

Ecological Restoration Brief

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What Can Restoration Science Do For Green Infrastructure?

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Each time a natural area within an urban center is conserved or restored it is a cause to celebrate. In my region, we are cheering the recent purchase and conservation easement placed on the remarkable Lawther Deer Park Prairie near Houston. You may recall an article in the March 2013 TXSER newsletter profiling a 200-acre restoration of the coastal prairie pothole complex at Sheldon Lake State Park, another site which adds immeasurably to the environs of the Houston-Galveston metroplex.

As important as restoration and conservation are, I would like to bring attention to another critical effort: creation. Green infrastructure creates “natural areas” in the urban, suburban or industrial landscape so that some critical environmental functions can be replaced. Planners of green infrastructure can learn much from the scientific ecological community.

The prime reason for a green infrastructure project may be a single purpose—for

example, water quality improvements from stormwater wetlands designed into flood control basins. The site may be isolated from other green spaces, and will certainly lack the complexity of an undisturbed natural area. Engineered, planned, maintained and monitored: green infrastructure makes a natural function operate as if it is a machine. However single-purpose the intent, in reality, a bit of green space attracts wildlife, volunteer species, and



**Mason Park Stormwater Wetlands on Brays Bayou, Houston.
Photo credit: Texas Coastal Watershed Program**

humans. Green infrastructure projects are opportunities for multi-purpose planning, taking into account the “side benefits” of habitat for wildlife, and public park space.

How can restoration scientists contribute? Urban planners, landscape architects, municipal staff, and engineers need access to ecological knowledge when planning sites. Restoration and conservation specialists can offer techniques, local sourcing, access to genetic diversity and seed stocks, reference sites, volunteer bases, and research.

I work in wetland restoration and wetland creation, but I have also worked in landscape architecture and landscape design firms. In my experience, a bridge between the design professions and the restoration profession is especially needed in these areas:



Red-winged Blackbird on Thalia (Thalia dealbata) in the Mason Park Stormwater Wetland, Houston.
Photo credit: Milt Gray

Plant selection: Landscape architects develop a plant list based on local references, but also on what will be available in large quantities at the projected time of planting. This may mean contract growing plants in another region or state. Yet even in a green infrastructure project, the local genetic pool is preferred. The importance of local provenance was demonstrated by switch grass from the Hill Country that grew into dense near-monocultures when planted in several Coastal Prairie restoration projects and were removed only at great effort. Likewise, species

are selected by landscape architects for qualities like bloom time and mature height, but their community interactions may not be known.

Soil biology: Mixed soil layers, sterile soils, lost hydric wetland soils, and other disturbed conditions provide a challenge to establish biological functions in the soil. Everyone wants to avoid trial-and-error in such matters as seeding natives on acres of bare slopes at risk of eroding.

Invasive control: How does one discourage the armies of invasive species moving in on a new project and what does one do about native successional species taking advantage of the disturbance? How does one deter nutria from eating a wetland at a school when guns, traps, and alligators are not feasible?

The answers to questions like these are critical to a green infrastructure project, and restoration scientists are the ones most likely to have those answers. If those who know local ecology and those who plan green infrastructure projects were on a first name basis, this would be a good foundation for successful green infrastructure projects.

The Society for Ecological Restoration, Texas Chapter promotes ecological restoration as a means of sustaining the diversity of life on Earth and re-establishing an ecologically healthy relationship between nature and culture.

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