Austrian pine		[I]
<i>Pinus strobus</i>	Eastern white pine		

<i>Populus tremuloides</i>	Quaking aspen		
<i>Prunus serrulata</i> cv. <i>Kwanzan</i>	Japanese 'Kwanzan' cherry		
<i>Prunus serotina</i>	Black cherry		
<i>Quercus rubra</i>	Red oak (seedlings)		
<i>Salix</i> spp.	Willow		
<i>Sassafras albidum</i>	Sassafras		
Shrubs			
<i>Elaeagnus umbellata</i>	Autumn olive		
<i>Lonicera morrowii</i>	Morrow's honeysuckle	D	[I]
<i>Lonicera xylosteum</i>	European-fly honeysuckle		[I]
<i>Rhus typhina</i>	Staghorn sumac		
<i>Rosa multiflora</i>	Multiflora rose		[I]
<i>Rubus allegheniensis</i>	Common blackberry		
<i>Rubus idaeus</i>	Red raspberry		
<i>Rubus phoenicolasius</i>	Wineberry		[I]
<i>Viburnum prunifolium</i>	Blackhaw		
Vines			
<i>Glechoma hederacea</i>	Gill-over-the-ground		[I]
<i>Lonicera japonica</i>	Japanese honeysuckle		[I]
<i>Parthenocissus quinquefolia</i>	Virginia creeper		
<i>Rubus</i> spp.	Dewberry		
<i>Toxicodendron radicans</i>	Poison ivy		
<i>Vitis</i> spp.	Grape		
Herbs (native)			
<i>Apocynum</i> spp.	Dogbane		
<i>Asclepias syriaca</i>	Common milkweed		
<i>Cardamine pensylvanica</i>	Pennsylvania bittercress		
<i>Erechtites hieraciifolia</i>	Pilewort		
<i>Erigeron philadelphicus</i>	Daisy fleabane		
<i>Fragaria virginiana</i>	Wild strawberry		
<i>Galium circaezans</i>	Wild licorice		
<i>Hypericum punctatum</i>	Spotted St.-John's-wort		
<i>Lobelia inflata</i>	Indian tobacco		
<i>Osmorhiza longistylis</i>	Anise-root		
<i>Oxalis dillenii</i>	Yellow wood-sorrel		
<i>Podophyllum peltatum</i>	May-apple		
<i>Potentilla canadensis</i>	Cinquefoil		
<i>Ranunculus caricetorum</i>	Swamp buttercup		
<i>Ranunculus recurvatus</i>	Hooked crowfoot		
<i>Sanguinaria canadensis</i>	Bloodroot		
<i>Solidago</i> spp.	Goldenrod	D	
<i>Verbena urticifolia</i>			
var. <i>urticifolia</i>	White vervain		
<i>Viola sororia</i>	Common blue violet		
Herbs (introduced)			
<i>Achillea millefolium</i>	Common yarrow		[I]

<i>Alliaria petiolata</i>	Garlic mustard	D	[1]
<i>Allium vineale</i>	Field garlic		[1]
<i>Barbarea vulgaris</i>	Winter-cress		[1]
<i>Centaurea maculosum</i>	Spotted knapweed		[1]
<i>Cerastium fontanum</i>	Common mouse-ear chickweed		[1]
<i>Chrysanthemum</i> <i>leucanthemum</i>	Ox-eye daisy		[1]
<i>Daucus carota</i>	Queen-Anne's-lace		[1]
<i>Dianthus armeria</i>	Deptford pink		[1]
<i>Glechoma hederacea</i>	Gill-over-the-ground		[1]
<i>Hesperis matronalis</i>	Dame's-rocket		[1]
<i>Hieraceum piloselloides</i>	King-devil		[1]
<i>Lepidium arvense</i>	Field pennycress		[1]
<i>Linaria vulgaris</i>	Butter-and-eggs		[1]
<i>Plantago lanceolata</i>	Narrow-leaved plantain		[1]
<i>Plantago major</i>	Broadleaf plantain		[1]
<i>Taraxacum officinale</i>	Dandelion		[1]
<i>Trifolium avium</i>	Large yellow hop-clover		[1]
<i>Trifolium pratense</i>	Red clover		[1]
<i>Trifolium repens</i>	White clover		[1]
<i>Verbascum thapsis</i>	Common mullein		[1]
<i>Veronica officinalis</i>	Common speedwell		[1]
Ferns			
<i>Botrychium virginianum</i>	Rattlesnake fern		
<i>Dennstaedtia punctilobula</i>	Hay-scented fern		
<i>Dropteris marginalis</i>	Marginal woodfern		
Grasses			
<i>Andropogon virginianum</i>	Broom-sedge		
<i>Anthoxanthum odoratum</i>	Sweet vernal grass		[1]
<i>Dactylis glomerata</i>	Orchard grass		[1]
<i>Microstegium vimineum</i>	Stiltgrass		[1]
<i>Miscanthus sinensis</i>	Maiden-grass		[1]
<i>Panicum clandestinum</i>	Deer-tongue		
<i>Panicum depauperatum</i>	Poverty panic-grass		
<i>Panicum dichotomum</i>	Panic-grass		
<i>Panicum latifolium</i>	Panic-grass		
<i>Panicum virgatum</i>	Switch-grass		
<i>Panicum spp.</i>	Panic-grass		[1]
<i>Phleum pratense</i>	Timothy		[1]
<i>Poa pratensis</i>	Kentucky bluegrass		[1]
<i>Schizachyrium scoparium</i>	Little bluestem		
<i>Setaria faberi</i>	Giant foxtail		[1]
<i>Setaria geniculata</i>	Foxtail		[1]
<i>Sorghastrum nutans</i>	Indian grass		
Rushes and Sedges			
<i>Carex cephalophora</i>	Capitate sedge		

<i>Carex scoparia</i>	Sedge
<i>Juncus effusus</i> var. <i>solutus</i>	Soft rush
<i>Juncus tenuis</i> var. <i>tenuis</i>	Path rush
<i>Scirpus atrovirens</i>	Black bulrush

State Element Rank Definitions – accepted by Commonwealth of Pennsylvania

S1 Critically Imperiled – Critically imperiled in the state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. Typically 5 or fewer occurrences or very few remaining individuals or acres.

S2 Imperiled – Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. Typically 6 to 20 occurrences or few remaining individuals or acres.

S3 Vulnerable – Vulnerable in the state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of others factors making it vulnerable to extirpation. Typically 21 to 100 occurrences.

S4 Apparently Secure – Uncommon but not rare, and usually widespread in the state. Usually more than 100 occurrences.

S5 Secure – Demonstrably widespread, abundant, and secure in the state, and essentially ineradicable under present conditions. (Source: The Nature Conservancy 1996)

II. Mammals

Chart A			
Family	Species Name	Mammals	Occurrence
Artiodactyla	<i>Odocoileus virginianus</i>	White-Tailed Deer	Very common throughout the state
Carnivora	<i>Canis latrans</i>	Coyote	Definitely
Carnivora	<i>Felis rufus</i>	Bobcat	Possible in high elevation rocky habitats
Carnivora	<i>Lontra canadensis</i>	Northern River Otter	Possible along watercourses; has been increasing range in PA due to very successful translocations.
Carnivora	<i>Mephitis mephitis</i>	Striped Skunk	Common
Carnivora	<i>Mustela erminea</i>	Ermine	Most likely occurs
Carnivora	<i>Mustela frenata</i>	Long-tailed weasel	Common along watercourses and within wetlands
Carnivora	<i>Mustela nivalis</i>	Short-tailed weasel	Uncommon, but may occur along watercourses and in wetlands
Carnivora	<i>Mustela vison</i>	Mink	Common along watercourses and within wetlands

Carnivora	Urocyon cinereoargenteus	Gray fox	Likely in wooded areas
Carnivora	Ursus americanus	Black bear	Likely in mountainous regions
Carnivora	Vulpes vulpes	Red fox	Common in fields where no, or low populations of coyote occur.
Chiroptera	Eptesicus fuscus	Big brown bat	Definitely occurs
Chiroptera	Lasionycteris noctivagans	Silver-haired bat	Possible in forests during fall migration, unknown whether it is a breeding resident of Pennsylvania
Chiroptera	Lasiurus borealis	Red bat	Common throughout state
Chiroptera	Lasiurus cinereus	Hoary bat	Definitely in wooded areas and along ecotones
Chiroptera	Lasiurus seminolus	Seminole bat	Only ever reported as "accidentals" or "transients" in Pennsylvania, not found since 1930s
Chiroptera	Myotis leibii	Eastern small-footed bat	Possible in areas where rock outcrops occur
Chiroptera	Myotis lucifugus	Little brown bat	Definitely and common in structures
Chiroptera	Myotis septentrionalis	Northern long-eared myotis	Found in wooded areas and apparently common
Chiroptera	Myotis sodalis	Indiana bat	Summer populations may occur in mature forests
Chiroptera	Pipistrellus subflavus	Eastern pipistrelle	Definitely
Insectivora	Blarina brevicauda	Short-tailed shrew	Very common
Insectivora	Condylura cristata	Star-nosed mole	Common throughout the state
Insectivora	Cryptotis parva	Least shrew	Possible in grasslands but not likely due to present theory of restriction to Piedmont
Insectivora	Parascalops brewerii	Hairy-tailed mole	Likely in sandy soils
Insectivora	Scalopus aquaticus	Eastern mole	Likely in wet soils
Insectivora	Sorex (cinereus) fontinalis	Maryland mole	Not likely to occur as far north as South Mountain
Insectivora	Sorex cinereus	Masked shrew	Definitely and common in structures
Insectivora	Sorex dispar	Bit-tailed shrew	Possible as it occurs in Schuylkill County
Insectivora	Sorex hoyi	Pygmy shrew	Found to be more widespread and common than previously thought; most likely occurs in the area
Insectivora	Sorex palustris albibarbis	Northern water shrew	Although unlikely but could occur in clean streams at higher elevations
Lagomorpha	Lepus americanus	Snowshoe hare	Possible occurs in higher elevation habitats in shrublands
Lagomorpha	Sylvilagus floridanus	Eastern cottontail	Definitely in grasslands and shrublands
Lagomorpha	Sylvilagus obscurus	Appalachian cottontail	Possible in shrublands at higher elevations
Marsupialia	Didelphis virginiana	Opossum	Very common
Rodentia	Castor canadensis	Beaver	Most likely occurs
Rodentia	Clethrionomys gapperi	Southern red backed vole	Possible, both C.g. gapperi and C.g. paludicola
Rodentia	Glaucomys sabrinus	Northern flying Squirrel	Possible in mixed deciduous/coniferous forests,

			but unlikely
Rodentia	<i>Glaucomys volans</i>	Southern flying squirrel	Common in most of the state in wooded areas
Rodentia	<i>Marmota monax</i>	Woodchuck	Common throughout the state
Rodentia	<i>Microtus pennsylvanicus</i>	Meadow vole	Very common
Rodentia	<i>Microtus pinetorum</i>	Woodland (pine) vole	Likely in mixed woods and in orchards
Rodentia	<i>Mus musculus</i>	House mouse	Definitely in fields around occupied areas
Rodentia	<i>Napaeozapus insignis</i>	Woodland jumping mouse	Common, except in southeastern PA
Rodentia	<i>Neotoma magister</i>	Allegheny woodrat	Possible in rock areas with talus, boulders and outcrops; occurs along Lehigh Gorge
Rodentia	<i>Ondatra zibethicus</i>	Muskrat	Common
Rodentia	<i>Peromyscus leucopus</i>	White-footed mouse	Common throughout the state
Rodentia	<i>Peromyscus maniculatus</i>	Deer mouse	Definitely, possible both <i>P.m. gracilis</i> and <i>P.m. bairdii</i> (short-tailed subspecies found in fields.
Rodentia	<i>Procyon lotor</i>	Raccoon	Very common all over and expanding distribution into more mountainous regions due to development
Rodentia	<i>Rattus norvegicus</i>	Norway rat	Definitely in fields around occupied areas
Rodentia	<i>Sciurus carolinensis</i>	Eastern gray squirrel	Definitely
Rodentia	<i>Sciurus niger</i> (<i>vulpinus</i> or <i>rufiventer</i>)	Fox squirrel	eastern fox squirrel (red-bellied) most likely occurs but the southeastern fox squirrel (<i>vulpinus</i>) is rare
Rodentia	<i>Synaptomys cooperi</i>	Southern bog lemming	Likely in moist areas in pinelands and woodlands where rocks are abundant
Rodentia	<i>Tamias striatus</i>	Eastern chipmunk	Definitely
Rodentia	<i>Tamiasciurus hudsonicus</i>	Red squirrel	Common in coniferous forests and mixed forests
Rodentia	<i>Zapus hudsonius</i>	Meadow jumping mouse	Common along watercourses and within wetlands

III. Herpetological species

The survey team observed a total of twenty-six species of amphibians and reptiles on the Preserve, including nine species of salamander, six frogs, three turtles, and eight snakes (See Tables 5 - 7).

Table 6 Class Amphibia			
Group	Common Name	Scientific Name	Habitat Type
Caudata	Jefferson salamander	<i>Ambystoma jeffersonianum</i>	Pfp, Sfp, F
	Spotted salamander	<i>Ambystoma maculatum</i>	Pfp, Sfp, F
	Northern dusky salamander	<i>Desmognathus fuscus</i>	See, Str
	Northern two-lined salamander	<i>Eurycea bislineata</i>	See, Str
	Northern longtail salamander	<i>Eurycea longicauda</i>	See, Str, F
	Northern spring salamander	<i>Gyrinophilus p. porphyriticus</i>	See, Str
	Eastern redback salamander	<i>Plethodon cinereus</i>	F
	Northern slimy salamander	<i>Plethodon glutinosus</i>	F
	Northern red salamander	<i>Pseudotriton r. ruber</i>	See, Str
Anura	American toad	<i>Bufo a. americanus</i>	M, Pfp, Pwr, Sfp, F
	Spring peeper	<i>Pseudacris c. crucifer</i>	Pfp, Sfp, F
	Bullfrog	<i>Rana catesbeiana</i>	Pfp, Sfp
	Green frog	<i>Rana clamitans melanota</i>	Pfp, Sfp, Str
	Pickerel frog	<i>Rana palustris</i>	M, Pfp, Pwr, See, Sfp, Str, F
	Wood frog	<i>Rana sylvatica</i>	Pfp, Sfp, F

Table 7 Class Chelonia			
Group	Common Name	Scientific Name	Habitat Type
Chelonia	Common snapping turtle	<i>Chelydra s. serpentina</i>	Pfp, Str, Sfp
	Midland Painted Turtle	<i>Chrysemys picta marginata</i>	Pfp
	Eastern Painted Turtle	<i>Chrysemys p. picta</i>	Pfp
	Eastern Box Turtle	<i>Terrapene c. carolina</i>	M, Pwr, Sfp, F

Table 8 Class Reptilia			
Group	Common Name	Scientific Name	Habitat Type
Serpentes	Northern copperhead	<i>Agkistrodon contortrix mokasen</i>	Pwr, R, F
	Northern black racer	<i>Coluber c. constrictor</i>	Pwr, R, T

	Northern ringneck snake	<i>Diadophis punctatus edwardsii</i>	M, Pwr, R, T, F
	Eastern rat snake	<i>Elaphe alleghaniensis</i>	Pwr
	Eastern milk snake	<i>Lampropeltis t. triangulum</i>	M, Pwr, R, T
	Northern water snake	<i>Nerodia s. sipedon</i>	Pfp
	Northern brown snake	<i>Storeria d. dekayi</i>	Pwr
	Eastern garter snake	<i>Thamnophis s. sirtalis</i>	M, Pwr, R, T, F

M = Meadows, Pfp = Permanent fishless ponds, Pwr = Power line cut, R = Rock outcroppings, Sfp = Seasonal forest pools, Str = Streams, T = Talus slopes, F = Forests

IV. Birds

**Chart B
Bird Surveys on the South Mountain Preserve**

#	Species	1977-86	2004 Possible and Probable								2004 Confirmed						
			X	T	P	C	U	A	CN	NB	DD	FL	CF	FY	NE	ON	NY
1	Mallard	FL															
2	Turkey Vulture		6/7														
3	Red-tailed Hawk	P															
4	Ring-necked Pheasant	T															
5	Ruffed Grouse	FL															
6	Mourning Dove	ON	6/26														
7	Yellow-billed Cuckoo	ON	6/26														
8	Black-billed Cuckoo	NB															
9	Great Horned Owl	FL															
10	Red-bellied Woodpecker	NB	6/6														
11	Downy Woodpecker	NY	6/6														
12	Hairy Woodpecker	C		6/6													
13	Common Flicker	NB	6/6														
14	Pileated Woodpecker	P															
15	Eastern Wood Pewee	A	6/6														
16	Willow Flycatcher	P															
17	Eastern Phoebe	NY															
18	Great Crested Flycatcher	C															
19	Red-eyed Vireo	T	6/6														
20	White-eyed Vireo	FL	6/6														
21	Blue Jay	ON	6/6														
22	American Crow		6/6														
23	Barn Swallow	NY															
24	Tufted Titmouse	FL	6/6														
25	Black-capped Chickadee	ON	6/6														
26	White-breasted Nuthatch	ON	6/26														
27	Brown Creeper	ON															
28	House Wren	NY	6/6														
29	Winter Wren	FL															
30	Carolina Wren	FL	6/6														
31	Blue-gray	ON											6/6				

