



State Wildlife Grants Annual Summary-2021

Pennsylvania Fish & Boat Commission



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Top Right: Partners from PA Fish & Boat Commission, PA Department of Conservation and Natural Resources, Mid-Atlantic Center for Herpetology and Conservation, and volunteers meet in a wetland to plan habitat management activities in 2021. Credit: Kathy Gipe, PA Natural Heritage Program and PA Fish & Boat Commission.

March 2021

Bottom Right: Spotted Turtle. Credit: Charlie Eichelberger, Western Pennsylvania Conservancy.

THE 2015-2025 PENNSYLVANIA WILDLIFE ACTION PLAN: A Framework for Conserving Imperiled Species and Their Habitats

A comprehensive plan and extensive collaboration are needed to avoid endangerment and recover the broad diversity of Pennsylvania’s at-risk wildlife. For this purpose, the 2015-2025 Pennsylvania Wildlife Action Plan (PAWAP) is the Commonwealth’s blueprint for conserving declining and imperiled species and their habitats. Administered by the Game Commission and Fish & Boat Commission, this plan is for all Pennsylvanians who care about Species of Greatest Conservation Need (SGCN) and their habitats.

This 2021 summary document highlights selected State Wildlife Grant projects or aspects of the PAWAP administered by the Pennsylvania Fish & Boat Commission. Previous annual summaries are available at: State Wildlife Grants-Program Summaries. Support for this document and the Conservation Opportunity Area Tool are provided through a State and Tribal Wildlife Grant administered by the U.S. Fish and Wildlife Service, Wildlife and Sportfish Restoration Program, North Atlantic and Appalachian Office, Hadley, MA.

Project F16AF00394. Implementing & Coordinating the 2015 Pennsylvania Wildlife Action Plan: Pennsylvania Fish & Boat Commission. Diana M. Day, diday@pa.gov

TECHNICAL GUIDANCE: Proactive Protection for Species of Greatest Conservation Need & Their Habitats

PURPOSE

As a foundational activity to fulfill its Mission, the PFBC uses technical guidance to recommend conservation and management actions to minimize, avoid or mitigate activities that may impact aquatic habitats, Species of Greatest Conservation Need (SGCN) and other species of special concern in Pennsylvania.

BACKGROUND

Conserving wildlife and their habitat requires partnerships, and use of technical guidance is no exception. The PFBC, in collaboration with partner state agencies (e.g., Pennsylvania Game Commission, PA Department of Conservation and Natural Resources) and federal agencies (e.g., U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers) reviews proposed development activities for potential impacts to our respective jurisdictional species and habitats.

STATUS

With knowledgeable and experienced staff, technical guidance offers essential protections for SGCN and their habitats. This work results from diverse and complex activities (Table 1), and poses extensive resource demand and need for staff (Table 2).

Table 1. Types of activities evaluated by PFBC Technical Guidance staff.

- Aquatic habitat encroachment
- Bridge and highway construction & maintenance
- Flood control
- Hydropower development
- Impingement and entrainment
- Instream flows and flow augmentation
- Municipal, residual & hazardous wastes
- Pesticide and herbicides
- Unlawful takings
- Water pollution
- Other water quality matters

Table 2. Types of Technical Guidance provided by PFBC staff.

- Conferences
- Correspondences
- Economic analyses
- Field investigations
- Laboratory services & analyses
- Meetings
- Permit application reviews
- Planning
- Public news releases
- Testimony (written and verbal)

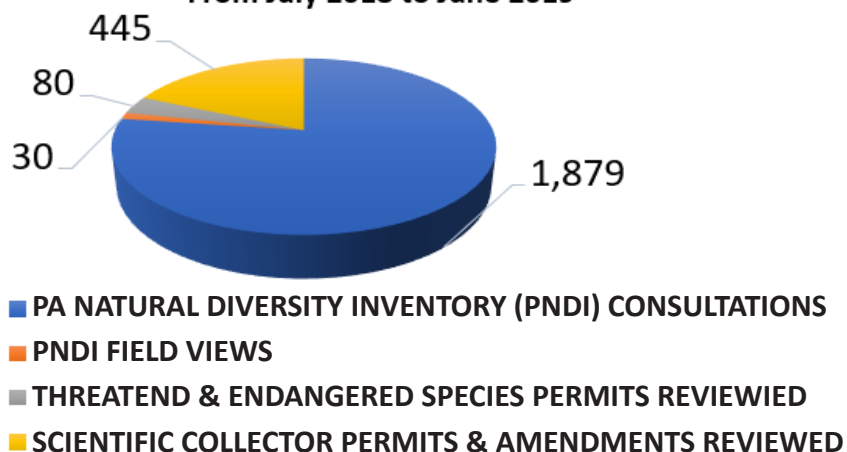


Figure 1. PFBC staff meet with partners in the field to review potential impacts to species and habitats. Credit: PA Fish & Boat Commission image taken prior to COVID-19 social distancing and mask requirements.

Number of Project & Permit Reviews

From July 2018 to June 2019

Figure 2. Number of project and permit reviews by PFBC Division of Environmental Services from July 2018-June 2019.



Quantification of activities may not adequately illustrate the resulting benefits, yet it can demonstrate resource and staff needs, as well as technical expertise required for these assessments. As a snapshot of this work, from July 2018 to June 2019, the PFBC conducted over 2,400 consultations or permit application reviews (Figure 2). Other high-volume guidance activities include “Aquatic Habitat Encroachment” (i.e., dredging, mining, stormwater management, bank stabilization, stream crossings, and misc. projects) with a total of 589 reviews & comments, and “Highway and Bridge Construction and Maintenance” (i.e., bridges, culverts, interchanges, road construction and road improvement projects) which required 1,034 reviews & comments. For these diverse activities, professional, science-based recommendations contribute to conservation and recovery initiatives for rare, threatened, and endangered fish, reptiles, amphibians, and aquatic invertebrates.

Advancing Species Conservation Through Technical Guidance

Technical Guidance recommendations can support specific conservation initiatives. For example, habitat management is a component of Competitive State Wildlife Grants (C-SWG) projects for Spotted Turtle (*Clemmys guttata*) (Project: *Conservation and Management of the Spotted Turtle Clemmys guttata*) and Bog Turtle (*Glyptemys mühlenbergii*) (Figure 3) (Project: *Seasonal Wetland Habitats in the Eastern U.S. and Implementation of the Bog Turtle Conservation Plan for the Northern Population, with Benefits to Associated Headwater Wetland Species of Greatest Conservation Need*). Collaboration of state agency leads and other project partners with land managers, landowners, U.S. Department of Transportation, Pennsylvania Department of Transportation, and other state and federal agency representatives helps identify habitat management actions at priority sites specified through these grants; to benefit the target species and other SGCN. Building partnerships with landowners is vital for turtle conservation and has rightly been a focus of recovery actions to-date, with much work remaining to be conducted.



Figure 3. Adult female Bog Turtle. Credit: Brandon Ruhe, Mid-Atlantic Center for Herpetology and Conservation (MACHAC).

Technical Guidance Roles for Partners

- Initiate and foster good working relationships with landowners whose properties support habitat where priority populations occur.
- Perform site visits.
- Provide recommendations and/or management plans for specific habitat restoration actions.

Contributor: Kathy Gipe, Herpetologist, PA Natural Heritage Program and PA Fish & Boat Commission.

Project F18AF00662: Species of Special Concern Technical Guidance. PA Fish & Boat Commission. Project Leader: Christopher A. Urban. PA Fish & Boat Commission.

SNAPSHOT: The Pennsylvania Wildlife Action Plan- Conservation Opportunity Area (COA) Tool

In August 2019, the Game Commission and Fish & Boat Commission launched the Pennsylvania Wildlife Action Plan Conservation Opportunity Area (COA) Tool providing a readily available resource for Pennsylvanians to learn about Species of Greatest Conservation Need in their Areas of Interest. New users can review the step-by-step “Quick-Start” instructions and detailed “Help” guidance on the website or simply dive-in at <https://wildlifeactionmap.pa.gov>.

Need assistance? Contact: RA-FBSWAP@pa.gov.

The Conservation Opportunity Area Tool is supported by a State Wildlife Grant from the North Atlantic and Appalachian Office of the U.S. Fish and Wildlife Service, Wildlife and Sport Fish Restoration Program. The grant is administered by the Game Commission and Fish & Boat Commission. Data management is provided by Western Pennsylvania Conservancy and web-accessibility is powered by NatureServe.

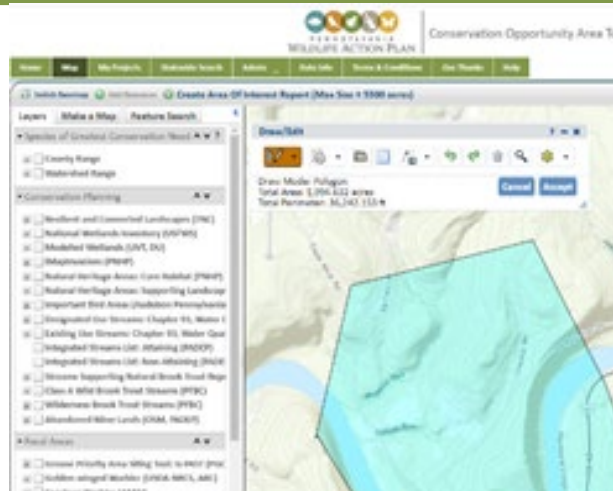


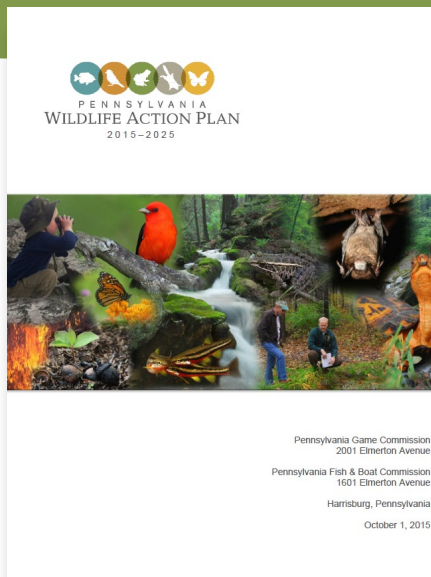
Figure 4. Screen-capture of the Conservation Opportunity Area Tool Map page.



Building Connections: The 2015-2025 Pennsylvania Wildlife Action Plan & Pennsylvania Fish & Boat Commission 2020-2023 Strategic Plan

SUMMARY

In 2020, the PFBC Board of Commissioners approved a new agency Strategic Plan with over 20 goals either partially or fully aligned with Goals of the 2015-2025 Pennsylvania Wildlife Action Plan (PAWAP). This association between the PAWAP and PFBC Strategic Plan is mutually beneficial for implementing both plans and, importantly, advancing conservation of Pennsylvania's Species of Greatest Conservation Need (SGCN). Here we briefly illustrate the relationship between select goals in each plan and implications for Species of Greatest Conservation Need (SGCN).



OVERVIEW

The PAWAP Vision of “Healthy, sustainable native wildlife populations, natural communities and habitats in Pennsylvania” readily aligns with the PFBC Mission “to protect, conserve, and enhance the Commonwealth’s aquatic resources and provide fishing and boating opportunities”. Using the PAWAP Goals and PFBC Strategic Plan Goals this association is illustrated the following summary. Note that goals of the PAWAP are the broadest level of interest with increasing specificity to Objectives and the most specific, Strategies. For the PFBC Strategic Plan, Goals are the most specific category. Due to the large number of PFBC Strategic Plan goals, the goal text has been abridged.

PA WILDLIFE ACTION PLAN GOALS

GOAL 1. Conserve Pennsylvania's native wildlife and its habitat by **implementing** conservation actions in the Wildlife Action Plan.

EXPLANATION: By its name the PAWAP is an “Action Plan”. The PFBC Strategic Plan includes several goals which implement conservation actions aligned with the PAWAP.

PFBC STRATEGIC PLAN GOALS

GOALS: 8, 12, 16, 17b, 18, 18a, 20, 22, 23d, 24

Identify and **implement** climate change strategies for impacts on habitat, fish and angler behavior | **Propagate & stock** mussels | Expand stream habitat program to **implement** Best Management Programs | **Prioritize** culvert replacement | **Implement** habitat management for Species of Greatest Conservation Need | **Implement** PAWAP climate change adaptation strategies | Dedicate resources to **investigate** wildlife trafficking | **Implement** statewide response strategy for Harmful Algal Blooms (HABS) | **Implement** restoration/ recovery plans for Dunkard Creek, Sinnemahoning Creek, etc.

PA WILDLIFE ACTION PLAN GOALS

GOAL 2. Base wildlife conservation decisions on the **best available science**, with an emphasis on Species of Greatest Conservation Need and their habitats.

EXPLANATION: Decisions to protect and recover species and their habitats need to be grounded in science (i.e., data). Goals of the PFBC Strategic Plan and PAWAP mutually support science as the core for decision-making.

PFBC STRATEGIC PLAN GOALS

GOALS: 5, 13, 14, 15b, 21a, 21b

Conduct surveys, assessments, monitoring, and reporting | Develop & update species action plans, aquatic invasive species control plans.



Figure 5. PFBC fisheries biologists conducting a stream fish survey. Credit: PA Fish & Boat Commission image taken prior to COVID-19 social distancing and mask requirements.

PA WILDLIFE ACTION PLAN GOALS

GOAL 4. **Strengthen the state's capacity** to conserve Pennsylvania's native wildlife.

PFBC STRATEGIC PLAN GOALS

GOALS: 15f, 17, 17a.

Deliver aquatic invasive species identification **trainings** for PFBC staff | **Work with partner organizations** to coordinate & implement fish passage connectivity plans | Maintain PFBC's position as a **national leader** in small dam removal.



Figure 6. Trough Creek dam removal. Credit: Lisa Hollingsworth Segedy, American Rivers.

EXPLANATION: For both the PAWAP and PFBC Strategic Plan, collaboration with partners, training and funding are important to effectively protect and conserve Pennsylvania's Species of Greatest Conservation Need.

Expediting Mussel Population Recovery through Propagation

PURPOSE

Through artificial propagation, this project will help re-establish and augment mussel populations in high-priority Pennsylvania waterways.

SUMMARY

Freshwater mussels are the most imperiled taxonomic group in North America (Ricciardi and Rasmussen 1999) and, in Pennsylvania, have historically been threatened by water quality and quantity concerns. Many of these resource concerns remain today including mining, sand and gravel dredging, siltation from runoff, and pollution events. Given their complex life-histories, as well as site-specific conditions which can delay natural recolonization, the PFBC has initiated a mussel propagation program to expedite re-establishment in historical areas or where more recent pollution events have decimated populations.

STATUS

Currently, PFBC mussel culturalists are conducting and evaluating the painstaking steps for successful propagation. In 2020, the PFBC received a 5-year State and Tribal Wildlife grant from the U.S. Fish and Wildlife Service, and when these techniques have been thoroughly tested, this grant will support work directed at SGCN mussels. Beyond enhancing mussel populations, the PFBC and mussel culturalists in other states are collaborating in an information-sharing community to mutually support efficient and effective propagation processes.



Figures 7-9. Mussels used for propagation are initially scrubbed (top), inspected (middle), and placed in 30-day quarantine (right), before use as propagation stock. Credit. PA Fish & Boat Commission, Bureau of Hatcheries image taken prior to COVID-19 social distancing and mask requirements.

Priority mussel SGCN for propagation (below). Continued on Page 8.
Credit: Nevin Welte, PA Fish & Boat Commission; Mary Walsh, PA Natural Heritage Program-Western Pennsylvania Conservancy.



Salamander Mussel
Simpsonias ambigua



Eastern Pearlshell
Margaritifera margaritifera



Pistolgrip
Tritogonia verrucosa



Round Hickorynut
Obovaria subrotunda

APPROACH

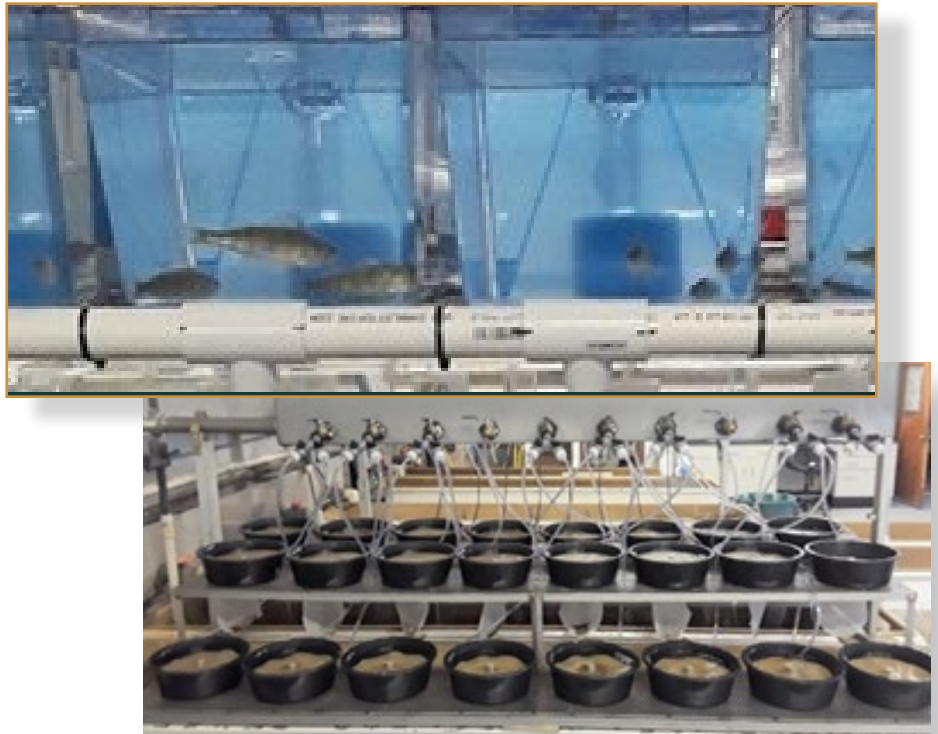
To advance mussel propagation, the PFBC has converted a portion of the Union City State Fish Hatchery to support all mussel life-history stages. This facility is strategically located in northwest Pennsylvania, in the mussel-rich French Creek watershed, and is within relatively close proximity to the Ohio River, Shenango River and Allegheny River. Pennsylvania's mussel species within these river systems can serve as brood-stock, and propagated mussels can be stocked in locally depauperate areas.

Mussel propagation and recovery are guided by the PFBC 2019 Mussel Propagation Plan, adapted from a federal hatchery propagation plan to address the PFBC's purposes. Eight Pennsylvania SGCN mussels are the primary focus of this work.

The propagation process can vary, but a laboratory setting typically requires collecting gravid female mussels, then infesting a host (e.g., fish, mudpuppy *Necturus maculosus*) (Figure 10). Following growth of the glochidia (i.e., immature mussels) on the host, the juveniles are cultured (Figure 11) until they are of sufficient size to be tagged and released into the wild.

In support of the Pennsylvania Wildlife Action Plan, this work specifically contributes to:

- Strategy 1.1.3 Head-start reintroduction of at least one native extirpated or severely depleted species or population when limiting factors have been addressed and there is high confidence for success.
- Strategy 1.1.4. Support artificial propagation of Species of Greatest Conservation Need when re-establishment is feasible and ecologically valid.



Figures 10-11. Fish or other hosts are infested with glochidia from a gravid female mussel (top). Immature mussels are cultured (bottom) and then tagged before release into the wild. Credit: PA Fish & Boat Commission, Bureau of Hatcheries.

NEXT STEPS

PFBC Union City State Fish Hatchery and Natural Diversity Section staff will continue to implement the PFBC Mussel Propagation Plan and adapt methods to advance this critical need for these species.

Contributors: Scott Ray, PA Fish & Boat Commission, Bureau of Hatcheries; Nevin Welte, PA Fish & Boat Commission.

Project F20AB11740: SGCN Freshwater Mussel Propagation at the Union City State Fish Hatchery, Pennsylvania. PA Fish and Boat Commission. Project Leader: Christopher A. Urban. PA Fish & Boat Commission.

Continued from Page 7-Priority mussel species for propagation (below). Credit: Nevin Welte, PA Natural Heritage Program and PA Fish & Boat Commission.



Snuffbox
Epioblasma triquetra



Sheepnose
Plethobasus cyphus



Rabbitsfoot
Theliderma cylindrica



Rayed Bean
Villosa fabalis