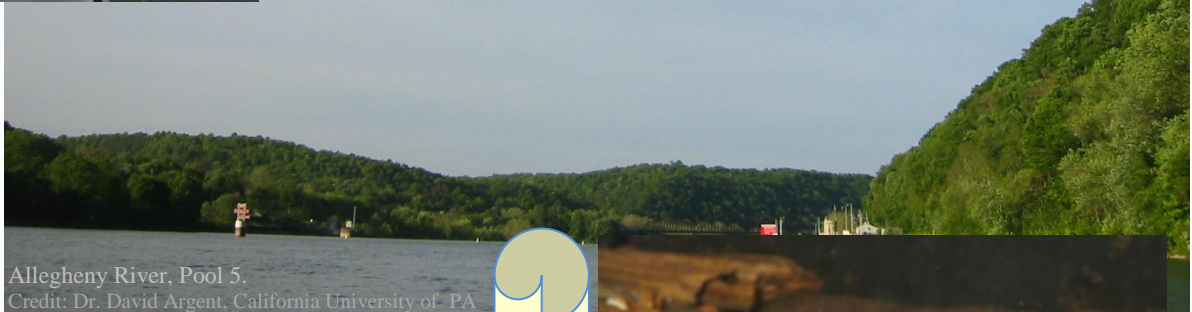


# Pennsylvania Fish & Boat Commission 2013 Annual Summary



## State Wildlife Grants

*Investing in Pennsylvania's  
Species of Greatest Conservation Need (SGCN)*



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Gilt darter (*Percina evides*).

Credit: Rob Criswell

## February 2013

## Aquatic Species & Habitats and the role of the Pennsylvania State Wildlife Action Plan (PA-SWAP)

The State Wildlife Grants Program (SWG) represents an investment in the natural resources of Pennsylvania. The program provides practical, tangible benefits for the Commonwealth’s Species of Greatest Conservation Need (SGCN). These benefits include an increased understanding of the species that can contribute to enhanced protection & management of the species and their habitats. These data are laying the foundation for current and future conservation actions and will be especially important for addressing impacts from factors such as climate change, urban sprawl and energy development. The Fish and Boat Commission has taken a 3-fold approach to addressing the aquatic resource needs.

1. Landscape-Scale Approach. A landscape-scale approach is being used in major ecological systems such as the Allegheny, Susquehanna, and Delaware River Basins to establish current, comprehensive baseline data on high-priority species and habitats.
2. Collecting Data on Priority Species: Data collection and management initiatives have been directed primarily towards indicator or keystone species, guilds or communities. These include freshwater mussels (e.g., yellow lampmussel) and fishes (e.g., paddlefish & gilt darter). SWG-funded projects are providing information on the status of many of these animals and allow a more *proactive* approach towards their protection and management.
3. Resource Planning: Resource planning includes development of resource management plans and other initiatives that will greatly assist resource managers with efficiently and

### Goals of the (PA-SWAP)

**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.

effectively directing on-the-ground activities to secure species and their habitats.

### 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.



**Figure 1. Generalized process for addressing major resource needs.**

## State Wildlife Grants: Addressing Critical Resource Concerns

**Summary:** The availability of State Wildlife Grant (SWG) funds has provided the Pennsylvania Fish & Boat Commission (PFBC) with increased opportunities to address complex and long-term resource concerns. This document is an overview of how the PFBC has used SWG funding for some of its trust Species of Greatest Conservation Need (SGCN).



Sorting a sample.

Credit: Dr. David Argent, California University of PA

### **1. Identify the Problem**

Many of the PFBC trust species listed in the PA State Wildlife Action Plan are often cryptic and well-camouflaged in their coloration, sparsely distributed, or live in habitats that are difficult to sample. Consequently, there is often insufficient data about these species for guiding management decisions. To address the lack of data has often required special initiatives, staffing and, in some cases, special sampling gear. Historically, many of these species have not been harvested and insufficient funding has therefore limited the ability of resource agencies, including the PFBC, to adequately understand the status of these species.

For some of the more complex resource needs, a common process has been used to gather the information to guide management decisions (see Figure 1 above). An overview of this process and a couple examples are provided in this document.

### **2. Build Capacity:**

*Fund staff or partners to gather & compile data.*

With State Wildlife Grants funding, the PFBC has been able to hire staff and provide grants to non-governmental organizations and research institutions to specifically address goals and objectives identified in the PA State Wildlife Action Plan (PA-SWAP).

Developing grants and jobs that are focused on specific tasks has allowed the PFBC to maintain momentum to achieve more robust outcomes with these efforts. This capability has been crucial to addressing the PA-SWAP goals and objectives, and in many cases, has resulted in management actions.

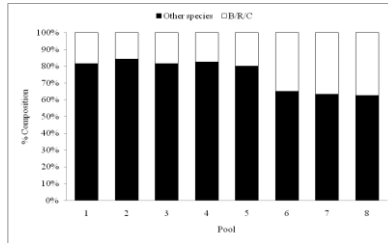
### **3. Collect Data:**

*Conduct intensive sampling, develop new methodologies.*

With funding and increased capacity, the PFBC has implemented several projects to close data gaps for immediate- and high-level concern species. The lack of current and scientifically



rigorous data has historically diminished the capacity of staff to make well-informed decisions on the status (i.e., listing on the state threatened & endangered species lists) and for environmental review. Projects that provide comprehensive assessments serve as a more efficient and effective approach to gathering information rather than individual site reviews. Although individual site reviews may be needed on a case-by-case basis, such as in environmental reviews, their need is lessened by these more thorough studies. Some SGCN are found in habitats that are difficult to sample (e.g., deep rivers) and this has contributed to use of new sampling methods for these environments.



Sample graph of data analysis.

**4. Analyze Data:**

*Analyze data and identify potential actions to address needs.*

After data are collected, thorough analysis and interpretation are required to provide rationale for the next step(s) in the process. This analysis and interpretation can then lead to actions to advance species protection.



Processing a sample.

**5. Actions:**

*Determine the best action(s) and implement.*

Actions to secure a species can include; on-going assessment and monitoring, on-the-ground management of the either the species or habitats, changes in legal status of a species (i.e., listing/de-listing as a candidate, endangered or threatened) or regulatory changes (e.g., harvest regulations, possession).

Outreach to legislators, resource users, and the general public is also a crucial feature in any of the actions noted above. Success of any action may be limited without clear and accurate communication regarding the need, application, and intended outcomes of any actions.

Examples of this process are highlighted next and include: *Assessing fishes in Large Rivers of the Ohio River Basin* and *Setting a Path to Recover the Timber Rattlesnake*.

## Assessing Fishes in Large Rivers of the Ohio River Basin.

### 1. Identify the Problem:

- Lack of information on fish relative abundance.
- Habitats difficult to sample.
- Some fish species are difficult to collect.

### 2. Build Capacity:

- State Wildlife Grant funding was used for much-needed surveys and assimilation of information.

### 3. Collect Data:

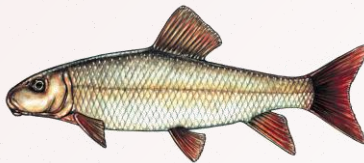
- New methodology (i.e., electric trawl) was used to assist with sampling.
- SWG-funded projects focused on key species and habitats to address significant data gaps.

### 4. Analyze Data:

- Data analysis has provided insights on the status of fish relative abundance.

### 5. Actions:

Studies have documented new species for PA, range extensions of rare fishes, and one probable extirpation. Many fish species have been found to be sufficiently secure within the state to allow de-listing. These include:



River Redhorse.  
Drawing by Ted Walke-PFBC

Silver chub	American brook lamprey
Longnose gar	Mooneye
Skipjack herring	Smallmouth buffalo
River redhorse	Brook silverside
Channel darter	Longhead darter

The status of additional SWAP species were also addressed and include: 1) the delisting of goldeye and 2) updated status of the Cheat minnow to a true hybrid in PA.



Collecting a fish sample.

Credit: Dr. David Argent-California University of PA

### Projects:

T-02-09: *Assessment of large-bodied pelagic and deep-water benthic fish assemblages of the middle Allegheny River.*

T-20: *Fish Fauna Database Development for Riverine Environments of Western Pennsylvania .*

T-40: *Biodiversity of riverine fish assemblages of the lower Allegheny River.*

T-42: *Survey of the Fishes of Deep Waters of the Ohio, Allegheny, and Monongahela Rivers – Pennsylvania.*

T-45: *Conservation Planning for Pennsylvania Fish Species of Greatest Conservation Need.*



Silver Chub (*Macrhybopsis storeriana*)

Credit: Rob Criswell



## Setting a Path to Recover the Timber Rattlesnake

### 1. Identify the Problem:

- Insufficient information on current status of timber rattlesnake populations and habitats.
- Species range is extensive.

### 2. Build Capacity:

- Enlisted support from citizen-scientists, local experts, regional coordinators.
- Provided SWG funding for researchers and other support personnel.

### 3. Collect Data:

- SWG-funded projects helped to address data gaps.
- Several types of data collected including:
  - Genetics
  - Habitat quality
  - Mark-recapture
  - Monitoring



Collecting data on a timber rattlesnake. Credit: Nevin Welte-WPC

### 4. Analyze Data:

Data from these studies included; an inventory and classification of habitats for use by timber rattlesnakes (*Croatus horridus*), radio telemetry to understand location of overwintering denning sites, and mark-recapture studies using passive integrated transponder (PIT) tags. These studies also helped confirm historic sites, obtained certainty in the location of sites using Global Positioning System (GPS), classified sites as dens, rookeries, or basking areas, and assessed the quality, condition, viability of, and threats to, these sites.

### 5. Actions:

Information from these studies has lead to protection of rattlesnakes from collection (South Mountain), promulgation of regulation changes, and implementation of a minimum-size harvest limit on a recovering population which focused on protecting female and juvenile snakes.

### Projects:

T-03: *Timber Rattlesnake Site Assessment and Inventory Project.*

T-23: *Timber Rattlesnake Site Assessment and Inventory Project – Phase 2.*

T-54: *Assessment of the Genetic Status of Timber Rattlesnake Populations in Pennsylvania.*



Timber Rattlesnake (Credit: Karl Lutz)

## Compilation, Quality Assurance, and Critical Review of Pennsylvania Fish Survey Data: Lamprey and Darter Status Assessment

**Summary:** This project is designed to review over 30,000 records generated from fish survey work conducted by PFBC, PSU, other educational institutions and museums, and private environmental consultants.



American Brook lamprey (*Lamptera appendix*) Credit: Rob Criswell

**Goal:** This review will allow greater confidence in conservation and permitting-related decisions, and further strengthen the integrity of an already rigorous non-game program.

**Approach:** The grants are designed to review fish records generated from surveys conducted by PFBC, PSU, other educational institutions and museums, and private environmental consultants. A limited amount of field work will also be conducted to verify or refute problematic records and fill important data gaps that may exist for State Wildlife Action Plan (SWAP) priority species.

**Status:** The pilot phase of the project resulted in the review of all known Pennsylvania records for the lampreys – five (5) of which are SWAP priority species. This review, combined with field work for selected species, permitted the delisting of the state-candidate American Brook Lamprey (*Lamptera appendix*) (see image above) and assessment of other state-threatened lamprey. This sampling also resulted in the first recent collection of an adult state-endangered Northern Brook Lamprey (*Ichthyomyzon fossor*) and a range extension of the state-threatened Mountain Brook Lamprey (*Ichthyomyzon greeleyi*). Further, several records were determined to be erroneous and purged from the PFBC database.

Currently, database records are being reviewed for all remaining Pennsylvania fish species, with priority on four PA-threatened darters – the bluebreast (*Etheostoma camurum*), gilt (*Percina evides*), Tippecanoe (*Etheostoma Tippecanoe*), and spotted (*Etheostoma maculatum*). It is noteworthy that the gilt darter has become common enough in Pennsylvania to permit PFBC to provide specimens to the

New York Department of Conservation for their efforts to reintroduce it in New York (also with the assistance of SWG funding).

**Outcomes:** During the continuing review of fish records, additional SWAP priority species will receive scrutiny similar to the darter species. One of the major goals of the PA SWAP is “keeping common species common”, and to use SWG funds to keep species from becoming federally listed. These grants have allowed the compilation of relevant information to thoroughly evaluate these nongame species and classify them appropriately. In some cases this has enabled the state delisting of species.

Project T-02-16: *Compilation, Quality Assurance, and Critical Review of Pennsylvania Fish*



Survey Data. Rob Criswell. Pennsylvania State University



Larval paddlefish collected in 2012.

Credit: Dr. David Argent, California University of PA

## Status of Paddlefish Recovery in Pennsylvania: An Update

**Summary:** Long-term monitoring efforts are continuing to assess the status of paddlefish in the Allegheny and Ohio Rivers. Collection of a larval paddlefish (*Polyodon Spathula*) in 2012 suggests natural reproduction, although further work is required to determine the implications of this finding on re-establishment of the species.

**Goal:** This on-going project is evaluating earlier stocking of immature paddlefish to support recovery of this species in Pennsylvania.

**Status:** Since 2005, California University of Pennsylvania has been working with the PA Fish and Boat Commission to evaluate Pennsylvania’s Paddlefish Restoration Plan. Through several sampling seasons, a variety of gear types have been used to target paddlefish in the Allegheny and Ohio rivers of southwestern Pennsylvania. Over the entire project duration (2005-06; 2011) a total of 10 adult/juvenile paddlefish were captured using gill-nets. Coincidental studies on the

Monongahela River also yielded two juvenile paddlefish between 2006 and 2010. In the 2012 May-to-June sampling season, gill nets, larval drift nets and benthic trawls were used to capture paddlefish of various life stages. For the first time since the project’s inception, a single larval paddlefish (<20 mm total length) was collected from the Allegheny River. Future efforts will now examine developing populations in the Upper Allegheny River near Kinzua Dam.

**Outcome:** In 2012, the finding of a larval paddlefish in the Allegheny River is a good indicator that natural reproduction has occurred and demonstrates that evaluation of potential recovery of this species in Pennsylvania waters requires a long-term perspective.



Nets used to sample for larval fish.

Credit: Dr. David Argent, California University of PA

Project: T-02-10-R-1: *Ongoing Paddlefish Population Status, Abundance, and Restoration Planning*. Dr. David Argent, California University of Pennsylvania; Rick Lorson, PA Fish and Boat Commission.

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