Awarded 2010

10-DG-11420004-007

35-NA-BP812-035

U.S Forest Service: Urban and Community Forestry Program
NUCFAC 2009 Challenge Cost Share Grant

Application Cover Sheet

Proposals are due by 11:59 PM Eastern Standard Time February 17, 2009

INNOVATION GRANT CATEGORY: (Total amount available is $500,000)
(Select only one per application)

- ☐ ENERGY AND URBAN FORESTS
- ☐ CLIMATE CHANGE AND URBAN FORESTS
- ☐ PUBLIC HEALTH AND URBAN FORESTS

☑ **BEST PRACTICES GRANTS.** (Maximum amount per application is $50,000 of a total amount available of $500,000)

PROJECT CONTACT: Katherine A. Forrer

NAME OF ORGANIZATION: University of Vermont Extension

MAILING ADDRESS 1: 617 Comstock Rd

MAILING ADDRESS 2: Suite 5

CITY: Berlin STATE: Vermont ZIP CODE: 05602

PHONE NO. (802) 223-22 CELL PHONE (OPTIONAL)

FAX NO. (802) 223-65

E-MAIL Katherine.Forrer@uvm.edu

Is this project being developed to reach a minority or underserved population? ☑ Yes ☐ No

Is this pre-proposal being submitted by a minority or underserved population (owned/operated/directed) business, organization or college/university? ☐ Yes ☑ No

PROJECT TITLE: Best Practices and Tools for an Urban Forest Invasive Citizen Monitoring Program

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A 50 percent match is required of non Federal, cash, donated materials and/or volunteer time.

REQUESTED: $ 49,755 + MATCHING: $ 49,755 = TOTAL PROJECT: $ 99,510

PARTNERS:

NAME Steven Sinclair LETTER OF SUPPORT INCLUDED: YES ☒ NO ☐
NAME OF ORGANIZATION: Vermont Department of Forests, Parks and Recreation

MAILING ADDRESS 1: 103 South Main Street

MAILING ADDRESS 2: 10 South

CITY: Waterbury STATE: VT ZIP CODE: 05671

PHONE NO. (802) 241-3[illegible] CELL PHONE (OPTIONAL)

FAX NO. (802) 244-1[illegible]

E-MAIL steve.sinclair@state.vt.us

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NAME Sharon Plumb LETTER OF SUPPORT INCLUDED: YES ☒ NO ☐
NAME OF ORGANIZATION: The Nature Conservancy of Vermont

MAILING ADDRESS 1: 27 State Street

MAILING ADDRESS 2: Suite 4

CITY: Montpelier STATE: VT ZIP CODE: 05602

PHONE NO. (802) 229-4[illegible] CELL PHONE (OPTIONAL)

FAX NO. Fax: (802) 2[illegible]

E-MAIL splumb@tnc.org.

****

NAME Kathleen Decker LETTER OF SUPPORT INCLUDED: YES ☒ NO ☐
NAME OF ORGANIZATION: Vermont Invasive Exotic Plant Committee

MAILING ADDRESS 1: 1229 Portland Street

MAILING ADDRESS 2: Suite 201

CITY: St. Johnsbury STATE: VT ZIP CODE: 05819

PHONE NO. (802) 751-0[illegible] CELL PHONE (OPTIONAL)

FAX NO. (802) 748-6[illegible]

E-MAIL kathy.decker@state.vt.us

PROPOSAL OUTLINE: (The Innovation proposal is not to be more than 10 and the Best Practices is not to be more than 5 single spaced pages.) Please make sure each page is numbered and has the project title.

Project Title: Best Practices and Tools for an Urban Forest Invasive Citizen Monitoring Program

ABSTRACT: Summarize the proposed project in 200 words or less.

The health of our nation's urban forests is at risk due to the rapid spread of invasive pests. One of the most important resources available in the battle against invasives to urban forests is the citizen scientist. While citizen scientists are used successfully in many programs, best practices and tools to aid others in deploying them is lacking. By drawing from existing citizen monitoring programs (CMPs) across the nation, we plan to research, develop, implement and share 1) best practices for creating CMPs for multiple species and 2) tools to manage program data. Both the practices and tools will be tested through the development of a model invasive CMP in Vermont.

1. **Scope and Applicability/Justification- Proposal objectives:**
2. **Literature Review: (discussion)**
3. **Organization/Methodology:**
4. **Product:**
5. **Collaboration:**
6. **National Distribution/Technology Transfer of Your Findings:**
7. **Project Evaluation:**
8. **Experience/Personnel/Adequacy of Resources:**
9. **Project Evaluation:**

Attachments:

SF 424 and SF 424 (a). (Make sure DUNS number is on SF424 form)
Copy of indirect cost rate or negotiated rate with cognizant Federal agency
List of Literature reviewed and cited
Letters of Support from Partners

When uploading this form to grants.gov, please upload your narrative as a PDF or Word document. Remember that Best Practices proposals should be no more than 5 pages long, and Innovation proposals should be no more than 10 pages long.

Project Scope and Applicability

The threat that invasive species pose to the urban forest is an important and timely national issue. As indicated in the National Urban and Community Forestry Councils ten year Action Plan 'urban and community forestry is positioned to help address some of the greatest threats to our nation's landscape, including: Invasive species'. In Vermont, concern about exotic forest insect pests has been escalating with the recent establishment of hemlock woolly adelgid in the southern part of the state, and with the detection of Asian longhorned beetle and emerald ash borer within fifty miles of our borders. In addition, infestations of invasive plant species, including Japanese barberry, Japanese knotweed, and burning bush, among others, have increased significantly over the past decade. Invasive species reduce the quality and productivity of urban and community forests, depleting habitat for wildlife and inhibiting regeneration of native plant species. Nationally, this scenario is becoming all too common.

Often, the initial observations of these devastating invasive insects, plants and diseases are by private citizens, not by the natural resource scientist. For this reason, enlisting assistance from the public in the timely search for these pests is essential to increase the likelihood that early detection response plans will be implemented and invasive species will be managed and/or eradicated. Since invasive species affect all land ownerships, early detection is essential not only to the health of our urban forests, but our public and private forestlands as well.

The goal of this project is to protect the health of urban forests by nationally engaging citizens in the early detection and ongoing monitoring of invasive pests. The overall objective is to develop best practices and tools for an ongoing, citizen-based, monitoring program for urban forest invasives by the fall of 2010 using Vermont as a model. By developing a broad base of skilled citizen scientists, this project is expected to reach minority and underserved populations. This project seeks to not only educate and engage citizen scientists (CS) in the identification and monitoring of invasives, but to involve national, regional and local agencies and partner organizations in the development of a replicable approach to early pest detection. Through a series of webinars featuring such topics as, "Case Studies of Citizen Monitoring Programs" and "Developing a Database System for Citizen Scientists", we envision a national dialogue. These webinars, targeted towards state urban and community forestry staff, municipal arborists, non-profits and educational institutions, will serve as the platform for the development of best practices and tools for urban forest invasive citizen monitoring programs (CMPs), and the implementation of a model CMP in Vermont.

Literature Review

Little to no previous research has been conducted on best practices for 1) creating a CMP for a large geographical area with multiple target species and 2) developing effective tools to manage the administration of citizen scientists and the data collected by them. To address this lack of available information, this project will examine existing citizen scientist programs and database management systems from around the country, compile a list of these programs and invite program coordinators to share their model with national partners via webinar.

Examples of existing CMPs this project may draw from include: the Citizen-Based Monitoring Network of Wisconsin, Maine's Take a Stand for Hemlock, Texas Invaders: A Citizen Scientist Program to Detect and Report Invasive Plant Species and the Adirondack Park Invasive Plant

Program. Existing citizen monitoring database systems this project may examine include, The USDA Forest Service's Inventory Pest Evaluation, Detection, and Reporting (IPED), The Nature Conservancy's Weeds Information Management System v. 3, U.S. Geological Survey's National Institute of Invasive Species Science (NIISS), and Invasive Plant Atlas of New England (IPANE). One key feature lacking from existing database systems, which this project seeks to develop, is a tool to integrate the data management of volunteer administration such as training received, hours and personal information with monitoring data such as mapping survey locations and field reports.

Organization/Methodology

Through collaboration with the Department of Forests, Parks and Recreation (VT FPR), the Vermont Invasive Exotic Plant Committee (VIEPC), and the Vermont Chapter of The Nature Conservancy, we have established a three-phased initiative towards research and development, implementation and dissemination replicable approaches to developing an invasives CMP program.

Phase 1: Research and Development: Work with national, state and local partners to develop a framework for an urban forest invasives CMP

- Conduct a national review of all existing invasive CMPs to inform the selection of case studies to be presented via webinar (Fall 2010).
- Deliver two webinars on citizen monitoring programs and database systems to national audience (Winter 2010). *Offered free to participants through collaboration with Alliance for Community Trees (ACT) or Urban Natural Resources Institute E-Learning series to deliver webinars.*
- Form a VT working group to develop a program framework (Winter 2010).

Phase 2: Implementation: Pilot a VT urban forest invasives CMP, including the following steps:

- Develop or retrofit existing database systems for VT citizen monitoring efforts (Winter 2010).
- Develop VT invasives website to serve as a portal for information intended for national, regional and local partners, as well as resources for citizen scientists (Spring 2010).
- Develop and assemble existing training materials for CS (Spring/Summer 2010).
- Deliver regional trainings on how to locate invasive insects, diseases and/or plants throughout the state, require participants to record and submit data. CS volunteers will be solicited through existing network of non-profit organizations devoted to education and outreach, such as UVM Extension's Master Gardeners, and Conservation Districts (Spring/Summer 2010).

Phase 3: Dissemination: Make CMP resources available to national partners.

- Deliver webinar highlighting best practices and tools for urban forestry invasive CMPs developed through the project; and framework and lessons learned in the Vermont model.
- Post best practices and tools on website for national use.

Products

Specific deliverable products and recipients include:

- Three webinars attended by 50 federal, state, educational institutions, non-profit and local individuals, broadcast nationally.
- VT invasives website with links to archived webinars, VT CMP information and promotional materials for national, state and local partners, as well as CS.
- Online database system to manage volunteer survey efforts, as well as collect and organize volunteer data. Available online for the public, as well as via cd for national partners.
- Three to five working group sessions for development of VT framework (including recruitment plan, program goals and objectives and training modules, etc) attended by state partners. Materials will be made available to national partners via VT invasives website.
- Thirteen citizen monitoring tool kits (including hand lens, publications, identification field guides, data sheets, one for each VT county) for citizen monitors. Tool kit list will be available on website for national partners.
- Ten regional pilot trainings in 5 counties attended by CS.
- Summary report of best practices and tools for urban forests invasive CMPs, available online.

Collaboration

This project is a joint initiative between several state, regional and local partners. Forest health specialists, invasive plant specialists and urban and community forestry specialists, from the University of Vermont Extension, Vermont Department of Forest, Parks and Recreation, and the Nature Conservancy will be engaged in this project. Furthermore, other key regional organizations, such as Vermont Association of Conservation Districts, Vermont Master Gardeners, Vermont Audubon Society, have verbally agreed to assist in the development, outreach and promotion of this program.

Kathy Decker
Vermont Invasive Exotic Plant Committee
Department of Forests, Parks & Recreation
1229 Portland Street, Suite 201
St. Johnsbury, VT 05819-2099
Role: *Assist with planning, training delivery and technical development.*

Danielle Fitzko
Vermont Urban and Community
Forestry Program Coordinator
Dept. of Forests, Parks & Recreation
103 South Main St, Bldg. 10 South
Waterbury, VT 05671-0601
Role: *Assist with program planning and implementation.*

Jared Liu
Alliance for Community Trees
Director of Programs
4603 Calvert Road
College Park, Maryland 20740

Role: *Assist in hosting webinar sessions as part of monthly webcasts. (Verbal Commitment).*

Scott Pfister
Forest Resource Protection Chief
Dept. of Forests, Parks & Recreation
103 South Main St, Bldg. 10 South
Waterbury, VT 05671-0601
Role: *FPR forest health staff will assist with planning, coordinate and provide training to CS volunteers.*

Sharon Plumb
Invasives Species Coordinator
The Nature Conservancy Vermont Chapter
27 State Street, Suite 4
Montpelier, VT 05602

Role: *Assist with program coordination, research and development, planning, website and database development, deliver invasive plants training and assist in technical material assembly.*

National Distribution/Technology Transfer of Your Findings

Products from this project will have broad application. As a result, every effort will be made to make the information available to all federal, state, private and non-profit organizations interested in developing an invasive citizen monitoring program. Archived webinars, best practices, tools and VT's citizen monitoring program framework, as well as additional program materials will be available on the VT invasives website. Paper copies of all resources will also be made available as requested. Information on webinars, links to project online resources and other project information and updates will be disseminated through national urban and community forestry websites, including Treelink, UFIND, International Society of Arboriculture (ISA), Urban Forestry South and Society of Municipal Arborists. In addition, information will be shared through national regional and statewide UCF listservs, as well as with Forest Service Urban and Community Forest Regional Coordinators, FS Technology Transfer centers and UCF state coordinators. Lastly, information on the webinars and online resources will be shared with members of the Association of Natural Resource Extension Professionals. *Key words: Citizen monitoring, volunteer monitoring, invasive plants, pests*

Project Evaluation

Internal formative and summative evaluations will be conducted by project developers and participants. A formative evaluation, drawing on examples presented during the webinar will be used to assist the project team in development of best practices and data management tools. This will allow for decisions to be made about modification, continuation and expansion of VT citizen invasive monitoring framework. In addition, participants in the webinar will be surveyed to evaluate the sessions for short term outcomes, such as change in knowledge, change in skills and change in ability. In addition, participants in pilot regional citizen scientist training will also be asked to evaluate the program. Expected outcomes include:

Webinar
80% of webinar participants know what a citizen monitoring program is and how it can assist them in monitoring for invasive insects, disease and plants.

80% of webinar participants will perceive an increased ability to develop, or replicate a citizen monitoring program in their state, or community.

Pilot VT Framework
80% of participants will report an increased awareness of the threats to VT's urban forests from invasive pests by year one

80% of participants will be able to recognize signs and symptoms of insect pests and identify invasive terrestrial plants after completing the training.

Experience/Personnel/ Adequacy of Resources

The mission of the University of Vermont (UVM) Extension is to improve the quality of life of Vermonters by bringing the benefits of research and technology to them, and to provide educational programs and practical information concerning Vermont communities, families, farms, business and the natural environment. The involvement and training of volunteers is essential to conducting Extension's educational programming. As an employee of UVM Extension, the project coordinator would have access to an extensive array of resources. These include workspace, meeting areas and rooms around the state, phone, copier, fax, computer, etc...

Katherine A. Forrer works for University of Vermont Extension as the Urban and Community Forestry Outreach Specialist with Vermont Urban and Community Forestry Program. She works with communities around the state to start or revitalize local tree programs, providing hands-on training and on-site assistance. In addition, she coordinates the Stewardship of the Urban Landscape (SOUL) Tree Steward training program. Katherine received an Environmental Science degree from Bates College in 2001 and a Master of Science degree in forest ecology from the University of Vermont in 2005. Other successful grant projects include, *Water Wise Municipalities: Linking Forest Canopy to Water Quality for Town Officials*, Forest Resource Education for Municipal Officials Mini-Grants program, University of Connecticut.

This project seeks to expand the existing cooperative relationship between The Nature Conservancy (TNC) and UVM Extension through drawing on TNC's long history of educating and engaging citizens in invasive issues at the national, state and local level.

Sharon Plumb is The Nature Conservancy's Invasive Plants Coordinator and manages the WOW! Program. She has a B.S. and an M.S. in natural resources planning from the University of Vermont, and has worked as a program manager and educator for 20 years. For several years, she conducted evaluations of place-based and citizen science programs throughout the country.

See letters of support for other partner qualifications.

Budget

Please see attached budget worksheet.

Personnel: Coordinator (UVM) 20% FTE = $10,755.00 (incl. fringe)

Contracted Personnel: Secondary (TNC) 20 % FTE = $9,000.00 (incl. fringe)
Intern (TNC) 100 hours@ $10 per hour = $1,000.00

Website Design, Database Design and Marketing: 160 hours @ $150.00 per hour= $24,000

Supplies: Publications (program brochures, technical material), printing, and photocopies

Equipment: Hand lens for CS, Regional Tool Kit (binoculars, clipboards, field guides, etc...)

VERMONT

State of Vermont
Department of Forests, Parks and Recreation
103 South Main Street, 10 South
Waterbury, VT 05671-0601
www.vtfpr.org

[fax] 802-244-1481
[tdd] 800-253-0191

Agency of Natural Resources

DATE: February 13, 2009

RE: NUCFAC Grant – *Best Practices and Tools for an Urban Forest Invasive Citizen Monitoring Program*

Dear: Nancy Stremple

This letter indicates the Vermont Department of Forests, Parks and Recreation's willingness to match the above referenced project in the amount of $5,000. In addition, Department staff will assist with program coordination, research and development, planning, website and database development, deliver invasive plants training and assist in technical material assembly. We have a substantial, long-term partnership with the University of Vermont Extension and are prepared to enter into any necessary agreements if the funding is made available.

Any questions, please contact Janet Carlson at 802-241-3677.

Sincerely,
/s/ Janet Carlson

Janet Carlson
Grants Administrator

Vermont Invasive Exotic Plant Committee

Vermont Invasive Plants

providing coordination and guidance on invasive exotic plant issues in Vermont

Kathleen Decker, Co-chair
1229 Portland Street, Suite 201
St. Johnsbury, VT 05819-2099
www.vtinvasiveplants.org

[direct line] 802-751-0117
kathy.decker@state.vt.us

Dear Ms. Stremple,

On behalf of the Vermont Invasive Exotic Plant Committee, I am writing to express my support for the NUCFAC grant proposal entitled "Best Practices and Tools for an Urban Forest Invasive Citizen Monitoring Program," to be submitted to the USDA Forest Service.

Engaging citizens in monitoring for invasive pests is a valuable tool in early detection. Most invasive pests are found by the general public. An informed and educated pool of people will increase the likelihood of finding any invasives early and enable government agencies to respond quickly.

I am particularly excited to assist with the working group to develop a framework for the VT Citizen Monitoring program. The program would be a wonderful tool to increase the amount of eyes looking for these pests.

Our committee is active in educating the general public through workshops and disseminating educational materials. We have developed a website which is specific to invasive plants and think this project would help to expand what we have done and make it more effective.

We look forward to collaborating on this project.

Kathleen R Decker

Kathleen Decker
Co-chair Vermont Invasive Exotic Plant Committee

VIEPC

VERMONT

State of Vermont
Department of Forests, Parks and Recreation
103 South Main Street, 10 South
Waterbury, VT 05671-0601
www.vtfpr.org

[fax] 802-244-1481
[toll] 800-253-0191

Agency of Natural Resources

February 12, 2009

Nancy Stremple
USDA Forest Service
Sidney Yates Building (1-Central)
201 14th Street S.W., MS-1151
Washington, DC 20250-1151

Dear Ms. Stemple:

On behalf of the State of Vermont, Department of Forests, Parks and Recreation, I am writing to express my support for the NUCFAC grant proposal entitled "Best Practices and Tools for an Urban Forest Invasive Citizen Monitoring Program" to be submitted to the USDA Forest Service. Educating and engaging citizens in monitoring invasives are important and timely because:

- Vermont has several invasives present and is closely threatened by several others.
- Vermont's economy and ecology are directly threatened by invasives.
- The Department's budget has been negatively affected by the economic downturn.
- The Department's efforts can be multiplied by utilizing the public's time and talents.
- The most effective time to deal with invasives is early in the infestation.
- Most discoveries of invasives are made by citizens.

An informed and involved citizenry is vitally important to the sustainable management of natural resources.

The Department of Forests, Parks and Recreation is keenly interested in working with citizen volunteers. We support a review of existing programs, the presentation of findings via Webinars and the formation of a working group to develop a well-reasoned program framework.

Involvement by Department staff on a Vermont Working Group would bring years of experience in urban forestry, forest health and technology transfer. Staff foresters have worked in their communities for years and have an extensive network of important contacts that can be brought to bear on the issues surrounding citizen involvement.

We look forward to collaborating with you.

Sincerely,

Steven J. Sinclair

Steven J. Sinclair
Director of Forests

The Nature Conservancy
Protecting nature. Preserving life.™

27 State Street, Suite 4
Montpelier, VT 05602

Tel (802) 229-4425
Fax (802) 229-1347

nature.org/vermont

February 12, 2009

Nancy Stremple
USDA Forest Service
Sidney Yates Building (1-Central)
201 14th Street S.W., MS-1151
Washington, DC 20250-1151

Dear Ms. Stremple,

I am pleased to write a letter of commitment for the NUCFAC 2009 Challenge Cost Share Grant entitled "Best Practices and Tools for an Urban Forest Invasive Citizen Monitoring Program." This project will help to fulfill a much needed role in Vermont's conservation efforts. In order to reduce the long-term impacts of invasives, Vermont needs to devote considerable effort and resources to the issue. Citizens need to understand the threat they pose, and have the skills and awareness to recognize invasive plants and insects when they encounter them on public and private lands. A citizen science monitoring program will raise the public's awareness about the issue, bring together professionals to develop strategic plans for outreach and management, and provide the data that is the essential basis for an early detection rapid response (EDRR) plan

The Nature Conservancy is uniquely positioned to play a leadership role in co-coordinating and delivering the projects outlined in the proposal. In 2007 The Vermont Chapter of The Nature Conservancy developed the Wise on Weeds! (WOW!) public education program. It is currently the only education program in Vermont focused on providing outreach about terrestrial invasive plants. Since its inception, it has used public presentations, school programs, and television and print media to reach close to 3000 people, including over 350 youth. We have worked with partners to establish 20 demonstration sites, including land trust preserves, schools, environmental education centers, and businesses. These sites actively look for and remove invasives from their natural areas and landscaping and utilize their existing outreach capacity (newsletters, workshops, and signage) to educate the public about their efforts. In 2009, we initiated partnerships with Vermont's leading land conservation and education groups, including the Vermont Land Trust. We will be training their stewardship staff to train close to 1000 landowners that they annually interact with to look for and manage invasives on their property. As a co-coordinator of the Vermont Invasive Exotic Plant Committee (VIEPC) we have taken a leadership role in developing the www.vtinvasiveplants.org website, and in developing and amending Vermont's quarantine rule.

As the WOW! program has grown, so has peoples' demand for additional outreach and support. TNC can no longer handle these increased requests without significantly expanding program capacity. Dozens of conservation commissions, private and public landowners, non-profit organizations, state agencies, watershed organizations, and land trusts have requested assistance to recruit, train, and supervise volunteers and develop community-based invasive plant management plans and programs. This project will greatly expand our capacity to reach Vermonters, and educate them not only about invasive plants but invasive insects. The partnerships that we have developed will be excellent venues for recruiting volunteers, gathering data, and achieving on the ground success.

One of the largest gaps in our WOW! program is gathering usable data about occurrences of invasive plants and an EDRR plan. We need a system to track invasive plant occurrences identified by the thousands of people that we train annually. A systematic approach for training people to identify and report plants or insects would achieve two important goals: 1) document the scope of the problem and 2) assist resource managers in developing early detection rapid response programs and establishing management priorities. The data will also be a valuable tool in procuring funding to maintain long-term programs. Vermont is a small state. Resource professionals and citizens will achieve far greater success in combating the threats invasive pose if we work together to develop best management practices for invasive plants *and* insects.

Given The Conservancy's programmatic experience and our interest in collaborating with UVM and state agencies, we thoroughly embrace this program and will:

- Conduct a literature review on invasive plant monitoring programs
- Co-coordinate the development of the project
- Assist with the development of the Webinar sessions and facilitate working sessions
- Facilitate workshops on invasive plant identification
- Develop data collection methods for reporting invasive plant occurrences
- Recruit volunteers and supervise volunteer work days.
- Recruit and supervise a graduate student to assist in program coordination
- Develop materials for the website and provide substantive input on its development
- Contribute existing educational resources and materials, and develop new materials as needed.

The Conservancy will be contracted for $10,000 for its contribution to the project and provide a $10,000 match through staff time and volunteer efforts.

Sincerely,

Sharon Plumb

Invasive Species Coordinator