An expert system for generating restoration targets for Carolina Piedmont riparian vegetation.

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Selection of restoration targets is an important component of ecological restoration projects. Targets aid in the design of restoration projects, the establishment of restoration goals and the assessment of restoration success. However, many restoration projects proceed with insufficient reference information due to limited time, limited funding, or difficulty in identifying appropriate reference sites; additionally, due to these resource constraints, it is challenging to incorporate the natural variation of vegetation and environmental conditions in the description of targets. However, vegetation databases and plant community descriptions can provide this essential reference information for restoration activities. To provide this vital reference information for EEP restoration activities, we sampled high-quality riparian vegetation in the North Carolina Piedmont and developed a classification and description of Piedmont riparian plant communities.

Here we present an expert system for developing restoration targets for Piedmont riparian vegetation based upon these quantitative plant community descriptions. Our methodology for matching sites to community descriptions provides savings to the user by preventing the need for field work beyond the restoration site and can be readily accessible to resource managers and restoration practitioners over the web. Our approach for matching new restoration sites to appropriate vegetation descriptions is based on quantitative environmental data, where classification methods identify key variables in discriminating between potential vegetation types, allowing restoration professionals to focus on a subset of the possible environmental data. However, our tool is flexible and is able to match restoration sites to the most similar quantitative plant community descriptions based on easily obtainable, common environmental data. This approach and infrastructure can be readily applied to other locations and vegetation types. CVS is currently working the EEP to develop a broader set of tools applicable to a broader range of restoration settings.