Working Together to Restore North Carolina's Natural Communities: The CVS-EEP Partnership

THE CAROLINA VEGETATION SURVEY
1987   2007

Robert Peet[1], Forbes Boyle[1], Michael Lee[1], Tom Wentworth[2], Mike Schafale[3], and Alan Weakley[1]
[1] University of North Carolina, Dept. of Biology; [2] North Carolina State University, Dept. of Plant Biology; [3] North Carolina Natural Heritage Program
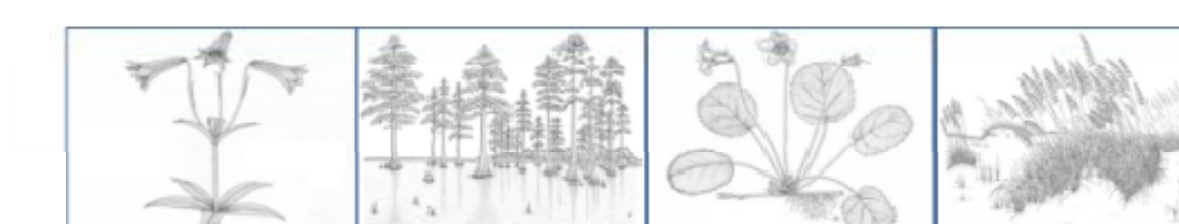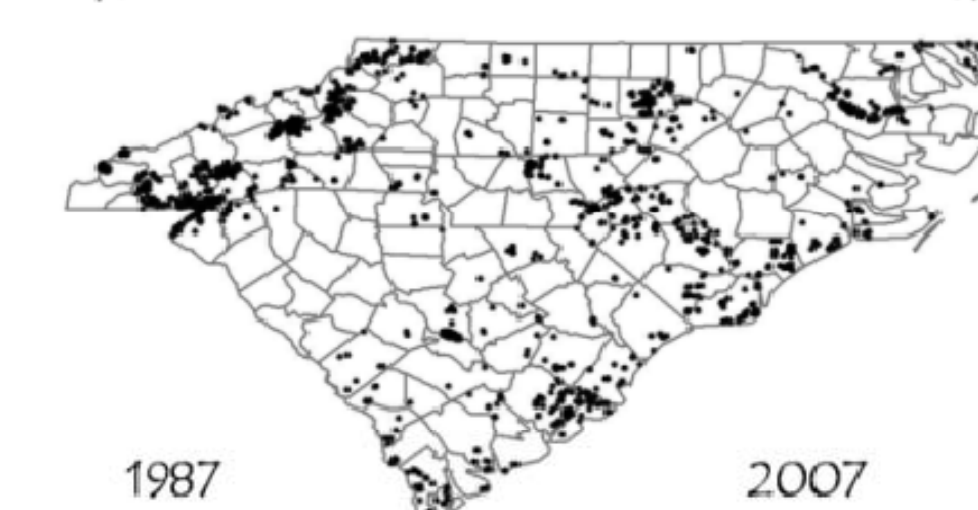
Carolina Vegetation Survey

The Carolina Vegetation Survey (CVS) is a multi-institutional collaborative research program established in 1988 to document the composition and status of the natural vegetation of the Carolinas for purposes of inventory, assessment of conservation status, and monitoring of environmental impacts. Data collection methods are standardized and are widely employed across the Southeast. Data collected by the Survey are archived in standard format and are available to government agencies and conservation organizations upon request. In May 2005, CVS and EEP (NC Ecosystem Enhancement Program) initiated a partnership with a set of goals designed to benefit both organizations in terms of generation, management, and distribution of vegetation data from both natural and mitigation sites.

CVS personnel and volunteers sampling a 10x10 m vegetation plot in the Croatan National Forest, July 2007 (photo by David Blevins).

CVS personnel sampling a *Nyssa biflora / Itea virginica – Cephalanthus occidentalis* Depression Forest in the Sandhills Gamelands.

1) Restoration targets

Over the past 20 years, CVS has acquired high quality, quantitative records from over 6,000 vegetation plots distributed across the Carolinas. These data have allowed for the first time an accurate documentation of the natural communities and species habitats across North Carolina.

The goal of restoration is to return sites to their natural biodiversity and to restore their ecological function. Information gathered from CVS vegetation plots is used to define site-specific reference conditions. EEP Contractors can use these data to establish restoration targets specific to designated project sites.

2) Protocols & tools

CVS collaborates with EEP to develop and improve protocols for monitoring vegetation on current and future restoration projects, and to design data entry and quality-control tools to optimize the quality and flow of data from field workers into a common CVS - EEP data archive. Toward this end CVS has developed multiple vegetation monitoring protocols to accommodate varying project goals as well as availability of time and resources.
• Level 1: Planted woody stem inventory plots
• Level 2: Total woody stem inventory plots
• Level 3: Community occurrence plots (cover, abundant spp.)
• Level 4: Community classification plots (cover, all spp.)
• Level 5: Community classification and structure plots
In addition, CVS has developed a robust database system that includes a data entry tool that can generate interim reports on the status and condition of restoration sites.


CVS staff demonstrate Level 1 and 2 plot sampling procedures to EEP contractors at a training session on the NCSU campus in Raleigh.

3) Data management

The CVS data management system has been designed to ensure accurate collection, reporting and transmission of vegetation monitoring data from field collection to raw datasheets to insertion into the CVS-EEP data archive, and then accurate reporting to EEP and future contractors. First, plot information is entered directly into a Microsoft Access data entry tool. Within this platform, the data undergo a series of error-checking procedures before interim reports and simple plot statistics are generated. Once these data entry procedures have been completed, a copy of the entry tool is forwarded to CVS database managers for quality control. The data are then imported into the CVS-EEP data archive, from which a final report is generated. The archived data are used in various analyses and to generate datasheets for subsequent monitoring activities.

Aerial photos illustrating plots and restoration areas generated by the CVS data management system.
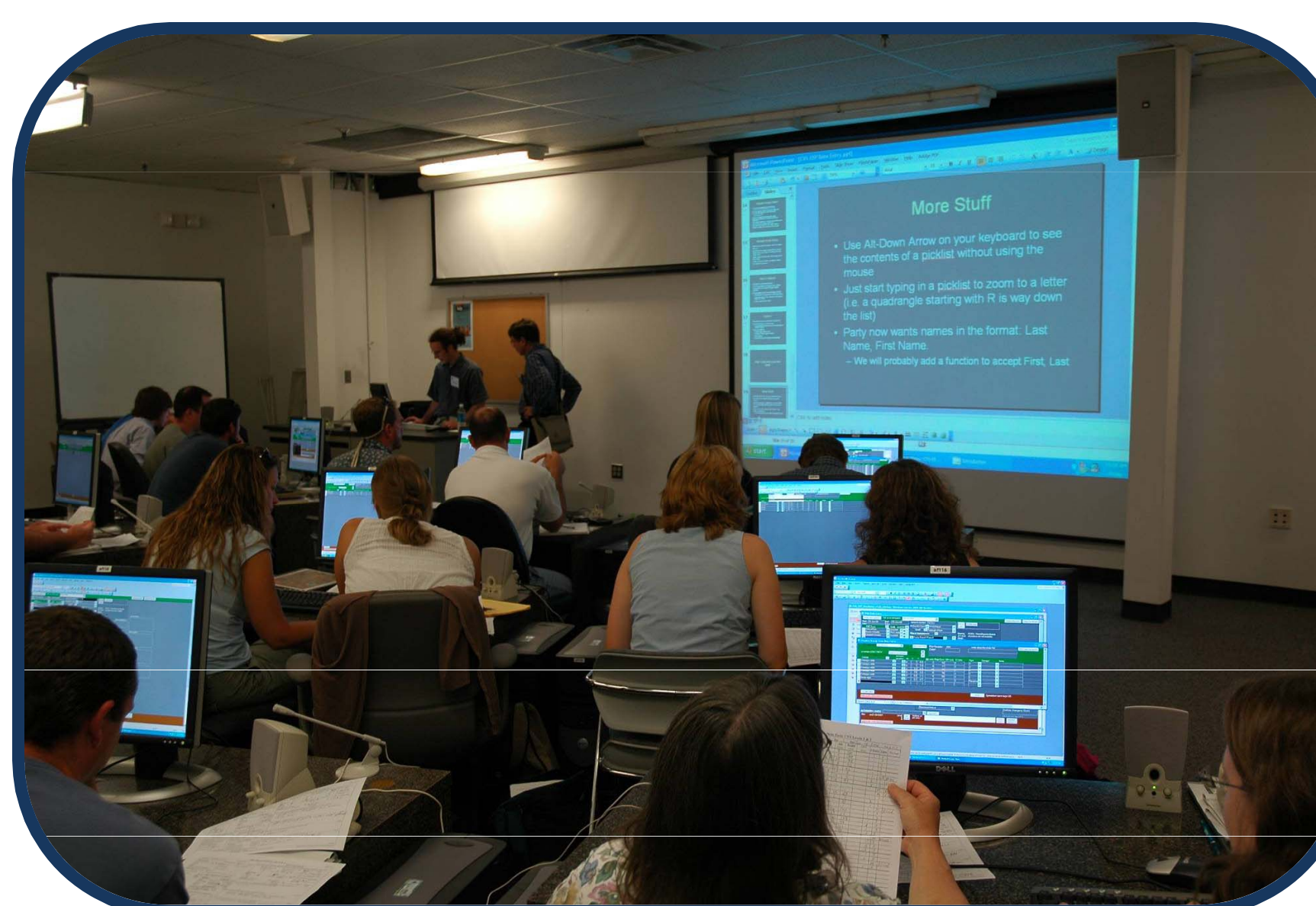
EEP contractors are taught how to use the CVS Data Entry Tool during annual CVS-EEP training workshops.

4) Training

CVS hosts annual workshops where contractors receive hands-on training in both the CVS field protocol and use of CVS data entry tools. CVS also sponsors annual "Pulse" events where core scientists and volunteer plant enthusiasts convene to study a portion of North Carolina intensively. These events serve as intensive training activities for those interested in learning more about vegetation sampling protocols and North Carolina's plant species and vegetation.

5) Data analysis

CVS generates for EEP and EEP contractors reports that summarize the survival and growth of planted stems, the direction of compositional change, the rate of change, and problems in need of attention, such as increased density of exotic species.

By using high-quality CVS plots as targets for restoration, EEP can better monitor the success of restoration projects. The data and services provided by CVS will improve the likelihood that the vegetation within these sites is succeeding towards a pre-defined reference condition.

Example of a CVS data management system spreadsheet report showing number of planted stems per plot over different sample years.

CONTACT INFORMATION
Website: http://cvs.bio.unc.edu
Email: cvs@unc.edu

Mail: Robert K. Peet
Dept. of Biology, CB#3280
University of North Carolina
Chapel Hill, NC 27599-3280