**Sparta Glen Brook Restoration**

**Project Location**: New Jersey, Sussex County, Sparta Township

**Congressional District of Project**: 11th Congressional District

**Congressional District of Applicant**: 11th Congressional District

**NFHP/EBTJV Funding Requested**: $10,000

**Total Project Cost**: $121,400.00

**Total Federal Matching**: $6,125.00

**Total Non-Federal Matching**: $115,275.00

**Applicant:**

Project Officer: Glen Zeeck, President

Organization: Fred S. Burroughs North Jersey Chapter Trout Unlimited

Street: P.O. Box 671

City, State, Zip: Sparta, New Jersey 07871

Telephone Number: 908-752-7065

Fax Number:

Email Address: [gzeeck@yahoo.com](mailto:gzeeck@yahoo.com)

**U.S. Fish and Wildlife Service Sponsoring Office**: New Jersey Field Office

Project Officer: Eric Schrading

Fish and Wildlife Office: New Jersey Field Office

Street: 927 North Main Street, Building D

City, State, Zip: Pleasantville, New Jersey 08232

Telephone Number:609-646-9310

Fax Number: 609-646-0352

**USFWS FONS Database Project Number: 52232-2015-055**

**Coordination Completed with Sponsoring U.S. Fish and Wildlife Service Office**

**(Check One):**

**\_\_\_\_X\_\_\_\_\_Yes \_\_\_\_\_\_\_\_\_\_\_7/31/15\_\_Date Coordination Began**

**\_\_\_\_\_\_\_\_\_No**

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

**A. Project Description**

Sparta Glen Brook is located in Northwest New Jersey and is one of eight tributaries to the Wallkill River with reproducing trout populations. Seven of the eight tributaries, including Sparta Glen Brook, have strictly Brook Trout. In accordance with New Jersey Surface Water Quality Standards Sparta Glen Brook is classified as Trout Production with young-of-the-year Brook Trout documented to be present in 1990, and reconfirmed in 2009 and 2015.

The project area is located within Sparta Glen Park, a 120-acre rustic park owned by Sparta Township. The park is located in a natural ravine with native Hemlocks once encompassing the 0.7 mile stretch of the brook that runs through the park. A woolly adelgid infestation resulted in the loss/weakening of many of the Hemlocks along the stream corridor and encompassing the steep banks of the ravine. The combination of the loss of Hemlocks and a microburst (16 inch rain event) in August 2000, resulted in a massive bank failure along the brook within the park.

In 2001, the Township of Sparta was awarded a Federal Clean Water Act grant to mitigate the devastating impacts to the brook. The funds supported efforts to restore and stabilize the stream banks using standard bioengineering techniques and to re-vegetate riparian buffers and transitional upland fringe areas using native plant species. Large boulders were placed along the stream corridor to stabilize the stream banks. Although these modifications vastly improved conditions within the brook the basic bioengineering techniques utilized lack developed pool structures, and resulted in sediment traps within the stream corridor, affecting the now struggling Brook Trout population. Although the initial project included a significant amount of plantings, large areas of the upland fringe area were left vegetated only by shallow rooted grass species and sections of the riparian stream corridor remain open to direct sunlight.

In 2011 and 2012, significant storm flows from Hurricane Irene and then Superstorm Sandy once again emphasized the need for additional work in order to protect this native trout water. Storm flows resulted in some moderate bank failure in areas lacking deeply rooted vegetation and in the dislodging of several boulders used to provide toe of slope protection.

The purpose of the project is to restore critical instream habitat within Sparta Glen Brook, including natural pool regimes and spawning areas, restore toe of slope protection, further stabilize upland fringe areas, as well as the riparian corridor along a 0.68 mile stretch. The project will result in an increase in the trout population, reduce sedimentation and protect the stream from future storm events.

**B. Proposed Methods** (Max Characters: 350)

The project will restore 0.68 miles of Sparta Glen Brook instream habitat utilizing a technique called “bed manipulation”. Bed manipulation involves re-organizing the native elements of the stream to favor trout and their food based organisms. Instream work will redefine the river’s channel, narrow the channel where widened from past land use activities, deepen pools, and restore point bars to increase water velocity during low water to transport sediment downstream instead of allowing sediment to accumulate in the channel as it is currently. Existing streambed material will be re-structured and placed in areas that are appropriate for spawning and juvenile trout habitat. Numerous overly sized boulders used in the 2001 restoration project will be removed from the stream’s channel to prevent additional braiding of this stream as well as to reconnect it to its floodplain.

The majority of the proposed work is to take place within the river’s channel with further bank protection provided by strategically placed native stone and vegetation as indicated on the drawings provided by Urbani Fisheries, LLC, the contractor for this restoration work.

Native plants will be added to the enhanced riparian zone and upland fringe areas to improve the shade cover and further bank stability by Trout Unlimited members under the guidance of the United States Fish and Wildlife Service personnel.

This project has a high likelihood of success as Urbani Fisheries LLC, has successfully completed many similar projects throughout the United States during his 35 years of experience. In New Jersey alone, Urbani Fisheries LLC recently completed instream projects using bed manipulation on the Musconetcong River, Pequest River, Paulins Kill, West Brook, both the North and South branches of the Raritan River, Capoolong Creek, West Portal Brook, and Squankum Brook.

The Fred Burroughs Trout Unlimited Chapter has participated in two previous instream habitat projects in New Jersey. Our Chapter Project Manager for Sparta Glen Brook has over twenty years of excavating and planting experience and will oversee this key component of the project.

Sparta Township has participated/partnered on other stream improvement/water quality improvement projects within the Wallkill River drainage demonstrating the Township's commitment to protecting the aquatic resources with their purview.

**C. Project Timeline**

The Sparta Glen Stream Restoration Project has been in the discussion and planning stage by the Fred Burroughs Trout Unlimited Chapter since 2013. As such a considerable amount of effort has already been expended as the project nears implementation. The project has been designed, the contractor committed, and required permit applications submitted. See project timeline below.

**Project Timeline:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2013** | **2014** | **2015** | **2016** | | | | | | | | | | | | **2017** | **2018** | **2019** | **2020** | **2021** |
|  |  |  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |  |  |  |  |  |
| Project Concept |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Fundraising |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Contractor Selection |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Project Design |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Township Approval |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DEP Application Submittal |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Baseline fisheries assessment |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DEP Application Approval |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Instream Habitat Work |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bank Stabilization |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Plantings Assessment |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Outreach |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Post 1-yr monitoring - Fish |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Post 1-yr monitoring - Macros |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Plantings Assessment - 1-yr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Post 2-yr monitoring- Fish |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Post 2-yr monitoring- Macros |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Plantings Assessment - 2 yr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Post 3-yr monitoring- Fish |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Post 3-yr monitoring- Macros |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Plantings Assessment - 3 yr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Plantings Assessment - 4 yr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Post 5-yr monitoring- Fish |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Post 5-yr monitoring- Macros |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Green - Completed

Red - Future work schedule

**D. Proposed Accomplishment Summary** (Max Characters: 500)

This project will improve aquatic habitat and overall ecological function of a 0.7 mile stretch of Sparta Glen Brook (3.2 miles long). Ecological function will be enhanced by stabilizing water temperatures, restoring flood plain connectivity, preventing bank erosion, providing healthy sediment transport, creating riparian zones and improving instream aquatic habitat. The work will enhance almost 20 % of the stream's entire length. It will result in an increase in the number of Brook Trout, as well as, the size of Brook Trout currently inhabiting the brook. Increases in the macroinvertebrate populations are anticipated as well.

This will be accomplished by redefining the stream’s channel, narrowing the channel where widened, deepening pools, and restoring point bars to increase water velocity during low water to transport sediment downstream, instead of allowing sediment to accumulate in the channel as it is currently. Existing streambed material will be re-structured and placed in areas that are appropriate for spawning and juvenile trout habitat. A number of over-sized boulders used in the 2001 restoration project will be removed from the stream’s channel to prevent additional braiding of the stream as well as to reconnect it to its floodplain.

The project includes more rhan $ 30,000 to furthering the reestablishment of native vegetation along the riparian upland fringe areas. This will increase shading to the stream, thereby reducing temperatures

and provide further bank stability for future storm events. .

The ultimate goal is to improve the habitat quality and diversity, increase the carrying capacity of the stream system for fish and macroinvertebrates, and restore healthy floodplain connectivity.  This will translate into improved fishing opportunities for wild Brook trout.

**E. State the Importance of the Project to the Resource** (Max Characters: 350)

In New Jersey Wild Brook Trout have been extirpated from 96 subwatersheds (2005 EBTJV Assessment). Remaining subwatersheds are all considered reduced with Brook Trout occupying less than half of their original habitat. For fifteen years Sparta Glen Brook has deteriorated as a wild trout stream to the point where today, electrofishing has yielded few Brook Trout. Sediment loading, lack of appropriate instream habitat, and open canopy threaten Brook Trout. Sediment loading has essentially eliminated the stream’s natural insect population. If the designed instream and riparian work is not completed at Sparta Glen Brook, another trout stream will be lost, resulting in one more catchment being classified as extirpated in New Jersey.

**F. Problem and Specific Cause of the Problem** (Max Characters: 350)

A woolly adelgid infestation resulted in the loss/weakening of many of the Hemlocks along the stream corridor and encompassing the steep banks of the ravine. The combination of the loss of Hemlocks and a microburst (16 inch rain event) in August 2000, resulted in a massive bank failure along the brook within the park.

In 2001, the Township of Sparta was awarded a Federal Clean Water Act grant to mitigate the devastating impacts to the brook. The funds supported efforts to restore and stabilize the stream banks using standard bioengineering techniques and to re-vegetate riparian buffers and transitional upland fringe areas using native plant species. Large boulders were placed along the stream corridor to stabilize the stream banks. Although these modifications vastly improved conditions within the brook the basic bioengineering techniques utilized lack developed pool structures, and resulted in sediment loading within the stream corridor affecting the now struggling Brook Trout population. Although the initial project included a significant amount of plantings, large areas of the upland fringe area were left vegetated only by shallow rooted grass species and sections of the riparian stream corridor remain open to direct sunlight.

In 2011 and 2012, significant storm flows from Hurricane Irene and then Superstorm Sandy once again emphasized the need for additional work in order to protect this native trout water. Storm flows resulted in some moderate bank failure in areas lacking deeply rooted vegetation and in dislodging of several boulders used to provide toe of slope protection.

**G. Objective of the Project with Reference to the Problem** (Max Characters: 350)

The purpose of the project is to restore critical instream habitat within Sparta Glen Brook, including natural pool regimes and spawning areas that were lost as a direct result of the 2000 bank failure and initial restoration project. This will be accomplished by redefining the river’s channel, narrowing the channel where widened from past land use activities, deepening pools, and restoring point bars to increase water velocity during low water to transport sediment downstream instead of allowing sediment to accumulate in the channel as it is currently. Existing streambed material will be re-structured and placed in areas that are appropriate for spawning and juvenile trout habitat. A number of over-sized boulders used in the 2001 restoration project will be removed from the stream’s channel to prevent additional braiding of the stream as well as to reconnect it to its floodplain.

The project also includes more than $ 30,000 towards furthering the reestablishment of native vegetation along the riparian and upland fringe areas. This will increase shading to the stream, thereby reducing temperatures and provide further bank stability.

**H. Partner Information**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Partner Name** | **Contribution**  **In-Kind** | **Contribution Cash** | **Federal or Non- Federal** | **Partner**  **Category** | Role of Partner |
| Sparta Township | Exact value uncertain |  | Non-Federal | Local Government | Debris Removal, Landscaping, landowner |
| Hudson Farms Foundation |  | $25,000 | Non-Federal | Conservation Group (Local) | Instream habitat work |
| Fred S. Burroughs North Jersey Trout Unlimited |  | $40,000 | Non-Federal | Conservation Group (Local) | Instream habitat work |
|  | $4,400 |  |  |  | Plantings and project oversight and administration |
| Corporate Wetlands Restoration Partnership |  | $20,000 | Non-Federal | Corporate  Private | Instream habitat work |
| New Jersey Highlands Coalition |  | $5,000 | Non-Federal | Conservation Group (Local) | Instream habitat work |
| Eastern Brook Trout Joint Venture |  | $10,000 | Non-Federal | Conservation Group (Regional) | Instream habitat work |
| Trout Unlimited Embrace-A-Stream |  | $10,000 | Non-Federal | Conservation Group (National) | Instream habitat work |
| US Fish and Wildlife | $ 500 | $4,500 | Federal | Federal Government | Plantings and technical assistance |
| NJ Division of Fish and Wildlife | $ 1500 |  | Non-Federal | State Government | Pre- and post project fisheries monitoring |
|  | $ 500 |  |  |  | Technical Assistance |
| **TOTAL** | **$ 6900** | **$ 114,500** |  |  |  |

**II. MAP OF PROJECT AREA**

**III. PHOTOGRAPH(S) OF PROJECT AREA**

**IV. PROJECT BUDGET**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Partner Name | Partner Category \* | Activity of Partner \*\* | Budget Category\*\*\* | EBTJV  NFHAP Request | Non-Federal Contribution | | Federal Contribution | | Total Contribution | Acres/Miles Affected |
| In-Kind | Cash | In-Kind | Cash |
| Fred S. Burroughs North Jersey Trout Unlimited | Conservation Group (Local) |  |  |  |  |  |  |  |  |  |
| Bank stabilization | Construction Materials and Labor |  | $4,400 | $37,000 |  |  | 41,400.00 | 0.7 |
| Administration |  |  |  |  |  |  |  |  |
| Hudson Farms Foundation | Conservation Group (Local) | Instream habitat | Construction Labor |  |  | $25,000 |  |  | $25,000.00 |  |
| Corporate Wetlands Restoration Partnership | Corporate  Private | Instream habitat | Construction Labor |  |  | $20,000 |  |  | $20,000.00 |  |
| Trout Unlimited Embrace-A-Stream | Conservation Group (National) | Instream habitat | Construction Labor |  |  | $10,000 |  |  | $10,000.00 |  |
| NJ Trout Unlimited State Council | Conservation Group (State) | Instream habitat | Construction Labor |  |  | $1,500 |  |  | $1,500.00 |  |
| NJ Trout Unlimited Local Chapters | Conservation Group (Local) | Instream habitat | Construction Labor |  |  | $1,500 |  |  | $1,500.00 |  |
| New Jersey Highlands Coalition | Conservation Group (Local) | Instream habitat | Construction Labor |  |  | $5,000 |  |  | $5,000.00 |  |
| Eastern Brook Trout Joint Venture | Conservation Group (Regional) | Instream habitat | Construction Labor | $10,000 |  |  |  |  | $10,000.00 |  |
| US Fish and Wildlife | Federal Government | Bank stabilization - plan tings | Construction Material |  |  |  |  | $4,500 | $4,500.00 |  |
| Technical Assistance | Technical services |  |  |  | $500 |  | $500.00 |  |
| Sparta Township | Local Government | Debris removal | Construction Labor |  |  |  |  |  | Too soon to assess Exact amt time/value |  |
| Post project stabilization | Construction Labor |  |  |  |  |  | Too soon to assess Exact amt time/value |  |
| NJ Division of Fish and Wildlife | State Agency | Monitoring | Technical Services |  | $375 |  | $1125 |  | $1500.00 |  |
| Technical Assistance | Technical Assistance |  | $500 |  |  |  | $500.00 |  |
| **Total Contribution** |  |  |  | **$10000** | **$5275** | **$100000** | **$1625** | **$4500** | **$121,400** |  |

\*Partner Categories - Federal Agency, State Agency, Local Government, Conservation Group (Local), Conservation Group (National), Native American Tribe, Private Landowners, Corporations/Businesses

\*\*Activity - Acquisition, Fish Ladder, Dam Removal, Culvert Removal, Restoration, Monitoring

\*\*\*Budget Categories – Administration/Technical Services, Construction Material, Construction Labor, Equipment, Contractual, Travel, Supplies, Other.

**NOTE: This is not a Federal Grant program and therefore does not exclude non-federal match used here from being matched to other Federal Grant sources to leverage funds for the project.**  Indicate if partnering contributions are in-kind or new cash. NFHAP requests should illustrate how the dollars will be spent and by what organization. Overhead such as utilities, office space, and salary to prepare applications and develop partnerships will not be funded with NFHAP funds and should not be a line item or built into the project. Activities that directly relate to completion of the project such as travel and salary to do design work let and/or monitor contracts are allowable expenses with NFHAP funds but should not constitute more than 10% of the funding request. For more information on the use of NFHAP funds, please see <http://www.fws.gov/policy/717fw1.html>.

**V. EVALUATION QUESTIONS**

1. **Please provide the GPS Coordinates for the project using UTM NAD 83.**

41.038547, -74.615776

1. **Please list the type of project (protection, enhancement, restoration; see definitions in the Appendix).**

The Sparta Glen Brook project is an enhancement project as it will improve specific functions of critical aquatic habitat and enhance existing Brook Trout population.

Conservation actions that heighten, intensify, or improve specific functions of aquatic habitat.

1. **Are brook trout currently present at the project site or in the project stream? If not, were brook trout historically present? Is the habitat known to be suitable for restoration/reintroduction of brook trout?**

Brook Trout are currently present at the project site and within the project stream beyond the project area.

1. **Please describe how the project will provide for the expansion or improvement of existing habitat?**

This project will improve Brook Trout habitat and overall ecological function of a 0.6 mile stretch of Sparta Glen Brook (3.2 miles long). Ecological function will be enhanced by stabilizing water temperatures, restoring flood plain connectivity, preventing bank erosion, providing healthy sediment transport, creating riparian habitat and improving instream aquatic habitat. The work will enhance almost 20 % of the stream's entire length. This will be accomplished by redefining the stream’s channel, narrow the channel where widened, deepen pools, and restore point bars to increase water velocity during low water to transport sediment downstream instead of allowing sediment to accumulate in the channel as it is currently. Existing streambed material will be re- structured in areas that are appropriate for spawning and juvenile trout habitat.

The project includes more than $ 30,000 to furthering the reestablishment of native vegetation along the riparian and upland fringe areas. This will increase shading to the stream, thereby reducing temperatures.

1. **Does the project include a protection component? Is the project footprint located on private or public land? Is the land currently protected? Does the project include land purchase or easements as match?**

The project area is located entirely on public land owned by Sparta Township and is open to the public for recreation. The land is already protected as such the project does not include land purchases or easements.

1. **What percentage of the watershed above the proposed project is protected in perpetuity?**

Less than 10% of the upstream watershed is protected in perpetuity.

1. **List the specific EBTJV habitat objectives addressed by the project and describe how the project will contribute towards them (refer to the list of EBTJV habitat objectives in the Appendix).**

The Sparta Glen Stream Restoration Project will address two EBTJV habitat objectives:

Strengthen brook trout populations in subwatersheds classified as Reduced - It will strengthen brook trout populations in subwatersheds classified as Reduced by enhancing ecological function by stabilizing water temperatures, restoring flood plain connectivity, preventing bank erosion, providing healthy sediment transport, creating riparian habitat and greatly improving instream aquatic habitat.

Maintain a Reduced subwatershed in existing condition - As the project is expected to yield significant improvements to the Brook Trout population in Sparta Glen Brook the subwatershed (#34050) will still be assessed as reduced as such the project will maintain a Reduced subwatershed in existing condition helping it from becoming extirpated.

1. **State which, if any, EBTJV conservation priority the project addresses (refer to the list of EBTJV conservation priorities in the Appendix):**

Two EBTJV conservation priorities will be addressed by the Sparta Glen Project:

Improve habitats that have a likelihood of supporting wild brook trout populations and reconnect upstream and downstream habitats. - Restoration of instream habitat and bank stabilization will improve habitats that have a likelihood of supporting wild brook trout populations and reconnect upstream and downstream habitats.

Increase recreational fishing opportunities - As the project area is publicly owned, the project will increase recreational fishing opportunities with anticipated improvements in Brook Trout size and abundance creating a more desirable fishery for anglers, which will attract more anglers.

1. **State which, if any, of the EBTJV common state-level objectives are being addressed by the project (refer to the list of EBTJV common state-level objectives in the Appendix):**

Five common state-level objectives will be addressed by the project:

Maximize brook trout habitat and water quality protection through state and federal agencies - The Sparta Glen project includes both federal and state partners and includes instream habitat improvements specifically targeted to improve Brook Trout population. Improved sediment transport, and further bank stabilization will improve water quality within Sparta Glen Brook.

Mitigate factors that degrade water quality - The project addresses the bank failure through the project area by properly and more naturally stabilizing stream banks. Sedimentation that resulted from the bank failure and poor sediment transport is the main cause of water quality degradation in Sparta Glen at the project location.

Maintain or restore natural hydrologic regimes - Instream habitat restoration for the Sparta Glen project employs more natural stream bed manipulation techniques which involves utilizing the streams natural thalweg, and geomorphology to create instream habitat, replacing the less natural techniques utilized previously. This will restore the natural hydrologic channel regime through the project area.

Utilize state, federal and private programs that support watershed stewardship programs in systems containing brook trout. - The Sparta Glen project utilizes private funds from Trout Unlimited's Embrace a Stream program, the Corporate Wetlands Restoration Partnership (public-private) and the NJ Highlands Coalition's Small Grants Program (state). The project also includes private funds from the Hudson Farm Foundation. The project utilizes Federal USFWS funds. On a state level technical assistance and permit assistance by NJDFW fisheries biologists is paid by NJ Hunter and Angler funds. Pre and post project fisheries monitoring conducted by NJDFW Bureau of Freshwater Fisheries staff is funded by federal Sport Fish Restoration funds.

Improve protection of Brook Trout resources - The proposed project will increase the Brook Trout population in Sparta Glen Brook in both size of fish and abundance. The improvement to the population that will result will protect Brook trout population in Sparta Glen Brook from being lost completely.

1. **What is the EBTJV subwatershed number (6th level Hydrologic Unit), and associated classification and priority score for the proposed project?**

* **Subwatershed # =** 34050
* **Subwatershed Status Classification =** Reduced
* **Subwatershed Priority Score =** 0.2
* **Subwatershed Map Used =** Enhancement Priority Map

1. **Will the completed project benefit any federally listed threatened or endangered species or Service priority species (refer to the list of Service priority species for Region 4 and Region 5 in the Appendix)**

The Indiana Bat, a Federally Endangered species, is present in the area. Indiana Bats feed on stream invertebrates. Addressing sedimentation within the stream corridor and improving instream habitat will improve the food source for this important species, as well as Brook Trout. The Brook Trout is a Service Priority species.

1. **Will the completed project benefit any state listed threatened or endangered species or species of greatest conservation need?**

The Bobcat is present in the woodlands surrounding the project area. The Bobcat is a state listed endangered species in New Jersey. The Barred Owl is also present and is classified as threatened. The Wood Turtle is present just downstream of the project area and is also classified as threatened in New Jersey and a Regional Species of Greatest Conservation Need. Brook Trout and the Black Billed Cukoo, are also present and are both considered a state and Regional Species of Greatest Conservation Need.

1. **Will the project provide or enhance connectivity to or within an intact subwatershed?**

No, there are no surrounding intact subwatersheds. There are no intact subwatersheds in New Jersey.

1. **What are the root causes of the watershed degradation and which of these are addressed by the project?**

A woolly adelgid infestation is the significant source of degradation through the project area. Once a well shaded ravine of native hemlocks the infestation destroyed almost all hemlocks. With the loss/weakening of stabilization of the steep ravine, provided by the deep rooted trees, a microburst (16 inches of rain in 24 hours) in 2000, resulted in a significant landslide along the left bank into the stream corridor. The project will further enhance initial restoration efforts, restore instream habitat and further stabilize the upper fringe area addressing the main sources of degradation in the project area.

Other sources of watershed degradation are summer thermal inputs from off-stream impoundments located upstream. Residential development also exists upstream of the project area. These sources will not be addressed by this project but the restoration efforts within the project area will minimize their impacts to the stream.

1. **Describe the plans for project effectiveness monitoring and evaluation (i.e. measuring the project’s success in meeting its goals/objectives).**

Pre-project monitoring of the fisheries population in Sparta Glen Brook has been completed. The project area will be monitored annually for fish and macroinvertebrates (who) for three years, and then five and ten years following project completion. Riparian and upland fringe areas will be inspected monthly during the first growing season following project completion and then semi-annually for three years following project completion. Areas will be inspected for any needed plant replacements and any issues identified will be addressed. A five-year post area assessment will be completed and the stabilization of the riparian and upland fringe areas will be photo documented. The project area will also be visually inspected following any significant storm events.

1. **Describe the expected effect on the brook trout population. To what degree will the project strengthen the brook population status?**

Enhancing ecological function to Sparta Glen Brook by stabilizing water temperatures, restoring flood plain connectivity, preventing bank erosion, providing healthy sediment transport, by creating riparian habitat and improving instream aquatic habitat will prevent the loss of Brook Trout in Sparta Glen Brook. The enhanced habitat, and reduced sediment loading will result in an increase in reproduction, abundance and size in the Brook Trout population. A significant increase in the fish population is anticipated with project completion.

1. **Please describe the long term benefit of the project and provide an estimate of the length of time the project is expected to be effective. If a plan for long term maintenance is necessary to maintain project benefits, please describe it.**

This project has a high likelihood of success as Urbani Fisheries LLC, has successfully completed many similar projects throughout the United States during his 35 years of experience. In New Jersey alone, Urbani Fisheries LLC has completed instream projects using bed manipulation on the Musconetcong River, Pequest River, Paulins Kill, West Brook, both the North and South branches of the Raritan River, Capoolong Creek, West Portal Brook, and Squankum Brook. These projects have not required any additional maintenance after project completion.

As the project is enhancing Brook Trout habitat within the project reach it will have long term benefits to the Brook Trout population in Sparta Glen Brook for many years to come.

As previous plantings from the 2001 project are doing well indicates a high level of success with these additional plantings is anticipated. However, the plantings will be monitored closely after project completion with initial monthly, and then semi-annual to annual inspections occurring.

1. **Does the project address, support or build upon existing action plan(s) (e.g. state fish & wildlife, watershed protection, water quality improvement, land or water-use plan(s), or other regional plan(s)?**

New Jersey Division of Fish and Wildlife Coldwater Fisheries Management Plan - Identifies Brook trout resources within the state and one plan goal is to identify and protect wild trout resources within the state. Another is to periodically sample and document changes in Brook Trout.

New Jersey State Wildlife Action Plan - State plan that identifies Brook Trout as a Species of Greatest Conservation Need. Protection and enhancement of their habitat is identified as a goal for the species.

Eastern Brook Trout Joint Venture Conservation Strategy - Regional plan for the protection and restoration of Brook Trout throughout their entire native range. Two of the plans conservation goals are met by this project.

1. **Are there competitive non-native or invasive fish species within the watershed with access (no barrier) to the proposed project? Are other strains of brook trout, non-native salmonids or other exotics stocked at the proposed site or will they have access following project completion?**

Sparta Glen Brook is not stocked and recent sampling in 2015 documents the presence of only Brook Trout within the project area. Sparta Glen Brook is a tributary to the Wallkill River and the Wallkill River, approximately one mile downstream of the project area, is currently stocked with Rainbow trout by the NJ Division of Fish and Wildlife. A small wetlands area is located at the base of Sparta Glen Brook where it meets the Wallkill. The wetlands area greatly dissipates the stream flow serves as a barrier to fish passage particularly for the larger hatchery reared trout. There are, however, suspected illegal stockings of trout in an off-stream impoundment located upstream of the project area.

1. **Please describe the current status of the project. Is it planned, permitted and ready to begin?**

The project has been designed, the contractor committed, and the NJDEP permit has been approved. $71,000 of the $121,400 required project funding has been fully secured. A commitment of an additional $ 20,000 has been received. The NJ State TU Council has committed to match individual chapter donations and as such their donation will be transferred just prior to project construction. The project is set to begin on schedule in 2016.

**21. Will public access be allowed at the project site? If so, what kinds of recreational activities are allowed – fishing, hiking, camping, wildlife viewing, etc.?**

Yes, public access is allowed and will continued to be allowed at the project site. The project area is owned by Sparta Township and is an undeveloped park. It is open to the general public for fishing, wildlife viewing, hiking and dog walking which occur on a daily basis.

1. **Will the project increase recreational fishing opportunities for wild brook trout? If so, how much will it increase and how will the increase be measured?**

The project will increase recreational fishing opportunities for wild brook trout. Electrofishing data in 1970 yielded a more robust Brook Trout population than currently exists in both size and number. The restoration of instream habitat, bank stabilization and reduction of in- stream sedimentation will increase Brook Trout reproduction. The restoration and additional pool habitat will result in an increase in size of Brook Trout. The increase in size and abundance in the Brook Trout population will increase recreational fishing opportunities within Sparta Glen Brook.

Improvements in the Brook Trout population will be measured by pre and post project electrofishing sampling.

1. **What is the recreational potential of the fishery (i.e., fish abundance, average fish size, type of accessibility for fishing)?**

Sparta Glen Brook through the project area is easily accessible for fishing. There are several small gravel parking lots along the park roadway (gravel) providing easy access for anglers. Anglers do currently fish within the park. Currently abundance and size of fish is quite low. Instream habitat improvements, particularly with the construction of larger pool areas, and improving sediment transport to increase food supply, is anticipated to increase the size and number of trout present. The fish population will be monitored by state fisheries biologists for several years after project completion to document changes in size and abundance of Brook Trout.

**24. Describe the outreach or educational components of the project and how many individuals/students will be served.**

Sparta Township has approximately 20,000 residents. Many have fond memories growing up and spending countless hours in the Glen. Once restored, the Glen will offer that opportunity to future generations.

A kiosk, originally built by a Boy Scout, is located at the entrance of the Glen. It contains information about the project (maps, project plans). Post restoration the kiosk will continue to be used to educate and inform all park visitors, mostly comprised of local residents, of the projects progress and pre and post restoration information.

Fund raising efforts have involved local businesses, local and National Conservation groups, Federal and State agencies, and the local municipality. Upon project completion all supporters will be invited back to witness first hand the work completed at Sparta Glen Brook. Demonstrating the value of partnerships and aquatic resource protection at many levels. Local businesses such as Lakeland Bank and Eastern Propane have agreed to be local lead sponsors.

The New Jersey Herald is the largest local newspaper with a circulation of 11,700 daily and 17,400 on Sundays. They have already included information concerning the project in the paper and follow-up news releases of the projects progress and completion are planned.

In addition, the project has been featured in TAPintoSparta.net, the local on-line newspaper with 20,000 subscribers.

The Sparta Township website, [www.spartanj.org](http://www.spartanj.org) has a link to the FSBNJTU website

describing the project. Both websites will be updated with information and images as the restoration and post restoration events occur.

Sparta Middle School is located about one mile from Sparta Glen. Dr. Marilyn Steneken is a science teacher at the school and is one of the original Trout in the Classroom (TIC) teachers in New Jersey. She is also a friend of FSBNJTU. This fall we will work with Dr.Steneken to include information concerning restoration efforts of the Glen with her science and TIC curriculums.

Finally, if funded through the EBTJV, the EBTJV website will include project information and results of the project.

Eric Powell, the Township Engineer, is also very much involved in the project. He was the Township Engineer in 2000 and has invested a lot of energy into its’ restoration. In his capacity, he is committed to maintaining the Glen as a recreational resource to the county.

**25. If applicable, please briefly describe how this project will promote adaptation to climate change.**

Coldwater species such as Brook Trout are extremely vulnerable to climate change. Anticipated increases in ambient air temperatures anticipated as a result of climate change will result in increased stream temperatures. The re-vegetating of the upland fringe area will restore critical shade to the stream corridor thereby maintaining colder stream temperatures. Deeper pool habitats and consolidation of stream flows in areas will also reduce the vulnerability of the stream to future increases to stream temperatures.

Another characteristic of climate change is excessive weather patterns such as the three large storms that have already affected Sparta Glen Brook. Stabilization of the riparian area, reconnecting the stream with the floodplain, and restoring deep rooted vegetation to the upland fringe areas will greatly reduce the impacts of these storm events to Brook Trout inhabiting Sparta Glen Brook thereby increasing the resiliency of the species in the Wallkill River drainage to changes in climate.

**26. Please explain how this project is a good investment of funds, using a quantitative approach where possible and the recreational and / or economic value of the project.**

A $ 10,000 investment of Eastern Brook Trout Joint Venture Funds will result in over $ 120,000 of instream habitat and riparian improvements to a 0.6 mile stretch of Sparta Glen Brook. Without this project Brook trout will cease to exist within the stream and another catchment within New Jersey will become extirpated. EBTJV grant funds will be used towards the instream habitat improvement aspects of the project. The project area is opened to the public and protected in perpetuity. Fishing already occurs within the park area and instream habitat and riparian improvements will maintain the Brook Trout population into the future to protect these unique angling opportunities.

**SUPPORTING DOCUMENTATION:**

* **Literature Cited**
* **References to published interagency fishery or aquatic resource management plans.**

Eastern Brook Trout: Status and Threats - New Jersey

http://easternbrooktrout.org/reports/fact-sheets/brookie\_NJ.pdf

*New Jersey Coldwater Fisheries Management Plan*. New Jersey Division of Fish and Wildlife. 2005.

*New Jersey State Wildlife Action Plan*. New Jersey Division of Fish and Wildlife. 2008.

**Appendix**

*Definitions*

Protection: Conservation actions that maintain, or prevent the decline of, aquatic habitat.

Enhancement: Conservation actions that heighten, intensify, or improve specific functions of aquatic habitat.

Restoration: Conservation actions that return natural/historic attributes or functions to aquatic habitat.

*Subwatershed Classification Terms*

Intact: Subwatersheds with wild brook trout present in >50% of the habitat.

Reduced: Subwatersheds with wild brook trout present in <50% of the habitat.

Extirpated: Subwatersheds that historically contained wild brook trout but currently they are not present.

*EBTJV Habitat Objectives*

1. Maintain the status, or no net less, of subwatersheds classified as Intact.
2. Strengthen brook trout populations in subwatersheds classified as Intact.
3. Establish self-sustaining brook trout populations in subwatersheds classified as Extirpated.

1. Improve Reduced subwatersheds to Intact classification.
2. Strengthen brook trout populations in subwatersheds classified as Reduced.
3. Maintain Reduced subwatersheds in existing condition.
4. Validate the predictive brook trout status model by assessing status in predicted subwatersheds.
5. Maintain the status, or no net loss, of Intact pond and lake watersheds, and assess the status of 100 unknown subwatersheds.

*EBTJV Conservation Priorities*

1. Increase recreational fishing opportunities for wild brook trout;
2. Protect the “best of the best” habitat that supports existing, healthy wild brook trout populations;
3. Improve and reconnect adjacent habitats that have a high likelihood of supporting stable wild brook trout populations;
4. Focus on critical wild brook trout spawning and early life history habitat in sub-watersheds classified as Intact;
5. Preserve genetic diversity of wild brook trout populations; and,
6. Conserve unique wild brook trout life history strategies (i.e. lacustrine populations, large river populations, and coastal populations).

*EBTJV Common State-Level Objectives*:

1. Improve protection of brook trout resources.
2. Maximize brook trout habitat and water quality protection through state and federal agencies.
3. Pursue direct land purchase or conservation easements to protect brook trout habitat.
4. Establish land conservation easements that require the use of Best Management Practices and include the development of stewardship plans.
5. Assist landowners in utilizing existing land conservation programs.
6. Minimize fish stocking impacts to wild brook trout populations.
7. Mitigate factors that degrade water quality.
8. Maintain or restore natural hydrologic regimes.
9. Prevent the spread of invasive species into brook trout habitat.
10. Expand and integrate state, federal, and private programs that support riparian conservation in watersheds that support brook trout populations.
11. Utilize state, federal and private programs that support watershed stewardship programs in systems containing brook trout.
12. Partner with organizations on projects that involve nongame species, migratory birds, and brook trout.