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## Enhancing Both Cooperative Extension and National Environmental Education Resources

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**Abstract:** *State Extension programs can contribute to the successful adoption of national environmental education programs by making locally relevant resources available, creating reference materials to bridge between 4-H project books and other resources, and developing companion materials that supplement national materials with local issues and resources. Such activities provide opportunities to integrate research and teaching with Extension programs and build productive relationships with agencies and organizations. Seven strategies with examples from one state are explained.*

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### Introduction

A variety of similarities have been reported between Extension and the environmental education (EE) communities (Smaldone, Boone, Selin, S., & See, 2011). A number of well-recognized EE resources provide engaging activities that 4-H leaders find useful, and we tend to have the same broad goals for conservation and youth development. National EE resources, however, tend to focus on basic concepts and foundational knowledge rather than specific knowledge and local issues. Extension agents and specialists can use several strategies to make these excellent resources even more useful to local educators. Although Project Learning Tree (PLT) is used as a basis for several projects in our examples, other national programs (such as Project WILD, Project WET, and Ag in the Classroom) can be used

as well. Many state coordinators of these national programs seek locally relevant materials to supplement their programs and could be delighted to work with Extension personnel.

In the development of the resources described below, local experts in teacher education and forest resources provided content, and educators and agents reviewed drafts for readability, practicality, and applicability. If new educational activities were developed, we pilot tested these exercises with youth and made revisions to enhance learning. Undergraduate and graduate students were involved in the development, pilot testing, and evaluation of most of these materials through a course (Environmental Education Program Development), hourly employment, or a paid assistantship. In a few cases, graduate students have linked their research project to a needs assessment or evaluation of these materials. These seven strategies have provided many opportunities to integrate research, teaching, and Extension at the School of Forest Resources and Conservation.

### **1. Provide Links to Existing Relevant Materials for Local Content**

Our unit offers a variety of fact sheets and Web-based resources for forest landowners, some of which educators would also find useful. Handouts during workshops provide lists of resources and links they could find useful, on topics like wildfire (<http://edis.ifas.ufl.edu/pdffiles/FR/FR16200.pdf>), forest ecology (<http://edis.ifas.ufl.edu/pdffiles/UW/UW27700.pdf>), or tree identification (<http://www.sfrc.ufl.edu/4h/Baldcypress/baldcypr.htm>).

### **2. Design 4-H Leader Material to Cite All Existing Resources**

We developed a 4-H Leader Guide to help volunteers work with 4-H project books and linked exercises to existing PLT activities. Volunteers have access to a variety of resources, but may not have the time to sort and organize them all. This is an easy way for them to recognize the resources at their fingertips (<http://edis.ifas.ufl.edu/pdffiles/4H/4H09500.pdf>).

### **3. Create Supplemental Fact Sheets That Refer to National Activities**

National activities often introduce intriguing and interesting topics, but may not have the time or space to explore details, nuance, or applications. The fact sheet *Trees in*

*Your Life* (<http://edis.ifas.ufl.edu/pdffiles/FR/FR07700.pdf>) was developed to accompany PLT activities on forest products. This is a popular resource for educators because it answers the questions learners (and educators) often have when they conduct the PLT activities.

#### **4. Build on National Materials to Direct Attention to Local Issues**

Our specialists have expertise in a wide range of forest issues, several of which are excellent topics for youth investigations into real-world, community problems. Local quandaries create interesting and dynamic opportunities to engage learners in meaningful education, but educators may not be knowledgeable enough to lead these lessons. Using PLT as a foundation, we have created two supplemental resources to help educators explore local issues: urban forests (<http://edis.ifas.ufl.edu/pdffiles/FR/FR16400.pdf>) and forest health (<http://sfrc.ufl.edu/extension/ee/foresthealth/whatisahealthyforest/index.html>).

These materials require considerable resources and time to produce when compared to a fact sheet. We used a dedicated graduate student, outside funding, repeated pilot tests, and teacher reviewers. Nevertheless, these projects have created opportunities to enhance relationships between agents, state resource managers, and the state coordinator of the national program. The forest health materials, in addition, have introduced agriculture educators to PLT resources, to the benefit of both.

#### **5. Use State Standards and State Training Guidelines to Assist Educators**

The changing requirements and expectations of classroom educators and principals led us to provide detailed examples that help non-formal educators and facilitators work with teachers. State standards (<http://edis.ifas.ufl.edu/pdffiles/FR/FR28200.pdf>) and increased accountability (<http://edis.ifas.ufl.edu/pdffiles/FR/FR11400.pdf>) have decreased interest in supplemental educational resources, but by helping to create reasonable links between what teachers need and what national programs offer, we have helped maintain a viable program.

#### **6. Develop Training Programs**

To supplement traditional in-person workshops, we have developed a series of online resources that facilitators, classroom educators, agents, and 4-H volunteers can access to enhance their skills and obtain additional resources. A set of topical slide

presentations allows educators to answer specific questions and learn more about a topic ([http://www.sfrc.ufl.edu/extension/ee/online\\_modules/index.html](http://www.sfrc.ufl.edu/extension/ee/online_modules/index.html)). Two online training programs allow educators to obtain materials. Due to limited administrative time for handling checks and mailing materials at random times, we advertise and launch the PLT training at distinct sessions each year ([http://www.sfrc.ufl.edu/plt/materials\\_and\\_programs/online\\_training\\_programs.html](http://www.sfrc.ufl.edu/plt/materials_and_programs/online_training_programs.html))

## **7. Obtain Research Insights to Improve Programs**

Graduate student research projects enable us to apply their findings to improve programs locally. For example, if activities are developed to convey biology and writing skills, student improvement can be measured in only five lessons (Wilson & Monroe, 2005); how teachers use PLT materials helped improve our workshops (Easton & Monroe, 2002); systems thinking skills can be conveyed through high school activities (Iyer, 2010); and pre-service educators' existing ideas about forest ecosystems can be a useful entry-point for lessons on forest health and suggest where misconceptions and inaccuracies exist (Hicks, 2011). These insights can be used to develop educational resources and also prepare educators for how they might listen for misconceptions and explain concepts carefully.

## **Conclusion**

The benefits of the strategies described here are many:

- Teachers have quality, current, accurate, locally relevant information to enhance engaging but often generic national resources.
- National programs obtain greater exposure across the state.
- University students gain experience conveying technical information to the public, working with educators, and practicing social science research methods.
- State programs obtain additional materials and resources to attract new educators to their programs and evaluation data to demonstrate effectiveness.
- Relationships between national programs, their state coordinators, extension faculty, and state agencies are enhanced as each party recognizes the benefits of cooperative activities.

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