

**Restoring Browns Run fish passage with the NFHAP
and PA's EBTJV State Conservation Strategy**

Project Location: Barr Township, Cambria County, Pennsylvania

Congressional District: PA, 12

EBTJV / NFHAP Funding Requested: \$50,000

Total Project Cost: \$333,000

Total Federal Matching: \$0

Total Non-Federal Matching: \$283,000 + in-kind

Type of Project: Fish Passage

APPLICANT

Organization: American Rivers, Inc.

Project Officer: Lisa Hollingsworth-Segedy, AICP

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Email Address: lh-segedy@americanrivers.org

Sponsoring Fish and Wildlife Service Fisheries Office

Fish and Wildlife Service Office: Northeast Fishery Center

Project Officer: Dr. Meredith Barton

Street: 227 Washington Ave

City, State, Zip: Lamar, PA 16848

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Fax Number: 570-726-3255

Email Address: Meredith_Barton@fws.gov

Date Submitted: October 1, 2009

I. PROJECT DESCRIPTION, SCOPE OF WORK, AND PARTNER INFORMATION

A. Project Description and Scope of Work (not to exceed 500 words) Project will open the headwaters of Browns Run, a tributary to the West Branch Susquehanna River, to native brook trout passage and improve Browns Run brook trout habitat, an area not known to host native brook trout until a reproducing population was documented by a stream survey in June, 2008. This project is in alignment with the NFHAP and PA’s EBTJV state conservation strategies. Remediation will also re-establish historic population connections. This project will remove a 38-foot tall high-hazard earthen dam in the headwaters of Browns Run, a tributary to the West Branch Susquehanna, reconnecting currently fragmented native brook trout populations in the headwaters of the basin and restoring headwaters breeding habitat. The Big Brown Dam blocks the passage of fish into high headwaters spawning areas, fragments the population, reduces high-quality habitat, thermally impacts the cold water fishery, and isolates individuals from the gene pool. In addition, this dam is a high hazard dam and poses and significant safety threat and concern.

The project includes removal of the municipally-owned Big Brown Dam on Browns Run, restoration of 570 feet of in-stream habitat restoration, and physical restoration of 390 feet of stream bank and additional riparian area restoration. The restoration of Browns Run to free-flowing status has been ongoing for several years through a multi-partner effort. To date, engineering designs are complete and awaiting permit approval by state and federal regulators. American Rivers is assisting Spangler Municipal Authority with a funding package that represents multiple partnerships, of which EBTJV is a critical component to achieving project completion. Additionally this project implements EBTJV and NFHAP initiatives and presents an opportunity to re-connect wild brook trout habitat in an area where native brook trout were previously unknown. PA Fish and Boat Commission (PFBC) Fisheries Management Division has committed to conducting a post dam removal assessment including habitat suitability index and electroshocking of brook trout population.

Spangler Municipal Authority has already expended \$23,000 in cash for engineering design and permitting. They will be obtaining \$100,000 from PA Department of Environmental Protection’s H2O program, which is funded by state bond proceeds and is dedicated to addressing the needs of public water supply systems. With \$50,000 from American Rivers’ Free Flowing PA program and \$50,000 from EBTJV, the funding gap needed to complete this project is \$100,000 which the Spangler Municipal Authority will borrow. PFBC Habitat Management Division has committed \$10,000 (\$7000 in in-kind services and \$3000 for stones and logs) to install in-stream fish habitat enhancements to help ensure the success of the brook trout population once the project is complete.

B. Partner Information (not to exceed 100 words)

Partner Name	Contribution In-Kind	Contribution Cash	Federal or Non-Federal	Partner Category	Role of Partner
Spangler Municipal		\$123,000 cash on hand plus	N	Local Govt	Dam owner/ permittee

Authority		loan			
American Rivers		\$50,000	N	National Conservation Group	Project Management
USFWS - EBTJV		\$50,000	F	Federal Agency	Technical assistance and cash for project implementation
PFBC Fisheries Management Division	Stream survey/post dam removal assessment		N	State agency	Stream survey and assessment
DEP H2O		\$100,000	N	State agency	Cash for project implementation
PFBC Habitat Management Division	Fish habitat enhancements;	\$7000 in-kind and \$3000 cash for construction materials	N	State agency	Technical assistance and habitat restoration
TOTAL		\$333,000			

C. Project Timeline

<u>Activity</u>	<u>Timeframe</u>	<u>Funding source</u>
1. EBTJV-USFWS award	Month 1	N/A
2. Contractor selection and		
3. Conservation district permits	Months 2-3	American Rivers
4. Construction (i.e., removal)	Months 4-5	USFWS/American Rivers/DEP
5. Preliminary habitat restoration	Month 6	USFWS/American Rivers/DEP
6. Additional habitat restoration	Months 10-11	PFBC in-kind
7. Post dam removal assessment	Months 11-12	DEP in-kind
8. Project closeout	Month 12	American Rivers

II. MAP OF PROJECT AREA (one only) The project area map is attached at the conclusion of the narrative section of this proposal.

III. PHOTOGRAPH(S) OF PROJECT AREA (no more than 2, please provide credits and attach photo release forms) Photographs of the project area are attached at the conclusion of the narrative section of this proposal. American Rivers hereby releases the use of these photographs for EBTJV.

IV. PROJECT BUDGET

B. Budget Table

Partner	Activity	NFHAP Request	Non-Fed. Contribution	Federal Contribution	Total	Distance Affected
Stiffler-McGraw for Spangler Municipal Authority	Engineering design and permitting		\$23,000		\$23,000	
Spangler Municipal Authority	Contracted Services: Dam removal, site restoration		\$200,000 (cash)		\$200,000	570 feet
American Rivers	Salary: Project manager ¹	\$ 1,883				
	Admin Overhead: 15% of Manager Salary	\$ 282				
	Travel: 150 mi/RT * 8 trips * 0.55/mi	\$ 660				
	Contracted Services: Dam removal, site restoration	\$47,175	\$50,000 (cash)		\$100,000	570 feet
PA Fish and Boat Commission	In-stream habitat enhancements		\$10,000 cash and in-kind			
	TOTAL	\$50,000	\$283,000	\$0	\$333,000	

V. EVALUATION QUESTIONS (4 pages maximum)

A. Conservation of Sustainable Brook Trout Populations:

Explain how the project sufficiently protects brook trout habitat. Does the project include fee simple land purchase or easements? The removal of Big Brown dam will open the first mile of Browns Run, a headwaters tributary of the West Branch Susquehanna, to a wild, reproducing brook trout population that was unknown prior to 2008. The project will include instream restoration, streambank restoration, and riparian corridor restoration, all contributing to brook trout habitat protection and therefore the viability of the local population. The project does not include fee simple land purchase or easement. The project area is owned by Spangler Municipal Authority, who will provide public access for fishing once the project is complete.

- **List the specific regional or range wide EBTJV habitat objectives addressed by the project and describe how the project will contribute towards them.**

¹ Project manager costs = Salary (1.5 wks * \$1,111/wk) + Benefits (Salary * 13%) = \$1,883

Page 4 of the Eastern Brook Trout Conservation Strategy: “The principal goals of the EBTJV are 1) conserve, enhance and *restore brook trout populations that have been impacted by habitat modification* or other threats or disturbances; 2) *encourage partnerships* among management agencies and stakeholders *to seek solutions* to issues such as regional environmental and ecological threats;...4) develop support for *implementation of programs that perpetuate and restore brook trout throughout their historic range.* (emphasis added)

This project will address these goals and strategies by removing Big Brown Dam, a barrier that has prevented the natural movement of wild brook trout and altered the natural flow regime in Browns Run for the past century. The wild brook trout population that was documented by the 2008 stream survey is being impacted by Big Brown Dam, a habitat modification that restricts the historic range of this population. The partnership among the Spangler Municipal Authority, American Rivers, EBTJV, USFWS, PA DEP and PFBC will provide a solution that will benefit habitat restoration and restore brook trout to the upper reaches of Browns Run.

“Eastern Brook Trout: Roadmap to Restoration” p. 3: *Conserve, enhance or restore brook trout populations that have been impacted by habitat modification,* non native species and other population level threats. P. 5: range wide goals: III *Strengthen the population we have; curb the decline of population loss.* (emphasis added)

The removal of Big Brown Dam will result in the conservation and enhancement of the previously-unknown wild brook trout population that currently inhabits the reach of Browns Run below the Big Brown Dam, a habitat modification that was created in 1910 to provide public water supply. This water supply source was abandoned by Spangler Municipal Authority over 30 years ago, and since the dam no longer provides a beneficial use and fragments aquatic habitat, the Authority would like to remove the dam to reconnect wild brook trout habitat, strengthening the existing population. An additional benefit to the project is the creation of additional trout fishing and public access opportunities in the project area.

“Conserving the Eastern Brook Trout: Action Strategies” p. 8 Key priorities established to meet the principal goals of EBTJV: 1) *Protect brook trout populations* across the eastern US; 2) *Restore brook trout populations* where original habitat conditions exist and *where habitats can be restored.* 3) *Monitor and evaluate brook trout population responses to habitat protection, enhancement and restoration projects;*....5) *Increase recreational fishing opportunities for wild brook trout.* Page 9: *Preserving the genetic diversity of brook trout populations in the eastern US is a critical component of EBTJV* (emphasis added)

The removal of Big Brown Dam will protect an existing brook trout population that was unknown prior to 2008. The project includes the physical removal of Big Brown Dam to restore 570 feet of in-stream habitat for brook trout, 390 feet of streambank restoration to support aquatic habitat, and additional in-stream fish habitat enhancements and riparian corridor enhancements. This project will not only restore habitat for this brook trout population, but it will contribute to the preservation of genetic diversity of brook trout in the West Branch Susquehanna watershed. PFBC has committed to providing ongoing

assessment of brook trout population response when the project is completed. In addition, the Spangler Municipal Authority will open the property to public access specifically for recreational fishing for wild brook trout.

- **List the specific state-level EBTJV habitat objectives addressed by the project and describe how the project will contribute towards them.**

. Page 13, State Strategy #8, Maintain or *restore natural hydrologic regimes...c) Re-establish fish passage and brook trout population re-connectivity through barrier removal* (where appropriate.) Page 53, Priority 1: Habitat Protection, Short term goal 1.1: *Protect brook trout habitat*. Long term goal 1.2: *Improve brook trout habitat*. (Emphasis added)

The removal of Big Brown Dam will restore the natural hydrologic and thermal regime of Browns Run. Removal of this barrier will re-establish fish passage and reconnect wild brook trout populations within the first mile of Browns Run, a headwaters tributary of the West Branch Susquehanna. The project will re-establish a wild brook trout habitat, which will be protected by streambank and riparian corridor enhancements. The project will also provide in-stream habitat enhancements.

- **List the State Wildlife Action Plan habitat conservation goals that are addressed by the project.**

PA Comprehensive Wildlife Conservation Strategy (State wildlife action plan) page 9-6, Goal 2: Plan, prioritize, and *implement actions that will conserve PA's diversity of wildlife and its habitat*. Strategic objective 2.2: Habitat Inventory and Monitoring: Identify, inventory, and *monitor habitats critical to maintaining PA's wildlife diversity*. (emphasis added).

The wild brook trout is PA's state fish; however, due to land development patterns, declining water quality, and loss of habitat, the wild brook trout's population and range are diminishing. This project will help conserve PA's diversity of wildlife and habitat by creating a restored and enhanced brook trout habitat, a reconnected wild brook trout population, and viable supporting habitat for the wild brook trout population that currently inhabits Browns Run immediately below Big Brown Dam. PA DEP will monitor habitat response and population response to barrier removal in Browns Run, and the information will be used to plan additional habitat improvements that are critical to maintaining PA's wildlife diversity.

B. Threatened and Endangered Species and Species of Conservation or Management Concern:

- Will the completed project benefit any federally listed threatened or endangered species? According to PA DEP's 2008 stream survey, no federally listed T&E species are identified in the project area.
- Will the completed project benefit any state listed threatened or endangered species? According to PA DEP's 2008 stream survey, no state listed T&E species are identified in the project area.
- Will the completed project benefit any state or federal species of conservation or management concern? According to PA DEP's 2008 stream survey, no state of

federal species of conservation or management concern other than wild brook trout were identified in the project area. . However, in 2008 the PFBC under approval of the USFWS formally added naturally reproducing eastern brook trout to the Pennsylvania Wildlife Action Plan which prescribes conservation measures for species and their critical habitats before they become more costly to protect and restore. More information can be found at http://www.fish.state.pa.us/newsreleases/2008/swg_brook.htm

- Will the project benefit other species of economic importance not included above? ? Wild brook trout are an economically important species in Pennsylvania. A 2004 statewide angler use, harvest, and economic survey conducted by the PFBC indicated that wild trout angling has an economic benefit of about \$2 million annually to the local and state economy.
- How does the project contribute to the conservation of genetically distinct populations or species? The previously unknown population of wild brook trout inhabiting Browns Run below the Big Brown Dam are considered by stream surveyors to be a genetically distinct population. Removal of the stream barrier will provide a larger range for this population, and will reconnect it to a broader gene pool within the West Branch Susquehanna ecosystem.

A. Project Benefits:

- What is the status of the brook trout population (intact, reduced, extirpated) in the watershed (see www.easternbrooktrout.net)? Current mapping and status reports indicate that eastern brook trout are extirpated in the Browns Run Watershed; however, these resources have not been updated since the discovery of the wild reproducing brook trout population below Big Brown Dam in June of 2008.
- What is the EBTJV priority ranking for the proposed project watershed (see www.easternbrooktrout.net)? Current mapping, which is based on the assumption of an extirpated watershed, has a lower score, but American Rivers proposes a score of 0.66 – 1.29 based on the documented existence of the current reproducing population.
- Does the project connect to a watershed that is identified as intact or reduced? Yes, the project area is in a headwaters tributary of the West Branch Susquehanna.
- Will the project provide expansion of existing habitat? Yes, by removing the stream barrier created by Big Brown Dam, habitat for wild brook trout in Browns Run will enjoy an expanded and reconnected habitat.
- Will the project restore tributary stream or mainstem habitats? Tributary stream.
- What is the probability of long-term success in supporting a sustainable fishable brook trout population in the project area? According to Dave Kristine (Regional Fisheries Biologist, PA Fish and Boat Commission), the project has an excellent probability of long term success in supporting a sustainable fishable brook trout population in the project area.

B. Endurance Benefits

- What percentage of the watershed above the proposed project is protected in perpetuity? 100%

- What are the root causes of the watershed degradation and which of these are addressed by the project? Non-point source pollution and fish passage barriers are the two greatest causes of watershed degradation. This project will address both, by 1) removing a barrier to fish passage; and 2) by restoring riparian area which will not only provide supporting habitat, but which will also provide a natural buffer for the stream.
- Are there competitive non-native or invasive fish in the watershed with access (no barrier) to the proposed project? None identified in 2008 stream survey (Kristine, pers. comm.)
- What species of trout or other aquatic species are currently stocked within the proposed project watershed? None (Kristine, pers. comm.)

C. Management Assets:

- Describe the plans for monitoring and evaluation. When the project is complete, PFBC will provide post-dam-removal monitoring and evaluation of brook trout population response to habitat restoration.
- Describe the plans for public fishing access at the project site. The site is currently accessed by a private road, which is closed to the public. Once the project is complete, Spangler Municipal Authority will open the road to provide public access for fishing at the project site.
- Describe any outreach or educational components of the project. Spangler Municipal Authority has addressed this project in open meetings of the Authority. American Rivers will host a press event for the project at the beginning of construction to highlight the partnership in funding and project implementation, as well as to highlight the project benefits to the community.
- How will the project improve the recreational fishery? Currently, the site is restricted to public access because of the liability issues posed by the dam. Once the project is completed, the site will be opened to public access to provide for recreational fishing, creating a vast improvement in this benefit.
- Describe the long-term maintenance plan for the project. The project area will be revegetated in native species appropriate for climatic and environmental conditions. Invasive species will be controlled.

D. Other Special Considerations: The Big Brown Dam is a headwaters tributary, and the next dam downstream on the mainstem of the West Branch Susquehanna is 52 river miles away at Curwensville. Removing this dam will completely open Browns Run this reach of the West Branch Susquehanna, reconnecting the habitat for a genetically distinct population of wild brook trout that were not known to exist prior to the 2008 stream survey. PA DEP and PFBC strongly support this project, as evidenced by the attached letter of support, and has committed to documenting the habitat and population response to the project by conducting post-dam-removal assessments.

E. Supporting Documentation and Management Plans:

- Literature Cited

Pennsylvania's Brook Trout Conservation Strategies
http://www.fishandboat.com/pafish/trout/trout_plan/strategies.pdf

EBTJV (Eastern Brook Trout Joint Venture). 2008. [Conserving the eastern brook trout: action strategies](#).

EBTJV (Eastern Brook Trout Joint Venture). 2007. [Eastern brook trout: roadmap to restoration](#). 12 p.

- References to published interagency fishery or aquatic resource management plans. Pennsylvania's Brook Trout Conservation Strategies
http://www.fishandboat.com/pafish/trout/trout_plan/strategies.pdf

Life History, Conservation and Management Strategies for the Wild Eastern Brook Trout in Pennsylvania http://www.fishandboat.com/newsreleases/2007/brook_species_account.pdf

2006 Assessment and Predictive Model for Brook Trout. [2006 Thieling Thesis](#). 65 p.

2008 Lynn Camp Report. [2008 Final Report](#). 20 p.

2008 National Fish Habitat Action Plan Annual Report. [2008 Annual Report](#). 4 p.

Hudy, M., T.M. Thieling, N. Gillespie and E.P. Smith. 2005. [Distribution, Status and Perturbations to Brook Trout within the eastern United States](#). Final report to the steering committee of the Eastern Brook Trout Joint Venture. 77 pp.

Hudy, M., T.M. Thieling, N. Gillespie and E.P. Smith. 2008. [Distribution, status, and land use characteristics of subwatersheds within the native range of brook trout in the eastern United States](#). North American Journal of Fisheries Management 28: 1069-1085. American Fisheries Society.

EBTJV (Eastern Brook Trout Joint Venture). 2008. [Conserving the eastern brook trout: action strategies](#).

EBTJV (Eastern Brook Trout Joint Venture). 2007. [Eastern brook trout: roadmap to restoration](#). 12 p.

EBTJV (Eastern Brook Trout Joint Venture). 2007. [Eastern brook trout: roadmap to restoration fact sheet](#). The Eastern brook trout conservation strategy. 2 p.

EBTJV (Eastern Brook Trout Joint Venture). 2006. [Eastern brook trout: status and threats](#). Prepared by Trout Unlimited, Arlington, Virginia, for the Eastern Brook Trout Joint Venture. 36 p.

EBTJV (Eastern Brook Trout Joint Venture). 2006. Eastern brook trout: status and threats.

State brochures. Prepared by Trout Unlimited, Arlington, Virginia. 2 p. each. [Connecticut-Rhode Island](#), [Georgia-South Carolina](#), [Maine](#), [Maryland](#), [New Hampshire](#), [New Jersey](#), [New York](#), [Pennsylvania-Ohio](#), [Tennessee-North Carolina](#), [Virginia](#), [Vermont](#)

- Please attach a letter of support from the state fishery management agency responsible for the project area. The letter must show state support for the project, identify how the project meets the state's goals and objectives and address how the recreational value of the population will be affected. The letter of support is included in this document.

Photograph #1 of site: Pool behind the dam remains drawdown to facilitate engineering design work and to address safety hazard.

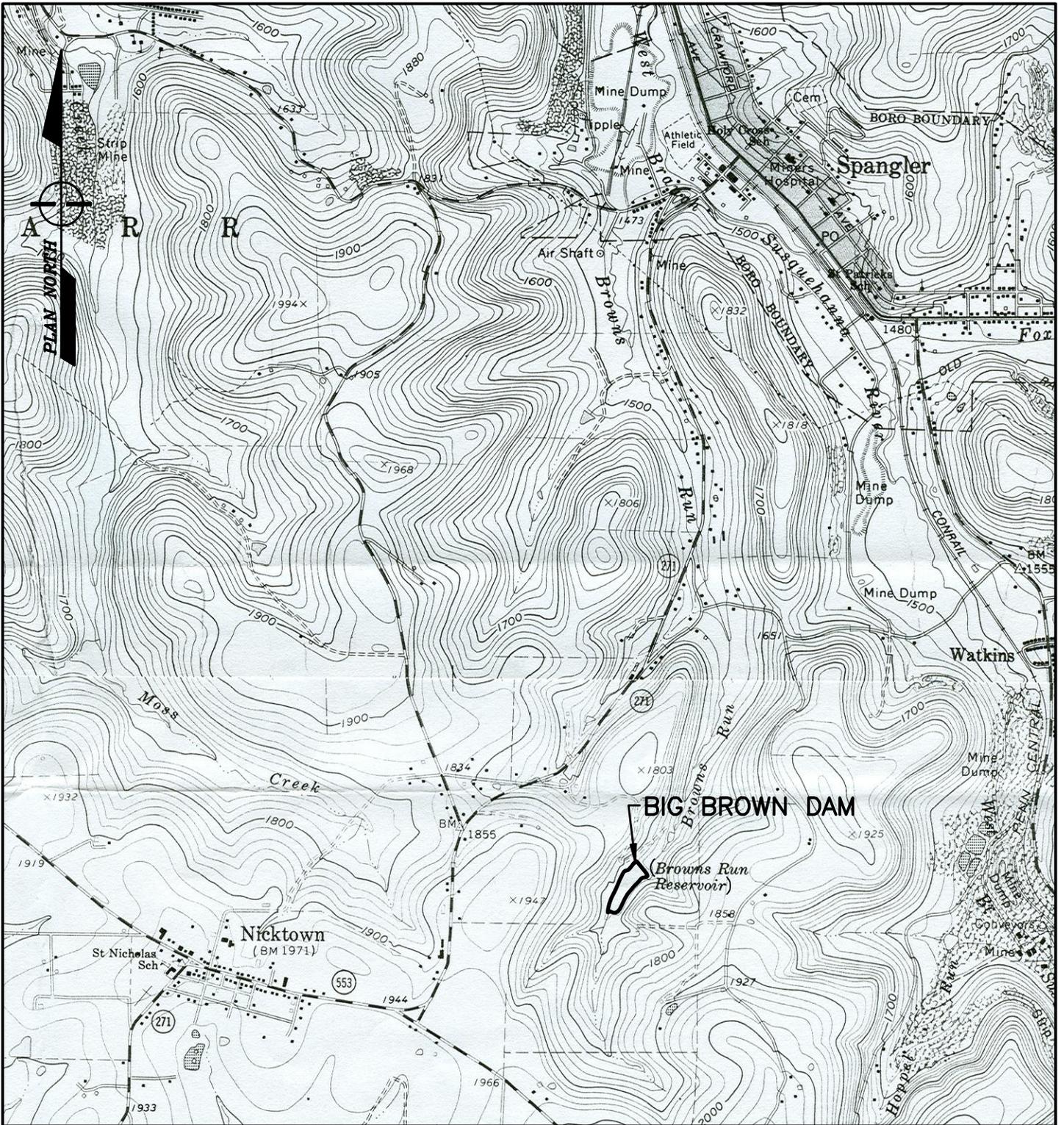


Big Brown Dam



Image Data Source: PAMAP Program, PA DCNR, Bureau of Topographic and Geologic Survey

Map created by PASDA (maps.pasda.psu.edu/ImageryViewer)



**STIFFLER, McGRAW
& ASSOCIATES, INC.**
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BRANCH OFFICE
12 Main Street
Towanda, Pennsylvania 18848
(570) 265-8816

PROJECT LOCATION MAP
SPANGLER MUNICIPAL AUTHORITY

BIG BROWN DAM

BARR TOWNSHIP
CAMBRIA COUNTY, PENNSYLVANIA

SCALE: 1" = 2000'

04-0002



Pennsylvania Fish & Boat Commission

Bureau of Fisheries
Division of Fisheries Management
450 Robinson Lane
Bellefonte, PA 16823
(814) 359-5118

Ms. Lisa Hollingsworth-Segedy
American Rivers
150 Lloyd Avenue
Pittsburg, PA 15218

Dear Ms. Hollingsworth-Segedy,

This letter acknowledges that your proposed dam removal project on Browns Run, Cambria County has been reviewed by the Pennsylvania Fish and Boat Commission's (PFBC) Division of Fisheries Management. PFBC staff conducted an initial fishery survey of Browns Run during 2008 and documented a good allopatric wild brook trout population a short distance downstream of the dam. The discovery of this brook trout population is noteworthy because many streams in this region of the state have been severely degraded by acid mine drainage and few continue to support wild brook trout. It is likely that because Browns Run formerly served as a water supply, its watershed was largely spared from coal mining and thus allowed brook trout to persist here. The project proposes to restore connectivity and improve habitat and water quality in Browns Run by removing a large dam located on the upper portion of the stream. The physical habitat within Browns Run is good and it is expected that brook trout will recolonize the formerly impounded reach and headwaters once the dam is removed. The dam has already been drawn down and is ready for removal once funding can be secured. The probability for project success is high. The project meets several objectives outlined in Pennsylvania's Brook Trout Conservation Strategies, including improving brook trout habitat and enhancing brook trout populations. Once the dam is removed, Browns Run will be opened to public fishing which will provide for improved recreational angling opportunities in this area.

In closing, the PFBC supports the project's objectives to restore connectivity and improve habitat and water quality in Browns Run to benefit the wild brook trout population inhabiting this stream as well as provide for improved recreational angling opportunities.

Sincerely,

Jason E. Detar
Area Fisheries Manager

c: D. Kristine
S. Carney