

# Pennsylvania Fish & Boat Commission

## State & Tribal Wildlife Grants Annual Summary-2016



Divers in the Allegheny River (left); Pistol grip (*Quadrula verrucosa*), a large-river mussel (below). Images: Western Pennsylvania Conservancy

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## PENNSYLVANIA'S ECOLOGICAL SETTING

The Commonwealth's natural resources have influenced the history, culture, economy, recreational activities, and overall well-being of its citizens. Diverse habitats including: cold-headwater streams, large rivers, wetlands, expansive and abundant forests, as well as rare habitats (e.g., vernal pools, barrens, coastal zones) host a wide array of species that contribute to the biological diversity and abundance of the state's natural resources.

Pennsylvania is at an "ecological crossroads" in the northeast United States encompassing portions of the Mississippi River basin (e.g., Ohio River & Allegheny River), Great Lakes Basin (Lake Erie), and has connections to coastal species through the Delaware River (Delaware Bay) & Susquehanna River (Chesapeake Bay). These coastal associations are also influential in the migratory routes of birds and fishes and thus contribute to

Pennsylvania's role in regional conservation. Strategies and priorities identified in 2015 Pennsylvania Wildlife Action Plan have been developed recognizing this regional context and the Commonwealth's important role in protecting imperiled and declining species. Pennsylvania's habitats are the foundation of the states' natural heritage and crucial to leaving a legacy for future generations.



Examples of Pennsylvania Habitats: L-R: Vernal Pool Michaux State Forest, (Betsy J. Leppo, PNHP/ WPC ) Forest @ Brooks Natural Area (PFBC), Susquehanna River @ Vinegar Ferry, (Mary Walsh, PNHP/ WPC), Wetland @ Mink Pond (PFBC)

## State & Tribal Wildlife Grants

### Supporting Conservation Actions for Pennsylvania's Aquatic Species & Habitats

The State & Tribal Wildlife Grants Program is an effective investment in Pennsylvania's natural resources, providing practical, tangible benefits for the Commonwealth's *Species of Greatest Conservation Need* (SGCN) and their habitats. These benefits include an increased understanding of species distribution, habitat associations and other crucial factors essential for well-informed management. Data gathered from State & Tribal Wildlife Grant projects lay the foundation for current and future conservation actions and are especially important to understand impacts from environmental threats such as climate change, urban sprawl and energy development. The Pennsylvania Fish and Boat Commission has taken a three-fold approach to address aquatic resource needs.

**1. Data Collection and Analysis on Species of Greatest Conservation Need:** Current and accurate data are crucial for scientifically based management decisions such as listing and de-listing species. Species of Greatest Conservation Need (SGCN) can be particularly challenging because they may be difficult to locate due to low abundance, life-history or habitats in which they live. Special collection skills or equipment may also be necessary.

**2. Resource Planning:** Data collection & analysis projects support Resource Management Plans, Species Action Plans, the PFBC Agency Strategic Plan and similar crucial documents that guide management and conservation efforts. These plans provide a logical and efficient approach for implementing conservation actions to secure species and their habitats. Prior to the State & Tribal Wildlife Grants funding, few resources were available to develop and implement these plans.

**3. On-the-ground management.** Data collection and resource planning are preliminary activities for identifying conservation actions that directly benefit species and habitats. State & Tribal Wildlife Grant Funds have supported direct conservation actions including habitat management (e.g., dam removal), species translocations (moving species to new habitats), and re-establishing native species (i.e., stocking).



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## The 2015 Pennsylvania Wildlife Action Plan: Looking to the future



The 2015 Pennsylvania Wildlife Action Plan is designed to achieve the **VISION** of *Healthy, sustainable native wildlife populations, communities and habitats in Pennsylvania* with the specific **PURPOSE** *To conserve Pennsylvania’s native wildlife, maintain viable habitat, and protect and enhance Species of Greatest Conservation Need.*

**BACKGROUND:**

Structured and guided by Congress in the late 1990’s, the *proactive* State Wildlife Action Plans, supported by the State & Tribal Wildlife Grants Program, have provided a vital foundation for states to address the needs of imperiled species and habitats. Implementing actions to protect, conserve and enhance species *before* they become federally threatened and endangered is both ecologically and economically beneficial. Early on, Congress recognized that costs for recovering species nearing the brink of extinction are far greater than taking an early interventional approach when the species are more abundant.

On October 1, 2015, Pennsylvania submitted to the U.S. Fish & Wildlife Service (USFWS) the congressionally required 10-year comprehensive revision of its State Wildlife Action Plan. Currently under review by the USFWS, the 2015 Pennsylvania Wildlife Action Plan (2015 Plan) represents an ongoing commitment by the

Commonwealth to build upon the accomplishments of the 2005 Wildlife Action Plan to protect and recover declining and imperiled species.

### GUIDING PRINCIPLES

The 2015 Plan has four guiding principles (see inset-Guiding Principles). To *Conserve Pennsylvania’s native imperiled species and their habitats* is the basis for this Plan: to keep declining and imperiled species from becoming

federally listed as endangered or threatened.

With a proactive approach, not only are costs reduced but populations not yet imperiled are also more viable because of greater potential for genetic

diversity. Thus, it is important to *Keep common native species common.*

Habitat in Pennsylvania can be crucial for species with life-history requirements that extend beyond the state’s boundaries (e.g., Northeast). Thus, the 2015 Plan has been developed to “Recognize Pennsylvania’s regionally important roles in conserving species and habitats.”

Finally, implementing conservation actions to manage and recover Pennsylvania’s species and their habitats far exceeds the capacity of any individual agency or organization. Only through a broad coalition of partners and the public can this Plan be successful. Thus, it is crucial to “Promote partnerships for wildlife conservation.”

**GUIDING PRINCIPLES**

- **Conserve Pennsylvania’s native imperiled species and their habitats.**
- **Keep common native species common.**
- **Recognize Pennsylvania’s regionally important roles in conserving species and habitats.**
- **Promote partnerships for wildlife conservation.**

## GOALS of the 2015 Pennsylvania Wildlife Action Plan

The 2015 Plan focuses on Objectives and Strategies within six Goals (see inset-Goals). **GOAL 1** is directed at conservation actions that protect and recover species and their habitats. Many specific conservation actions supporting this goal are found in the Species Accounts (Appendix 1.4) and Conservation Actions (Chapter 4).

The 2015 Plan was developed to provide a transparent, scientifically sound plan. Implementing the Plan clearly requires a similar scientific foundation. **GOAL 2** was developed to provide this scientific perspective and address the diverse data needs of the Plan.

Consistent with the Guiding Principles, **GOAL 3** Objectives and Strategies are based on the crucial role of Pennsylvania in supporting conservation actions for its Species of Greatest Conservation Need, including species with life-histories that extend beyond the state’s boundaries.

Successful implementation of the 2015 Plan will require a broad-based support. **GOAL 4** guides the Commissions to reach beyond typical constituent agencies and organizations to expand support for conservation (support is a broad term that includes financial, legislative, technical and partnerships).

In times of increasing resource needs and diminishing financial resources, partnerships are expected to provide a crucial role in implementing the 2015 Plan. As outlined in **GOAL 5**, the Commissions will need to continue to foster this collaboration by continually engaging researchers, practitioners and other implementers of the status of plan implementation.

## GOALS

1. Conserve Pennsylvania’s native wildlife and its habitat by implementing conservation actions in the Wildlife Action Plan.
2. Base wildlife conservation decisions on the best available science, with an emphasis on Species of Greatest Conservation need and their habitats.
3. Contribute to range-wide conservation of Species of Greatest Conservation Need.
4. Strengthen the state’s capacity to conserve Pennsylvania’s native wildlife.
5. Continue to improve cooperation within and between public agencies and other partners in wildlife conservation planning and implementation.
6. Develop a knowledgeable citizenry that supports and participates in wildlife conservation.

A public that is informed about the Plan, and their potential role with implementation, will greatly enhance success of the Plan. **GOAL 6**, its objectives and strategies were developed to support public understanding of the Plan. A communication strategy, to be developed in the initial 1.5 years of the 2015 Plan, will guide implementation of this goal.

*Diana Day-PA Fish and Boat Commission & Cathy Haffner-PA Game Commission. Project: F14AF00255. Pennsylvania State Wildlife Grants – Planning and Revision of the Pennsylvania Wildlife Action Plan. Pennsylvania Fish and Boat Commission and Western Pennsylvania Conservancy.*

# Surveying mussels in the Ohio River

**Summary:** Information from this recently initiated 3-year project will help guide resource management decisions by addressing crucial data deficiencies in Ohio River mussel species communities and their habitat requirements.

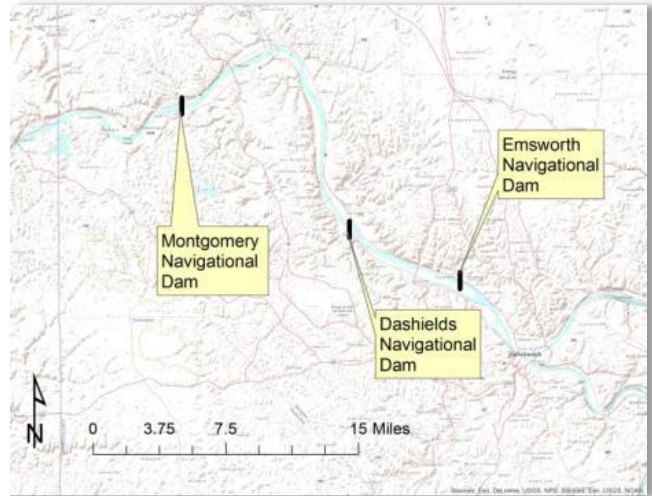
## Objective

In Ohio River navigational pools of Pennsylvania, this project will survey freshwater mussels and analyze mussel-habitat relationships. Models of the Ohio River watershed freshwater mussels will relate landscape, watershed, and river-reach variables to species distributions.

## Approach

This project will:

- Analyze available information about Ohio River pools in Pennsylvania to select the best potential mussel habitats for surveys.
- Characterize mussel communities, including species and their abundance, in the best available habitats of the Ohio River in Pennsylvania.
- Model the distribution of 10-20 mussel species in the Pennsylvania portion of the Ohio River basin. Model results will include maps of predicted distributions and analysis of the relationship between landscape, watershed, and reach variables with species occurrences in the Ohio River and tributaries.
- Identify portions of the Ohio River pools in Pennsylvania that have potential mussel habitat and have the least known disturbances. Maps of the best potential habitats will be useful for future survey planning and management activities, for example selecting mussel relocation sites.



The anticipated products, including georeferenced survey results, survey maps, predicted distributions, and analysis of variables related to mussel occurrences, can be used for decision making about the mussel communities.

## Status

This project began in 2015 and is in the early stages of data acquisition. We will provide updates when more information becomes available.

Mary Walsh, WPC-Aquatic ecologist.

Project: F15AF00413. Assessment of Freshwater Mussels in the Ohio River Watershed in Pennsylvania. Western Pennsylvania Conservancy.



Salamander mussel (*Simpsonaias ambigua*) a large-river mussel species. Image: Nevin Welte

## Paddlefish recovery in the Ohio & Allegheny Rivers: Outcomes, lessons learned & next steps.

### Summary

For 20 years (1991-2011) the PFBC raised and stocked over 158,000 Paddlefish into selected pools of the Ohio and Allegheny rivers (Argent and Kimmel 2012). Although several adults were collected, only one juvenile (larval) paddlefish was collected. Thus, the population is not self-sustaining. Recommendations are provided for further assessments.

### Goals

Projects supporting this work were designed to re-establish this species in the Pennsylvania portion of the Allegheny and Ohio Rivers and to evaluate success of the stocking program.

### Approach

In 1991, improved water quality provided the impetus to re-establish Paddlefish into the Ohio and Allegheny Rivers in Pennsylvania. Pennsylvania's work was part of a larger strategy coordinated by the Mississippi Interstate Cooperative Resource Association (MICRA).

For Paddlefish, a long-term approach is required because these fish: can move long distances to spawn, are long-lived, and require 8-to-10 years to reach sexual maturity.

Multiple reporting and sampling methods were used to evaluate distribution of fish including: a review the MICRA Paddlefish database, reliable angler reports, directed gillnet sampling, plankton net tows, benthic trawls, and electrofishing.

Beginning in 1995, to help track fish, electronic coded wire tags were placed in the rostrum (i.e., paddle) of the fish. When scanned with an electronic reader, the information helps with

determining growth, distance traveled and other important information. One Pennsylvania stocked paddlefish was found 604.5 miles downstream in Kentucky's McAlpine Dam. Another PFBC tagged Paddlefish was collected nearly 350 miles downstream from where it was stocked (Glen E. Brashears, angler, personal communication). This 10-year-old fish weighed over 20 pounds and navigated through at least 10



Measuring a paddlefish.  
Image: Dr. David Argent, California University of Pennsylvania

lock and dams.

To document stocking success gillnetting was initiated in 2005 and conducted for the years 2005-06 and from 2011-14. Reliable angling reports were also used to assess presence of Paddlefish. The 2005-2006 sampling results produced a recommendation to increase the stocking size to > 280 mm (11 in) EFL (Eye-to-Fork Length) and increase stocking rates over a reduced length of river.

### Outcome

From all monitoring efforts, only one juvenile Paddlefish was collected. Although sub-adults and adults were collected, the numbers did not increase sufficiently to achieve a self-sustaining population. A study of potential foods available to Paddlefish found the Pennsylvania portion of the Ohio River had lower numbers of zooplankton compared to downriver areas where Paddlefish are established. This lower food item density was

considered a possible limitation on Paddlefish growth and ultimately maturation.

Interrelated factors likely continue to limit the development of self-sustaining populations – mortality/size of stocked fish; habitat, flow, and temperature regimes; and riverine connectivity (Argent *et al.* 2009). Data collected through 2012 suggested that the Paddlefish populations in the Allegheny and Ohio rivers remained small and that revised stocking protocols had not changed the fundamental dynamic of this “Recovering Species” in these regulated rivers. Yet, during 2014-15 reliable angler reports from the lower Allegheny River indicated an increased number of juvenile Paddlefish catches. Directed sampling effort is planned to document the presence and abundance of these juvenile Paddlefish.

Unlike portions of the impounded lower Allegheny and upper Ohio rivers in which suitable habitat appears limited, reaches sampled upstream near Kinzua Dam provide access to habitats in approximately 125.5 miles (202 km) of free-flowing- river (i.e., from Lock and Dam 9 at East Brady upstream to the tailrace of Kinzua Dam). There is no current evidence of a self-sustaining population in this study segment, yet the presence of adult Paddlefish, suitable flow/habitat and riverine connectivity portend well for the future of this species in the upper free-flowing Allegheny River.

Effects of stocking by the New York Department of Environmental Conservation (NYDEC) are believed to be supplementing Pennsylvania’s stocking efforts as these fish move downstream into Pennsylvania’s waters.

#### Recommendations:

- Continue to stock the Upper Allegheny River at a higher stocking rate because higher densities of Paddlefish were collected in this reach of the river.

- Continue to monitor Paddlefish in the Upper and Lower Allegheny River in two consecutive years, in a 5-year rotation.
- Using gear appropriate for collecting juvenile fishes, begin to assess the presence of juvenile Paddlefish in the lower Allegheny River.

#### Conclusion

Paddlefish stocked by the PFBC and collected by long-term monitoring efforts were found to have matured. However, numerous factors noted above, have likely contributed to low reproductive success and thus far, lack of a self-sustaining population.

#### References

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Rick Lorson, PFBC Fisheries Biologist  
Project: T2-10-R-1. Paddlefish Population Status, Abundance, and Restoration. PA Fish & Boat Commission.

Allegheny River, Pool 5. Image: David Argent, California University