

**U.S. Army Corps of Engineers
Fiscal Year 2016
Handshake Program Application**

Please review instructions before completing application!

Corps Lake/River Project Name: **W. Kerr Scott Dam and Reservoir**
District / Division: **Wilmington**
Handshake Proposal Title: **American Chestnut Planting & Silviculture Research Project**
Corps POC Name: **Brad Carey**
Telephone: **(336) 921 - 3390 ext. 106**
E-Mail: **brad.j.carey@usace.army.mil**

A. Checklist:

1. Will the Handshake funds be spent on Corps facilities and resources that are being fully maintained by the Corps? Yes No
 2. Will the Challenge Partnership agreement be with a non-federal public or private entity(ies)? Yes No
 3. Is the proposed activity within current authorities and contained in the annual or 5-year work plan in the approved lake project OMP? Yes No
 4. Have all of the NEPA requirements been considered for this project? Yes No
 5. Did you participate in a Handshake Webinar in 2015 or review a 2015 Handshake Webinar on the Gateway? Yes No
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B. Handshake Funding Request (maximum \$30,000): \$21,000

C. Cooperating Association Agreement Bonus: Challenge Partnerships that include a Cooperating Association with which your project/district has entered into a Cooperating Association Agreement are eligible to compete for an additional \$5000. Do NOT include a copy of that agreement with this application. A copy may be requested if not already provided to the Partnership Team. (Reference Chapter 9 of ER and EP 1130-2-500 for information on cooperating associations).

This application qualifies for the Cooperating Association Bonus funding.

D. Incentive Points Category: Check the appropriate box if your application qualifies to receive bonus points on the evaluation score. The first category is for the partner contribution meeting or exceeding 70% of total project costs. A summary of the partners' contribution to the Handshake Project should be included in the financial worksheet below. The second category is for Lake or River Projects that have never been chosen as Handshake recipients.

Partner contribution total is 70% or greater (100 points).

This Lake/River Project has never received Handshake funding (100 points).

E. Describe your partnership and the proposed project:

Your project will be evaluated on the following categories: Sustainability, Partnership Value, Recreation Benefit, Environmental Stewardship Benefit, Communication and Education Value, and Innovativeness. Please address each in your description.

Summary Statement of Handshake Project:

The American chestnut, *Castanea dentata*, is a large, monoecious deciduous tree of the beech family native to eastern North America. Before the species was devastated by the chestnut blight, caused by the fungal pathogen, *Cryphonectria parasitica*, it was one of the most important forest trees throughout its range. The project will assess survival and growth rates of American, Chinese and hybrid chestnut trees under three silvicultural treatments within 10 acres of understory plantings and 10 acres of open field planting. Understory plantings will be released through commercial thinning to a basal area of 80 square feet. The thinning will be done on 5 acres one year after planting and on the other 5 acres two years after planting.

Longevity / Sustainability description:

The American chestnut silviculture project will provide a legacy of blight-resistant trees on public lands at W. Kerr Scott Lake. These trees will provide mast for wildlife, increasing the health of game and nongame species as well as the health of the forest. The Corps will perform intermediate stand treatments as necessary to ensure successful health and vigor of the chestnut stands. This environmental stewardship project creates an ideal location for long term research on mycorrhizal relationships and climate studies. The study will also provide an opportunity for high school and college students to work together with scientists and professional public land managers to build relationships and foster the next generation of natural resource managers.

Partnership Value:

- A Memorandum of Understanding between the American Chestnut Foundation and the U.S. Army Corps of Engineers was signed in 2009. The proposed research will further strengthen our partnership and show our ability to perform large scale and long term projects. The American Chestnut Foundation will supply five genomes of chestnut trees. Approximately 1,000 trees will be planted (estimated value of \$50 per tree). Trees will be pure American chestnut, Chinese chestnut, and the highest level of blight-resistant hybrid chestnut trees.
- Appalachian State University students will conduct measurements and analysis for research focusing on forest biometrics, plant ecophysiology, and soil ecology. Multiple classes will be involved with creating a database of forest biometrics (e.g., biomass, growth rate). Dr. Howard Neufeld has proposed to research hydraulic conductivity of stems and leaves of both blight-resistant and blight-susceptible genotypes and the vulnerability of the xylem to the induction of embolisms. Dr. Michael Madritch has proposed to research functional responses of variation in tree genotype on soil respiration, total carbon, total nitrogen, and soil enzyme activities. To better describe the taxonomic and phylogenetic aspects of associated belowground fungal communities, they will employ next generation genetic sequencing of fungal ITS amplicons.
- The North Carolina Forest Service B.R.I.D.G.E. Crew program helps inmates build a work ethic and provides useful hands on training in numerous job skills to help them become productive members of society. The Crew will provide labor for construction of deer exclusion devices, planting, and maintenance of plantings. The Crew's availability for work days is subject to their duty to fight wildfires. The ongoing partnership with the B.R.I.D.G.E. Crew has been a great benefit to W. Kerr Scott Dam and Reservoir for six years.
- The West Wilkes High School Agriculture Program is a new partnership for W. Kerr Scott Dam and Reservoir. The high school is a local public school. Students will assist in the planting and maintenance of the trees. The project coincides with horticulture curriculum requirements.
- Friends of W. Kerr Scott Lake (FOL) have been in a partnership with U.S. Army Corps of Engineers since 2006. We established a cooperative agreement with them in 2009. FOL will provide volunteers to plant

trees. FOL will also prepare newspaper articles and information for the local community about the partnership.

- The U.S. Army Corps of Engineers will provide the study areas, materials and supplies for deer exclusion devices, thinning operations, and a portion of the labor for the preparation and maintenance of the study areas.

Recreational Benefit:

In time the trees will produce chestnuts, restoring a lost recreational opportunity. Chestnutting was a very popular activity for rural communities in the early fall when the chestnuts would ripen and fall to the ground. Winslow Homer created a wood engraving in 1870 depicting the activity of boys and girls gathering the chestnuts and described it as a “pleasant occupation - half work, half sport”. American chestnuts can be eaten raw or roasted over a fire. The nuts are also a food source for wildlife; over time the trees will provide ample food for game and non-game species increasing hunting and wildlife observation opportunities.

Environmental Stewardship Benefit:

The American chestnut tree was an essential component of the ecosystem in eastern U.S. prior to being eliminated by blight. Researching techniques for growing blight resistant trees will help restore environmental stewardship benefits lost due to the demise of this species as well as economic benefits of this renewable natural resource. A late-flowering, reliable, and productive tree, unaffected by seasonal frosts, it was the single most important food source for a wide variety of wildlife from bears to birds. Rural communities depended upon the annual nut harvest as a cash crop and to feed livestock.. Chestnut wood is straight-grained and easily worked, lightweight and highly rot-resistant, making it ideal for fence posts, railroad ties, barn beams and home construction, as well as for fine furniture and musical instruments. The chestnut lumber industry was a major sector of rural economies.

Communication & Education Value:

The chestnut stands will be a “living classroom” used to inform and educate government agencies, private landowners, students, and the visiting public on the history and efforts to restore the species. This STEM type project will encourage high school students to pursue a scientific discipline for the benefit of our county’s prosperity. Appalachian State University students will have a unique opportunity to research and publish findings in scientific journals. The knowledge gained will improve silviculture techniques necessary to restore the American chestnut tree.

Innovativeness:

A breeding technique known as “backcrossing” was begun by Dr. Charles Burnham; it combines genes of the American and Asiatic chestnut species to produce a blight resistant reproductive species that cannot be distinguished from pure American chestnuts. Performing five backcrosses has achieved the highest level of blight resistance. This project will be the first utilize these backcrossed trees and to analyze of their development in a practical sustainable silviculture practice. Research conducted by the Appalachian State University Department of Biology will focus on hydraulic conductivity and microbial associations.

Concluding statement:

The proposed Handshake Partnership is aimed at restoring and perpetuating the American chestnut tree to benefit the environment and society. Resilience and sustainability will be achieved by observing and controlling the establishment, growth, composition, health, and quality of the trees in the study. The partnership will strengthen ties with new and established partners. The project will provide benefits for years to come.

Challenge Partnership Financial Work Sheet

Corps Project Name: W. Kerr Scott Dam and Reservoir

Work Project Title: American Chestnut Silviculture Research

POC Name: Kevin Heape

Address: 499 Reservoir Rd.

City: Wilkesboro

State: NC Zip Code: 28697

Telephone: 336 - 921 - 3390 x102

Location of Project: Fee lands (Fort Hamby and Smithey's Creek Wildlife Management Areas)

Partner Organization 1: The American Chestnut Foundation

POC Name: Thomas McNeill Saielli

Address: 50 N Merrimon Ave, #115

City: Asheville

State: NC Zip Code: 28804

Telephone: 828 - 450 - 9100

Partner Organization 2: Appalachian State University

POC Name: Ged Moody

Address: Appalachian State University East Hall

City: Boone

State: NC Zip Code: 28606

Telephone: 704 - 906 - 8789

Partner Organization 3: North Carolina Department of Agriculture Forest Service

POC Name: Danny Carswell

Address: 2161 B. Mount Home Church Rd.

City: Morganton

State: NC Zip Code: 28655

Telephone: 828 - 438 - 6267

Partner Organization 4: West Wilkes High School Agriculture Program

POC Name: Jacob Shepherd

Address: 6598 Boone Trail

City: Millers Creek

State: NC Zip Code: 28651

Telephone: 336 - 973 - 4503 x160

Partner Organization 5: Friends of W. Kerr Scott Lake

POC Name: Andy Stancil

Address: 499 Reservoir Rd.

City: Wilkesboro

State: NC Zip Code: 28697

Telephone: 336 - 921 - 3390 x114

Double click on spreadsheet to access data entry fields and to enter Partner names:

	Local Corps Office	Handshake Funds	American Chestnut Foundation	Appalachian State University	NC Forest Service	West Wilkes High School
Salaries	\$7,308	N/A	\$15,000	\$10,000	\$0	\$0
Travel	\$0	N/A	\$450	\$278	\$0	\$0
Materials and Supplies	\$0	\$11,000	\$50,000	\$0	\$0	\$0
Equipment Use	\$0	\$0	\$0	\$0	\$0	\$0
Funds Contributed	N/A	N/A	\$0	\$0	\$0	\$0
Personal Property	N/A	N/A	\$0	\$0	\$0	\$0
Volunteer	N/A	N/A	\$0	\$13,842	\$2,768	\$3,691
In-Kind Services	N/A	N/A	\$0	\$7,000	\$0	\$0
Other (explain below)	\$5,600	\$10,000	\$0	\$0	\$0	\$0
Total	\$12,908	\$21,000	\$65,450	\$31,120	\$2,768	\$3,691
Share of Total Cost	9.4%	15.3%	47.7%	22.7%	2.0%	2.7%

	Friends of W. Kerr Scott Lake	Partner 6	Partner 7	Partner 8	Partner 9	Partner 10
Salaries	\$0	\$0	\$0	\$0	\$0	\$0
Travel	\$0	\$0	\$0	\$0	\$0	\$0
Materials and Supplies	\$0	\$0	\$0	\$0	\$0	\$0
Equipment Use	\$0	\$0	\$0	\$0	\$0	\$0
Funds Contributed	\$0	\$0	\$0	\$0	\$0	\$0
Personal Property	\$0	\$0	\$0	\$0	\$0	\$0
Volunteer	\$369	\$0	\$0	\$0	\$0	\$0
In-Kind Services	\$0	\$0	\$0	\$0	\$0	\$0
Other (explain below)	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$369	\$0	\$0	\$0	\$0	\$0
Share of Total Cost	0.3%	0.0%	0.0%	0.0%	0.0%	0

	Partner 11	Partner 12	Partner 13	Partner 14	Partner 15	Total
Salaries	\$0	\$0	\$0	\$0	\$0	\$32,308
Travel	\$0	\$0	\$0	\$0	\$0	\$728
Materials and Supplies	\$0	\$0	\$0	\$0	\$0	\$61,000
Equipment Use	\$0	\$0	\$0	\$0	\$0	\$0
Funds Contributed	\$0	\$0	\$0	\$0	\$0	\$0
Personal Property	\$0	\$0	\$0	\$0	\$0	\$0
Volunteer	\$0	\$0	\$0	\$0	\$0	\$20,671
In-Kind Services	\$0	\$0	\$0	\$0	\$0	\$7,000
Other (explain below)	\$0	\$0	\$0	\$0	\$0	\$15,600
Total	\$0	\$0	\$0	\$0	\$0	\$137,307
Share of Total Cost	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Explanations:

Local Corps Office

Salaries - \$60.90 per hour for 120 hours = \$7,308.00.

Other

Contracting Overhead = \$5,600

Handshake Funds

Materials

Electric Fencing for deer exclusion = \$3,000.

Landscape cloth = \$2,000

Landscape staples = \$250

7' T post for fencing = \$1,400

Cages = \$1,000

Gravel for roadways = \$2,500

Shovels, wire cutters, hammers, gloves, ladder = \$850

Other

Release Thinning (operations and maintenance) = \$5,000

Clearing land (operations and maintenance) = \$5,000

Partner 1 (American Chestnut Foundation)

Salaries – Biologist = \$15,000

Materials and Supplies - \$50 per tree for 1,000 trees = \$50,000

Travel – \$0.58 per mile; 97 miles; 8 trips; 1 biologist = \$450.08

Partner 2 (Appalachian State University)

Salaries- Appalachian State University professors = \$10,000

Volunteer- \$23.07 per hour for 5 volunteers for 120 hours = \$13,842

Travel- \$0.58 per mile; 30 mile distance; 8 trips; 2 graduate students = \$278.40

In-Kind

Analysis utilizing Sperry apparatus for measuring hydraulic conductivity = \$1000

Biogeochemical analyses = 2,000

Microbial assays = \$3,000

Analysis utilizing forestry biometrics equipment = \$1,000

Partner 3 (North Carolina Forest Service)

Volunteer- \$23.07 per hour for 6 volunteers for 20 hours = \$2,768.40

Partner 4 (West Wilkes High School)

Volunteer - \$23.07 per hour for 20 volunteers for 8 hours = \$3,691.20

Partner 5 (Friends of W. Kerr Scott Lake)

Volunteer – \$23.07 per hour for 2 volunteers for 8 hours = \$369.12

W. Kerr Scott Dam and Reservoir American Chestnut Silviculture Research

