

PENNSYLVANIA IMPORTANT BIRD AREA #50
SUSQUEHANNA RIVERLANDS
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.

Site Name: Susquehanna Riverlands

Size: Core site 2,111 acres.

Ownership: PPL Susquehanna LLD, a subsidiary of PPL Resources.

County/Municipality: Luzerne County / Salem, Conyngham, Hollenbach, and Nescopeck townships.

Physiographic Province/Bird Conservation Region/Watershed: Ridge and Valley Province (northern part) / BCR 28, Appalachian Mountains / Susquehanna River – Chesapeake Bay. The site includes parts of the Wapwallopen Creek and Little Wapwallopen Creek watersheds as well as many smaller tributaries of the (North Branch) Susquehanna River.

Legislative Districts:

11th Congressional District, U. S. Representative Paul J. Kanjorski (D)

20th Senatorial District, State Senator Charles D. Lemmond (R)

117th House District, State Representative George C. Hasay (R)

Stewardship Adoption Status: No organizations have officially adopted the site, but it is regularly visited by members of the Greater Wyoming Audubon and the North Branch Bird Club.

IBA Selection Criteria:

- (1e) 247 bird species reported on site. 126 species have been documented breeding at the site within the last 25 years. High densities of species have been documented.
- (4b) High densities of forest canopy and thicket species. Scarlet Tanager (B – 100 ± pair), Warbler Vireo (B – 24 ± pair), Yellow-throated Vireo (B – 20 ± pair), Ovenbird (B – 55 ± pair), Wood Thrush (B – 24 ± pair), Worm-eating Warbler (B – 15 ± pair). The site includes a mile-long riparian forest corridor, protected on both sides of the river. Hillside forest protects many forest interior species and good populations of Watch List species.
- (5) Breeding Bird Census / Winter Census monitoring of site. Hawk-watch site. The Nature Conservancy's Wings of the Americas study site (Gross 2001).

Important Avian Habitats:

Riparian and upland forests; thickets; agricultural fields; park; riverine habitat.

General Site Description:

The Susquehanna Riverlands is a privately owned recreational park open to the general public (but, access to the nuclear power plant is severely restricted for security reasons). It is jointly owned by PPL and Allegheny Electric Cooperative. The property sits astride the Susquehanna River, locally called the North Branch of the Susquehanna, between Berwick and Shickshinny. The Susquehanna Riverlands contains a diversity of habitat types. Along U.S. Route 11, there are cultivated fields, hedgerows, lawns, picnic areas, a shallow fishing pond, and family recreation areas. There are trails through mature riparian forest, wetlands, and fields. The Environmental Center is part of the Susquehanna SES Information Center near the Riverlands Recreational Area along U.S. Route 11. The Wetlands Nature Area includes marshes, riparian forest, ponds, and swamps and includes part of the North Branch Canal, a fine waterfowl habitat. The east side of the park encompasses many bird habitats, including many hundreds of acres of forest and shrubland. The Susquehanna River is a fairly shallow and wide river that flows from the Northeast to the Southwest through the Riverlands, cutting through the Appalachian Mountains. The elevation ranges from 500 feet above sea level to 1,200 feet on Council Cup bluff, on the east side of the river. The Susquehanna Riverlands was designated as a locally significant site in the county's Natural Areas Inventory (Davis et al. 2001).

Along the river the forest is dominated by a river bottom hardwood forest with silver maple, sycamore, tuliptree, American basswood, red oak, red maple, river birch, and hackberry. There are large specimens of silver maple, hackberry, American elm, tulip popular, white ash, and sycamore on Gould Island (Montgomery 1980). The upland forests are typically an Appalachian Oak Forest (Bailey 1980). The vegetative communities have not been measured since 1994, so this information may be somewhat dated. At that time, the hillside forest near the Riverlands (along T.R. 419) was dominated by black oak, Virginia pine, flowering dogwood, chestnut oak, red maple, eastern white pine, and black cherry. The shrubs and vines of this forest are Allegheny blackberry, spicebush, Virginia creeper, deeberry, maple-leaf viburnum, and low-bush blueberry. The Council Cup forest is dominated by sweet birch, black oak, chestnut oak,

eastern white pine, red oak, and white oak (Montgomery 1995). Mountain laurel, low-bush blueberry, black huckleberry, and pinxterflower grew in the understory. The hillside forest near the quarry was dominated by red, white, black and chestnut oaks as well as red maple and basswood. The understory has more spicebush, Virginia creeper, witch hazel, and summer grapes than the nearby Council Cup forest. All of these forests have changed substantially since they were first studied. The tree density (number of trees) has declined while their average size has increased over the period (Montgomery 1995). Virginia pine formerly was a more important component of both the Council Cup and T. R. 419 forest than it is today.

Old fields in the Susquehanna Riverlands have a combination of saplings, shrubs, herbs, and grasses that are good for many early successional forest and thicket birds. These goldenrod / blackberry / dogwood thickets gradually are converting to early successional forest dominated by maples.

The water quality of the Susquehanna River has been monitored carefully at Susquehanna SES since 1973 (Soya 1995). Water quality has improved markedly since that time with statistically significant increases in total alkalinity and pH, and decreases in sulfate, total iron, turbidity, and total suspended solids. Upriver abandoned coal mines are the source of many pollutants, especially high iron concentrations, but these have decreased over the recent decades. This improvement in the water quality leads to increased benthic macroinvertebrate and fish communities, the basis for piscivorous bird populations.

Summary of Birds:

The Susquehanna Riverlands has an impressive combination of riparian and upland forests with some thicket and grassland habitats. The upland forests and old fields were studied as part of the Susquehanna SES environmental monitoring program. The riparian forests were studied recently as part of the Wings of the Americas project (Gross 2001). As part of the Wings of the Americas project, the Susquehanna Riverlands forest was surveyed with 37 point counts in 2001 (Gross 2001). Seasonal bird counts, breeding bird surveys, and winter bird counts were conducted on PPL lands from 1977 through 1994 (Gross 1995 and several previous reports).

Susquehanna Riverlands Recreation (Picnic) Area – There were 14 point conducted in the Riverside forest near the Information Center and picnic area (Gross 2001). All points were positioned in riparian forest, but several were near agricultural fields or thickets. There were 49 species detected during point counts conducted in the northern part of the Riverlands with a mean of 23.1 birds detected at each point (stan. dev. 4.7, range 15 to 30 birds per point). The mean number of birds found in the first three minutes for each point was 16.0 birds. The most common birds in this section were Gray Catbird, Red-eyed Vireo, Song Sparrow, Tufted Titmouse and Common Yellowthroat. Characteristic riparian forest birds are fairly common including Red-bellied Woodpecker, Fish Crow, Yellow-throated Vireo, Warbler Vireo, Blue-gray Gnatcatcher, Northern Parula, and American Redstart.. Although a territorial Cerulean Warbler was detected in preliminary surveys, none were found during the breeding surveys. Northern Oriole is common in the tall trees along the river and the canal and the Orchard Oriole also is found in the park

area. The following swallows breed in the Susquehanna Riverlands: Tree, Northern Rough-winged, Barn, Bank, and Cliff.

Wetlands Nature Area – There were 47 species recorded on eight points in this section. The Wetlands had somewhat higher densities than the northern Riverlands with a mean of 28.1 birds detected on each point (standard deviation = 4/8, range 22 to 33 birds). The most common breeding birds of the Wetlands Nature Area was Red-winged Blackbird, followed by Gray Catbird, Tufted Titmouse, Northern Cardinal, Wood Thrush, Common Yellowthroat, Song Sparrow, and Swamp Sparrow. If there were points located in the marsh, Red-winged Blackbird and Swamp Sparrow would have been even better represented. Characteristic riparian forest birds mentioned above also were found in this section. The bird community reflects the large timber of the riparian forest. Pileated Woodpecker, Hairy Woodpecker, and White-breasted Nuthatch forage regularly on the big trees along the river. The marsh has supported nesting Virginia Rail and Sora (Brauning 1992; personal observation). American and Least bitterns have been observed in these wetlands on several occasions during migration. There is habitat for both of these species, but they never have been documented nesting. Pied-billed Grebe also is a regular migrant in the small ponds.

T. R. 419 Forest – The hillside forest North of the Susquehanna SES was surveyed for breeding birds from 1979 through 1994 using the Breeding Bird Census methodology (Gross 1995). There were 42 breeding species in this 11 hectare plot in 1994. The most common species in this period were Red-eyed Vireo, Scarlet Tanager, American Redstart, Ovenbird, Wood Thrush, Tufted Titmouse, and Eastern Wood-Pewee. Over this period, Wood Thrush and Scarlet Tanager significantly increased in density. In some years Wood Thrush was the most common breeding species in this forest (Gross 1981). Although not found in high density, Worm-eating Warbler is a regular breeding species in this hillside forest. The large territories of this warbler would encompass several territories of similarly sized forest birds like Red-eyed Vireo. The sometimes dense understory also supported Gray Catbird, Hooded Warbler, and Eastern Towhee. Golden-winged Warblers were found in transmission corridors near this forest.

Quarry Hillside Forest – On the eastern side of the Susquehanna Riverlands, PPL owns oak – hickory – pine forest between Wapwallopen and Mocanaqua. This forest is somewhat drier and more sloped than Council Cup forest. In 2001, there were 15 points conducted in this forest (Gross 2001). The east side forest is dissected by transmission corridors, so some points sample birds along the forest edge and right-of-way openings which have been habitat for Golden-winged Warbler. The bird community is diverse with 42 species detected on these surveys (38 species in the count circles). Densities were similar to the Riverlands with 22.3 birds found on points (standard deviation = 7.1, range 15 to 40). The most common species detected in the Quarry Hillside Forest were Red-eyed Vireo, Ovenbird, Scarlet Tanager, American Crow, and Blue Jay. Eastern Towhee, Chipping Sparrow, and Indigo Bunting, species associated with forest edge and thickets, also were fairly common. This oak – hickory – pine forest is important habitat for Worm-eating Warbler (8 points). Pine Warblers were found in tall Eastern white pine

and Virginia pines. No Golden-winged Warblers were found in the 2001 survey despite the history of this species in the area.

Council Cup Forest – Breeding bird censuses were conducted in Council Cup forest from 1979 through 1994 (Gross 1995). There were 34 breeding species in this 6 hectare study plot in 1994. The most common nesting birds in this forest were Ovenbird, Black-capped Chickadee, Scarlet Tanager, Red-eyed Vireo, American Robin, and Wood Thrush. The mountain laurel and azalea understory provided good nesting substrate for Wood Thrush. Conifer forest species such as Blue-headed Vireo, Blackburnian Warbler, and Pine Warbler also are part of this community. Forest interior species such as Hairy Woodpecker and Brown Creeper were recorded regularly in these BBC studies. Red-breasted Nuthatches sometimes nested in the Virginia pine. Worm-eating Warbler breeds on the north slope of Council Cup, usually just outside of the study plot (personal observation). Although this is a relatively small forest study plot, the large landscape forest of the Susquehanna Riverlands and neighboring woodlands lend themselves to conservation of Scarlet Tanager and its associates that are commonly found here (Rosenberg et al. 1999). This includes the forest interior species listed on the Watch List: Eastern Wood-Pewee, Wood Thrush, and Worm-eating Warbler.

Abandoned Fields: The abandoned fields of the Susquehanna Riverlands hosted a diversity of field and thickets species. Breeding bird densities were very high in the hillside thickets (Gross 1981b). Among the most common were Field Sparrow, Common Yellowthroat, Song Sparrow, Gray Catbird, Yellow Warbler, Prairie Warbler, Indigo Bunting, and Yellow-breasted Chat. Both Golden-winged and Blue-winged Warbler nested in one of the fields (Ruhe 1979, Gross 1980). Alder Flycatchers have been found in the higher elevations and in the alder thickets while Willow Flycatchers have been found in the shrubby wetlands and goldenrod / dogwood abandoned fields. Eastern Bluebirds are common in the fields of the Susquehanna Riverlands due to the nest box program and the proliferation of wild fruits that are winter food of this thrush.

Avian Monitoring Efforts:

Formerly monitored by Ichthyological Associates and Ecology III as part of the PPL Susquehanna SES Environmental monitoring program. Bird population surveys were conducted near Susquehanna SES for 18 years with several reports and publications as a result of these studies (Gross et al. 1980, Gross 1995).

Education/Recreation/Ecotourism Activities and Opportunities:

The Susquehanna Riverlands is a popular destination for ecotourists. It is very popular with the local population that rely on it for family and personal recreation. It has been selected as one of the stops on the Susquehanna River Birding and Wildlife Trail. Its hiking trails are used by thousands of people for outdoor recreation including birding, jogging, walking, photography, nature study, fishing, and hunting. The Susquehanna Riverlands has an environmental center that is a regionally important wildlife and environmental educational site. It is a popular location for environmental workshops.

Management/Conservation Issues and Opportunities:

Identify current and existing threats to birds and bird habitat, discuss briefly any management or conservation issues or opportunities as a transition to the section below. Do not list the current, ongoing or proposed recommendations for conservation actions in this section.

Location is well protected by corporate owner. The biggest threat to this forest is fragmentation of adjacent properties and change in the forest from deer browsing. Large parts of Susquehanna Riverlands is managed in agricultural row crops, fragmenting the wildlife habitat of the property. There are opportunities to expand this IBA along the river to include more properties. The possibilities include the Great Warriors Path Rails to Trails Project in the Shickshinny area.

Conservation Actions

*The following conservation actions describe **current and ongoing** efforts by PPL Susquehanna:*

- Protection of riparian and swamp forest through planning.
- Open access to eastern part of property to deer hunters.
- Implementation of a Forest Stewardship Plan that reflects the company's commitment to environmental education, community service, land management, wildlife conservation, and biodiversity.
- Very active environmental education program that includes local schools, colleges, and state government. Educational bird walks and mini-courses have been a part of this program.
- Prominent displays and educational exhibits on many matters of natural history, biodiversity, and wildlife management.
- Protection of riparian and upland forest habitats, wetlands, and abandoned fields.
- Control of some exotic invasive plants, notably purple loosestrife and mile-a-minute.
- A no-mow policy around the Susquehanna SES that decreases the acreage mown regularly and increases erosion control and wildlife habitat.

*The following conservation actions describe **proposed recommendations** for consideration by PPL Susquehanna 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:*

- Increase the size of the riparian buffer along the (North Branch) Susquehanna River and Little Wapwallopen Creek.
- Environmental education programs that highlight the Important Bird Area program's objectives.
- Expanded control of invasive plants, including Japanese knotweed.
- Evaluation of the applicability of Conservation Reserve Enhancement Program for Susquehanna Riverlands.
- Consider a reduction in the agricultural lands and increase in wildlife habitat in the riparian zone of Susquehanna Riverlands.

- *Expansion of the IBA geographical scope to include more land along the Susquehanna River upstream of the present IBA area, including parts or all of SGL 260 and the PFBC Boat Launch area near Retreat, and the Susquehanna Warrior Trail (Rail-to-Trail project) as it develops.*
- *Decrease the deer herd in the Susquehanna Riverlands, perhaps with controlled hunts.*

Institutional Partners and Key Contacts:

- Ecology III; Theodore V. Jacobsen, President; Susquehanna Environmental Laboratory; 804 Salem Boulevard, Berwick, PA 18603.
- Greater Wyoming Valley Audubon Society, P.O. Box 535, Dallas, PA 18612
- Jacquith, Stephen E., Consulting Forester, P. O Box 83, Muncy, PA 17756
- Pennsylvania Game Commission, 2001 Elmerton Avenue, Harrisburg, PA 17110-9797, Gene Weiner, Land Management, P.O. Box 220, Dallas, PA 18612
- PPL Susquehanna LLC, Susquehanna Riverlands, Susquehanna Energy Information Center, 634 Salem Boulevard, Berwick, PA 18603. John Fridman, Superintendent, jefridman@pplweb.com
- PSO Special Areas Project, Douglas A. Gross, Coordinator, 144 Winters Road, Orangeville, PA 17859, dougross@sunlink.net.
- Susquehanna River Institute; Brian Mangan, Director of Environmental Studies, Assistant Professor of Biology; King's College, Wilkes-Barre, PA 18711, bpmangan@kings.edu.

Susquehanna Warrior Trail, Proposed Rail-to-Trail project from Plymouth to Berwick. Contact: Nancy Dennis, Tenth Street, Berwick, PA 18603.

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