PENNSYLVANIA IMPORTANT BIRD AREA #48 (FORMERLY #48 & 49)
NORTH MOUNTAIN
INCLUDING RICKETTS GLEN STATE PARK AND DUTCH MOUNTAIN WETLANDS, SGL 57, AND SGL 13 (IN PART)

Phase I Conservation Plan
(Prepared By: Doug Gross, May 2004)

Purpose of the Phase I Conservation Plan: This phase I conservation plan is a preliminary document to: 1) catalogue the natural resources and built environment for each Important Bird Area, 2) identify site boundaries, 3) document the criteria for which it was selected, 4) describe the birds and wildlife habitat which occur on the site with special reference to the species for which the site was selected as an IBA, 5) identify any conservation issues or threats to the site, and 6) provide recommendations for conservation actions to conserve or enhance habitat for bird populations, especially for those species for which the site was selected as an IBA. This Phase I Conservation Plan is intended to augment and expand the one-page site report contained in "A Guide to Critical Bird Habitat in Pennsylvania" (Crossley, 1999). The recommendations are presented from the perspective of bird and wildlife habitat conservation. It is acknowledged that not all the recommendations contained herein may be feasible or affordable. However, the plan is presented as an initial position from which to plan for and implement bird conservation on the site. *Please note that large sections of this plan originated directly from a report written to describe the bird communities of SGL 57 (Gross 2003).*

Site Name: North Mountain (expanded Ricketts Glen State Park - formerly IBA #49, and Dutch Mountain Wetlands - formerly IBA #48)

Size: Approximately 114,978 acres (PGC 1985, 1990, 1998; DCNR 2003). This IBA includes SGL 13 (49,527 acres) (PGC 1985), SGL 57 (44,492 acres) (PGC 1998), SGL 66 (7,909 acres) (SGL 1990), and Ricketts Glen State Park (13,050 acres) (DCNR 2003). This is certainly the largest extant forest in northeastern Pennsylvania and one of the largest in the Commonwealth.

Ownership:
Public [Pennsylvania Department of Conservation (PA DCNR) – Ricketts Glen State Park, Pennsylvania Game Commission (PGC) – State Game Lands (SGL) No. 13 and No. 57, and Pennsylvania Fish and Boat Commission – Mountain Springs Lake] and some private.

County/Municipality:
Sullivan Co. / Cherry, Colley, Davidson, and Laporte townships; Wyoming County / Forkston and North Branch townships; Luzerne / Fairmount, Lake, and Ross townships; and Columbia Co./ Jackson and Sugarloaf townships.

Physiographic Province/Bird Conservation Region/Watershed:
The IBA lies within the Appalachian Plateau physiographic province and the Appalachian Mountains Bird Conservation Region # 28. The IBA is entirely within the Susquehanna River drainage basin of Chesapeake Bay Watershed. Tributaries of the North Branch Susquehanna (main branch) include Mehoopany Creek and Bowman's Creek draining east and Fishing Creek (including Kitchen Creek) draining south. Loyalsock Creek and Muncy Creek drain most of SGL 13 westward to the West Branch Susquehanna River.

Legislative Districts:
10th Congressional District, U. S. Representative Don Sherwood (R) – Sullivan and Wyoming counties.
11th Congressional District: U. S. Representative Paul Kanjorski (D) – Columbia and Luzerne counties.
23rd Senatorial District, State Senator Roger A. Madigan (R) – Colley, Davidson, and Laporte townships.
20th Senatorial District, State Senator Charles D. Lemmond, Jr. (R) – Forkston and Fairmount townships.
110th House District, State Representative Tina Pickett (R), Colley, Davidson and Laporte townships.
109th House District, Currently unfilled, recently vacated by State Representative John Gordner. Special election to be held in January 2004: David Millard (R) or Paul Richert (D).

Stewardship Adoption Status:
The North Branch Bird Club has officially adopted this IBA. In addition, this location is well-known by members of the Pennsylvania Society for Ornithology, Greater Wyoming Valley Audubon and Valley Forge Audubon.

IBA Selection Criteria:
The North Mountain IBA comprises two of the original IBAs, Dutch Mountain Wetlands (#48) and Ricketts Glen State Park (#49). These IBAs were selected for a different set of reasons, outlined below. The IBA was expanded to include these two IBAs and additional lands that are similar in habitat and bird community. As a whole, it was selected because of its high bird diversity, excellent ecosystem characteristics, and unique combination of size, forest quality and extensive wetland habitat within its physiographic province.

The Dutch Mountain Wetlands Complex is located in northwestern Wyoming and adjacent Sullivan Counties, and includes Coalbed Swamp, Tamarack Swamp, Crane Swamp and some smaller adjunct wetlands. It is one of Pennsylvania's original 73 IBAs and one of the most extensive northern hardwood forests in northeastern Pennsylvania. The Dutch Mountain Wetlands were selected as a Pennsylvania IBA as a Category 1e, 2, 3, 4, and 5 (Crossley 1999). The following categories are outlined below:

- Category 1e - This site is "recognized within Pennsylvania as having an exceptional concentration and / or diversity of birdlife." Over 60 bird species have been observed in the wetlands complex, many that are rare or local in the state (Brauning 1992).
- Category 2 – This site supports a significant population of a species that is endangered or threatened. The Dutch Mountain wetlands has the largest population of Yellow-bellied Flycatcher in the state. It is the only area where Blackpoll Warbler (proposed as PA-Endangered) nests in the state.
- Category 3 - This site is of major importance, supporting a significant population of a species on the Pennsylvania "special concern" list. Northern Saw-whet Owl and Swainson's Thrush have been recorded in the breeding season.
- Category 4 – This site contains a habitat type that is: a. rare, threatened, or unusual within the state or region; b. An exceptional representation of a characteristic natural or near-natural habitat within its physiographic province. The Dutch Mountain wetlands is an Acidic Glacial Peatland Complex that includes boreal conifer swamps, shrub swamps, red spruce palustrine forest, and northern hardwood forest (Davis et al. 1995b, Fike 1999). Some of the dominant or characteristic plants are red spruce, black spruce, eastern larch, eastern hemlock, red spruce, black gum, yellow birch, American beech, highbush blueberry, leatherleaf, mountain holly, cinnamon fern, and sphagnum mosses. Characteristic birds of these habitats include Barred Owl; Sharp-shinned Hawk; Yellow-bellied Sapsucker; Red-breasted Nuthatch; Brown Creeper; Golden-crowned Kinglet; Nashville, Black-throated Green, Magnolia, Blackpoll, and Canada warblers; Northern Waterthrush; and Purple Finch (Crossley 1999). The area is also home to Hoary Bat, Snowshoe Hare, and Fisher.
- Category 5 - This site is a natural area where a long-term research and/or monitoring project is based that contributes substantially to ornithology and bird conservation. The long-term study of Yellow-bellied Flycatcher and Blackpoll Warblers has led to several publications and reports (Gross 1993, Gross and Lowther 2001).

The block of forest and wetland of Ricketts Glen State Park and the adjacent Creveling Lakes Area (including Splashdam Pond) was selected under criteria 1e, 2, 3, 4a and 4b.

(1e) This nominated IBA has an exceptional diversity of bird life with over 75 breeding species and large numbers of several area-sensitive forest interior birds. It is one of the few areas with breeding records of four *Empidonax* flycatchers and both waterthrushes.

(2) American Bitterns have been found during the nesting season at Splashdam Pond (SGL 13). Bald Eagles regularly have visited Ricketts Glen State Park's Lake Jean and the Creveling Ponds with newly fledged young. Nesting is suspected in the area, but has not been confirmed.

(3) Ricketts Glen SP has nesting Birds of Special Concern: Northern Goshawks (Candidate – Rare), Swainson's Thrush (Candidate – Rare). The Creveling Pond area has a history of breeding Green-winged Teal (Candidate – At Risk) and Northern Harrier (Candidate – Rare).

(4a/4b) The large, unfragmented forest of Ricketts Glen SP supports large populations of characteristic birds of northern forests including Yellow-bellied Sapsucker, Red-breasted Nuthatch, Blue-headed Vireo, Nashville Warbler, Magnolia Warbler,

Black-throated Blue Warbler, Blackburnian Warbler, Yellow-rumped Warbler, Canada Warbler, Winter Wren, White-throated Sparrow, and Purple Finch.

Important Avian Habitats: Large-scale forest and rare forested wetlands and bogs, including boreal conifer habitats. The landscape includes some high quality trout streams and small ponds. It also contains some shrub thickets, sedge meadows, and abandoned fields.

General Site Description: North Mountain is part of the Allegheny Front, a steep escarpment that forms the southeastern edge of the Allegheny Plateau where it borders the Ridge and Valley. It is the eastern extension of The Allegheny Front forms "an imposing wall" as much as 1,200 feet above the rolling hills below near the village of Red Rock (Braun and Inners 1998). On top of the plateau, the shale pit on Route 487 features the red shale and sandstone that occurs in the upper part of the Huntley Mountain Formation. This formation gives "Red Rock" its local name for this section of North Mountain. The Grand View (named by Colonel Ricketts), west of Route 487, reaches 2449 feet in elevation.

Ricketts Glen is famous for its 25 spectacular waterfalls in Kitchen Creek's Y-shaped gorge. There is approximately a 1000-foot drop in elevation over a distance of 2.25 miles of the Kitchen Creek glen. There are two general types of waterfalls: "wedding-cake" and "bridal veil." The Glens Natural Area was registered as a National Natural Landmark in 1969 and as a Bureau of State Park Natural Area in 1993. The Kitchen Creek gorge includes several magnificent old trees. Ring counts of fallen trees have revealed that the age of some trees exceed 900 years. Several old, large trees reach 100 feet in height and four feet in diameter. The waterfalls and old growth forest of Ricketts Glen State Park are one of the most important tourist attractions of the region.

Once on top of North Mountain (locally known as Red Rock after the red shale and sandstone), the terrain is fairly flat due to the nearly flat rock formations and the glacial smoothing of the landscape. "North Mountain" is the eastern extension of the Glaciated High Plateau Section of the Appalachian Plateaus Province (Sevori 1996). This section of North Mountain is notorious for its fine trout streams, including Fishing Creek, Mehoopany Creek, Bowman's Creek, Loyalsock Creek, and Muncy Creek and their various tributaries. As such, it protects the headwaters of some of the most popular and high quality coldwater streams in the state. Headwater swamps and bogs are important features of each watershed, lending diversity of vegetation to the forests. Beavers have altered some of these wetlands, creating small-scale open water habitats for waterfowl, herons, and other water birds not otherwise found in forests. Small cliffs provide nesting habitat for a variety of birds (Harrison 1975, Baicich and Harrison 1997).

Lake Jean is a 245-acre lake which comprises two natural lakes (Lake Jean and Mud Pond) combined by damming the Ganoga Branch of Kitchen Creek (Commonwealth of Pennsylvania 2003). Lake Jean is fed by outflows from Ganoga Lake, the highest elevation natural lake in Pennsylvania, and some natural wetlands. Lake Jean is 2.1 miles long with a maximum width of 0.4 miles. Lake Jean is shallow, with a maximum depth of 19.5 feet and a mean depth of 5.9 feet. It has serious problems with atmospheric acidic deposition, which lowers the lake's pH and alkalinity, but increases the level of heavy metals. The western basin in oligotrophic and its eastern

basin is slightly mesotrophic. Plankton and insect life in the lake are fairly poor in quality and quantity. Its fishery is unbalanced, with yellow perch and pumpkinseed dominant, but few predatory fish like bass or chain pickerel. Fish are generally small in size. Lake Rose was dammed in 1842, but the dam was breached and removed in 1969. A wet, shrubby meadow has taken the place of the small lake. Lake Leigh originally was built in 1907 to provide hydroelectric power, but the dam for Lake Leigh was breached in 1956 because of public safety concerns. This basin has slowly converted to an acidic shrub swamp and meadow. Both small lake basins are excellent bird habitat for emergent wetland and thicket species.

Mountain Springs Lake is a Pennsylvania Fish and Boat Commission lake at the eastern end of Mountain Springs Lake Road. The PFBC land is situated between Ricketts Glen State Park and SGL 57 in the Bowman's Creek watershed. This lake originally was built as a splashdam for logging operations, but was used principally for the commercial ice market. Although popular with local outdoors enthusiasts, it is now poor for fishing because of atmospheric acid deposition. The dam is in bad need of repair.

The Dutch Mountain Wetlands is a collective name for an archipelago of boreal conifer swamps and shrub-scrub wetlands on the east tongue of the Allegheny Plateau. Coalbed Swamp, Tamarack Swamp, Crane Swamp, and several unnamed swamps are included in this site. Some of the largest and oldest red spruce in the state dominate the area. Spruces cover large sections of the area around Coalbed Swamp. Eastern hemlock, black spruce, eastern larch, red maple, black gum, and yellow birch are also prominent trees of these wetlands. Coalbed Swamp is approximately 140 acres, with about 70 acres of that classified as a boreal swamp natural community (Davis et al. 1995). The shrub swamp section is dominated by leatherleaf, blueberries, swamp azalea, mountain holly, and various sedges. Tamarack Swamp is more open and shrubby than Coalbed Swamp. The western section has been impacted by beavers. The southeastern section of Tamarack Swamp flows into Red Brook, which flows out of Coalbed Swamp; the rest of the swamp is in the Loyalsock Creek watershed. Crane Swamp is the northern swamp of the three and the most open and shrubby. It is the site of the last timbering railroad built in Pennsylvania in the 1940's with a virgin spruce forest tract intact as late as 1942 (Taber 1970). East of these swamps, there is the only spruce bald in Pennsylvania on Bartlett Mountain (Davis et al. 1995). This Spruce Rocky Summit natural community is unique in the state. On this summit, black huckleberry and low-bush blueberry are common. Mountain ash is one of the species that grows out of the cracks in the exposed bedrock.

The boreal conifer forest continues south of the Dutch Mountain area into the headwaters of Somers Brook, Opossum Brook, South Brook, and some of the tributaries of Bowman's Creek. The forest at the headwaters of Somer's Brook most resembles that around Coalbed Swamp. Indefatigable Swamp and Boulder Run Swamp have impressive stands of red spruce and dense shrub communities. The boreal forest landscape is very unusual for Pennsylvania and shows signs of recovering from the devastation of the lumbering era. Spruce saplings and seedlings are common around the swamps and along old roads that traverse the area.

Summary of Birds:
North Mountain has a large diversity of forest, shrub, and wetland birds, including large populations of WatchListed and conservation-priority species. Historically, Olive-sided Flycatchers, Northern Goshawk, and many other rare boreal species nested commonly on North Mountain (Dwight 1892; Stone 1897, 1900; Cope 1936; Conant 1989). It was one of the few places one could enjoy the songs of all of Pennsylvania's native thrushes, including Swainson's (Cope 1936). The North Mountain region has the best population of Yellow-bellied Flycatcher in the state and is the only place where Blackpoll Warbler has been documented nesting in Pennsylvania (Gross 2003). Red Crossbills and Evening Grosbeaks also have bred on the mountain in recent years.

Ricketts Glen State Park: The mature forests of Ricketts Glen State Park host many forest interior and area-sensitive birds. Among the most common species are Red-eyed Vireo, Black-capped Chickadee, Black-throated Green Warbler, and Dark-eyed Junco (PSO SAP). At least 12 warbler species and four *Empidonax* flycatchers nest in the park. Common Ravens often soar over the forest. Barred Owls hoot deep in the forest and Northern Saw-whet Owls are common where conifers and shrubby undergrowth conditions exist. The hemlock glen bird community includes Acadian Flycatcher, Blue-headed Vireo, Brown Creeper, Winter Wren, Golden-crowned Kinglet, Magnolia Warbler, Blackburnian Warbler, and Louisiana Waterthrush. Wood Thrush, fairly common in the rich forest of the lower elevations, is replaced by Hermit Thrush in higher elevations and wetlands. Veery is found where there is a shrub community to compliment the tree canopy.

Two WatchList species are common birds of the park (Pashley 1999). Black-throated Blue Warbler inhabits the well-stratified forest on top of the plateau, including along the Cherry Run Trail. Canada Warblers are found in the blueberry thickets and boggy areas.

Birds normally found north of this location, are fairly common and characteristic of Ricketts Glen SP. White-throated Sparrows are common in blueberry thickets and shrub wetlands. Least Flycatcher colonies are scattered in the upland deciduous forest.

SGL 57 has an outstanding bird community. For the sake of convenience, this report will rely heavily on a study conducted on the birds of these game lands. The game lands were divided into different "compartments" based on road access and vegetation, so they will be discussed as such.

Southbrook Compartment of SGL 57: Southbrook (or South Brook) Road roughly parallels Belles Brook and then Mehoopany Creek. This section is adjacent to Ricketts Glen State Park near Route 487 and includes a large section of Mehoopany Creek. The last three points of this transect are in the Somer Brook watershed. Southbrook Road is dominated by second-growth Northern Hardwood forest of moderate quality in the 11-17 inch dbh size class (Donahue, personal communication). American beech and red maple are dominant species with hemlock as a minor component. There is dense beech brush on the slope but fairly mature timber along Mehoopany Creek.

There were 42 species detected on 18 points conducted along the Southbrook Road with an average of 11.3 birds detected per point. The most common species along this transect, in diminishing order, were Red-eyed Vireo, Black-throated Green Warbler,

Ovenbird, Dark-eyed Junco, and Veery. This group of species reflects the high deciduous component of this compartment (PGC map of SGL 57 forest types). Black-throated Blue Warbler is relatively common in this compartment. It was ranked ninth in abundance among the 42 species observed. Two riparian forest species, Louisiana Waterthrush and Northern Parula, were detected along Mehoopany Creek.

Shale Pit Road including South Brook Swamp: The Shale Pit Road runs east from the South Brook Road at the Belles Brook Bridge to the Beech Lake Road where it is renamed the Opossum Brook Road. This compartment is dominated by young deciduous forest and shrub wetlands. Many of the points are classified as northern hardwood in poor soils with dbh of 5 to 11 inches (P. Donahue, personal communication). This is especially true of the western part of the road nearest Belles Brook. However, the forest seemed vegetatively complex with locally dense cover by shrubs and saplings. Highbush blueberry, wild raisin, and wetland heaths provide shrub cover. The sprawling headwaters swamps of South Brook and Belles Brook are included in this compartment. Spruce adds a significant boreal component, but most large spruces are far from the road. There are small beaver ponds that add open water habitat to the compartment. The road runs by Sprankles Pond that is surrounded by a mown grassy area.

There were 50 bird species detected on the 15 points conducted along Shale Pit Road. An average of 17.4 birds was detected at each point. The most common species reflect the brushy character of the forest, in descending order: Eastern Towhee, Common Yellowthroat, White-throated Sparrow, Red-eyed Vireo, and Chestnut-sided Warbler. A WatchList species, Canada Warbler, was moderately common along this route, ranked 17 out of 50. Another target species, Hooded Merganser, was detected on one point at Sprankles Pond. The wetland component of this compartment was well-represented by Alder Flycatcher (rank = 8) and Swamp Sparrow (12).

Area searches revealed that there were more conifer and wetland species in this compartment than found by point counts. Most area searches were conducted in shrub scrub swamps, mossy bogs, and conifer swamps. Wetlands tended to be a mix of different vegetative covers, typically with spruces along part of the wetland edge. The most common species found in these searches were Common Yellowthroat, White-throated Sparrow, Hermit Thrush, Eastern Towhee, and Swamp Sparrow.

Rare species found in this compartment included Sharp-shinned Hawk, Northern Goshawk, Yellow-bellied Flycatcher, and Nashville Warbler. There were more Nashville Warblers found in this compartment than in all BBS routes run in Pennsylvania in 2002 (Sauer et al. 2003). The Yellow-bellied Flycatchers were heard in South Brook Swamp and Weiner Bog which contains a floating mat of sphagnum moss and boreal vegetation more typical of Maine than Pennsylvania. Both flycatchers were not found again after mid-June, and thus are assumed to be unmated males. The Northern Goshawk was found in the woods near the intersection with Beech Lake Road just east of Weiner Bog.

In addition to birds, rare mammals and their signs observed in this compartment include fisher, otter, and snowshoe hare.

Beech Lake Road, SGL 13: In the southern part of the game lands, Beech Lake Road goes north from Mountain Spring Lake Road next to Bowman's Marsh to intersect with Opossum Brook and Shale Pit Road (PGC 1998). This compartment is dominated by

northern hardwood forest interrupted by a variety of wetlands (P. Donahue, personal communications). Some of these wetlands are small, forested boreal peatlands, whereas others are shrub swamps. Most of the plots are in northern hardwood forest of moderate quality in the 11-17 inch size class (PGC data). The northern part of the compartment has poor soils and trees in the smaller 5 – 11 inch dbh size class. The forest often had a shrubby mid-story, usually dominated by highbush blueberry. The impoundments of Bean Run headwaters add standing water habitat to the compartment. Grassy food plots along Beech Lake Road affected bird survey results.

There were 52 species detected on 18 points conducted along Beech Lake Road. An average of 17.4 birds was detected per point. The most common species found at the points were, in descending order, Red-eyed Vireo, Black-throated Green Warbler, Cedar Waxwing, Ovenbird, and Common Yellowthroat. The bird community reflects the mixed forest types in this section and the relatively small timber. This was one of the few places in the game lands where Mourning Dove, Chipping Sparrow, and Field Sparrow were found, probably a result of the grassy food plots. Only one of the points were within sight of an impoundment, so few open water birds were detected on this transect using the point count methodology.

Area searches in the Beech Lake Road section found several more species because of the wetlands found in this area. The "pond effect" of the Bean Run impoundments made Canada Goose the most common species in area searches, followed by Cedar Waxwing, Red-winged Blackbird, Song Sparrow, and Golden-crowned Kinglet. Searches around the Bean Run impoundments found waterfowl and other waterbirds, such as Great Blue Heron and Virginia Rail. The rail was found in emergent vegetation between the two ponds. Searches also found Wood Duck, American Black Duck, and Hooded Merganser that were not easily observed from the gamelands road. The complex of open water and emergent wetland vegetation made the Bean Run pond area one of the most diverse in the gamelands.

Indefatigible Swamp is a large and diversely vegetated seepage swamp, which lies on the east side of the road (Davis et al. 2001). The swamp has a complex hydrology with many small ponds and streams. Most of this wetland is covered by a deep mat of sphagnum moss. The western part of the swamp is dominated by red spruce with dense growth of this conifer along the south edge of the wetland. Red spruce and red maple are the most dominant trees. Some parts of the swamp have a dense understory of shrubs including mountain holly, highbush blueberry, and many wetland plants. Sections of the swamp are heavily covered by cinnamon fern and highbush blueberry. It contains the largest population of an endangered wetlands-dependent plant in Pennsylvania. Goldthread, star violet, and Canada mayflower are among the many herbs found in this swamp that also are common to Coalbed Swamp. The east half is an open blueberry swamp. Spruces are rather dense in the southern edge of the swamp, especially on the west side, and ascend into the uplands. The second growth spruce is recovering and spreading out from the wetland into adjacent uplands.

In 2000, Yellow-bellied Flycatchers were heard singing in Indefatigible Swamp by R. Ring and the author (Davis et al. 2001). The reported flycatchers were singing insistently in appropriate spruce forest habitat. This species has not been detected in this swamp since then, but the habitat is very similar to that of Coalbed Swamp. In addition to the above-mentioned conifer species, Magnolia Warbler, and Purple Finch are

common in the spruce portion of the wetland. Much of the swamp has a strong shrub and fern component with the accompanying bird species such as White-throated Sparrow, Canada Warbler, Common Yellowthroat, and Northern Waterthrush. Away from the road and food plots, Hermit Thrush is one of the most common species.

Some night birds are relatively common in this area. In 2000 and 2001, Northern Saw-whet Owls and Whip-poor-wills were heard near Indefatigible Swamp during Project Toot Route (Gross 2001 and unpublished data). These will be discussed later in more detail.

Opossum Brook Road, SGL57: Opossum Brook Road is an eastern extension of Shale Pit Road, but the vegetation has a more boreal conifer character. Opossum Brook Road is named after the north-flowing Opossum Brook that crosses the road after leaving a headwaters swamp. Opossum Brook joins South Brook just before they cross Southbrook Road and join South Branch Mehoopany Creek near an old logging camp. Opossum Brook Road runs east and then northeast from the Shale Pit / Beech Lake road intersection to Cider Run Road. There are many small wetlands in this compartment, some away from the road. Most of the High Knob Trail is included in this section. Recent timbering west of this road resulted in some road improvements to the haul road during the surveys. Most of the points are classified by PGC as northern hardwood forest on poor soils with trees in the 5-11 inch dbh size class (P. Donahue, personal communication). However, most points also include some spruces and the last six points are dominated by spruce or spruce / hemlock stands.

There were 47 bird species detected on the 13 points conducted along Opossum Brook Road in 2002 (Gross 2003). An average of 13.4 birds were detected at each point. The most common species found here reflect the mix of second-growth deciduous forest with spruce. The most abundant species, in descending order, were Hermit Thrush, Common Yellowthroat, Black-throated Green Warbler, Ovenbird, and Dark-eyed Junco. The conifer forest birds were well-represented by Blue-headed Vireo (rank = 12), Red-breasted Nuthatch (27), Golden-crowned Kinglet (19), Magnolia Warbler (7), Yellow-rumped Warbler (19), Blackburnian Warbler (12), and Purple Finch (27). Canada Warbler, a WatchList species, was the twelfth most common bird along the transect.

The off-road area searches near Opossum Brook Road demonstrated that this section has more conifers than nearby compartments, but was fairly similar to the habitat found along the road. The most common species found in searches were the Black-throated Green Warbler, Dark-eyed Junco, Hermit Thrush, Ovenbird, and Common Yellowthroat. The WatchListed Canada Warbler and Black-throated Blue Warbler were ranked seventh and fifteenth most common bird in compartment. Conifer species such as Blue-headed Vireo, Yellow-rumped Warbler, and Blackburnian Warbler were well-represented. A Ruby-crowned Kinglet was located by C. Rebert along the road in spruces on June 12, but was not found again in repeated visits to the area. A singing Blackpoll Warbler was also located in conifers near Opossum Brook. In previous years, Whip-poor-wills were found in the scrubby woods around Opossum Brook headwaters swamp (Gross 2001). Northern Saw-whet Owls were found in the spruces.

Henry Lott Brook Road, SGL 57: The Henry Lott Brook Road begins in a dense spruce stand at the intersection of South Brook Road and Cider Run Road and goes north on the

east side of Somers Brook hollow and enters Henry Lott Brook hollow before connecting with Windy Valley Road (PGC 1988). The northern part of the compartment is second growth northern hardwood forest including some old clearcuts. It is northern hardwood forest of moderate quality in the 11-17 inch dbh class. Along the streamsthe forest is fairly mature. Timber sales along this road occurred in the mid-1970's and early 1980's (P. Donahue, personal communication). Most trees cut from these harvests were beech and maples. There are some blueberry swamps uphill and east of the road. The forest around the Stone Cabin is included in this compartment because it is in the Somers Brook watershed. This tributary watershed includes the intersection of South Brook, Cider Run, and Henry Lott Brook Roads. The upper part of Somers Brook watershed includes conifer forest, seeps, and more mature deciduous forest than nearby areas. The highest elevation forest around the source seeps and springs resembles the Coalbed Swamp section than the rest of SGL 57. Some sections of forest were cut to the south and southwest of the Stone Cabin around 1982 (P. Donahue, personal communication).

In 2002, there were 36 bird species detected at 17 points conducted along the Henry Lott Brook Road transect (Gross 2003). An average of 12.6 birds was counted per point. The bird community strongly resembled South Brook Road, but with more conifer species found in the upper Somers Brook watershed. The most common species found in this compartment, in descending order, were Red-eyed Vireo, Black-throated Green Warbler, Blue-headed Vireo, Ovenbird, and Hermit Thrush. Like South Brook Road, the Black-throated Blue Warbler was fairly common in this compartment, tied with Magnolia Warbler as the ninth most common species. There was one Blackpoll Warbler detected in the spruce grove near the South Brook Road intersection.

Searches in the upper Somers Brook area had more conifer species than the point counts conducted along the near Henry Lott Brook Road. Since searches were concentrated in the conifer forest of this area, the most common species were Black-throated Green Warbler, Hermit Thrush, Dark-eyed Junco, Red-eyed Vireo, and Blue-headed Vireo. Conifer species were well-represented, with Golden-crowned Kinglet and Black-throated Blue Warbler (both, rank = 6), Magnolia Warbler (8), Blackburnian Warbler (9), and Yellow-rumped Warbler (14) more common than along the point count transect. The most important finds were the Blackpoll Warbler singing in the spruces near the road intersection and the Swainson's Thrush population found in the area of the Stone Cabin and road intersection. Swainson's Thrushes were found on three field trips to the area. One population was in hemlocks less than 100 meters north of the Stone Cabin. There were seeps and springs in this area, which I often associate with Swainson's Thrush territories in Pennsylvania. The Swainson's Thrushes also were found around the road intersection where they sang in spruce – hemlock forest near the intersection and the parking lot along Cider Brook Road. There were at least two singing Swainson's Thrushes at each of these locations (near the cabin and near the Somers Brook headwaters).

Crevelling Ponds and Bowman's Marsh Area, SGL 57: Bowman's Marsh is also known as "the Meadows." Bowman's Marsh is a shallow pond with emergent wetland vegetation on Bowman's Creek. The Creveling Ponds are artificial ponds built and maintained expressly for the propagation of waterfowl. There are three ponds, so numbered, that are clustered near the PGC maintenance building near the intersection of

Mountain Springs Lake Road and Route 487. Creveling Pond 1 is adjacent to Mountain Springs Lake Road while Creveling 3 is north of Southbrook Road and Creveling Pond 2 lies between Creveling Pond 1 and Opperman Pass, southeast of the PGC maintenance area. All of these ponds are in the headwaters of South Mehoopany Creek (a High Quality-Cold Water Fishery stream) and linked hydrologically to Splashdam Pond (Davis et al. 2001). The beaver dam pond at the headwaters of Belles Brook is also included in this section. Most of the forest in this section is fairly small, probably diminished by the lack of deep soil. Scattered spruce and hemlock give the forest some diversity.

Green-winged Teal (Candidate – Rare) has been observed breeding at Creveling Pond 1 and Splashdam Pond (R. Conant, F. Hartman, and J. Dunn, personal communications; PSO Special Areas Project; personal observations). Pied-billed Grebe also has nested in Creveling Pond 1 (PSO SAP data; R. Conant, personal communication). Canada Goose, Wood Duck, Mallard, and Hooded Merganser also nest in this section. Great Blue Herons and Bald Eagles are regular visitors. Songbirds like Red-eyed Vireo, Common Yellowthroat, Ovenbird, Hermit thrush and Black-throated Green Warbler were the most common species. Wetland birds such as Alder Flycatcher and Swamp Sparrow also were fairly common. Whip-poor-wills have been found in this area for many years, sometimes seen sitting on and foraging from Mountain Springs Lake Road.

Ricketts Village and Splashdam Pond, SGL 13: The village of Ricketts and Splashdam Pond are in Gamelands 13 adjacent to SGL 57 and near Route 487 in Sullivan County. The village of Ricketts was founded in 1891 by Colonel Robert Bruce, Harry Trexler, and James Henry Turrell (Taber 1970). Although Albert Lewis Lumber company built a sawmill and lumbered here for about a year, starting 1891 (Steby and Streby 1903), this village was dominated by the history of Trexler and Turrell operation. Evidence of this "ghost town" can be seen along Route 487 where Sullivan and Wyoming Counties meet at the intersection of Mountain Springs Lake Road the road to Splashdam Pond. Some foundations, stone walls, and apple trees now mark one of the state's most important timbering centers. The area around Ricketts is a combination of northern hardwoods, spruce and hemlock forest, and shrubby thickets. Mehoopany Creek flows through old Ricketts village and into Splashdam Pond. It flows out of various swamps and bogs dominated by spruce or hemlock. The southern part of Splashdam Pond is well-vegetated, with emergent wetland plants including cattail and a surrounding acidic swamp. The combination of emergent plants and shrubs provide nesting habitat for waterfowl and rare wetlands birds. Early naturalists referred to this part of the pond as "Long Marsh."

Splashdam Pond and Ricketts area has a history of nesting Green-winged Teal (PA Candidate – At Risk), American Bittern (PA – Threatened), and Northern Harrier (PA Candidate – At Risk) (Brauning 1992; PSO SAP data; F. Hartman, J. Dunn, R. Conant, personal communications; personal observation). Canada Goose, Wood Duck, Mallard, and Hooded Merganser also were observed at Splashdam Pond. Green-winged Teal have been observed with young at Splashdam Pond as late as 1999 (J. Dunn, personal communication). American Bittern was observed as late as 2002 (J. Hoyson, personal communication). Virginia Rail also has been observed at Splashdam Pond (SAP database, personal observations). Migrating Osprey and Bald Eagles visit this site (SAP

database, personal observation) and some Bald Eagles have been observed here in the summer. In area searches, Cedar Waxwing was the most common bird observed here. Wetland and shrub habitat species like Common Yellowthroat, Song Sparrow, Swamp Sparrow, and Alder Flycatcher are common in this compartment.

East Section of SGL 57, including Lower Cider Run Road and Lower Bowman's Creek: The eastern part of SGL 57 is characterized by fairly mature northern hardwood forest with scattered headwater wetlands. The area searches along Cider Run Road and Boulder Run Swamp were included in this section. Both Cider Run and Boulder Run are tributaries of Bowman's Creek. The forest is fairly mature northern hardwood with patches of oak and cove forest species along the streams (P. Donahue, personal communication). In the higher elevations, there are boreal conifer and scrub swamps in the stream headwaters. Some of these wetlands are open sphagnum bogs with a variable amount of blueberry and other shrubs. Boulder Run Swamp is an acidic scrub swamp natural community with an interesting hydrology and a deep sphagnum peat soil (Davis et al. 2001). The outlet stream flows underground through a boulder field until it flows precipitously downslope to Bowman's Creek near a U.S.G. S. benchmark. The area around Boulder Run Swamp includes patches of red spruce and eastern hemlock. Black spruce is among the dominant trees of the wetland community. The mossy Boulder Swamp is dominated by a low-shrub community comprising leatherleaf, highbush blueberry, sheep laurel, and cranberries. Spruces commonly bordered the edge of these small wetlands. Otherwise, this area was dominated by northern hardwoods.

In 2000 and 2001, Yellow-bellied Flycatchers were confirmed nesting in Boulder Run Swamp (Davis et al. 2001, Gross 2002, 2003). In 2002, a singing Yellow-bellied Flycatcher was located but on only one trip. No nesting was suspected or confirmed in 2002. It is likely that this was an unmated male. Alder Flycatchers were found in the swamp with dependent young in later field trips. White-throated Sparrow is probably the most common breeding bird of Boulder Run Swamp. Hermit Thrush, Common Yellowthroat, Eastern Towhee, and Cedar Waxwing follow in abundance. With the conifer cover at the edge of the swamp, many species are found at the edges or rocky areas to the south. The spruces and hemlocks hosted Golden-crowned Kinglet, Yellow-rumped Warbler, Purple Finch, and Magnolia Warbler.

Coalbed Swamp Area, SGL 57: Coalbed Swamp is the most reliable location for breeding Yellow-bellied Flycatcher (PA – Threatened, proposed Endangered) and Blackpoll Warbler (proposed PA – Endangered) (Gross 2002). In 2003, Yellow-bellied Flycatchers occupied at least 10 territories (personal observation). As many as 13 pairs of Yellow-bellied Flycatchers have been found in the swamp (Gross 2001), but generally there have been 6 to 10 pairs found each year the swamp was thoroughly surveyed. A family of Evening Grosbeaks were observed in Coalbed Swamp in July 1994 (D. A. Gross, personal observation).

In the northwestern part of SGL 57, the Coalbed Swamp Road leads from an old coal mine west along the north side of Coalbed Swamp, a boreal conifer swamp. It intersects another road that runs southwest to northeast through the wetlands complex known as Tamarack Swamp. The Coalbed Swamp area comprises fairly mature mixed northern hardwood and conifer forest. Coalbed Swamp is a boreal conifer swamp of about 140 acres dominated by red spruce. Some spruces in this swamp are estimated to

be at least 100 years old (Davis et al. 1995). There also are spruces at the edge of the swamp, on rocky outcrops, and distributed in the northern hardwoods. Outside the swamp, most of this area is dominated by a fairly mature northern hardwood forest (11-17 inch dbh) with scattered spruces and hemlocks (PGC data). Poor soil limits growth, especially near the wetlands and the sandstone outcroppings.

Point counts were conducted in 2002 along Coalbed Swamp Road (Gross 2003). There were 38 species observed at the 17 points conducted along this transect. An average of 19.9 birds were observed at each point, the highest density observed in the Game Lands. The most common species were, in descending order, Hermit Thrush, Black-throated Green Warbler, Red-eyed Vireo, Ovenbird, and Dark-eyed Junco. Hermit Thrush was detected at all points. Two Blackpoll Warblers were located at points; one in spruces and hemlocks near the outlet of Coalbed Swamp into Red Brook and the other in the north part of Red Brook Swamp (the southwest part of Tamarack Swamp) where dense spruces predominate .

Two WatchList species (Pashley et al. 1999), Black-throated Blue Warbler (rank = 11) and Canada Warbler (14) were relatively common in this section. Eastern Wood-Pewee was also found, but at only one point. Conifer forest birds were well-represented by point counts. Blue-headed Vireo (rank = 6), Golden-crowned Kinglet (22), Magnolia Warbler (22), Yellow-rumped Warbler (14), and Purple Finch (26) were fairly common in this section. Northern species like Yellow-bellied Sapsucker (rank = 9), Brown Creeper (16), and White-throated Sparrow (7) were fairly common near Coalbed Swamp.

Many area searches have been conducted in Coalbed Swamp and nearby Becker Brook Swamp (Gross 2002, 2003). This bird community is quite rich and diverse with over 60 breeding species. Birds with affinities to northern latitudes or conifer forests are common around Coalbed Swamp. Off the Coalbed Road, Hermit Thrush, Dark-eyed Junco, Golden-crowned Kinglet, Black-capped Chickadee, and Black-throated Green Warbler were the most common species. Breeding Blackpoll Warblers were found throughout the swamp. This swamp has the biggest Yellow-bellied Flycatcher (PA-Threatened) population in the state. Swainson's Thrushes also were found in dense spruces. Other species that are rare in the state are easily found in Coalbed Swamp including Nashville Warbler, Northern Waterthrush, and White-throated Sparrow. Northern Saw-whet Owl and Barred Owl have been observed in Coalbed Swamp.

Timber rattlesnakes, PA Species of Special Concern for Pennsylvania (Hulse 1998), has been observed in and around Coalbed Swamp. The limestone rocks and cliffs around Coalbed Swamp are potentially good rattlesnake den locations.

Tamarack Swamp area, SGL 57 - Tamarack Swamp is a complex of boreal conifer wetlands that lie north of Coalbed Swamp. The western part of Tamarack Swamp is affected by beavers, but the southeastern section includes some large red spruces and extensive shrub swamp dominated by highbush blueberry and mountain holly. In addition to area searches conducted in this area for Yellow-bellied Flycatchers (Gross 2002), point counts were conducted in the Tamarack Swamp forest in 2002 (Gross 2003). There are scattered groves of red spruce and eastern hemlock in this compartment, most significantly in the headwater swamps of the upper Stony Brook. The PGC classifies most of this forest as northern hardwood of moderate quality in the 11-17 inch dbh size

class with some hemlock, but it also includes red spruce, especially in the upper reaches of Stony Brook.

Breeding Yellow-bellied Flycatchers and Blackpoll Warblers have been observed intermittently since 1991 (Gross 1992). Yellow-bellied Flycatcher was found in the Santee Creek headwaters, a part of Tamarack Swamp dominated by hemlocks. They have been more regularly found in the southeastern part of the Tamarack Swamp that is dominated by red spruce. Blackpoll Warblers also have been found in this section (Gross 2002b, personal observation).

There were 35 species observed at the 10 point counts conducted in this compartment in 2002 (Gross 2003). An average of 14.1 birds were observed per point. The most common birds observed in point counts, in descending order, were Ovenbird, Hermit Thrush, Black-throated Green Warbler, Dark-eyed Junco, Blue-headed and Red-eyed vireos. Area searches also were conducted in the Red Brook section of Tamarack Swamp and the wet woods between the scrub swamps. The area searches showed more species affiliated with shrubby habitat than those in the transect which travelled in continuous forest. In area searches, Hermit Thrush and Cedar Waxwing were the most common species, followed by Black-throated Green Warbler, Common Yellowthroat, and Canada Warbler (a WatchList species). Another WatchList species, Black-throated Blue Warbler, was tied as the seventh most common species there. Rare boreal forest species were well-represented there by Golden-crowned Kinglet, Nashville Warbler, Northern Waterthrush, White-throated Sparrow, and Purple Finch. Blackpoll Warblers have been found in this swamp in most years since 1994. They have been found where spruces dominate, especially the north and west sides of the swamp.

SGL 66: Near the old and appropriately named village of Bellasylva, this game land includes mature hemlock forest near Shuman's Lake and wetlands along Loyalsock Creek, Santee Creek, Pigeon Creek, Pine Run, and Rocky Run (PGC 1990). The hemlock forest provides habitat for Blue-headed Vireo, Red-breasted Nuthatch, Brown Creeper, Magnolia, and Blackburnian warbler (PSO SAP). Wild Turkeys are observed here regularly. Bald Eagles have been observed visiting Shuman's Lake in the summer. The sedge meadow along Loyalsock Creek a sedge meadow is a very reliable place to find Alder Flycatcher and Swamp Sparrow. Red Crossbills attempted to nest in SGL 66 and nearby forest in 1993, but this nesting attempt was thwarted by a severe snowstorm on March 13th of that year.

The landscape around SGL 66 is one of the best places in the state for many boreal species including Nashville Warbler, White-throated Sparrow, and Purple Finch. The fields across the road from Shuman's Lake are home to Savannah Sparrow and Bobolink. Northern Harrier visits these and nearby fields as well. In 1994, Evening Grosbeaks nested around Schmitthenner Lake near SGL 66 (Conant 1994).

Avian Monitoring Efforts:

Bird inventory has been conducted by Pennsylvania Society for Ornithology volunteers for the Special Areas Project. These volunteers include local birders from the North Branch Bird Club and the Greater Wyoming Audubon Chapter as well as members of Valley Forge Audubon Chapter. SAP surveys have been conducted in all public land management units included in this IBA. The Pennsylvania Audubon conducted a thorough breeding bird survey of SGL 57 in 2002 (Gross 2003). This survey included

area searches conducted by D. Gross, C. Rebert, R. Blye, and D. Brauning and point counts conducted by D. Gross.

Education/Recreation/Ecotourism Activities and Opportunities:
Ricketts Glen State Park is a popular ecotourism destination. The Glens Natural Area and Lake Jean are big attractions to the area. Family camping is popular at Ricketts Glen State Park, providing access to the nearby game lands as well as the large state park. Environmental education is an important activity of the park, focusing on programs for families and youth. The park has 26 miles of trails, most of which lie outside the very popular Natural Area. The game lands (numbers 13, 57, and 66) of North Mountain are very popular with hunters, hikers, anglers, and naturalists. They comprise one of the wildest areas of the state. History buffs are attracted to the local "ghost towns" of the lumbering area like Ricketts and Jamison City. Ricketts Glen State Park and the Ricketts / Splashdam Pond / Mountain Spring Lake Road areas are locations listed on the Susquehanna River Birding and Wildlife Trail. Lepidopterists visit the region to observe the butterflies common to the local vegetation, including some state-listed species.

Management/Conservation Issues and Opportunities:
The North Mountain ecosystems are being damaged by acidic atmospheric precipitation (Sharp, W. E. and J. R. Drohan, eds. 1999). Soils of North Mountain are not well-buffered and have been subjected to low pH precipitation for several decades. Lower calcium levels may affect insect productivity and subsequent foraging and nutrition of birds. The low calcium conditions also may adversely affect bird reproduction. This has been observed in Wood Thrush, but may be true for many other species (Hames et al. 2002). There have been widespread unexplained declines in breeding bird populations in regions of wet acid ion deposition (Sauer et al 2001). High metal concentrations during run-offs eliminate many organisms from the mountain streams, thus affecting higher trophic levels of the stream food chain, including birds.

Deer over-browsing would not seem to be a problem on a landscape with so much gamelands, but there are significant vegetative community effects from deer browsing on North Mountain. Some private landowners do not allow deer hunting, especially near SGL 66 and the Coalbed Swamp / Tamarack Swamp area of SGL 57. A large landowners association on Dutch Mountain posts against doe hunting. Visitors of Ricketts Glen State Park regularly feed deer by hand. The "big woods" of North Mountain are tough to hunt for deer. The landscape is so large that hunters do not penetrate all sections of the vast gamelands. This is particularly true of the large, thick blueberry thickets and conifer swamps. There are many deer-vehicular collisions on Route 487, attesting to deer population problems.

All terrain vehicles disturb wildlife and dig up the soil in various parts of North Mountain. ATVs are a particular problem in the Dutch Mountain and Bartlett Mountain area, where they regularly run illegally on game lands and private lands. These vehicles cross streams and wetlands, creating erosion of fragile headwaters of trout streams. ATV users cut vegetation to maintain their own trails on game lands illegally.

Woolly adelgid infestations threaten the health of hemlock forests in Pennsylvania. Hemlock is particularly important in this IBA. Kitchen Creek gorge old-growth forest is primarily a hemlock forest, with some of the largest and oldest trees in the state. This IBA is important to the overall health of the state's conifer forest bird species. Two state-listed species have their largest populations in this IBA.

Conservation Actions: *The following conservation actions describe **current and ongoing** efforts by the PGC and the PA DCNR:*

- The PGC maintains the forests of SGL 13, 57, and 66 with regular cuts to enhance wildlife habitat.
- The PGC protects conifers in SGL 13, 57, and 66 by avoiding cutting these species where timbering is planned. Conifers provide cover and food for a diversity of wildlife characteristic of this area.
- The DCNR attempts to control Canada Geese at Lake Jean so these waterfowl do not interfere with the enjoyment of visitors of this lake and so this species does not replace native waterfowl at the lake.
- The DCNR cooperates with local sportsmen's groups to correct the acidification of Lake Jean with a liming treatment.
- The DCNR protects the hemlocks in the Glens Natural Area with wooly adelgid controls.

The following conservation actions describe **proposed recommendations** for consideration by Pennsylvania Game Commission or the Bureau of State Parks and other interested organizations, agencies and groups for the maintenance, improvement and enhancement of habitat for bird species especially to optimize habitat value for IBA target species as well as for the promotion of bird conservation through educational outreach:

This IBA comprises properties owned by DCNR and PGC. The policies of both agencies have contributed considerably to the diversity of the bird habitat within a large forested landscape. DCNR's policies have provided a variety of outdoor recreational opportunities at the state park while allowing an excellent bird community to thrive. The Game Commission's land management policies have worked very well for both game and non-game species. The combination of upland forest, headwater streams, and wetlands make this area the special place that it is for wildlife. These recommendations reinforce the wisdom of many of these policies.

1. <u>Protecting conifer species in these game lands should continue</u>. Conifer forests support a large number of conservation priority species, including: Yellow-bellied Flycatcher, Blackpoll Warbler, Swainson's Thrush, Black-throated Blue Warbler, and Canada Warbler. Indeed, this area has the largest population of nesting Yellow-bellied Flycatchers, and the only nesting population of Blackpoll Warblers in the state. Other conifer species are much more common in these game lands than elsewhere in Pennsylvania or the Allegheny Plateau. The value of conifers is not confined to songbirds. Conifers also provide important thermal cover, food, and

protection for wintering game species. Ruffed Grouse poults usually were found under low limbs of hemlocks and spruces. Deep conifer forest is an important yarding area for deer. The conifer and blueberry swamps are favorite places for black bears. Although not a conifer species, per se, American Woodcock often nests in boggy sections of the spruce and hemlock swamps which resemble boreal forests and wetlands where they are more common breeders. The concentration of native conifers on North Mountain may make it particularly important for the survival of the rare Northern Flying Squirrel (Mahan et al. 1999).

2. Wetlands should be protected with a wide, low-impact buffer area. Most areas with high species diversity or with conservation priority species included wetlands. These wetlands are important for game as well as rare non-game species. For instance, American Woodcock were found exclusively in wet areas of SGL 57 where the shallow, rocky soil may otherwise discourage this soil-feeding species. Spruce is regenerating around the swamps and bogs of SGL 57. This is very encouraging because of the uniqueness of the habitat of Dutch Mountain and the high wildlife value of the conifer cover. The mossy ground cover retains moisture and creates a highly structured microhabitat for herbs and young woody plants in these wetlands. Moss is a critical feature of the nesting habitat of Yellow-bellied Flycatcher (Gross and Lowther 2001) and many other ground-nesting species (Baicich and Harrison 1997). The Red Brook watershed is particularly valuable because it supports many rare breeding birds in the state, including the largest populations of Yellow-bellied Flycatcher and Blackpoll Warbler. This watershed should be protected from road development and large-scale timbering practices using mechanical means. Coalbed Swamp, Tamarack Swamp, Crane Swamp, and Becker Brook Swamp should be protected with at least a 200-foot buffer area. ATV traffic in this area is compacting soil, impacting vernal pools, causing erosion, and disturbing wildlife. With the use of ATVs, people are illegally cutting down trees and brush. Although this is a difficult area for enforcement, these activities should be curtailed.

3. Impoundments should be managed for high priority waterfowl species. The North Mountain section of the Allegheny Plateau has populations of American Black Duck, Wood Duck, Hooded Merganser, and Green-winged Teal, a rare combination in the Commonwealth. This is one of the very few locations where Green-winged Teal has nested in recent years. The ubiquitous Canada Goose and Mallard more appropriately are given a higher priority for propagation in agricultural or more urbanized settings. The previously mentioned waterfowl species should be given higher priority for management in SGL 57. Maintaining high water quality, good forage, and wetland vegetation are key components for waterfowl management here. Mowing large grassy areas near the ponds may encourage the dominating Canada Goose, thereby precluding nesting by smaller waterfowl. The Pennsylvania Game Commission has an excellent partnership with waterfowl organizations in the area. Cooperation between the Commission and the waterfowlers has enhanced waterfowl habitat on SGL 57. The presence of Wood Duck and Hooded Merganser is due to the efforts of these wildlife advocates. Maintaining the nest box program should continue, with emphasis on predator guards and box positioning. The PGC policy of requiring

predator guards on artificial nest boxes is appropriate and should be continued. Nest box predators should be discouraged throughout the game lands. The partnerships that the PGC has formed with local conservation groups has been a very positive factor for wildlife habitat in the game lands and should continue to be fostered. Watershed protection is a common goal that should unite the state agencies and local conservation groups of all kinds.

4. Species-specific or guild-specific surveys should continue in SGL 57. The Yellow-bellied Flycatcher surveys have demonstrated that the Coalbed Swamp area has the largest population in the state (Gross 2002). It also revealed that Blackpoll Warblers nest in SGL 57 (Gross 1994, 2002). Without these surveys, the populations of these species would not be known, even with a successful state-wide breeding bird atlas because of the remoteness of the area (Brauning 1992). The need for bird surveys that augment road-side surveys has been urged many times and in many forums (Ralph and Scott 1981, Robbins et al. 1986, Gross 1998). Several species were detected on special area searches that were not detected on the numerous point counts conducted in SGL 57. This demonstrates that, as important as point counts are as a bird survey technique, observers need to search in off-road or poorly accessed habitats to properly account for many species of conservation and research concern. This includes nocturnal species such as Whip-poor-will and Northern Saw-whet Owl. Coordinated moth surveys in SGL 57 also would be useful to better understand the food base for smaller nightbirds like Whip-poor-wills, and may shed some light on moths species that are obligate to browse-sensitive shrubs (e.g. viburnums). Streamside surveys in spring may be necessary for an accurate census of Louisiana Waterthrush, an environmentally sensitive riparian bird (Mulvihill 1998). Waterthrush surveys could be tied with stream and pond water quality improvement programs as a measure of treatment success. Specific surveys, including tape-playback, may be necessary for censuses of bitterns and rails in the emergent vegetation of Splashdam Pond and the other impoundments and wetlands. GIS-based surveys should continue for Yellow-bellied Flycatcher, Blackpoll Warbler, and Swainson's Thrush, three species that are obligates of conifer forests unique to this ecoregion in Pennsylvania. The vegetation and geophysical attributes of the habitats that support these species should be studied so similar areas can be managed in a way that enhances the chances that they can continue to survive in the state.

5. Deer populations need to be kept in check. An ecosystem approach to deer management has been an important impetus of the PGC in recent years. It is crucial to the goals of DCNR in Ricketts Glen State Park as well. Excessive deer browsing can diminish the regeneration of trees as well as herb and shrub cover in the forest (deCalesta and Stout 1997, Rhoads 2001). Pennsylvania is losing its vegetative diversity from deer over-browsing (Rhoads 2001). Trilliums, Canada mayflowers, lilies, viburnums, and cucumber magnolias are among the many plants that suffer from the preferences of the white-tailed deer. Oak seedlings are favorite deer browse. As these plants are eaten, the ground-cover, understory, and eventually the shrub and tree composition can be profoundly changed. Such changes in the vegetative community can have a negative effect on the bird community, including both

songbirds and upland game birds. Structural vegetative diversity is important to several bird species that are conservation priorities for the Appalachian Plateau. Low vegetative cover is a critical habitat component for Ruffed Grouse and Snowshoe Hare. White-tailed deer compete directly with snowshoe hares for forage, so population and browsing by deer may be a factor in the snowshoe's population status (Genoways and Brenner 1985). Good tree regeneration is critical for all forest wildlife. The local dominance of red and striped maple in parts of Ricketts Glen State Park and remote sections of SGLs 13 and 57 is likely a result of deer overbrowsing. Implementing quality deer management on private lands in this IBA is important to the continued success of wildlife and forest management. Since deer are very mobile animals, a large area with a low doe take would have a negative effect on the gender balance and the size of the region's herd. Unfortunately, there are many landowners in the Dutch Mountain area that are not cooperating with the PGC's deer management plan. Many properties are posted against doe hunting. Rhoads and Gross have seen private properties west of Tamarack and Coalbed Swamp that were dominated by hay-scented fern, a sign of deer over-browsing. Sportsmen's perception of deer populations often can run counter to ecosystem-oriented goals (Diefenbach et al. 1997). Many deer hunters do not see the conflict between high deer populations and good forest health. Increased efforts to educate hunters in this area should profit the Commission's wildlife management for a much larger area, including habitats critical to rare birds, mammals, and plants in SGL 57.

6. <u>There are many opportunities for coordinated game and non-game management on SGL 13, 57, and 66</u>. The management practices for game and non-game species are not mutually incompatible in the Northeast (Therres 1992). Pennsylvania has its best chances to conserve its populations of forest interior birds on the lands of the Commonwealth because of the larger habitat block sizes and permanence of ownership. Many forest interior species thrive only where there are large forest blocks of relatively mature forest. However, disturbance regimes are a natural effect on the landscape and many characteristic species of the Northeastern forest are well-suited to local, relatively small scale disturbance (Askins 2000). The largescale forest is essential for the continued existence of Black-throated Blue Warbler, for instance. Turkeys and black bear, for example, are abundant in parts of the SGL 57 where this and other forest interior species are common. The habitat favored by Ruffed Grouse also is used by many early successional forest species. Conifer forest are used for winter yarding by deer and crucial nesting habitat for a several forest species like Swainson's Thrush and Blackpoll Warbler. Low conifer cover that provides thermal cover for grouse also provides foraging habitat for Magnolia Warbler, Blackpoll Warbler, and Yellow-bellied Flycatcher. Although forest interior species may not be common in some of the highly managed forest (Yahner 1984), the early successional forest of SGL 57 supports many species, like Eastern Towhee and Chestnut-sided Warbler. The scrub-shrub wetlands and boreal conifer forested wetlands that support snowshoe hares also support rare birds such Nashville Warbler, Canada Warbler, White-throated Sparrow, and Purple Finch. Blueberry meadows are an underappreciated habitat on this landscape. These meadows have a complex vegetation profile with excellent ground cover. The grasses, sedges, and forbs

between and under the blueberry shrubs provide seeds for game birds, nest cover for a variety of species, and protection for young birds, both game and non-game. At this elevation, woodcocks are often flushed in wet areas where rare breeding songbirds are found. The emergent vegetation at the edges of impoundments built for waterfowl are helpful to both waterfowl productivity (hiding fledglings and providing forage) as well as herons and rails.

7. Managing for a mosaic of mature and early successional forest is achievable and desirable. North Mountain's mixed ownership by different state agencies benefits its overall diversity. Overall bird diversity benefits from the differing management objectives of the Game Commission and the Bureau of State Parks. Ricketts Glen State Park is not logged for timber, but some salvage cutting has occurred in the park in reaction to the storm damage. The mature forest of the state park contrasts with the younger forest in the nearby game lands. Yet, both agencies protect wetlands which benefit the birds that are characteristic of this landscape. The great diversity of breeding bird species and concentration of rare species in SGL 57 are evidence that a variety of forest types in one game lands is possible and compatible with game management activities. The area around Coalbed Swamp and Tamarack Swamp are more mature than the rest of the game lands and the bird community reflects this. The old-growth forest attributes of fallen timber, uprooted trees, and uneven age profile are beneficial to Yellow-bellied Flycatcher, Black-throated Blue Warbler, and Canada Warbler among other species. This area also is home to a healthy population of black bear and probably snowshoe hare. Fisher thrive in the area. Broods of Ruffed Grouse are a common site in the hemlocks and spruce that surround the swamp. Less than two miles away, compartments of SGL 57 with smaller timber and more shrubby wetlands support good populations of many early successional forest species. The shallow soil and varied topography of North Mountain contribute to the forest diversity. Timber management on SGL 57 that protects rare habitats in some areas and promotes regeneration in others will contribute to the continued habitat diversity of the game lands.

8. Protection of Eastern Hemlock from woolly adelgid**.** DCNR is treating the hemlocks of Ricketts Glen Natural Area. This protection may be vital to the continued health of that forest and its constituents. Treatment should be extended to higher elevation sites, including SGL 66 that contains an old growth hemlock stand. Hemlock is a critical component for many species, including game birds. Northern Flying Squirrel relies on mature conifer forests (Mahan et al. 1999). A suite of breeding birds area also more commonly found in mature conifer forests than younger forests. This suite of birds includes Blue-headed Vireo, Brown Creeper, Swainson's Thrush, Magnolia Warbler, Blackburnian Warbler, and Black-throated Green Warbler (Haney and Schaadt 1996). Protection of hemlocks should extend to groves outside the Bureau of State Park Natural Area that may prove important to conservation of Northern Flying Squirrel, Swainson's Thrush, and several other species.

9. Canada Geese should be controlled in Ricketts Glen State Park. Geese have reached pest proportions at the park. They soil the recreational sand beaches and contribute a

significant amount of biological waste to the swimming area. The geese can be overwhelming other waterbirds at the lake, some of which are undergoing regional declines. Efforts to promote Wood Duck and merganser nesting may be compromised by the large, aggressive geese.

Institutional Partners and Key Contacts:
Bowman's Creek Watershed Association, P. O. Box 236, Noxen, PA 18636-1723. Dorne White, President, 570-639-1723.

Conant, Roger "Skip"; 126 Ashwood Road, Springfield, PA 19064 (Volunteer birder, PSO and Valley Forge Audubon).

The Conservation Coalition, RR#1 Box 289-2, Dallas, PA 18612. Contact: Chris Denmon, (570)477-2238, cddeers72@peoplepc.com

Fishing Creek Watershed Association, Benton, PA, http://www.columbiapa.org/fcwa/contact.htm (Contact through the Columbia County Conservation District, Mary Wagner, 702 Sawmill Rd., Suite 204, Bloomsburg, PA 17815, (570) 784-1310, columbcd@ptdprolog.net)

Gross, Douglas A; Pennsylvania Society for Ornithology and North Branch Bird Club, 144 Winters Road, Orangeville, PA 17859 (Volunteer coordinator / Local ornithologist / volunteer birder).

Pennsylvania Society for Ornithology Special Areas Project, Douglas A. Gross, Coordinator, 144 Winters Road, Orangeville, PA 17859 dougross@sunlink.net.

The Nature Conservancy, Pennsylvania Science Office, 208 Airport Drive, Middletown, PA 17057. Anthony Davis, Director. c-tdavis@state.pa.us

Pennsylvania Department of Conservation of Natural Resources Bureau of State Parks. Ricketts Glen State Park, R. R. 2, Box 130, Benton, PA 17814-8900 (Terence L. Daltroff, Park Manager), and Resources Management Section, Rachel Carson State Office Building, P O. Box 8551, Harrisburg, PA 17105-8551.

Pennsylvania Fish and Boat Commission, 1601 Elmerton Avenue, Harrisburg, PA 17110. Northeast Region, 5565 Main Road, PO Box 88, Sweet Valley, PA 18656.

Pennsylvania Game Commission, 2001 Elmerton Avenue, Harrisburg, PA 17110-9797, and Gene Weiner, Land Management, P.O. Box 220, Dallas, PA 18612

References:
Braun, D. D. and J. D. Inners. 1998. Pennsylvania Trails of Geology: Ricketts Glen State Park, Park Guide 13. Commonwealth of Pennsylvania, Department of Conservation of Natural Resources.

Commonwealth of Pennsylvania, Department of Conservation of Natural Resources, Bureau of State Parks. August 2003. Ricketts Glen Resource Management Plan Draft.

Conant, R. 1989. A birding history of Dutch Mountain, Pennsylvania. Cassinia 63:57-60.

_____. 1989b. An annotated checklist of the breeding birds of Dutch Mountain, Pennsylvania. Cassinia 63: 61-71.

_____. 1994. First confirmed Evening Grosbeak nest in Pennsylvania. Pennsylvania Birds 8: 133-135.

Cope, T. M. 1936. Observations of the Vertebrate Ecology of Some Pennsylvania Virgin Forests, A thesis presented to the faculty of the Graduate School of Cornell University in partial fulfillment of the requirements for the Degree of Doctor of Philosophy. Cornell University, Ithaca, NY.

Copeland, T. R. Moase, and R. Paine. 1994. Fishing Creek, East Branch (404C) Basin Report. Pennsylvania Fish and Boat Commission, Bureau of Fisheries, Harrisburg, PA.

Crossley, G. J. (Compiler). 1999. A Guide to Critical Bird Habitat in Pennsylvania: Pennsylvania Important Bird Areas Program. Pennsylvania Audubon Society, Harrisburg, PA.

Davis, A. F., J. A. Lundgren, B. Barton, J. R. Belfonti, J. L. Farber, J. R. Kunsman, and A. M. Wilkinson. 1995. A Natural Areas Inventory of Sullivan County, Pennsylvania. Pennsylvania Science Office of the Nature Conservancy, Middletown, PA.

_____, _____, _____, _____, _____, _____, and _____. 1995. A Natural Areas Inventory of Wyoming County, Pennsylvania. Pennsylvania Science Office of the Nature Conservancy, Middletown, PA.

Davis, A. F., A.L. Stauffer, R. Ring, C. Urban, J. Hart, J. Kunsman, J. Mumper, S. Klugman, B. Ray, and S. Hamsher. 2002. A Natural Areas Inventory: Luzerne County, Pennsylvania, 2001. Pennsylvania Science Office of the Nature Conservancy, Middletown, PA.

DeColesta, D. S. and S. L. Stout. 1997. Relative deer density and sustainabilty: a conceptual framework for integrating deer management with ecosystem management. Wildlife Society Bulletin 25: 252-258.

Department of Conservation and Natural Resources. Undated. A History of Rickett's Glen State Park. Commonwealth of Pennsylvania, Ricketts Glen State Park, Benton, PA.

_____. 2003. A Recreational Guide for Ricketts Glen State Park [Draft]. Department of Conservation and Natural Resources, Harrisburg, PA.

Dwight, J. Jr. 1892. Summer birds of the crest of the Pennsylvania Alleghenies. Auk 9: 129-141.

Fike, J. 1999. Terrestrial and Palustrine Plant Communities of Pennsylvania. Pennsylvania Natural Diversity Inventory, Pennsylvania Department of Conservation and Natural Resources, Harrisburg, PA.

Genoways, H. H. and F. J. Brenner, eds. 1985. Species of specia concern in Pennsylvania. Carnegie Museum of Natural History, Pittsburgh, PA.

Gross, D. A. 1993. Yellow-bellied Flycatcher Status and Distribution Study. A Report to the Wild Resource Conservation Fund. Service Purchase Contract 34895. Ecology III, Inc., R. R. 1, Berwick, PA 18603.

_____. 2002a. Final Report for Grant Agreement No. 380119. The Status, Distribution, and Conservation of the Yellow-bellied Flycatcher [for 2001]. 144 Winters Road, Orangeville, PA.

_____. 2002b. The Status, Distribution, and Conservation of the Yellow-bellied Flycatcher. Final Report for WS #023 01 4150 01 for the Pennsylvania Game Commission. September, 2002.

_____. 2003. Avian Population and Habitat Assessment Project, Pennsylvania Important Bird Area # 48: State Game Lands #57, Wyoming, Luzerne, and Sullivan Counties. Draft Report. Ecology III, Inc., Berwick, PA.

_____ and P. E. Lowther. 2001. Yellow-bellied Flycatcher (*Empidonax flaviventris*), No. 566, *In* The Birds of North American (A. Poole and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences: Washington, D. C.: The American Ornithological Union.

Hames, R. S., K. V. Rosenberg, J. D. Lowe, S. E. Barker, and A. A. Dhondt. 2002. Adverse effects of acid rain on the distribution of the Wood Thrush, *Hylocichla mustelina*, in North America. Proc. Nat. Acad. Sci. USA 99: 11236-11240.

Haney, J. C. and C. P. Schaadt. 1996. Functional Roles of Eastern Old Growth in Promoting Forest Bird Diversity. Pages 76 – 88 in Eastern Old Growth Forests: Prospects for Rediscovery and Recover [M.B. Bird, editor]. Island Press, Washington D.C. and Covelo, CA.

Mahan, C. G., M. A. Steele, M. J. Patrick, and G. L. Kirkland, Jr. 1999. The status of the Northern Flying Squirrel (*Glaucomys sabrinus*) in Pennsylvania. Journal of the Pennysylvania Academy of Science 73: 15-21.

Mulvihill, R. S. 1999. Effects of stream acidification on the breeding biology of an obligate riparian songbird, Louisiana Waterthrush (*Seiurus motacilla*)5. Pages 51-61 *In* Sharp, W. E. and J. R. Drohan, eds. 1999. The Effects of Acidic Deposition on Pennsylvania's Forests, Vol. I. Proceedings of the 1998 Acidic Deposition Conference. Environmental Resources Research Institute, University Park, PA.

Pashley, D.N., C. J. Beardmore, J. A. Fitzgerald, R. P. Ford, W. C. Hunter, M. S. Morrison, and K. V. Rosenberg. 2000. Partners in Flight: Conservation of the Land Birds of the United States. American Bird Conservancy, The Plains, VA.

Pennsylvania Game Commission, Commonwealth of Pennsylvania. 1985. Sportman's Recreation Map: State Game Lands No. 13. Pennsylvania Game Commission, Harrisburg, PA.

_____. 1990. Sportman's Recreation Map: State Game Lands No. 66. Pennsylvania Game Commission, Harrisburg, PA.

_____. 1998. Sportman's Recreation Map: State Game Lands No. 57. Pennsylvania Game Commission, Harrisburg, PA.

Pennsylvania Society for Ornithology Special Areas Project database. Douglas A. Gross, Coordinator, Ecology III, Inc., 804 Salem Boulevard, Berwick, PA.

Rhoads, Ann. 1999. Deer Impact on Herbaceous Plants and Shrubs in the Forest. Presentation for the Proceedings of the Conference on the Impact of Deer on the Biodiversity and Economy of the State of Pennsylvania, September 24-26, 1999. Harrisburg, PA

Sauer, J. R., J. E. Hines, and J. Fellon. 2001. The North American Breeding Bird Survey, Results and Analysis, 1966-2000, Version 2001.2, USGS Patuxent Wildlife Center, Laurel, MD.

Sharp, W. E. and J. R. Drohan, eds. 1999. The Effects of Acidic Deposition on Pennsylvania's Forests, Vol. I. Proceedings of the 1998 Acidic Deposition Conference. Environmental Resources Research Institute, University Park, PA.

Sharp, W. E. and J. R. Drohan, eds. 1999. The Effects of Acidic Deposition on Pennsylvania's Forests, Vol. II. Proceedings of the 1998 Acidic Deposition Conference. Environmental Resources Research Institute, University Park, PA.

Sharp, W. E., J. Lyon, and J. R. Drohan. Chapter 6, Acidification Status Assessment of Sensitive Pennsylvania Forest Soils, pages 73-85 *In* Sharp, W. E. and J. R. Drohan, eds. 1999. The Effects of Acidic Deposition on Pennsylvania's Forests. Proceedings of the 1998 Acidic Deposition Conference. Environmental Research Institute, University Park, PA.

Stone, W. 1897. Breeding of the goshawk in Pennsylvania. Auk 14: 317-318.

_____. 1900. The summer birds of the higher parts of Sullivan and Wyoming counties, Pennsylvania. Abstract Proceedings of the Delaware Valley Ornithological Club 3:20-23.

Streby, G. and C. A. Streby. 1903. History of Colley Township, Including Early Settlements, together with biographical Sketches and Statistics and matters of General Interest. Sullivan Gazette Print, Dushore, PA. Reprinted in 1996 by the Sullivan Review Print Shop.

Taber, T. T. 1970. Ghost Lumber Towns of Central Pennsylvania: Laquin, Masten, Ricketts, Grays Run. Published by the author, Muncy, PA.

Therres, G. 1993. Integrating management of forest interior migratory birds with game in the Northeast, pages 402-407 *In* Status and Management of Neotropical Migratory Birds. 1992 September 21-25; Estes Park, Co. Gen. Tech. Rep. RM-229. Fort Collins, Co: U.S. Department of Agriculture, Forest Services, Rocky Mountain Forest and Range Experiment Station.