

# State & Tribal Wildlife Grants Annual Summary-2017

## Pennsylvania Fish & Boat Commission



### *In this issue...*

- ✓ *State & Tribal Wildlife Grants: Supporting Conservation Actions for Pennsylvania's Aquatic Species & Habitats*
- ✓ *Surveying Crayfishes in Western Pennsylvania*
- ✓ *Long-Term Population Monitoring of the Timber Rattlesnake in Pennsylvania.*
- ✓ *The 2015-2025 Pennsylvania Wildlife Action Plan: A Blueprint for Conservation*
- ✓ *Goals: 2015-2025 Pennsylvania Wildlife Action Plan*
- ✓ *Pennsylvania's Ecological Setting*



March 2017



PENNSYLVANIA  
WILDLIFE ACTION PLAN

Sampling for crayfish (top). Big Water Crayfish (*Cambarus robustus*) (bottom) Images: Dr. Zachary Loughman

# State & Tribal Wildlife Grants

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

## Benefits

State & Tribal Wildlife Grants provide practical, tangible benefits for the Commonwealth's *Species of Greatest Conservation Need* (SGCN) and their habitats including:

- Improved understanding of species distribution, habitat associations and other crucial factors.
- Scientifically based, well-informed management recommendations.
- Conservation actions contributing to healthy species populations.

These are addressed through the following activities:

## Data Collection and Analysis

Current and accurate data, such as species distribution and habitat requirements, are crucial for scientifically based management decisions.

In this issue, examples include: *Surveying Crayfishes in Pennsylvania* and *Long-Term Timber Rattlesnake Monitoring in Pennsylvania*



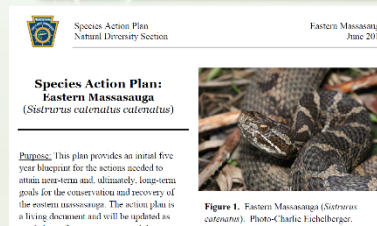
Top: Radio telemetry helped identify habitat needs and movement patterns of Eastern Massasauga (Western PA Conservancy).



Left: Blanding's Turtle study to locate nesting areas and determine reproductive status (K. Gipe).

## Resource Planning

Data collection & analysis support Resource Management Plans, Species Action Plans, the PFBC Agency Strategic Plan and similar documents that guide species and habitat management.



Species Action Plans (examples) to guide management actions.



Purpose and Goals

## Management Actions

Management actions have included: habitat management (e.g., dam removal-right), species translocations (i.e., moving species to new habitats) and efforts to re-establish species (e.g., stocking).



Old Huntingdon Pike dam removal, Pennypack Creek



## Surveying Crayfishes in Western Pennsylvania

### Summary

Crayfishes are important to the health of Pennsylvania’s aquatic resources. Yet, the composition of Western Pennsylvania’s (WPA) crayfish fauna is not well known and inadequate for developing management recommendations. Surveys will be used to update crayfish species distribution and inform conservation status assessments.



Blue Crayfish (*Cambarus monongalensis*). Image: Dr. Zachary Loughman

### Objective

This project will systematically and comprehensively survey Western Pennsylvania’s surface-dwelling crayfish species and fill in data gaps for Pennsylvania’s burrowing crayfishes.

snorkeling and burrow excavation. An active citizen scientist program is being developed to augment collecting efforts by project personnel and spread the word about crayfish conservation in WPA.

### Approach

Surveys will be conducted in Pennsylvania portions of the Erie, Genesee, Greater Ohio, and Potomac watersheds (Map). Following standardized protocols, both stream-inhabiting and burrowing crayfish will be sampled using seines, dip nets,

**YOUR HELP NEEDED!**

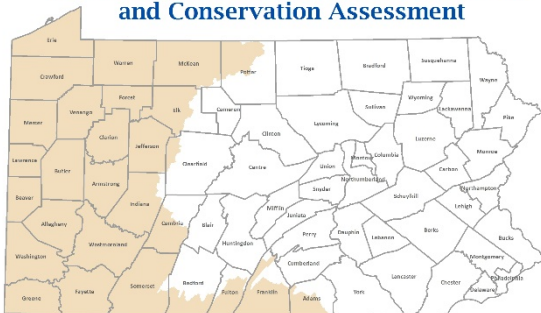
If you are interested in assisting with, or want to find out more about this project, contact Dr. Zachary Loughman ([zloughman@westliberty.edu](mailto:zloughman@westliberty.edu)).

The Blue Crayfish (*Cambarus monongalensis*) (Figure), for example, is listed as

a “data deficient” species in the 2015-2025 Pennsylvania Wildlife Action Plan indicating insufficient information is available to evaluate its conservation status. These surveys will help resource managers understand the distribution and status of this species.

Dr. Arnold Ortmann was the curator of mollusks at Carnegie Museum of Natural History in Pittsburgh at the turn of the nineteenth century. This project will focus primarily on sampling historical locations surveyed by Ortmann and his associates in the early 1900’s, with the goal of revealing any changes in the status and distribution of crayfishes in WPA. New sites will also be sampled.

### Western Pennsylvania Crayfish Inventory and Conservation Assessment



State Wildlife Grant Project: F16AF00447

Dr. Zachary Loughman (West Liberty University),  
 Dr. David A. Lieb (Western Pennsylvania Conservancy) and  
 Christopher A. Urban (Pennsylvania Fish and Boat Commission)

LEGEND  
 □ Counties  
 ■ Western PA Crayfish Survey Area

0 10 20 40 60 Miles

03.01.17; DAVD

**Status**

This project began in fall 2016. To date:

- A database was developed of all known historic survey locations.
- Data collection methodologies were finalized and surveys completed in the Genesee basin and initiated in the Erie watershed.
- Thus far, 30 locations have been sampled.
- A Citizen Scientist feature was initiated in the winter of 2016 and is anticipated to be available for use in spring 2017.
- In 2017 field work will focus on the Allegheny River basin and several Ohio River direct drainage basins.

Project F16AF00447: Western Pennsylvania Crayfish Inventory and Conservation Assessment. *Dr. Zachary Loughman (West Liberty University), Dr. David A. Lieb (Western Pennsylvania Conservancy), Christopher A. Urban (Pennsylvania Fish & Boat Commission).*

## Long-Term Population Monitoring of the Timber Rattlesnake in Pennsylvania

**Summary**

This study will establish a long-term monitoring protocol to evaluate the population status of Timber Rattlesnakes, a conservation priority, in Pennsylvania. Pennsylvania is one of the few states in the northeastern United States with a large amount of relatively undisturbed habitat (Reinert 2010).



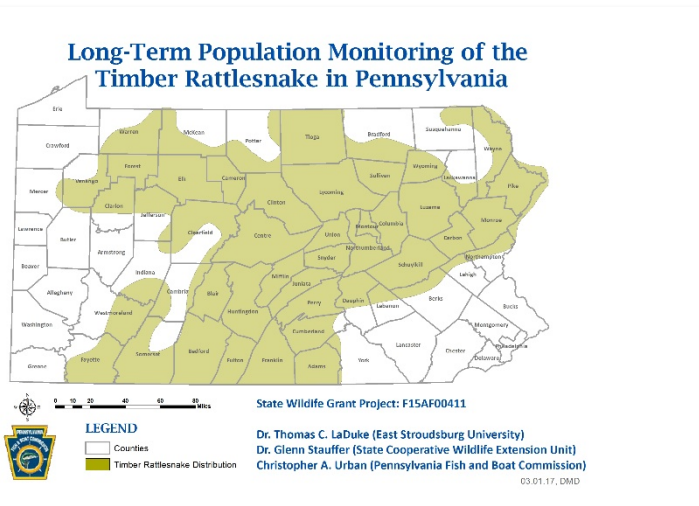
Timber Rattlesnake (*Crotalus horridus*). Image: Dr. Thomas LaDuke

**Goal**

The project goal is to develop low-cost procedures to monitor the status of Pennsylvania’s Timber Rattlesnakes, identifying areas that may require direct inspection and protection. With a small team of Pennsylvania Fish & Boat Commission (PFBC) staff and a few dedicated volunteers, this process will help secure Timber Rattlesnake populations in Pennsylvania.

**Approach**

Developing these monitoring protocol involves: 1) Using Geographic Information Systems (GIS) to examine effects of habitat change on Timber Rattlesnake populations and, 2) Mark-recapture



methods to estimate the size of a set of timber rattlesnake populations. A rapid assessment protocol will be tested on these populations to establish the best method to conduct quick, non-invasive investigations of timber rattlesnakes populations. The results of these two methods will be used to produce a program that the PFBC can use to monitor the status of Timber Rattlesnakes in the Commonwealth. This approach will allow minimal disruption of Timber Rattlesnakes from the monitoring process, while providing reliable information on populations in the field.

This study is a natural extension of a nine-year Timber Rattlesnake Assessment Project (TRAP) conducted by the PFBC to evaluate the status of known Timber Rattlesnake populations (Urban 2012). The present study will build on the findings of this previous work.

One objective is to establish an estimate of population size based on use of specific habitat features such as spring basking areas and gestation sites. To do this, the GIS analysis component of the study will examine critical buffer zones around known Timber Rattlesnake

use areas and quantify habitat features, both natural and human-made, that have been determined to be important to these snakes. At the same time, a mark-recapture study will be conducted on several known populations of Timber Rattlesnakes while testing known methods of Rapid Assessment on those populations. Using the estimated size of these populations, Rapid Assessment methods will be tested to determine the relationship between snakes observed by assessors and actual population size based on the mark-recapture procedure.

**Status**

The GIS analysis has begun and includes identification of important habitat features to be assessed, and has produced a distribution map based on TRAP study data. Several Timber Rattlesnake populations have been identified across Pennsylvania to be marked during the 2017 Field Season using a Passive Integrated Transponder (PIT) tag for population analysis. At the same time, the process of Rapid Assessment will be tested against these known-size populations. A team of dedicated volunteers is currently being assembled to assist with the mark-recapture and Rapid Assessment components of the study in different regions of the state.

**Literature Cited**

Reinert, H. K. 2010. Timber Rattlesnake. Pp. 50-53 *in* Terrestrial Vertebrates of Pennsylvania: A Complete Guide to Species of Conservation Concern. M. A. Steele, M. A., M. C. Brittingham, T. J. Maret, and J. F. Merritt eds., Johns Hopkins University Press, Baltimore, Maryland.

Urban, C. A. 2012. Timber Rattlesnake Site Assessment and Inventory Project – Phase 2. Final Performance Report. Pennsylvania Fish & Boat Commission. Bellefonte, Pennsylvania.

Project F15AF00411: Long-Term Population Monitoring of the Timber Rattlesnake (*Crotalus horridus*) in Pennsylvania. Dr. Thomas C. LaDuke (East Stroudsburg University), Dr. Glenn Stauffer (Penn State Cooperative Wildlife Extension Unit), Christopher A. Urban, (PA Fish & Boat Commission)

Project assistant prepared for field sampling.  
Image: Dr. Thomas LaDuke



## The 2015-2025 PENNSYLVANIA WILDLIFE ACTION PLAN: *A Blueprint for Conservation*

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 are far less with an early interventional approach when species are more abundant than trying to recovering species nearing the brink of extinction.

With their jurisdictional authorities, the Pennsylvania Game Commission and Fish & Boat Commission oversee implementation of the 2015-2025 Pennsylvania Wildlife Action Plan.

### 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.**

### GUIDING PRINCIPLES

Four guiding principles (see inset-Guiding Principles) help to focus attention on priorities in this Plan. 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*.

Thus, the 2015 Plan has been developed to support species with life-history requirements that extend beyond the state's boundaries (e.g., Northeast). "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."

## GOALS: 2015-2025 PENNSYLVANIA WILDLIFE ACTION PLAN

The foundation of the 2015 Plan is six Goals with supporting Objectives and Strategies.

1. **Conserve Pennsylvania’s native wildlife and its habitat by implementing conservation actions in the Wildlife Action Plan.**
  - ✓ Directed at conservation actions that protect and recover species and their habitats.
  
2. **Base wildlife conservation decisions on the best available science, with an emphasis on Species of Greatest Conservation need and their habitats.**
  - ✓ Provide a transparent, scientifically sound plan. Implementing the Plan clearly requires a similar scientific foundation.
  
3. **Contribute to range-wide conservation of Species of Greatest Conservation Need.**
  - ✓ Support conservation actions for Pennsylvania’s Species of Greatest Conservation Need, including species with life-histories that extend beyond the state’s boundaries.
  
4. **Strengthen the state’s capacity to conserve Pennsylvania’s native wildlife.**
  - ✓ Successful implementation of the 2015 Plan will require broad-based support.
  - ✓ Efforts need to reach beyond typical constituent agencies and organizations to expand support for conservation.
  
5. **Continue to improve cooperation within and between public agencies and other partners in wildlife conservation planning and implementation.**
  - ✓ With increasing resource needs and diminishing financial resources, partnerships will be crucial to implementing the 2015 Plan.
  - ✓ Foster collaboration by continually engaging resource managers, researchers, landowners and others implementing the plan.
  
6. **Develop a knowledgeable citizenry that supports and participates in wildlife conservation.**
  - ✓ An informed public can greatly enhance success of the Plan.

For more information about the 2015-2025 Pennsylvania Wildlife Action Plan contact:

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 | *Birds and mammals*

Susquehanna River  
 @ Union Boat Ramp.  
 Image: Mary Walsh,  
 Western Pennsylvania Conservancy

## 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 2015-2025 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 are crucial for current and future generations.



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