

State Wildlife Grants

ENHANCING AND
CONSERVING
PENNSYLVANIA'S
DIVERSE NATURAL
RESOURCES FOR
FUTURE
GENERATIONS



Biologists processing sample (left)
Gilt darter (below)
Photos: Dr. David Argent, California University



Mussel sampling-snorkeling. (above)
Yellow lampmussel displaying (right)
Photos: Western Pennsylvania Conservancy



February 2010



Focusing on Pennsylvania's Wildlife Action Plan

The State Wildlife Grants Program (SWG) represents an investment in the natural resources of Pennsylvania, and practical, tangible benefits of the program are new data and an increased understanding of the Commonwealth's species of greatest conservation need (SGCN) and their habitats. These data are laying the foundation for current and future conservation actions and will be especially important for addressing potentially deleterious factors such as climate change and urban sprawl. The Fish and Boat Commission has taken a 3-fold approach to addressing the aquatic resource needs.

First, a landscape-scale approach on major ecological systems such as the Allegheny and Susquehanna Rivers, to establish comprehensive baseline data that has previously been lacking.

Second, we have targeted data collection and management initiatives for indicator or keystone species, guilds or communities, such as the eastern massasauga, or groups of amphibians and reptiles. With SWG funds we are obtaining a better understanding of the status of many of these animals.

Third, we are collecting information that will greatly assist resource managers with developing conservation plans for critical species. These resource management plans along with on-the-ground activities are restoring habitats.



Spotted Turtle (Photo: Dr. Tim Maret)

Goals of the Pennsylvania Wildlife Action Plan

- Goal 1: Improve the scientific basis for making conservation decisions for wildlife, with special emphasis on species of greatest conservation concern.
- Goal 2: Plan, prioritize, and implement actions that will conserve the state's diversity of wildlife and its habitat
- Goal 3: Develop a knowledgeable citizenry that supports and participates in wildlife conservation.
- Goal 4: Ensure that the necessary resources are available to conserve Pennsylvania's wildlife.
- Goal 5: Expand and improve coordination of the public agencies and other partners in wildlife conservation planning and implementation.

In this report, the various projects collectively show the reliance of animals on certain habitats and how the status of these animals is reflective of habitat conditions. Much has been learned through these and other projects, yet due to the complexity and interrelatedness of habitats and species, as well as emerging threats, there are still many knowledge gaps. Pennsylvania will continue to apply State Wildlife Grant resources to most efficiently and effectively manage and protect our species of greatest conservation need and address our Wildlife Action Plan. All of these efforts will help secure the Commonwealth's natural heritage for future generations.

Pennsylvania's Aquatic Habitats:

The Commonwealth lies within parts of six major river basins: Ohio, Lake Erie, Susquehanna, Potomac, Genesee, and Delaware River drainages, and contains numerous wetlands, nearly 4,000 lakes and more than 83,000 miles of waterways, ranging from high-gradient coldwater streams to large, warm-water rivers. These waters support a high diversity of fish, freshwater mussels, amphibians, reptiles, and other aquatic life, dependent upon Pennsylvania's management and protection efforts.



Paddlefish. Drawing by PFBC



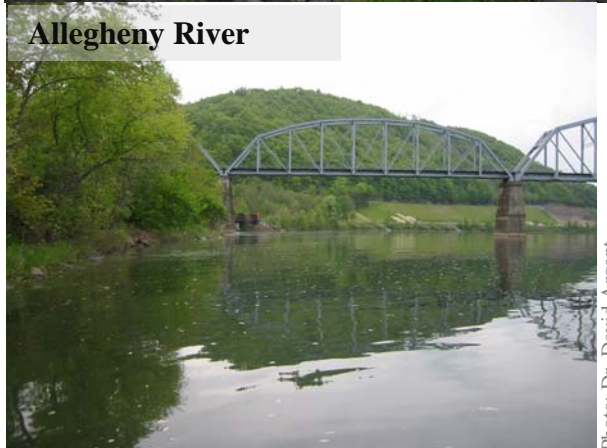
Vernal Pool

Photo: Betsy Leppo



Juniata River

Photo: Jeremy Deeds



Allegheny River

Photo: Dr. David Argent

Pennsylvania's Wildlife Action Plan and Climate Change Adaptation

In the intervening years since the completion of the State Wildlife Action Plans in 2005, improved understanding of climate change has increased the need to implement these plans and to incorporate new actions where suggested by new data or analyses. Although Pennsylvania, in its original plan, had acknowledged climate change as an issue, recent studies (Shortle, *et al.* 2009) have provided additional information on potential future conditions.

In 2009, the Association of Fish and Wildlife Agencies (AFWA) developed guidance for states to update their SWAP's relative to the concern of climate change. Consequently, Pennsylvania is initiating steps to enhance its plan to more fully address climate change in the context of the many other threats to Commonwealth's species of greatest conservation need. These steps consist of the development of an amendment to the PA-WAP (currently under review by the U.S. Fish and Wildlife Service) which provides a broad outline of strategies that include:

- Actions related to habitat protection and management
- Actions related to adaptive management
- Identifying Statewide Priority Conservation Actions

A detailed Climate Change Adaption Plan is beyond the scope of this current effort, but a detailed treatment is anticipated when the PA-WAP is revised in 2015.

Shortle, J. *et al.* 2009. Pennsylvania Climate Impact Assessment. Report to the Department of Environmental Protection. Environment and Natural Resources Institute, The Pennsylvania State University

SWG-funded Research Leads to Scientific Publications

Argent, D.G., W.G. Kimmel, R. Lorson, P. McKeown, D. Carlson, and M. Clancy. 2009. Paddlefish Restoration to the Upper Ohio and Allegheny River Systems. *American Fisheries Society Symposium*. 66:397-409.

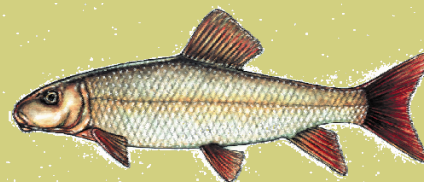
Freedman, J.A., T. D. Stecko, B.D. Lorson, R. Stauffer, Jr. 2009. Development and Efficacy of an Electrified Benthic Trawl for Sampling Large-River Fish Assemblages. *North American Journal of Fisheries Management* 2009, 29: 1001-1005.

Success Stories

For many of Pennsylvania's aquatic species of greatest conservation need, insufficient information has impeded decision-making on management and protection efforts.

As a means of addressing Goal 1 of the PA-WAP, and in part through State Wildlife Grant funded projects, data have been collected that has allowed the Pennsylvania Fish and Boat Commission to better understand the population status of these species. Consequently, several state-listed fish species have been de-listed. These species include:

- ❖ smallmouth buffalo
- ❖ channel darter
- ❖ longhead darter
- ❖ longnose gar
- ❖ river herring



River Redhorse. Drawing by PFBC

Stream Habitat Projects: *Long-term Benefits for Pennsylvania's Aquatic Species*

Summary: High-quality stream habitat is vital to ensuring the health and vigor of Pennsylvania's aquatic biota.

Although Pennsylvania hosts many high-quality streams, many miles of streams are under considerable stress from physical disturbances brought about by landuse changes, hydrological modifications and other perturbations. The project especially exemplifies collaboration, where funding and other resources from federal, state, non-governmental organizations, and volunteers are directed to address stream restoration needs. Here, the *Northcentral Pennsylvania Conservancy* is partnering with the Pennsylvania Fish and Boat Commission (PFBC) and Pennsylvania Department of Environmental Protection (DEP) on a \$600,000 program to address



Installing habitat improvement structure.
Photo: Northcentral PA Conservancy



Collecting habitat data. Photo: Northcentral PA Conservancy

in-stream habitat problems. These projects are funded through the State Wildlife Grants Program, as well as the state-funded Growing Greener Program, administered by DEP. The PFBC's Habitat Division is providing technical expertise to design the projects and oversee construction.

During the summer (2009), six members of the Habitat Division staff spent time working on over 15 projects in 9 counties. Working with the county Watershed Specialists, local watershed groups, Trout Unlimited Chapters, and other volunteers, over 1,700 feet of modified mudsills; over 350 feet of bank cribbing; and nearly 90 in-stream structures were constructed as part of these grants.

[Scott Carney (PFBC) & Renee' Carey Northcentral PA Conservancy. Project: T-50A Collaborative, Low-Cost Approach to Stream Habitat Improvement and Watershed Stabilization.]

Enhancing our Knowledge for Better Decision-Making

As noted above, Goal 1 of the PA-WAP is to "Improve the scientific basis for making conservation decisions for wildlife, with special emphasis on species of greatest conservation concern." One the more difficult habitats to sample in Pennsylvania is its deep waters, especially its rivers. Therefore, to provide the best available science for species management in river and streams, several State Wildlife Grants have focused on fish and freshwater mussels. Highlighted below are two projects directed at this goal.

Freshwater mussel distribution and genetic analysis in the Susquehanna River Watershed



Summary: This project focuses on the distribution and rarity of the yellow lampmussel and other mussel fauna of the Susquehanna River Basin in Pennsylvania. Data collected will help set the conservation and future research priorities for the mussel fauna in the Susquehanna River basin.

Freshwater mussels (also referred to as clams) are among the most imperiled group of aquatic animals in the United States. Pollution, siltation, changes in physical habitats such as channelization, dams, loss of fish hosts, and other factors are contributing to the loss of these species. The yellow lampmussel is found in Pennsylvania and is classified as a species of “Immediate Concern - PA Responsibility” in the PA Wildlife Action Plan. Although the species is declining throughout its range it may have a “stronghold” in Pennsylvania. Identifying important habitats, determining abundance, and understanding the genetics of yellow lampmussel are first steps to conserving the species.

Western Pennsylvania Conservancy (WPC) biologists are surveying freshwater mussel by snorkeling and targeting habitats appropriate for yellow lampmussels. In 2008, freshwater mussels were surveyed at 60 locations on the Juniata River basin and in 2009, at 24 locations in the Middle Susquehanna basin. For the next phase of the project, surveying efforts will expand the inventory of the



Yellow lampmussel. Photo: Western Pennsylvania

mussel community to the Lower Susquehanna River Basin in 2010. The surveying is tedious, requiring standardized timed searches during which all mussel species are identified and enumerated. For these mussels, information is collected on shell length and sex (in sexually dimorphic species). Tissue samples are taken for genetic analysis of yellow lampmussel and eastern *Elliptio* populations.

Preliminary Findings:

- Live individuals of 10 species.
- Locations with relatively high abundances.
- Some sites lack adequate habitat for mussels.

Mussel Species Found
Yellow lampmussel
Eastern lampmussel
Eastern Elliptio
Rainbow mussel
Elktoe
Triangle floater
Green floater
Eastern floater
Creeper
Paper pondshell

[Mary Walsh; WPC, Project: T-51, Distribution of Yellow Lampmussel (*Lampsilis cariosa*) in the Susquehanna River Watershed.]

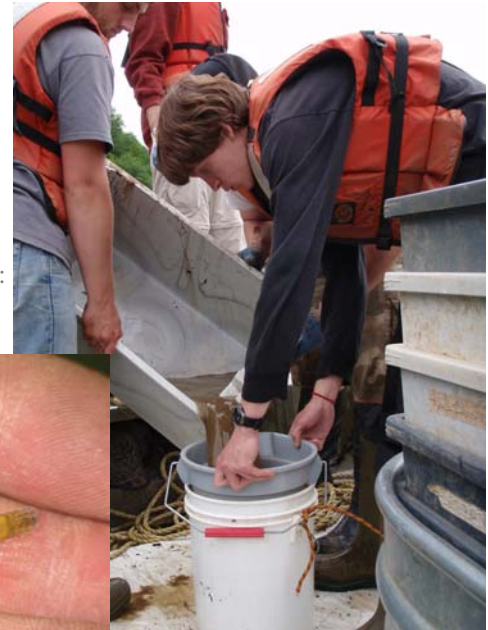
Fishes of the Middle Allegheny River:
Assessment of large-bodied pelagic (open water) and deep-water benthic (bottom-dwelling)

Summary:

Vital information on fish distribution and relative abundance is being collected on the Allegheny River. These data will help guide management recommendations and listing/delisting of several Pennsylvania fish species.

In 2009, river researchers from the *California University of Pennsylvania* sampled the open-water and bottom-dwelling fish assemblages of the middle Allegheny River from Lock and Dam #9 to the mouth of Mill Creek, a distance of approximately 32 miles. Because of the different habitat types inhabited by these fishes, multiple gear types, including gillnets and a benthic trawl, were used. Gill nets were set for 16 to 22 hours at each site. For bottom-dwelling fish, a trawl was used every mile along the prescribed reach from L&D #9 to the mouth of Catfish Run, and from the

Tippecanoe darter (below);
 Processing fish sample (right);
 Photos: Dr. David Argent,
 California University



mouth of Black Fox Run to the town of

West Monterey, and at the mouth of each named, flowing tributary identified on a USGS quadrangle map.

Additionally, a backpack electrofishing unit was used in several shallow areas every 1 mile and at the mouth of each flowing tributary from the mouth of Catfish Run to the mouth of Mill Creek (20.5 miles).

Findings:

A total of 2,939 fishes representing 47 species were collected by all three gear types. Among these were five “Species of Special Concern” as recognized by the Pennsylvania Fish and Boat Commission and identified in the Pennsylvania Wildlife Action Plan.

Species	PA-WAP Status	State Status
Mountain madtom	High Level Concern	Endangered
Bluebreast darter	High Level Concern	Threatened
Gilt darter	High Level Concern	Threatened
Tippecanoe darter	High Level Concern	Threatened
Hornyhead chub	PA Vulnerable	Candidate

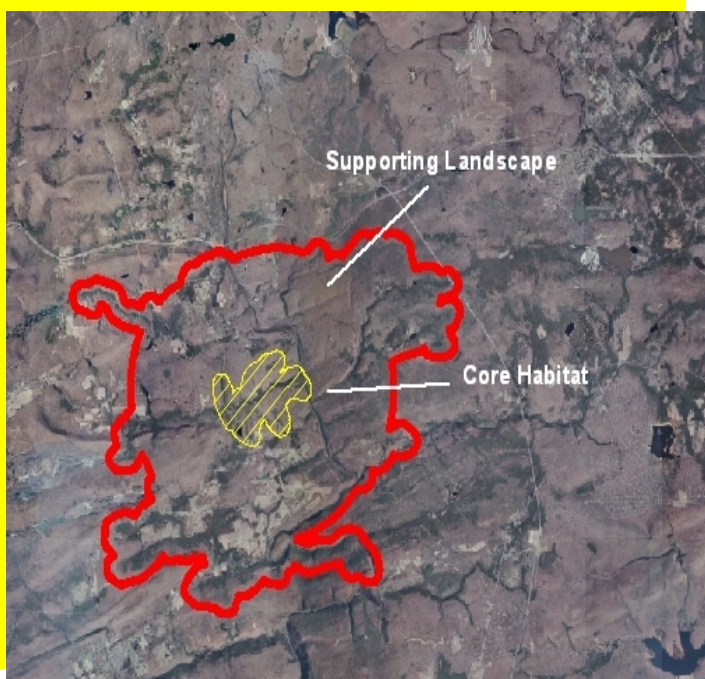
[Dr. David Argent, California University of Pennsylvania, Project: T-02-09-P. Assessment of large-bodied pelagic and deep-water benthic fish assemblages of the middle Allegheny River.]

Conservation Planning Polygons: *Using Technology to Protect Species and Habitats*

Summary: Species habitat specifications and habitat delineations for Pennsylvania's species of greatest conservation need are being developed to guide environmental review & permitting processes, conservation, stewardship, greenway development, and land-use planning to help protect these species.

The Western Pennsylvania Conservancy (WPC), working with partners in the PA Game Commission (PGC) and PA Fish and Boat Commission (PFBC), has developed narrative specifications for delineating core habitat (denoted by the **yellow** area-see figure) and supporting conservation areas (denoted by **red** area) for priority birds, mammals, amphibians, reptiles, fish and freshwater mussels. Based on these narrative specifications and use of Geographic Information Systems (GIS), WPC has delineated areas (Conservation Planning Polygons) around documented occurrences of these species.

This project builds on information already being maintained by the Pennsylvania Natural Heritage Program (PNHP), a partnership between WPC, the PA Department of Conservation and Natural Resources, the PGC, and the PFBC. The project has compiled information on the habitat and other requirements of the species, created standardized specifications that can be applied to known occurrences of the species, and is applying these specifications so that areas necessary to species survival can quickly be identified for use in planning and management.



[Susan Klugman, WPC, Project: T-44, Development of Conservation Planning Materials for Species of Greatest Conservation Need in Pennsylvania.]

Contact: Pennsylvania Fish and Boat Commission

Dave Day

Conservation Coordinator
Pennsylvania Fish and Boat Commission
717.346.8137;
davday@state.pa.us;
<http://www.fish.state.pa.us>

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