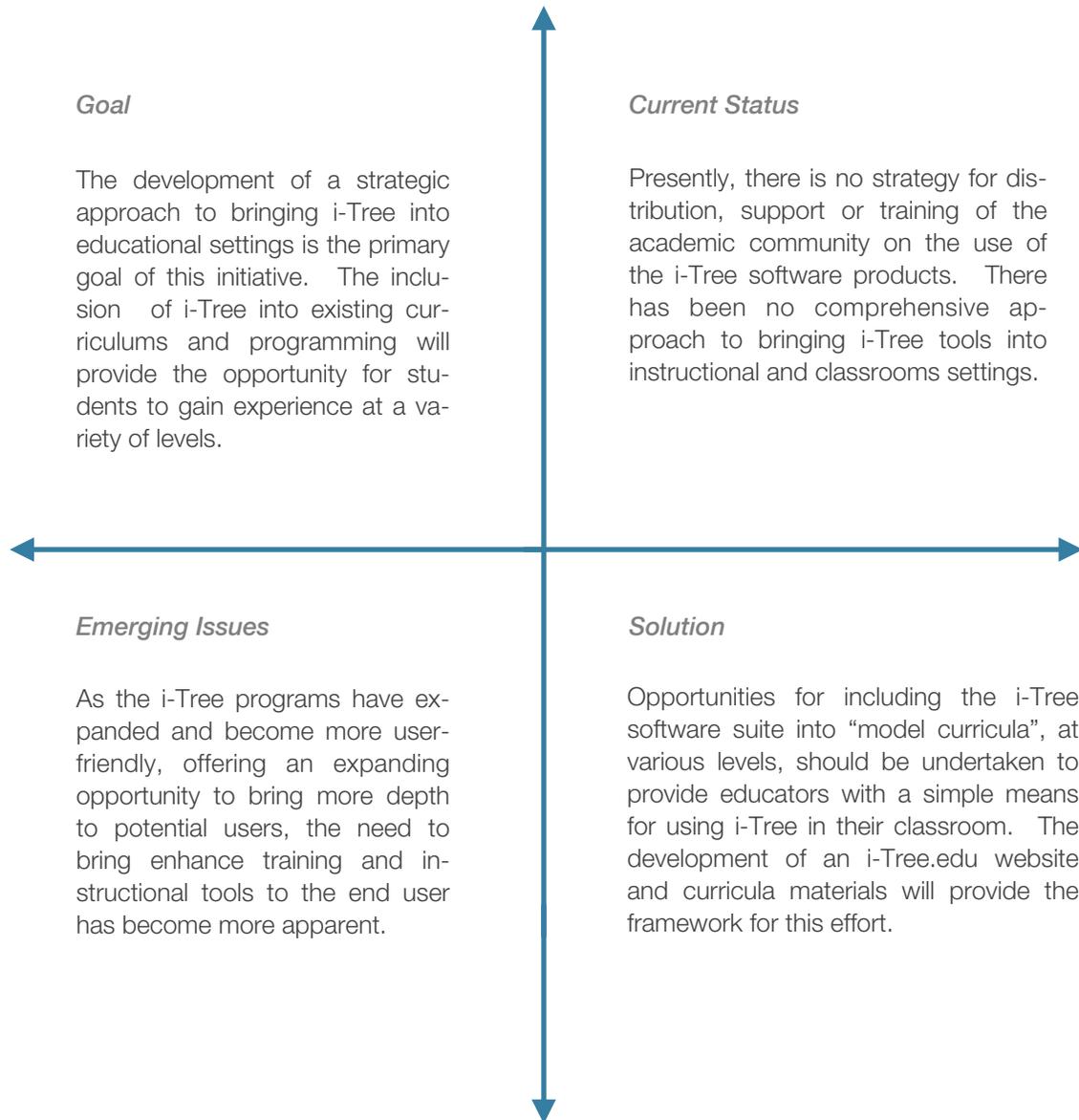# Bringing i-Tree into the classroom: developing a strategy for national implementation

July 21, 2015
ver. 07212015

Bringing i-Tree into the classroom

i-Tree
.edu

Goal

The development of a strategic approach to bringing i-Tree into educational settings is the primary goal of this initiative. The inclusion of i-Tree into existing curriculums and programming will provide the opportunity for students to gain experience at a variety of levels.

Current Status

Presently, there is no strategy for distribution, support or training of the academic community on the use of the i-Tree software products. There has been no comprehensive approach to bringing i-Tree tools into instructional and classrooms settings.

Emerging Issues

As the i-Tree programs have expanded and become more user-friendly, offering an expanding opportunity to bring more depth to potential users, the need to bring enhance training and instructional tools to the end user has become more apparent.

Solution

Opportunities for including the i-Tree software suite into "model curricula", at various levels, should be undertaken to provide educators with a simple means for using i-Tree in their classroom. The development of an i-Tree.edu website and curricula materials will provide the framework for this effort.

Project Prospectus

Background

The i-Tree software suite of inventory and assessment tools has been available to users, at a variety of levels, since July, 2006. To date, distribution, and utilization, of the software tools has been very successful, with i-Tree being used across the U.S., as well as internationally. Since its initial release, i-Tree tools have become more robust and comprehensive in scope, with simpler and easier tools to address user's individual needs. These improvements led to widespread use of the tools as a leading urban forest analysis and research tool.

As the i-Tree programs have expanded and become more user-friendly, offering an expanding opportunities to potential users, the need to bring enhanced training and instructional tools to the end user has become more apparent. While the need for instructional resources would be welcome by users of all levels, it is obvious that use of i-Tree in educational settings would benefit greatly from an enhanced effort to develop and distribute a comprehensive training program for teachers and instructors who could bring i-Tree into their classroom.

Presently, there is no strategy for distribution, support or training of the academic community on the use of the i-Tree software products. Students who are studying biology, earth sciences, environmental science, natural resource management, urban forestry, conservation, planning and urban design are a natural audience for introduction to the i-Tree software suite. The development of a strategic approach to introduce i-Tree to educators and students, at all levels, is needed in order to provide assurances that i-Tree will be considered as a valuable teaching for classroom and laboratory instruction.

Objective

Early efforts to bring i-Tree in the classroom included the use of the "Tree Benefits Calculator," where students from elementary through adult, entered simple information about a tree to learn about the many values and benefits that the tree provides. Services including, carbon sequestration, air and water quality services, and energy savings can easily be quantified and even given a dollar value. The tree benefits calculator offered an interdisciplinary lesson that covered math, geography, life science, and outdoor, real-life, data collection. It even crosses into social science, in terms of the values that trees provide to communities. The latest releases of i-Tree have enhanced the capability and usefulness of the Tree Benefits Calculator and have added enhanced analysis and reporting tools, and have enabled the study of more than one tree at a time. This enhancement, now included in i-Tree Design, has greatly increased the software as a teaching and learning tool.

In addition to i-Tree Design, Streets, and Canopy programs, offer the potential for inventory and analysis of street trees and community tree cover, providing a new dimension to student learning. New integration Google Maps, enhanced data collection capably and improved summary reporting, increase the potential for adding further learning resources and developing student and community citizen-science aspects.

Goals

The development of a strategic approach to bringing i-Tree into educational settings is necessary, and will be the primary goal of this initiative. The inclusion of i-Tree into existing classroom settings will provide the opportunity for students to gain experience at a variety of levels. Younger students will be introduced to the natural world around them, while older students will gain practical field experience, assist in the continued refinement of the software products and ensure that a cadre of informed users will be in place across the country, thereby supporting the widespread use of the inventory and analysis tools included in i-Tree. Additionally, the development of model instructional curriculums will provide a standardization of instructional competency among the environmental science and natural resource management programs in every region of the country, and will facilitate the inclusion of i-Tree as a learning tool into the curriculum of many school districts and college level programming. The development of a comprehensive resource toolkit for teacher and students will provide an incentive for individual course planners to include i-Tree in their instructional setting. Testing of the i-Tree instructional curriculum will also be a component of this initial initiative and will include review of the various components of the training program, including classroom and field instruction.

The goals in this initiative are to provide useful, easy to acquire, instructional resources for utilizing i-Tree tools in a classroom setting, providing user-friendly support resources for teachers and instructors and to provide students and citizen-scientists with useful resources that will provide for an engaging educational experience. Providing teachers and instructors with easy to use and readily available educational materials will help excite and mobilize teachers to educate youth and citizens on the value of sustaining a healthy natural environment.
Solution

Solutions

Successfully introducing i-Tree into the classroom settings will not be a simple task. The establishment of partnerships with a variety of cooperators will help to facilitate the process. It is proposed that a strategy for implementation of a national plan for bringing the i-Tree software suite to the academic community be initiated. Additionally, opportunities for including the i-Tree software suite into a series of "model curriculums", at various levels, should be developed.

The goals in this project are to make these i-Tree tools, user-friendly, and accessible to educators, students, and possibly anyone interested in further understanding the value of trees. Toward this goal, the following steps have been outlined, and the implementation of initial steps has begun.

The following elements are envisioned for the i-Tree.edu initiative:

User-friendly, I-Tree Education Website

- Establish easy to remember URLs
- Present i-tree programs to education uses
- Easy access to tree benefits calculator (i-Tree Design)
- I-Tree overview/training video(s)
- Curriculum/Lesson plan(s)
- Ties to partner resources/websites: GreenSchools!, Arbor Day Foundation, other partners
- Tie-in related education resources from project partners

Educational Curricula- develop instructional resources for teachers (i.e.: lesson plans, curriculum, classroom tools such as PDF presentationS, etc.) and student workbooks. The following programming will be included in the curriculum development:

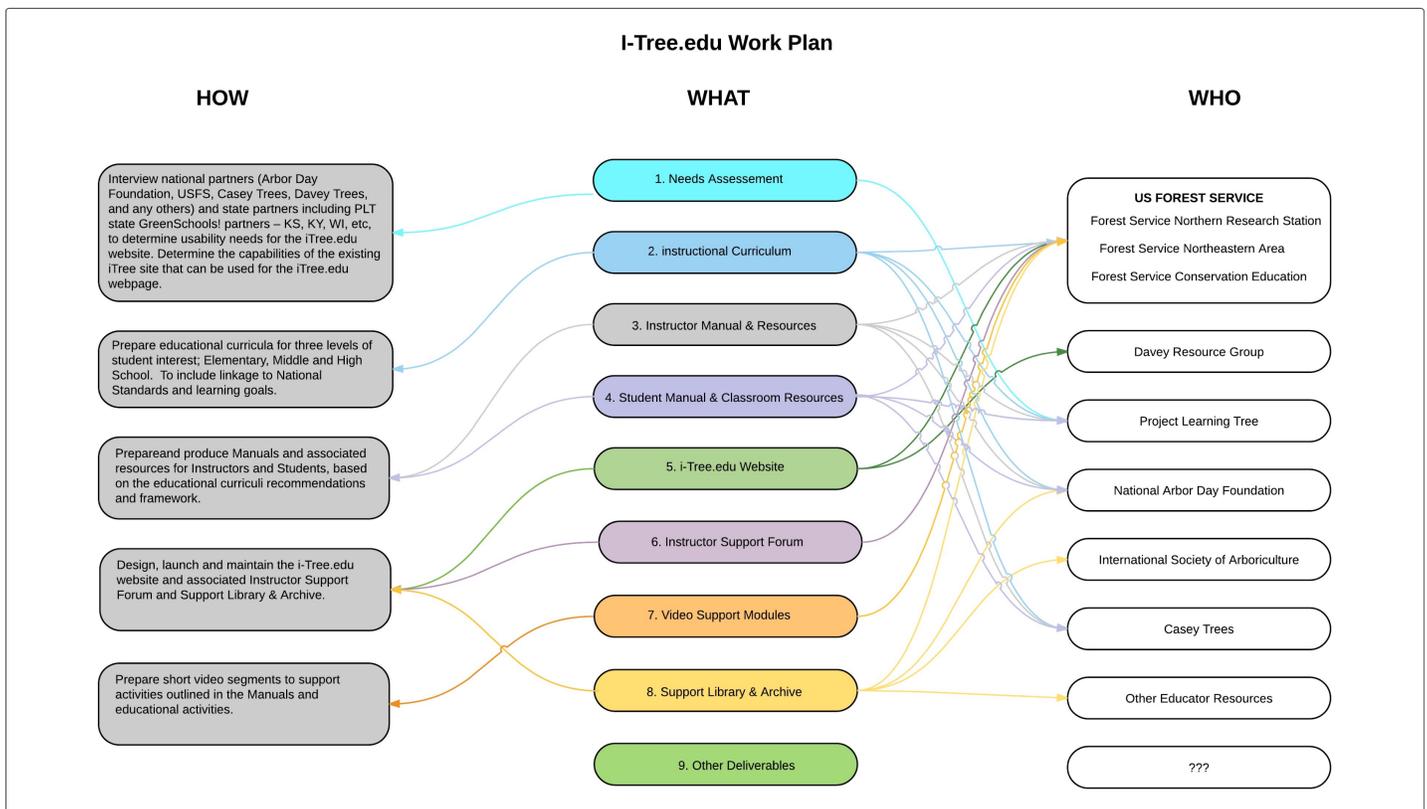- An Overview of Your Community Forest

- i-Tree Benefits Calculator (i-Tree Design)
- i-Tree Streets
- i-Tree Canopy

i-Tree Education Promotion

- Connecting i-Tree education tools with educators and students, others through a variety of forums including online webinars, networking, and conference presentation and proceedings
- Development of 'success stories' for website
- Journal and trade publication articles
- Integration with other cooperator and partner programming and outreach initiatives
- Development of an 'i-Tree Teach It!' user group/team of teachers, instructors, professors and researchers who utilize i-Tree in the classroom or their educational pursuits

Additional Details

The following provides a graphic overview of the products, methods and project partner roles and responsibilities for the i-Tree.edu initiative. More detailed discussion of these project aspects are provided on the pages that follow here.

I-Tree.edu Work Plan

HOW	WHAT	WHO

Interview national partners (Arbor Day Foundation, USFS, Casey Trees, Davey Trees, and any others) and state partners including PLT state GreenSchools! partners – KS, KY, WI, etc, to determine usability needs for the iTree.edu website. Determine the capabilities of the existing iTree site that can be used for the iTree.edu webpage.

1. Needs Assessement

2. instructional Curriculum

US FOREST SERVICE
Forest Service Northern Research Station
Forest Service Northeastern Area
Forest Service Conservation Education

Prepare educational curricula for three levels of student interest; Elementary, Middle and High School. To include linkage to National Standards and learning goals.

3. Instructor Manual & Resources

4. Student Manual & Classroom Resources

Davey Resource Group

Prepareand produce Manuals and associated resources for Instructors and Students, based on the educational curriculi recommendations and framework.

5. i-Tree.edu Website

Project Learning Tree

Design, launch and maintain the i-Tree.edu website and associated Instructor Support Forum and Support Library & Archive.

6. Instructor Support Forum

National Arbor Day Foundation

7. Video Support Modules

International Society of Arboriculture

Prepare short video segments to support activities outlined in the Manuals and educational activities.

8. Support Library & Archive

Casey Trees

Other Educator Resources

9. Other Deliverables

???

NEEDS ASSESSMENT -

To include interview national partners (Arbor Day Foundation, USFS, Casey Trees, Davey Trees, and any others) and state partners including PLT state GreenSchools! partners – KS, KY, WI, etc, to determine usability needs for the i-Tree.edu website. Determine the capabilities of the existing i-Tree site that can be used for the i-Tree.edu webpage.

Conduct a comparative analysis of community resilience websites, such as the New Jersey Resilient Coastal Communities Initiative, to determine what features of these types of sites would be valuable for the i-Tree.edu to help school's analyze their school (and community's) resilience to environmental changes.

Based upon the interviews and comparative analysis, make recommendations for changes that should be made to the existing i-Tree.edu landing page to improve the information architecture for school use. Draft report developed for review and feedback by partners (USFS, ADF, etc.).

Prepare a Final Report detailing i-Tree.edu functionality recommendations. The report will include a detailed description of the roles and responsibilities of each partner in the long-term implementation of the i-Tree.edu webpage.

INSTRUCTIONAL CURRICULUM -

Prepare educational curricula for three levels of student interest; Elementary, Middle and High School. To include linkage to National Standards and learning goals, as per feedback and recommendations from Needs Assessment and user input. The curricula will provide the framework for the inclusion of i-Tree Design, Canopy and Streets at each class level.

The curriculum for each student level will include teacher lesson plans, suggested outcomes, student exercises, field and classroom activities and learning goals. These will be used as the basis for the development of more detailed teacher and student instructional manuals and support resources.

INSTRUCTOR MANUAL AND RESOURCES -

Prepare a classroom ready Teacher Manual, for each grade level, that will include all of the necessary components to undertake i-Tree analysis exercises in the field and classroom. The Manual will contain detailed lesson plans for utilizing i-Tree Design, Canopy and Streets as a component of classroom and field exercises. The Manuals will provide step-by-step instructions for all recommended activities and will include sample field data collection findings, i-Tree summary reports and customizable templates for preparing detailed benefits reporting. Additionally, links to associated online resources will be included for teacher use.

An interactive version of the Teacher's Manual will be available online at the i-Tree.edu website for viewing and a static PDF version will be presented for download.

STUDENT USER'S MANUAL AND CLASSROOM RESOURCES -

Prepare a classroom ready Student User's Manual, for each grade level, that will include all of the necessary components for students to complete i-Tree analysis exercises in the field and classroom. The Manual will contain easy to follow instructions and support materials for students to begin the study of the natural resources in their schoolyard, neighborhood and community.

Background and overview materials will be included in the Manuals, providing the student's with a better understanding of the purpose and value of examining the urban forest around them. Specific instructions on how to carry out field, classroom and computer activities will be detailed in the Manuals.

Additional online support resources will be developed and posted for student use, on the i-Tree.edu website. Each Manual will be available as a downloadable PDF file at the website.

I-TREE.EDU WEBSITE -

Design, launch and maintain the i-Tree.edu website and associated Instructor Support Forum and Support Library & Archive. The website will include the components recommended during the Needs Assessment phase, and will developed so that it will provide the most dynamic user experience possible, including media, photographs and links to additional online resources. All manuals, teacher and student resources, and associated support materials will be accessible via this central i-Tree.edu online landing page.

Facebook and Twitter social media pages will be developed and maintained, supplementing and complementing the main web landing page and associated website. Integration with the Instructor Support Forum will also be a component of the website.

Component Leads - Forest Service, Davey Tree

INSTRUCTOR SUPPORT FORUM -

Using teacher feedback and input, this forum will be developed to provide an interactive mechanism for teacher to ask questions, provide suggestions and highlight successful implantation of i-Tree analysis projects in their classrooms. The forum will include the delivery of bi-weekly summary news digests of forum activities and discussion.

Additionally, the forum will be used as a mechanism to query and poll users of the i-tree.edu website, tools and resources as to suggested updates, improvements and additional features.

The forum will also be used to deliver a bi-annual webcast that will provide an overview of all of the i-Tree.edu project components.

Component Leads - Forest Service

VIDEO SUPPORT MODULES -

Prepare short video segments will be prepared to support activities outlined in the Manuals, support forum, student resources and other educational activities. The videos will include instructional segments, with step-by-step instructions on how to complete i-Tree data collection, analysis and reporting.

Additionally, videos that provide background information on the value of competing i-Tree analyses in a community will be prepared. All video segments will be made available on the i-Tree.edu website and the Forest Service YouTube channel. Finally, these video resources will be updated and revised, based on the release of new versions of the i-Tree software tools.

The segments will be developed to complement other teacher and student resources that will be introduced via the i-Tree.edu website and associated support activities.

Component Leads - Forest Service

SUPPORT LIBRARY & ARCHIVE

The support library will be used to archive all of the materials that are part of the i-Tree.edu educational initiative. Media, text, video, PowerPoint, Prezi, and all other items will be made available via this support library, using search and query tools that will be integrated into the library archive. Access to the Support Library will be through the i-Tree.edu website, and will provide capacity for upload of resource materials by i-Tree.edu users and partners.

Component Leads - Forest Service