Watershed Connectivity Project, Beebe River Watershed, Campton and Sandwich, NH

Project Location: New Hampshire
Carrol and Grafton Counties,
Towns of Campton and Sandwich
Congressional District First District

Congressional District of Project: First District

Congressional District of Applicant: VT-0

NFHP / EBTJV Funding Requested: $50,000

Total Project Cost: $350,000

Total Federal Matching: $250,000

Total Non-Federal Matching: $ 50,000

Applicant: The Conservation Fund
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USFWS FONS Database Project Number: 53340-2015-359

Coordination Completed with Sponsoring U.S. Fish and Wildlife Service Office (Check One):

X Yes 8/1/2015 Date Coordination Began

_____ No

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

A. Project Description

This project includes the removal and replacement of five stream crossings in the Beebe River Watershed on a 5,435 acre parcel recently acquired by The Conservation Fund. These crossings are on five separate tributary streams that flow into the Beebe River in Campton and Sandwich, NH. Wild brook trout have been documented in all of these streams and the watershed area upstream of this property is completely encompassed within the White Mountain National Forest. Currently, there are four undersized round pipe culverts and a low hanging bridge that compromise fish passage and natural stream function. Available construction designs call for the installation of prefabricated bridges at all five locations. These crossings will accommodate fish passage, stream specific geomorphology and meet the fundamentals identified in the New Hampshire Stream Crossing Guidelines.

The ability to address large scale issues at the watershed level is unique for central New Hampshire. There are several other cold water habitat protection, restoration, and habitat enhancement projects being developed concurrently with the stream crossing projects across the property. Collectively, these efforts pursue several habitat and conservation priorities identified by the EBTJV.

B. Proposed Methods (Max Characters: 350)

Engineering and design work is being completed by TU who will then work with engineers at NRCS to develop final plansets. Replacement construction costs were estimated using figures from similar 2015 TU bridge installation projects. EBTJV funds would be used for the cost of pipe removal, installation, materials, and instream channel simulation.

C. Project Timeline

Providing appropriate funding is received, construction would begin in late June of 2016 and be completed during the same field season. Costs (*e.g.* materials and labor) are expected to be significantly reduced as a result of replacing all five crossings at the same time and under one contract. Post project monitoring will begin in the summer of 2017. Surveys will replicate the tributary studies conducted in the summer of 2015 (pre-crossing replacement). A tributary on the southern side of the property (ECR1) will also be replicated as a control site. Surveys will also be replicated in the Beebe River to evaluate how tributaries are contributing wild brook trout to the mainstem. Surveys will continue on an annual basis for a minimum of three years. Hourly water temperature monitoring will continue to illustrate the need for having access to cooler tributaries when mainstem temperatures exceed tolerable levels for brook trout.

D. Proposed Accomplishment Summary (Max Characters: 500)

Two life cycle requirements will be restored in the watershed. Access to tributaries is expected to provide summer thermal refuge habitat and improved spawning locations. New crossings are expected to reduce aggradation (upstream) and extreme rates of scour downstream. Addressing these EBTJV priorities and objectives will result in increases in spawning success,

longevity and densities of macroinvertebrates at the watershed level. Benefits to anglers include more and larger brook trout.

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

This project restores watershed level function by providing over 5 miles of accessible thermal refuge and spawning locations in 5 high priority locations along about 30% of the entire length of the Beebe River. 2015 summer temperature data indicates survival in the Beebe River is likely compromised without access to these tributaries.

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

Five crossings under a road paralleling the north side of the Beebe River have disconnected access to tributaries that have the ability to provide suitable thermal refuge and spawning, minimizing summer survival and recruitment rates. Undersized crossings have altered natural sediment conveyance creating elevated levels of aggradation and erosion.

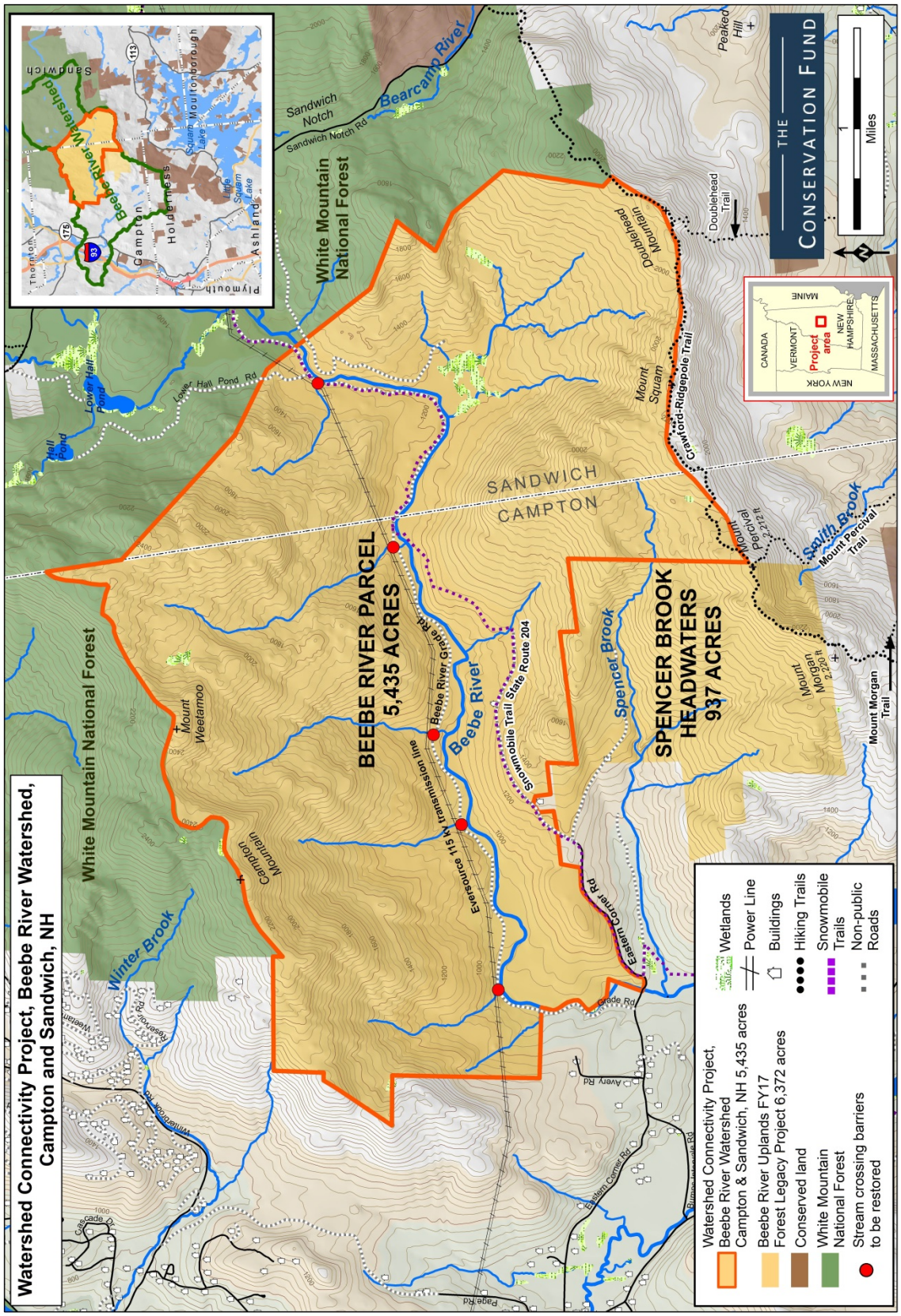
G. Objective of the Project with Reference to the Problem (Max Characters: 350)

By replacing these crossings, the project will restore necessary ecological functions to the Beebe River Watershed by reconnecting and restoring habitat in five cold water tributaries. This component, in conjunction with other ongoing initiatives, holistically addresses landscape scale impacts and provides long-term restoration and protection.

H. Partner Information

Partner Name	Contribution In-Kind	Contribution Cash	Federal or Non-Federal	Partner Category	Role of Partner
Natural Resource Conservation Service		$250,000	Federal	Federal Agency	Cash for project crossing replacements and Design/Engineering
NH Fish and Game	$5,000		Non-Federal	State Agency	Technical Guidance/Research/Monitoring
Pemigewasset TU Chapter	$5,000		Non-Federal	Local Conservation Group	Monitoring/Research Assistance
The Conservation Fund	5,000	$20,000	Non-Federal	Conservation Group (National)	Landowner/Land Protection
Trout Unlimited National	$5,000	$9,000	Non-Federal	Conservation Group (National)	Technical Guidance/Design/Engineering
United States Forest Service	$1,000		Federal	Federal Agency	Technical Assistance

II. MAP OF PROJECT AREA



III. PHOTOGRAPH(S) OF PROJECT AREA

The Beebe River tract, contained within the Sandwich and Squam Ranges, comprises 27% of the middle portion of the Beebe River watershed. Combined with the White Mountain National Forest ownership, 58% of the total watershed will be protected. Photo – B. Engstrom

Above is an example of the perched culverts located on the Beebe River property. This undersized structure is similar and one of the five aquatic barriers that are being targeted for restoration. Photo – C. Lawson

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		
Natural Resource Conservation Service	Federal Agency	Culvert Removal - Funding	Construction Material / Supplies / Travel	$400	-	-	-	$175,000	$175,400	5+ Miles
		Restoration - Funding	Construction Material / Supplies / Travel	$400	-	-	-	$60,000	$60,400	5+ Miles
		Monitoring - Funding	Equipment / Supplies / Travel	$400	-	-	-	$14,000	$14,400	5+ Miles
NH Fish and Game	State Agency	Restoration	Tech. Services / Equip. & Const Labor	$2,500	$2,500	-	-	-	$5,000	5+ Miles
		Monitoring	Tech. Services / Equip. & Const Labor	$2,500	$2,500	-	-	-	$5,000	5+ Miles
Pemigewasset TU Chapter	Conservation Group (Local)	Monitoring - Volunteering	Tech. Services / Equip. & Const Labor	$2,500	$5,000	-	-	-	$7,500	5+ Miles
The Conservation Fund	Conservation Group (National)	Restoration - Funding	Admin. Services / Supplies / Travel	$5,000	$5,000	$20,000	-	-	$30,000	5+ Miles
Trout Unlimited National	Conservation Group (National)	Culvert Removal - Funding & Oversight	Admin./Tech. Services / Const. Materials / Travel	$21,500	$4,000	$5,000	-	-	$30,500	5+ Miles
		Restoration - Funding & Oversight	Admin./Tech. Services / Const. Materials / Travel	$12,000	$1,000	$2,000	-	-	$15,000	5+ Miles
		Monitoring - Funding & Oversight	Admin./Tech. Services / Const. Labor / Travel	$2,800	$1,000	$2,000	-	-	$5,800	5+ Miles
USFS - White Mtn. National Forest	Federal Agency	Restoration	Technical Services	-	-	-	$1,000	-	$1,000	5+ Miles
			Total Contributions	$50,000	$21,000	$29,000	$1,000	$249,000	$350,000	

V. EVALUATION QUESTIONS

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

Coordinates for the five crossings (moving west to east)

Stream Name	Latitude	Longitude
GR1	43.82797	-71.59911
GR2	43.8306	-71.58268
GR3	43.83261	-71.57375
GR4	43.83549	-71.55509
GR5	43.84089	-71.53878

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

We are requesting EBTJV funding primarily for stream crossing Restoration projects but the objectives of the overall Beebe River project address some additional levels of protection and enhancement, as defined. Other projects (with either secured or pending funding) will address large scale protection (riparian easements) and enhancement (instream habitat work/riparian plantings).

3. **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?**

   Wild brook trout have been documented in all five streams where crossings have been identified for replacement. These tributary streams directly enter the Beebe River. A dirt utility road parallels the Beebe River in close proximity to the river's right side and crosses over all five tributary streams. Perched and undersized crossings on these streams present passage and habitat impacts to fish present in the Beebe River. Upstream limit locations (most upstream point) and quantitative depletion electrofishing surveys have been conducted in all streams. These provide pre-project metrics for future comparisons. Water temperature data from 2015 indicates that these five streams stay well within preferred temperature ranges for wild brook trout. However, the nearby Beebe River can exceed suitable temperatures for wild brook trout in the summer. The locations of these five impassable crossings are in close proximity to their confluence with the Beebe River. This significantly reduces accessibility to available habitat and thermal refugia.

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

   Approximately, 5.14 miles of upstream habitat will be accessible for brook trout seeking thermal refuge. Wild brook trout and aquatic macroinvertebrate habitat will also be restored in areas adjacent to the stream crossings where geomorphically incompatible crossings have altered natural stream channel function. The undersized crossings have caused excessive aggradation and erosion upstream and downstream of the structures.

5. **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 footprint is all located on private land that is presently not conserved. The Conservation Fund purchased the 5,435 acres in May 2014 expressly to conserve the property when it went on the market – literally to "buy time" to craft a conservation disposition. An adjoining landowner of 937 acres joined the Fund in a Forest Legacy application that has been approved by the State of NH to proceed with a FY17 submission for funding from the USDA Forest Legacy Program in November 2015. The conservation funding is not in hand and is not match. However, the EBTJV funds would match a pending NRCS RCPP grant that the project team fully expects to receive.

   Additionally, protecting this property is a priority for the NH Fish & Game Department, NH Department of Environmental Services, and the USFS White Mountain National Forest. This land protection effort, which will formally protect the land from subdivision, development, and forest conversion, is running concurrently with this proposal. This particular funding request is specific to replacing the five undersized stream crossings on this parcel.

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

The entire headwaters, upstream from this property, are encompassed within the White Mountain National Forest, protecting 100% of the watershed above the proposed project tract. Combined with the National Forest ownership, 58% of the entire Beebe River subwatershed will be protected when this and the adjoining property, totaling 6,372 acres, are protected with conservation easements in the Forest Legacy Program.

7. 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).

This project addresses the EBTJV habitat objective: ***Strengthen brook trout populations in subwatersheds classified as Reduced*.** The current limiting factors preventing the expansion (density and extent) of wild brook trout in the Beebe River appear to be a lack of access to cold water habitats in the summer and a lack of recruitment at the watershed level. When water temperatures exceed tolerable levels in the Beebe River, the available habitat that could offer suitable refuge during the summer is inaccessible due to impassable barriers. To the same extent, this habitat is unavailable for spawning for wild brook trout in the Beebe River. Available habitat (downstream of crossings) have undergone decades of extreme scour, leaving coarse substrate (boulders, large cobble) as the predominant substrate and minimal spawning gravel. Installing appropriately designed structures will offer suitable access to these cooler tributaries, as well as, accommodate sediment conveyance at natural rates. This is expected to result in greater survival and reproduction rates.

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

This project addresses nearly all of the EBTJV conservation priorities; however, two priorities stand out relative to this effort:

- *Increase recreational fishing opportunities for wild brook trout*. The larger Beebe River Uplands Forest Legacy project will guarantee public access for fishing on 6,327 acres endured with conservation easements administered by the State of New Hampshire;
- *Improve and reconnect adjacent habitats that have a high likelihood of supporting stable wild brook trout populations.* This proposal directly addresses this conservation objective with the protection, enhancement and restoration of aquatic habitat.

9. 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):

This project in conjunction with concurrent activities to protect the entire property and adjoining lands, totaling 6,372 acres, from fragmentation and conversion with perpetual conservation easements through the USDA Forest Legacy program; and cooperative partnerships addressing habitat protection, aquatic enhancement and riparian restoration on the property address virtually all of the following *EBTJV Common State-Level Objectives.* The collaboration with the NH Fish & Game Department, Trout Unlimited National, the Pemigewasset Chapter of Trout Unlimited, the US Forest Service White Mountain National Forest, the Natural Resources Conservation Service, the Towns of Campton and Sandwich and

other local partners has an unprecedented commitment to create a model over time for the transition from industrial forestry to ecological management that serves the following objectives:

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

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

- **Subwatershed # =** 330215
- **Subwatershed Status Classification (Intact, Reduced, Extirpated; terms are defined in the Appendix) =** Reduced
- **Subwatershed Priority Score =** 0.45
- **Subwatershed Map Used =** New Hampshire priority scores for Reduced Watersheds

11. 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)?

Wild Brook Trout, a Service priority species, are expected to be benefited by this project.

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

The wild Brook Trout is a species of greatest conservation need in New Hampshire and is expected to be benefited by this project. The protection and restoration of habitat for wild brook trout populations in central and southern New Hampshire is a high priority for the New Hampshire Fish and Game Department. The populations occur less frequently, are more susceptible, and are less secure than northern populations in the state.

The American marten, a NH Threatened species, and a rare mammal in New England, has been recently recorded in the spruce forests in the Squam Range, including areas along the southern boundary of Beebe River tract. (NHFGD) Also recorded on the Beebe River tract is a population of clustered sedge (*Carex cumulata*) – a state-threatened plant. The smooth green snake (*Opheodrys vernalis*) – an uncommon Species of Special Concern – has been recently recorded on the Beebe River tract. (Brett Engstrom – Consultant Ecologist 2015, NH Natural Heritage Bureau, NHFGD)

Located within the Northern Forest region - Bird Conservation Region #14, this area is breeding ground for the greatest diversity of bird species within the contiguous United States. The subject property and the combined Beebe River Uplands Legacy Project are confirmed breeding habitat for over 20 NH Audubon Species in decline and at least 12 NH F&G Bird Species of Greatest Conservation Need. The New Hampshire Wildlife Action Plan is currently being updated, but not public, and confirms additional listed species in this area.

In addition, the New Hampshire Wildlife Action Plan identifies the Project in its ranking tiers for Wildlife Habitat by Ecological Condition as follows:

Tier One - Highest ranked in New Hampshire 805 acres (15% of Beebe River tract area). The Beebe River and all of its tributaries are included in this ranking.
Tier One - Matrix forest – 767 acres (14% tract area)
Tier Two - Top ranked in Region – 165 acres (3% tract area)
Tier Two – Other watershed – 9 acres
Tier Three - Matrix forest 330 acres (6% tract area)

Total NHWAP tier acres = 1,996 acres (37% of tract total)

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

Yes, with the exception of the five tributaries identified in this grant request and one tributary downstream from this property (Ryan Brook), all wild brook trout streams in the watershed are free of manmade barriers. No formal survey has been conducted on Ryan Brook to determine if the crossings along it serve as fish barriers. All other populations of wild brook trout within the watershed will be able to move freely throughout the stream network once the five identified barriers are restored.

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

Although this property, and the upstream reaches on the White Mountain National Forest, has had a long history of heavy logging and misuse of the forest resources, by far the major impact, in relation to the previously mentioned stream channels, are the devastating severe storm events that have hit the northeast over the last 20 plus years.

The challenge is, and has been, to develop a resilient infrastructure system that will not unnecessarily degrade stream channels and their surround landscape. The natural function of an unobstructed stream channel is in essence resilient. Streams should be able to adjust channel dimensions, move stormwater unimpeded, transport sediment, and

woody materials that naturally need to move through the system. Once that process is disrupted, the results are what presently exist on this parcel - degraded streams due to undersized road crossings. The PT's goal is to reverse this trend by reintroducing natural functions into these stream channels. Replacing the existing undersized structures, with crossing spans adequate to handle the flashy and more frequent storm events, will quickly help to reverse the existing damage. Installing bankfull spanning bridges on these tributaries will improve the each stream's hydrology and also serve to allow full aquatic organism passage.

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

In 2015, three pass removal electrofishing runs were conducted by the NH Fish and Game Department and the Pemigewasset Chapter of Trout Unlimited in all tributaries identified as having concerns associated with poorly installed crossing structures. This survey methodology provides the ability to quantitatively estimate a population of wild brook trout in a given stream. The data collected in 2015 will serve as baseline information to monitor future habitat restoration and enhancement projects. The same three pass removal electrofishing survey was conducted along a tributary that does not have a road stream crossing in close proximity to the mainstem Beebe River. This stream will serve as a control to evaluate these efforts and continued to be monitored in the same way.

These surveys will be periodically replicated as habitat restoration (crossing replacements) and enhancement (instream wood installations) are carried out. This method provides the ability to show how the population (overall numbers and recruitment rates) and the average length and weight of individuals respond to these actions. Hourly water temperature monitors will continue to be deployed in future years to determine the effect of willow plantings throughout the power line locations.

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

By restoring these two life cycle requirements, it is anticipated that there will be a noticeable increase in wild brook trout density and overall average sizes within the Beebe River Watershed. More adults will be able to access refuge habitat and survive during the summer as well as access these same tributaries to spawn. Deposited eggs and juveniles within the tributaries will not be subject to amplified aggradation and erosion rates associated with undersized stream crossings, also likely increasing survival rates. Although this proposal is only requesting funding for stream crossing replacements, there are several other cold water habitat protection, restoration, and habitat enhancement projects developing concurrently with this project. Addressing all of the aquatic eco-system components provides an opportunity to restore a large portion of the Beebe River Watershed to optimal conditions for wild brook trout.

17. 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.

If construction is initiated in the summer of 2016, it is reasonable to suspect that wild brook would begin to utilize these tributaries immediately after the first crossing is replaced and the stream channel restored. All five tributaries should be accessible to spawning fish by the fall of 2016. It is expected that each tributary would exhibit an increase in density of young-of-the-year brook trout when monitoring occurs in the summer of 2017. The benefit of installing appropriately designed prefabricated bridges is that minimal maintenance is required. After construction and streambank vegetation is planted, the next planned maintenance practice would be to replace the timber decking on the bridges in about 25 to 30 years.

18. 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)?

This project is in concert with numerous local, state and federal plans and initiatives including:

- NH Wildlife Action Plan (NH Fish and Game Department, and partners). It addresses the protection of a Species of Greatest Conservation Need, as well as, broad range of conservation strategies including, but not limited to *Restore and Maintain Natural Flow Regime, Restore and Maintain Watershed Continuity, Protect Habitat and Landscape Connectivity, Mitigate Climate Change, Insure Public Access for Fishing and Hunting, Require Monitoring to Demonstrate Success,* and *Develop Education and Awareness Initiatives throughout the State.*
- The goals of these following programs are exemplified in the Project: the USFS *Forests to Faucets Report* in cooperation with the New Hampshire's Drinking Water Improvement program, and the multi-year Joint Chief's partnership between the Natural Resources Conservation Service and the USDA Forest Service to protect headwaters. New Hampshire has the fastest growing population in the nation and ranks 2nd in the country for the percentage of the state's population served by private wells, many of which are impaired by development, forestry or agricultural practices. The extreme storm events, such as Hurricanes Irene and Sandy, have increased and exacerbated these issues. The Project will protect aquifers that serve public water supplies, mitigate the impacts of climate change and expand landscape connectivity and protection for fish and wildlife.

- The Beebe River is a prime tributary of the Pemigewasset River. The Pemigewasset is a focus of the Joint Chief's Program, one of three New Hampshire focus area watersheds, <u>out of four ranked most at risk in the nation</u>. This Project is encompassed within this watershed and strives to meet the Measure of Success of the NH: Drinking Water program. Developing successful partnerships and documenting improvements in water quality, reductions in sedimentation, improved hydrologic function in streams, wildlife habitat improvements, and increases in working lands conservation all directly relate to this Drinking Water initiative. The Joint Chief's Program includes the Town of Campton which wholeheartedly supports the Project, as does the Town of Sandwich to the east. Both Towns acknowledge the conservation of this area's working forest, water resources, habitat and public access are in keeping with both Town Plans.

- The Project is in keeping with the Pemigewasset River Corridor Management Plan developed in 1991, and updated in 2013 by the Pemigewasset River Local River Advisory Committee with assistance from state agencies and regional and local organizations including the Lakes Region Planning District and the NH Department of Environmental Services. The Plan documents the current condition of the river corridor and proposes guidelines for stewardship over the next decade - balancing sensible environmental and economic goals with respect for the rights and desires of riparian property owners of the region.

- The Upper Merrimack is formed at the confluence of the Pemigewasset and Winnipesaukee Rivers; it is the larger portion of the Merrimack River system that bisects the lower third of New Hampshire and drains a 5,014 square mile watershed extending from the White Mountains to east-central Massachusetts. A 30 mile segment of the Upper Merrimack was designated for protection under the New Hampshire Rivers Management and Protection Program. The Central New Hampshire Regional Planning Commission, Lakes Region Planning Commission, Merrimack River Area Planning, Committee, and the Merrimack River Watershed Council nominated the river for these exceptional qualifying attributes: geologic resources; wildlife, plant, and fish resources; water quality; scenic values; water withdrawals; wastewater discharges; historic and archaeological resources; community resources; and recreational resources. The Project is enthusiastically supported by the New Hampshire Rivers Management and Protection Program as critical to the health of the larger river systems of which it is a source.

19. 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?

Rome strain hatchery brook trout are currently stocked in the mainstem Beebe River. By restoring required life cycle requirements (access to thermal refuge and spawning locations), it is expected that wild brook trout longevity and recruitment will be increased. The stocking practices of this watershed will be reevaluated after connectivity and habitat enhancement projects are conducted.

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

At present, an active project team (PT), consisting of state, federal, local and NGO organizations are working on both the short and long term strategies for on-the-ground restoration and land conservation. This group of experienced conservationists, biologists, and ecologists are focused on, and committed to, moving this landscape scale restoration effort forward. Beginning in the summer of 2014, the PT began laying out plans for restoring the impassable stream crossing barriers and reconnecting the entire Beebe River aquatic network. Additionally, there are complimentary multi-year projects associated with completing roughly 25,000 linear feet of instream large wood restoration work developing structural habitat as well as a variety of terrestrial forest management and habitat projects.

Related to this request, TU is currently working on completing design and engineering plans for each structure as well as compiling and organizing the necessary data for NHDES permits. By November 2015, the goal is to have the final plansets complete and the wetlands permits in hand. Once this is complete, the project will be bid out to local contractors and a bid accepted by February 2016. The PT's goal is to complete the construction portion of the project within a four week window during the summer field season of 2016. The goal of completing the restoration in such a short time frame is to allow the five stream channels to re-stabilize themselves at least two months prior to the fall migration season.

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.?

This property is a very popular destination for wide variety of recreationalists. The subject property is currently open to public pedestrian access seasonally during spring, summer and autumn. There is a five mile long interior road that follows the river on an old railroad grade.

22. 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?

Given that anglers already have complete access to the Beebe River and tributaries throughout the entire property, as well the adjacent White Mountain National Forest, no expansion of fishing opportunities is necessary in relation to this project. Anglers are expected to benefit more by catch rates and overall size of wild brook trout and not necessarily opportunity, as a result this project.

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

By increasing survival and reproduction, it is expected that anglers will benefit from increased catch rates and greater sizes of wild brook trout. The single cold water tributary (ECR1) on this property, that enters on the southern side of the Beebe River, is very similar (*i.e*. drainage area, width, habitat variety) to the five tributaries we are trying to restore. The major exception is that ECR1 does not have a crossing associated with it near the confluence with the Beebe River. Electrofishing surveys in 2015 indicated that ECR1 has a much higher density of wild brook trout when compared to the five tributaries with impassable crossings.

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

The New Hampshire Fish and Game Department has an active Aquatic Resource Education (ARE) program. Already, students have been exposed to the project and have assisted with electrofishing, water quality monitoring and macroinvertebrate collection. The ARE program already works with several local schools and looks forward to using this property as an outdoor classroom to showcase healthy and self-sustaining wild brook trout populations. Teachers in this program utilize data collected in previous years to develop trend data with their classes. Additionally, over 400 hours of volunteer time has been donated to assist with monitoring and research. These adults have learned the value of intact watersheds and the need to address impacts on wild brook trout and water

quality. They leave as stewards, having the ability to promote or oppose land use practices in their communities. It is difficult to quantify the number of individuals or students who will benefit from this project and the other ongoing projects on this property as it includes a long term commitment to both conservation and education.

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

"Resilience concerns the ability of a living system to adjust to climate change, moderate potential damages, take advantage of opportunities, or cope with consequences; in short, the capacity to adapt. The Nature Conservancy's resilience analysis develops an approach to conserve biological diversity while allowing species and communities to rearrange in response to a continually changing climate."

In assessing this restoration Project for multiple geological, topographical, spatial and natural resource values that create resiliency, the results for the property are as follows:

- TNC Resiliency = all acres are ranked above average
- TNC Landscape Complexity = all acres average
- TNC Connectedness = 1,260 acres average and 4,175 acres above average which includes the eastern ¾ of the property parcel
- TNC Focal Area and Focal Sites = All of the Project area is Ranked as Class 1 Priority Climate and Current Biodiversity Area

In short the Project tract is ideally suited to promote adaptation. 2015 water temperature monitoring data indicates the Beebe River mainstem occasionally exceeds suitable water temperatures for wild brook trout in the summer. These temperatures appear to be closely related to ambient air temperature. It is suspected that these mainstem temperatures will increase as a result of climate change, creating a critical need for access to cooler tributaries. More frequent and intense flow events are likely a result of climate change. Having appropriately designed crossings that accommodate both high flows and sediment transport are essential to ensure habitats are not over scoured or over embedded.

Although this particular funding request facilitates the replacement of five stream crossings, an ongoing land protection effort in concert with this request, will ensure well established riparian areas along the tributaries and Beebe River, are held in conservation easement on the property. Having protected riparian zones will ensure shading is present whereby protecting streams from solar radiation. Large scale land protection will also protect water tables associated with these tributaries and the Beebe River from groundwater withdrawals. Ongoing wood addition projects will increase pool / riffle ratios as well as pool depths overtime. This will offer additional refuge habitat.

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.

The greatest ecological, economic, and recreational benefits associated with this restoration project may be more financially quantifiable over time; currently the benefits tend to be more intangible but will reveal their measurable benefits in future assessment and monitoring activities.

- This project is a unique opportunity for large scale restoration efforts on privately owned property. The diverse partnerships committed to the property, particularly to the natural resource attributes, bode well for integrated management into the future. Assurance of the 6.5 mile common boundary with the White Mountain National Forest being conserved brings tremendous value to this larger forest track, though difficult to quantify today.
- Guaranteeing public access with conservation easements on 5,435 acres of private property in central NH is beneficial for angling and other recreational activities. The ability to measure the dollar value is elusive.
- This specific property has garnered over 400 hours of volunteer time specifically for stream research and restoration activities. Although this commitment can be valued at $9,100, the intangible value of social capital could not necessarily be quantified in dollars and cents.
- The EBTJV funding will leverage $300,000 plus with better than a 6 to 1 match.
- The scale of the project and concurrent construction of five bridges has been able to reduce restoration costs from approximately $110,000 to $70,000 per bridge.
- The Towns of Campton and Sandwich have noted that the overall goal of protecting a fairly remote area identified as being a highly threatened by subdivision or development brings valuable benefits to the towns through the protection of aquifers and private water supplies in the Beebe River watershed. And the conservation and management of the property brings financial benefits in avoided costs of road maintenance, fire protection, and the instream restoration work will potentially help mitigate future flood damage to roads and property.
- Lastly, the tangible and financial benefits, over time, of climate resiliency and carbon offset of an intact forested landscape are not easily measurable or quantifiable now.

SUPPORTING DOCUMENTATION:

- **Literature Cited**
  - Forest Legacy Program
    - http://www.fs.fed.us/spf/coop/programs/loa/flp.shtml
  - Joint Chief's Partnership (USDA - USFS & NRCS)
    - http://www.nrcs.usda.gov/wps/portal/nrcs/detail/wa/home/?cid=NRCSEPRD338548xx
  - NH Audubon
    - http://www.nhaudubon.org/
  - NH Natural Heritage Bureau
    - http://www.nhdfl.org/about-forests-and-lands/bureaus/natural-heritage-bureau/
  - NH Rivers Management and Protection Program
    - http://des.nh.gov/organization/commissioner/pip/factsheets/rl/documents/rl-2.pdf
  - NH Wildlife Action Plan
    - http://www.wildlife.state.nh.us/wildlife/wap.html
  - Pemigewasset River Corridor Management Plan (2013)
    - http://lakesrpc.org/PRLAC/files/PemiCorrMgmentPlan2013.final.pdf
  - USFS Forests to Faucets Report
    - http://www.fs.fed.us/ecosystemservices/FS_Efforts/forests2faucets.shtml

- **Project Partner Web Sites**
  - Natural Resource Conservation Service - NH
    - http://www.nrcs.usda.gov/wps/portal/nrcs/site/nh/home/
  - Natural Resource Conservation Service - NH
    - http://www.nrcs.usda.gov/wps/portal/nrcs/site/nh/home/
  - Pemigewasset Chapter of Trout Unlimited
    - http://pemigewasset.tu.org/
  - The Conservation Fund
    - http://www.conservationfund.org/
  - Town of Camplton, NH
    - http://www.camptonnh.org/nh/
  - Town of Sandwich, NH
    - http://www.sandwichnh.org/
  - Trout Unlimited - National
    - http://www.tu.org/
  - White Mountain National Forest
    - http://www.fs.usda.gov/whitemountain

New Hampshire
Fish and Game Department

11 Hazen Drive, Concord, NH 03301-6500
Headquarters: (603) 271-3421
Web site: www.WildNH.com

TDD Access: Relay NH 1-800-735-2964
FAX (603) 271-1438
E-mail: info@wildlife.nh.gov

Glenn Normandeau
Executive Director

To Whom It May Concern: August 25, 2015

RE: The Conservation Fund EBTJV Grant Application-Beebe River Watershed

Without hesitance the New Hampshire Fish and Game Department (NHFGD) expresses support to the actions identified in the Eastern Brook Trout Joint Venture Grant Application. The NHFGD has been an active partner within this watershed since 2014 when The Conservation Fund acquired 5,435 acres encompassing a large forested tract within the Beebe River Watershed. The NHFGD recognizes both the value and utility in restoring wild brook trout habitat in central New Hampshire for two primary reasons. Firstly, much attention will be generated from this project. Being very popular with the outdoor community, the property is one of the largest privately owned parcels in the southern part of the state with public access. This will bring much needed attention to the nexus between land uses and impacts to wild brook trout habitat and water quality in the state. Secondly, this is an opportunity to effectively restore and expand a population in an area of New Hampshire where wild brook trout are not as inherently secure as those found in the northern part of the state.

From the inception of this project, The Conservation Fund has taken a leadership role in garnering public support, project development and funding, as well the development of a broad stakeholder and partnership group, and the NHFGD is pleased to be one of their partners. Without grass root local level support, little can be done to ensure the efforts and funding components of the restoration plan will have a long lasting effect. The diverse partnership that has culminated for this particular project has laid the groundwork for continued support so that the restoration and protection of this watershed will have a long lasting effect.

This funding request is only for one particular component of several concurrent projects. In my experience, this holistic approach offers some of the highest potential for meaningful results for not only wild brook trout but the anglers who admire them. Extensive NHFGD surveys have shown this population to be a highly viable candidate for restoration and protection in New Hampshire. This particular project ensures the sustainability of one of the last strongholds of wild brook trout in this part of the state. This project coincides with the Restore and Maintain Natural Flow Regimes and Restore and Maintain Watershed Continuity conservation strategies identified in the NH Wildlife Action Plan.

Thank you for your consideration of this project. Please feel free to contact me with any questions.

Ben Nugent
Fisheries Biologist
New Hampshire Fish and Game Department
11 Hazen Drive
Concord, NH 03301
(603) 271-2614
benjamin.nugent@wildlife.nh.gov

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E-mail: info@wildlife.nh.gov

Glenn Normandeau
Executive Director

July 14, 2015

To the New Hampshire Forest Legacy Committee:

Without hesitance, the New Hampshire Fish and Game Department (NHFGD) expresses support for the actions identified in The Conservations Fund's Forest Legacy application for the property in the towns of Campton and Sandwich.

The NHFGD believes this proposal clearly addresses the purpose of the Forest Legacy Program by promoting both working forests and the protection of ecologically sensitive areas. This effort works to connect a significant parcel of land at the watershed scale to neighboring properties already conserved in the White Mountain National Forest. This unique opportunity to protect a large tract of land in central New Hampshire will strengthen the resiliency of a large suite of fish and wildlife species. The large number of outdoor recreationalists who utilize this property will continue to enjoy the open forests and good water quality without threat of development.

From the inception of this project, The Conservation Fund has taken a leadership role in garnering public support, defining project objectives, and developing a broad stakeholder and partnership group. The NHFGD is pleased to be one of their partners. The diverse partnership that has culminated for this particular project has laid the groundwork for long lasting stewardship and habitat enhancement of fish and wildlife species in this area.

Thank you for your consideration of this project. Please feel free to contact me with any questions.

Sincerely,

Glenn Normandeau
Executive Director

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

July 14, 2015

Mr. Brad W. Simpkins, Interim Director
Division of Forests and Lands
Department of Resources and Economic Development
PO Box 1856, 172 Pembroke Road
Concord, NH 03302-1856

Subject: Letter of Support for the Beebe River Forest Legacy Program Project Application

Dear Mr. Simpkins,

The Merrimack River receives runoff from a 5,014 square mile watershed extending 116 miles from the White Mountain region, through central New Hampshire, into Massachusetts before meeting the Atlantic Ocean at Plum Island. This basin enjoys a high percentage of forest cover that rivals many across the country. It is this feature coupled with projected population escalation impacts that result in one of the highest-in-the nation threats to deforestation within a watershed right here in the Merrimack River basin.

Watershed restoration and protection practitioners working to protect high quality waters and restore impaired waters realize that the best hope for maintaining designated uses in surface waters is through headwater and buffer protection strategies. The scope of work outlined in this proposal for the Beebe River Tract is such an initiative that will have perpetual protection outcomes that will uphold the goals and objectives created in the U.S. EPA Clean Water Act by eliminating several of the nonpoint source pollution sources within the Beebe River watershed. Those sources are clearly identified in the 2014 New Hampshire Nonpoint Source Management Program Plan as well.

In the realm of watershed management, opportunities to protect large, un-fragmented parcels of land and to restore proper stream crossings and fish passage within sub-watersheds to large river basins are extremely rare. All too often, the response and actions are to surface waters that no longer meet their designated uses due to elevated pollutant levels and poor watershed development practices. The Beebe River Tract project affords a unique watershed protection opportunity that should not be missed as it provides the opportunity to do cost effective resource protection while providing a platform for public engagement and recreational opportunities. The environmental legacy established through successful protection of this parcel and the surface water assets will be substantial and enduring with benefits not just realized in the Beebe River but downstream in the Pemigewasset and Merrimack Rivers alike.

Thank you for the opportunity to voice my strongest support for this watershed protection initiative.

Sincerely,

Stephen C. Landry
Merrimack Watershed Supervisor
(603) 271-2969
stephen.landry@des.nh.gov

USDA United States Department of Agriculture
Forest Service
White Mountain National Forest
71 White Mountain Drive
Campton, NH 03223
603-536-6100

File Code: 3360
Date: July 14, 2015

Nancy Bell
VT/NH Director Conservation Fund
The Conservation Fund
1331 Town Hill Road
Shrewsbury, VT 05738

Dear Ms. Bell:

I would like to take this opportunity to express our strong support for the Beebe River Uplands Project that the Conservation Fund is bringing forward for funding under the Forest Legacy Program.

This large 6,372 acre project, consisting of two parcels (Beebe River and Spencer Brook) is immediately adjacent to the south boundary of the Forest and lies just above the Squam Lake area. The adjacency and size of the parcels alone make them key parcels in connecting existing protected lands but of even more importance is that these lands lie within the Merrimack River Basin, one of the most threatened watersheds for development in the country as noted in the Forest Service's own report "*Forests to Faucets.*"

As you are also aware the Natural Resource Conservation Service and the White Mountain National Forest are developing further joint collaboration in this watershed to address water quality concerns under the Two Chief's Joint Restoration Collaborative. We are envisioning work on both NFS managed lands as well as within these parcels to help maintain high quality drinking water and fully functioning streams that meet both hydrologic and biological standards.

Please let us know of any other ways you think we can support and meet our mutual goals for land conservation in this area.

Sincerely,

THOMAS G. WAGNER
Forest Supervisor

cc: Craig Young

U.S. Fish & Wildlife Service

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Service Representative: Brett Engstrom

Office and Phone: Home office: 836 VT Route 232, Marshfield, VT 05658; phone 802-426-3534

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Service Representative: Trout Unlimited - Colin Lawson

Office and Phone: 54 Portsmouth Street, Concord, NH 03301

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- All employees or agents of the Department of the Interior

I agree to the above full copyright release: Colin Lawson 9/1/2015 **(Signature)**
or

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