

**PENNSYLVANIA IMPORTANT BIRD AREA #12  
MORaine STATE PARK/JENNINGS ENVIRONMENTAL EDUCATION  
CENTER**

**Phase I Conservation Plan  
(Prepared By: Dr. Gene Wilhelm; 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 (IBA), 2) identify site boundaries, 3) document the criteria for which it was selected, 4) describe the birds and wildlife habitats 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:** Moraine State Park/Jennings Environmental Education Center (MSP/JEEC)

**Size:** 16,527 core site acres (6,693.44 hectares), 46,237 conservation acres (18,725.99 hectares), 15,560 stewardship acres (6,301.8 hectares) based on Audubon PA land cover/watershed Maps

**Ownership:**

Public – Department of Conservation and Natural Resources (DCNR), Bureau of State Parks, Commonwealth of Pennsylvania

**County/Municipalities:**

Butler County/ Brady, Clay, Franklin, Muddy Creek and Worth Townships

**Physiographic Province/Bird Conservation Region/Watershed:**

The combined IBA site is within the Glaciated Pittsburgh Plateau Section of the Appalachian Plateaus Province (Crossley, 1999) and within Bird Conservation Region #28. Main watercourses (Muddy Creek, Swamp Run, Big Run and Shannon Run) are in Ohio River Watershed but drain first into Slippery Rock Creek, a major tributary of the Beaver River that, in turn, unites with the Ohio at Rochester, Pennsylvania.

**Legislative Districts:**

21<sup>st</sup> Congressional District, U. S. Representative Phil English (R) – all townships

8<sup>th</sup> House District, State Representative Richard Stevenson (R) – all townships

21<sup>st</sup> Senatorial District, State Senator Mary Jo White (R) – all townships

**Stewardship Adoption Status:**

The Moraine State Park and Jennings Environmental Education Center IBA has been adopted by the Bartramian Audubon Society (BAS).

**IBA Selection Criteria:**

- (1a) The IBA supports at least 2,000 waterfowl each spring and fall with 34 species recorded to date and as many as 15,000 Tundra Swans flying over site most spring and fall migrations;
- (1b) The IBA harbors 100 or more shorebirds most springs and summers when Lake Arthur is drawn down. Hundreds of Killdeer use the site for a fall staging area;
- (1e) The IBA site includes an array of life communities that are relatively undisturbed in specific spots (e.g., Propagation Area 108) and heavily impacted by human visitors elsewhere (e.g., the shores and open waters of Lake Arthur). Nevertheless, about 275 of the approximate 300 avian species recorded to date in Butler County are found in this IBA. Of these, 150 species have bred there (PA BIRDS, 15 (2): 85-87);
- (2) PA endangered avian breeding species historically recorded in this IBA include: American Bittern, Least Bittern and King Rail. Short-eared Owl has been recorded over-wintering. PA threatened breeding species include: Osprey\*, Bald Eagle\* and Sedge Wren. Yellow-bellied Flycatcher and Olive-sided Flycatcher are extremely rare spring and fall migrants. \*PGC decision of new status is still pending;
- (3) PA Candidates At-Risk: Northern Harrier – possible breeder, Northern Bobwhite – breeder, Barn Owl – possible breeder  
PA Candidate Rare: Pied-billed Grebe – possible breeder, Green-winged Teal – spring and fall migrant, American Coot – spring and especially fall migrant in great numbers (2,500+), Wilson’s Snipe – regular spring and fall migrant, irregular in winter, Marsh Wren – rare but annual breeder  
PA Candidate – Undetermined: Long-eared Owl – rare most winters, Northern Saw-whet Owl – regular each winter;
- (5) This IBA site has experienced long-term avian observations, research and monitoring since pre-park days in the 1950s by local birders to more recent times by members of the Audubon Society of Western Pennsylvania (ASWP), BAS and the Three Rivers Birding Club (3RBC) of Pittsburgh.

*Note: Numbers indicate single season maximum documented in recent years.*

\*SM= spring migration; FM= fall migration; B= breeding; W= winter

**Important Avian Habitats:**

The IBA contains a wide variety of avian habitats of varying sizes. Habitats found on site include open water (Lake Arthur, several ponds, and creeks), wetlands (marshes and swamps), open fields and meadows, hedgerows, thickets, deciduous forest, conifer forest, mixed forest, as well as abandoned cemeteries, farms, and orchards.

**General Site Description:**

Generally, the combined IBA site is located in western Butler Co., just northwest of Butler City. It is east of PA Route 8, north of U.S. 422, east of I-79 and south of West Liberty Borough. The centerpiece of MSP today is the 3,225-acre (1,306.125 hectares) Lake Arthur (LA), a human-made reservoir formed by the damming of Muddy Creek between 1968-1970. Most of the area surrounding LA within the park has been altered, either by logging, strip mining or by clearing for agriculture prior to the establishment of the park in 1970.

Six Special Management Areas are emphasized in this conservation plan because of their rich avian diversity, naturalness and listing as Conservation Areas by the Western PA Conservancy (WPC) in its Butler County Natural Heritage Inventory (BCNHI, 1990):

- 1) Prior to the flooding of the Muddy Creek valley, one of the largest wetlands in western Pennsylvania was located there and supported breeding Pied-billed Grebe, American Bittern, Least Bittern, Common Moorhen, American Coot, King Rail, Sora, Virginia Rail and Marsh Wren. The extensive marsh community has reestablished itself in areas where tributaries enter Lake Arthur, especially the mouth of present-day Muddy Creek, Swamp Run, Big Run and Porter's Cove. A large portion (425 acres, 172.125 hectares) of the Swamp Run Branch has been designated Propagation Area 108 and is managed by the Pennsylvania Game Commission (PGC) where public entry is prohibited. PA 108 is of high significance due to the presence of the PA threatened Sedge Wren. Annual monitoring has confirmed that the species has increased from 3 breeding pairs (1981-1988) to 8 singing males in 2003.
- 2) North of LA is a huge expanse of forestland, referred to as the Alexander Ridge Conservation Area, which lies on both MSP property and private property. A mosaic of forest community types exists in this zone, ranging from dry-mesic acidic central forests in the dry uplands to northern hardwoods on the slopes to mesic central forests in the stream valley. The significance of the area lies in the fact that it is one of the largest contiguous forests in Butler County that provides woodland birds, especially vireos and warblers, appropriate natural habitats.
- 3) Frank Preston Conservation Area encompasses most of the park east of PA Route 528 and will not be developed. This area contains several wetlands, including Muddy Creek confluence with LA that is the breeding site for the PA endangered King Rail, last observed in July 1993.
- 4) Forested Whippoorwill Conservation Area consists of two separate tracts located between Big Run Cove and PA Route 528 in a late stage of succession and thus appealing to many breeding warbler species.
- 5) JEEC (300 acres, 121.5 hectares) borders MSP to the northeast and is administered separately. It includes many acres of a maturing second growth, dry-mesic acidic central forest community that extends into many adjoining spaces. The forest is dominated by red oak, shagbark hickory, red maple and black cherry. Within the confines of this forest exist openings that are remnants of old agricultural fields. In fact, the center was originally agricultural land that was set aside to protect a relict prairie community (20

acres, 8.1 hectares) with its unique flora and fauna, including Blazing Star and Massasauga Rattlesnake. This grassland-forb community probably represents the prairie that at one time stretched eastward from the Rockies to the Appalachian Mountains. The prairie is a breeding stronghold for the American Woodcock with 5 performing males in 2003. Jennings remains the only public and protected relict prairie in the Commonwealth and was declared a BAS Wildlife Sanctuary in 1999. 6) Finally, MSP manages the Slippery Rock Creek Natural Area. This unit contains 92 acres (37.26 hectares) and is comprised of three relatively undisturbed natural communities along the Slippery Rock Creek. The unit is located east of West Park Road and south of Slippery Rock Creek approximately 4 miles north of the main part of MSP. Bordering the south side of Slippery Rock Creek is a floodplain forest community of predominantly sugar maple, black maple and black cherry. This forest community acts as a buffer zone to the open canopy wetlands community. The wetlands are made up of seven small springs and seeps. These wetlands provide habitat to several plants and invertebrates indicating good water quality. A separate wetland considered significant is classified as an acidic shrub wetland and has been left relatively undisturbed. The third forest community is a fairly diverse mesic central forest community. This community is predominantly white oak and black oak. The running Strawberry Bush, which is a rare shrub in Butler County, is included in this community as is a significant abundance of the Harbinger of Spring, a PA threatened wildflower. The flowers, sometimes covering up to two acres, can be found in the floodplain forest community. The natural area is a strong attraction for many species of riparian and woodland birds and was declared a BAS Wildlife Sanctuary in 2002.

### **Summary of Birds:**

LA is a key migratory stopover for water birds in interior western Pennsylvania. Its size ensures that the lake freezes later and thaws earlier than most surrounding lakes and ponds. MSP is situated on the primary migration route of the Tundra Swan as evident by the tens of thousands flying directly over the park every spring and fall. If inclement weather occurs while the swans are migrating over or near the park, thousands use LA for rest and food for a few hours to a day or two. Dabbling and diving duck species often accompany the swans but have a tendency to linger on LA much longer than the swans. Recent fall high counts of water birds included 2,500 American Coots, 2,500 Ruddy Ducks, 500+ Ring-necked Ducks and spring counts of 1,500 Lesser Scaup and 350 Redheads. Following a hacking effort, 2 pairs of Osprey annually nest on the lakeshore with another 4 pairs nesting on microwave communication towers surrounding the park. A pair of Bald Eagle has been producing an average of 2 fledglings annually for the past three years. The wetlands support many breeding species, including Wood Duck, Hooded Merganser, Great Blue Heron, Green Heron, Pied-billed Grebe, American Coot, Virginia Rail, Sora, King Rail and Sedge Wren. When Lake Arthur is drawn down in late summer up to 19 species of shorebirds including plovers and large and small sandpipers (yellowlegs, sandpipers, sanderling, dunlin, dowitchers, and snipe), have occurred along the lake shores and mudflats. The various forests and edges support 21 breeding species of warblers including several which are priority bird species (Cerulean Warbler, Worm-eating Warbler, and Louisiana Waterthrush) and one hybrid (Lawrence's Warbler). Field surveys for Cornell Laboratory of Ornithology's Cerulean Warbler Atlas Project (CEWAP) in 1998-2000 (BAS) demonstrated one of the highest densities for the species in western PA: 25 singing

males in JEEC and 20 singing males in MSP in June 1999 (BAS). Further, although similar field surveys for Cornell Laboratory of Ornithology's Golden-winged Warbler Atlas Project (GOWAP) in June 2000 failed to locate any GOWA, another 20 singing male Cerulean Warblers were located in a previously unchecked section of MSP (BAS). The Northern Waterthrush has increased in number of breeding pairs each of the past four years to 5-6 in 2003 and the IBA site can be considered a stronghold for the Yellow-breasted Chat with 6-7 breeding pairs in 2003 (BAS).

### **Avian Monitoring Efforts:**

Several avian species and habitat monitoring activities are ongoing in the IBA site:

- BAS in cooperation with the PGC conducts an annual Osprey survey.
- BAS in cooperation with the PGC has established a point count survey route for birds in PA 108, first conducted in 2003.
- The PGC monitors Osprey and Bald Eagle nests every year in the IBA.
- BAS is continuing annual point count survey routes for the CEWA.
- BAS is continuing its annual CBC of Butler County, centered on the IBA.
- The Moraine Preservation Fund (MPF) is continuing its Barn Owl Reintroduction Program in the IBA with a propagation center at McDanel's Launch.
- The MPF is continuing to expand its construction and placement of Purple Martin houses at McDanel's Launch and Davis Hollow Marina, both sites on the North Shore of MSP.
- The MPF and the Moraine, McConnell's Mill, Jennings Commission (3MJC) are continuing their monitoring of Eastern Bluebird trails in the IBA site.
- BAS in cooperation with PA Audubon will continue point count survey routes in the IBA site.
- BAS annually submits four seasonal reports on bird observations for publication in PA BIRDS, the PSO's quarterly journal.

### **Education/Recreation/Eco-tourism Activities and Opportunities:**

The primary mission of PA state parks is to provide opportunities for enjoying healthful outdoor recreation and serve as outdoor classrooms for environmental education. PEEC is specifically geared to this mission every day of the year with outreach efforts to 167,000 visitors, 280 schools, 11 colleges and a number of civic organizations. Educational programs are age specific and generate learning through discovery and a hands-on approach. MSP tries to appeal to the general public and thus offers an array of recreational opportunities from picnicking to fishing, boating and hunting. In fact, about 13,600 acres (5,508 hectares) or roughly one-half of the park is open to hunting, trapping and training of dogs during established seasons. There are interpretive services, mostly in summer, and MPF with the cooperation of 3MJC and Penn State Master Gardeners of Butler County constructed a Native Plant Butterfly Trail on the North Shore in 2003. MSP is considered a western PA birding hotspot and has yet to experience its future eco-tourism potential.

### **Management/Conservation Issues and Opportunities:**

The following current and existing threats to birds and their habitats are listed for the entire combined IBA site:

- MSP is subject to heavy recreational overuse, especially in summer,
- resulting in disturbances to breeding and migratory birds.
- Development pressure surrounding the park is intense and will increase
- recreational impact inside the park that, in turn, will affect birds and their habitats.
- Future plans to expand recreational facilities in MSP could potentially
- conflict with conservation goals of protecting birds, their habitats and other life forms.
- Invasive plant species, especially the Japanese Knotweed, Multiflora Rose,
- Garlic Mustard and Phragmites, are swamping native plant communities, homes for birds.
- Acid mine drainage still exists in some IBA streams and affects birds.
- The White-tailed Deer population in the IBA is threatening all habitats.
- The continuing Canada Goose problem is affecting all water bird species.
- Possible Gypsy Moth and Cherry Scallop Shell Moth infestations could be
- severely harmful to all forest oriented avian species with the heavy use of insecticides.

**Conservation Actions:** *The following conservation actions describe **current and ongoing** efforts by the DCNR in the combined IBA site:*

- Canada Goose: trap and transfer, harass, mow alternative fields.
- Mine Discharge: construct mine discharge wetland treatment systems.
- Moth Infestations: the Gypsy Moth is monitored by egg mass surveys every August to determine if it is necessary to spray.
- Deer: monitor and conduct controlled hunts as needed.
- Invasive Plants: monitor and spray Japanese Knotweed as needed.
- Species of Special Concern: monitor and protect from any possible threats.

*The following conservation actions describe **proposed recommendations** for serious consideration by the DCNR:*

- Alleviate current and potential overuse of the combined IBA site by
- Inaugurating an entrance fee system. PA may be the only state that lacks such a system.
- Regardless of an entrance fee system or not, the DCNR should undertake
- Research to comprehend visitor carrying capacities for the site's various recreational activities. MSP is especially crowded in summer and a human impact study needs to be done on the IBA's natural resources in general, and its avifauna in particular.
- Boundary encroachment and development are a serious IBA problem.
- 3MJC, whose mission is acquiring key land parcels, should consider expenditures of significant funds to purchase developed sites that already strongly impact the IBA.
- Acid mine drainage in the IBA must be abated by maximizing options

- Affecting primary mine effluent sources in or near the 6 designated Conservation Areas.
- Minimize noise pollution at JEEC by increasing natural noise buffers(trees).
- Biological isolation is critical in JEEC due to its small size. Thus there is a
- Primary need to increase viable land mass and corridors to protect endangered species by
- Encouraging the 3MJC and DCNR to buy land parcels in hopes of expanding IBA borders.
- Avian species of special concern should be monitored annually by BAS to
- Confirm occurrences and locations as well as possible threats to them. Management strategies need to be developed among MSP, JEEC, PGC and BAS to protect the PA endangered King Rail and the PA threatened Sedge Wren and their specific habitats. An effort should be made by MSP for keeping Lake Arthur at 1,190 feet above sea level during the spring breeding season to protect both the King Rail and Sedge Wren from flooding. PGC should plant warm season grasses in PA 108 to induce Sedge Wren colony expansion.
- MSP should consider experimenting with a short open hunting period for the Canada Goose after Labor Day when park visitation drops considerably. MSP should erect duck
- Nesting containers along Muddy Creek below the dam for possibly attracting Hooded and Common Mergansers. This riparian habitat lacks enough old trees with cavities for possible natural nesting sites but otherwise is conducive for such potential breeding.
- JEEC should experiment with using mowing-prescribed burning for
- Managing its relict prairie not just in the spring but also in the fall thereby possibly increasing the size of the prairie and better preserving its endangered flora and fauna.
- MSP also should use the mowing-prescribed burning regimen to contain
- Certain abandoned old fields in their grassy stage of succession thereby possibly attracting rare avian species of concern such as Upland Sandpiper and Henslow's Sparrow.
- Finally, there is a crying need for an eco-regional master plan approach that
- Emphasizes preservation of avian diversity and natural habitats in JEEC, MSP and other local sites. PA IBA maps clearly illustrate the proximity of McConnell's Mill State Park (MMSP) – IBA #77, Miller Esker Natural Area (WPC), Slippery Rock Creek Natural Area, Miller Woods Natural Area (SRU) and Wolf Creek Natural Area (WPC). All of these sites
- Were recommended for total preservation in WPC's Butler County Natural Heritage Inventory (BCNHI) in 1991. What is NEW HERE is the strongest recommendation
- To connect as many of these sites as possible by natural corridors, such as between MSP-MMSP and Wolf Creek-Slippery Rock Creek riparian corridors with MMSP. Such an eco-regional approach would be the best guarantee for preserving avian diversity in a landscape undergoing explosive development & impact.

**Institutional Partners/Key Contacts:**

- Moraine State Park (MSP): Obie B. Derr, Manager: 724-368-8811
- Jennings EE Center (JEEC): Dave Johnson, Manager: 724-794-6011

- PA Game Commission (PGC): Dale Hockenberry, Agent: 814-432-3187
- Moraine Preservation Fund (MPF): Natalie J. Price, Projects: 724-283-5497
- Moraine, McConnell's Mill, Jennings Commission (3MJC): 724-794-5678
- Bartramian Audubon Society (BAS), Dr. Gene Wilhelm: 724-794-2434

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