

BEYOND THE TREES: COMMUNITY AS A RIPARIAN RESTORATION OUTCOME AND RESOURCE

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INTRODUCTION

Riparian restoration in residential and nonagricultural areas is on the rise. Riparian areas are increasingly owned and managed by a greater number and greater diversity of landowners, as a result of extensive parcelization and agricultural conversion to residential land uses. Residential riparian owners may not have access to or knowledge of public soil and water conservation programs, despite the many potential water quality benefits of riparian buffers in non-agricultural landscapes (e.g., Cadenasso *et al.*, 2008). Although traditional riparian management focuses on agricultural landscapes, more programs are responding to the need for nonagricultural riparian conservation [for example, see the "Backyard Buffers" program (Maryland Department of Natural Resources, 2012)]. There are a number of reasons why nonagricultural riparian buffers, and the programs that support these efforts [e.g., Natural Resources Conservation Service (NRCS) Conservation Reserve Enhancement Program]], may or may not transfer well from agricultural to residential settings. For example, residential landowners may own smaller parcels, have different aesthetic preferences, and express concerns about planting maintenance. These land use based differences may discourage residential landowners from participating in highly structured riparian restoration programs, which often are not designed for residential property, as they may require minimum buffer widths, extensive maintenance, and cost sharing.

In this article, we feature one residential riparian restoration program, "Trees for Tribs" (TFT) of New York State Department of Environmental Conservation's (DEC) Hudson River Estuary Program (HREP), and how social science research helped identify program outcomes.

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TREES FOR TRIBS (TFT)

TFT was initiated in 2007 and offers free, native trees and shrubs for riparian restoration projects within the Hudson River Estuary watershed (Figure 1). The program targets nonagricultural landowners, who typically have limited access to or knowledge of public soil and water conservation funds and are generally less willing to implement riparian buffers on their properties (Armstrong and Stedman, 2012). TFT staff collaborate extensively with restoration project coordinators – often representa-

tives of municipalities, watershed groups, land trusts, or private landowners – to identify restoration sites, select vegetation for planting, and educate project coordinators on riparian maintenance and monitoring. Extensive project coordination culminates in a planting event in which volunteers that are recruited by project coordinators prepare restoration sites (e.g., invasive species removal) and plant new vegetation. Within this event, volunteers across many organizations interact with one another, TFT staff, and project coordinators. Events are often covered in the local news media.

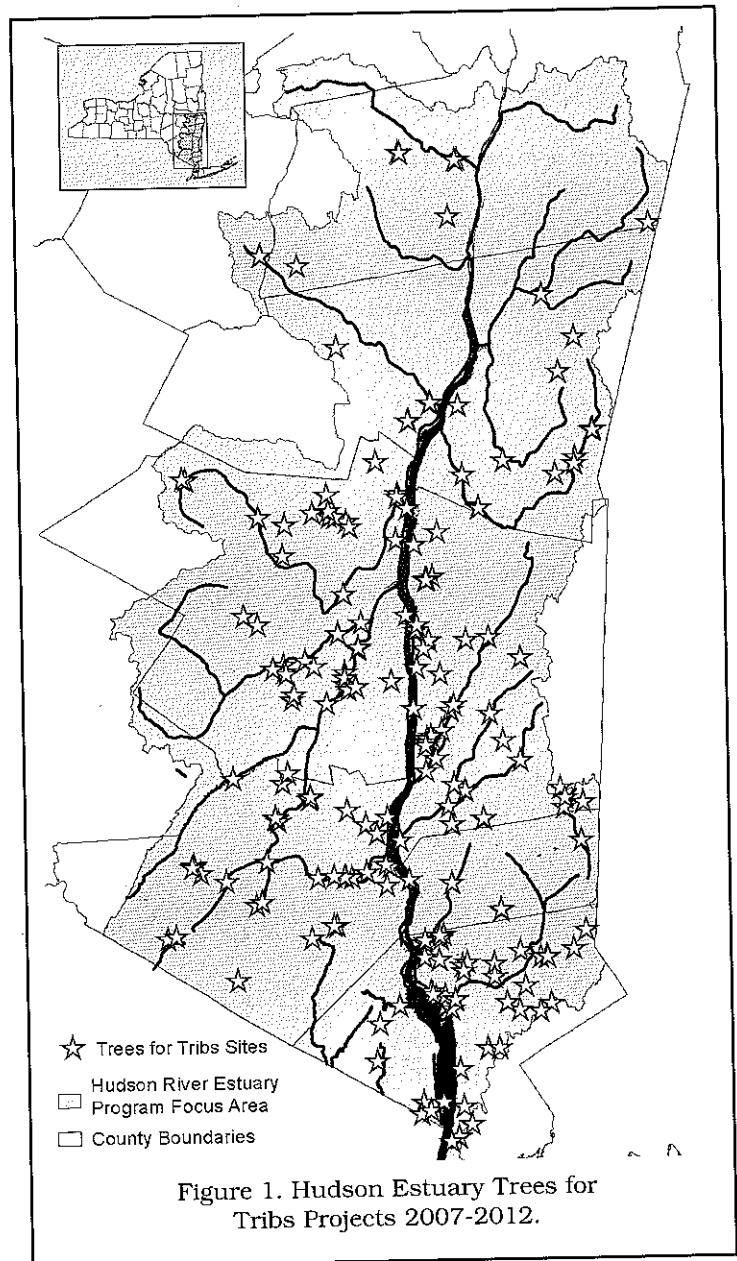


Figure 1. Hudson Estuary Trees for Tribs Projects 2007-2012.

From the program's outset, TFT staff understood that their coordinators' project goals likely differed from those of more common, agricultural restoration programs; yet the nature of coordinators' expectations and outcomes, and how TFT could best meet these, were not entirely clear. In 2009, TFT staff and researchers (first and second authors) co-developed a study with two goals: to identify the constraints, opportunities, and outcomes of riparian restoration projects in nonagricultural landscapes, and to provide tangible recommendations to the TFT staff that would enhance their program.

CONDUCTING THE RESEARCH

The researchers used semi-structured interviews (i.e., an ordered list of open-ended questions) to capture project coordinators' descriptions of activities leading up to, during, and after restoration events; their goals for their project(s); their perceptions of project outcomes; and their ideas on how the TFT program was making a difference. Qualitative interviews were used because non-agricultural riparian restoration was a relatively new area of research, and the researchers wanted to gather coordinators' rich impressions of the program. Twenty-three project coordinators were interviewed representing about half of the coordinators at the time of research (between June and August 2009). Interviewees were selected to maximize the diversity of project locations, project timing across four planting seasons, and the coordinators' affiliations.

All interviews were conducted either in-person or over the telephone. Interviews lasted between 30 and 75 minutes and were audio recorded and transcribed. Interview transcripts were analyzed for commonalities and differences across question responses and major, synthetic themes (Creswell, 2013). The researchers wrote a report of research findings and recommendations in December 2009; these findings, and how they influenced TFT, are discussed below.

KEY RESEARCH FINDINGS

Understanding the goals of project coordinators is essential to the success of the program – a fact well understood by both TFT staff and coordinators. In the interviews, project coordinators described a variety of goals for their restoration projects that ranged across three broad categories: environmental, in which coordinators focused on aspects such as water quality or wildlife habitat improvement; social, where coordinators emphasized outcomes such as community-building and education; and social-environmental, in which coordinators articulated a mix of social and environmental outcomes. TFT staff took care to adapt each planting to the site's biophysical characteristics (i.e. slope, soil, habitat) as well as social aspects of the project (i.e. age and number of volunteers, expertise of project coordinators), therefore maintaining a flexible approach to each restoration site. For the purposes of this article, we will focus on the social and social-environmental outcomes. Project coordinators noted that "community" was something that "came together" for the planting events:

You can get a large group of people, especially the landowners that live along the creeks, to really embrace planting select trees and shrubs along the water to stabilize it, to create stronger, protective buffers. So it's not only one of the best options [environmentally], but also one that's very easy to gain support for from the local community members.

This project coordinator believed that planting riparian trees increased general environmental awareness and community cooperation by "getting your hands dirty together." Volunteers do more than plant and support trees; they produce a sense of community during restoration events that extend beyond the planting day. For example, a fourth grade teacher coordinated a TFT event in a public park where students, parents, and other visitors could experience the plantings. The coordinator described an experience a few months after the planting: "I was in the park with a bunch of kids and we tried to find the trees we planted. And the students were like, 'Here there they are!' So it was very exciting for them, and for me ... This [planting] gives them a sense that a few people working together can actually accomplish big and great things." Through this restoration event, participants connected not just to their local environment but also to one another.

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Increased awareness and a sense of community were also observed in feedback that project coordinators received from community members who did not participate in the plantings. Many coordinators noted that members of the public noticed protective tree tubes. The tubes, whether favored or thought ugly, generated questions: "It [the planting] is in a visible area in the park, so folks are noticing the cylinders that are containing the trees now ... I had a number of questions and emails on our website." Such feedback indicates that restoration plantings generate curiosity and have broader social effects such as increased community awareness.

Riparian restoration events strengthened and extended the network of partnerships among organizations and landowners in the Hudson River Estuary watershed. Continuity is established: despite restoration events typically lasting only one day, project organizers usually interacted with TFT staff and volunteer groups for weeks leading up to the event, and in many cases long after the planting day. Project organizers found that extensive coordination with TFT staff made the state agency seem more personable. For one watershed group leader, TFT became a model of doing conservation within his own organization: "There's a lot more [private] property we need to work on, and TFT created a pilot project for how to work with landowners." Regardless of the initial project goals (environmental, social, or both), TFT projects generated community and public awareness outcomes, thus developing one of the programs most effective resources

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- local knowledge of the riparian system - and strengthening regional conservation networks.

USING THE RESEARCH: COMMUNITY AS AN OUTCOME AND A RESOURCE

The range of TFT coordinators' project goals, particularly those related to social outcomes, was greater than what TFT staff initially expected. Project coordinators sought and valued social outcomes such as public education, increased awareness of environmental challenges, and stronger local communities. For TFT staff, the primary intended purpose of the program was and continues to be to restore riparian vegetation, enhance associated biophysical conditions (e.g., streambank stabilization), and to help watershed organizations implement their conservation plans. With understanding that project coordinators had environmental and social project goals, TFT staff became more aware that the benefits of their restoration projects extended beyond their original intentions and their target audience.

In turn, TFT staff has sought to strengthen and expand their restoration network. They have increased their efforts to educate project volunteers and invite participants' neighbors to attend planting events. TFT staff also maintains more frequent contact with project coordinators and encourages coordinators' involvement in other HREP programs. Advancing the connections among TFT, landowners, and local organizations increases the capacity of the program to address multiple environmental problems and support social benefits of these projects, such as increased community awareness. The bottom-up conservation model used by TFT relies upon—and subsequently enhances - local knowledge about riparian systems.

"GOOD IDEAS REPLICATED:" EXPANDING TFT

Social science research identified the constraints and opportunities for riparian restoration projects in non-agricultural landscapes and provided recommendations that helped expand the program. Flexibility is a key asset. TFT continues to tailor plantings to the program and coordinators' goals, and accordingly has sustained a variety of project settings over the years: suburban residences, an environmental education center, lands under conservation easement, an arts and cultural center, and state parks, among others. In adapting the planting formula and design to each site - something that may prove too costly or cumbersome for agricultural riparian restoration programs - TFT staff accommodate diverse restoration goals within their expanding conservation network.

TFT has become a model for other riparian restoration initiatives in New York State (NYS). The NYS DEC Division of Lands and Forest recognized that TFT was a well received program that had the potential to be implemented in additional river basins. Key themes from the 2009 research are emphasized in this program expansion to the Susquehanna, Mohawk, Upper Hudson, and Champlain basins within the state. There, program coordinators are drawing upon the community based TFT model in partnering with local watershed groups, NRCS

staff, and private landowners. These partnerships will both facilitate additional restoration projects and increase local capacity to identify and implement future projects within the new basins.

SUMMARY

TFT stands out as a potential model for working towards riparian conservation with nonagricultural landowners and organizations. The program succeeds at least in part because it generates and retains local interest, a key to any restoration effort. Social science research helped illuminate the ways TFT met or could meet project coordinator's goals, and outlined pathways to strengthen local relationships. Even if riparian restoration projects originate to meet environmental goals, community based outcomes may foster and sustain subsequent environmental efforts. With more knowledge of the social and educational outcomes of restoration events, TFT staff continue to strengthen the conservation networks and have evidence to support TFT program expansion to other river basins in NYS.

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