NRPA NATIONAL RECREATION AND PARK ASSOCIATION

Nature-Based Solutions for Environmental Resilience Programs

Introduction

Park and recreation departments across the country are an integral component of climate resiliency. Some parks departments may have dedicated sustainability or natural resources management staff to focus on land preservation, habitat management and green stormwater infrastructure. Others may be interested in incorporating sustainability practices but have not yet dedicated staff or resources to its implementation. In either case, nature-based solutions can be a resource bank to pull ideas, plans and action from. Nature-based solutions are sustainable management strategies that utilize natural features and processes to address climate change and resiliency. They provide a traditional engineering alternative to environmental challenges and deliver multiple benefits, such as flood mitigation, improved air and water quality, reduced heat and improved wildlife habitat. Examples of nature-based solutions within parks include land preservation, habitat restoration, bioretention, green roofs, rainwater harvesting and tree plantings.

Eighty-four percent of adults support their local park and recreation agency undertaking or continuing environmental provisions or natural disaster prevention methods in their community, according to an August 2023 National Recreation and Park Association (NRPA) Park Pulse poll.

According to the poll, conserving or restoring coastal habitats, forests, wetlands and grasslands — followed by restoring or increasing wetlands, forests or open spaces to help prevent major flood events — has the highest support among the public. Planting native plants to support pollinators and creating or expanding urban trees and forests, including green roofs and rain gardens, are supported by more than half the U.S. population.

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Volunteers smile for a picture after helping restore a riparian zone at Houston's Stuart Park. Photo courtesy of the City of Houston Parks and Recreation Department.

Case Study

The Houston Parks and Recreation Department's (HPARD) Natural Resources Management Division is responsible for the protection and management of natural habitat, wildlife and water features within parks. In 2019, HPARD initiated an ambitious plan to restore riparian habitat in all parks along a waterway by the year 2030. NRPA spoke with Kelli Ondracek, their natural resources manager, to learn more about this. Houston's historic habitat consisted of coastal prairie, with forested riparian habitats located along the numerous bayou systems that cross the city and flow into Galveston Bay. These forested areas are known as riparian zones and provide a buffer when water spills out of the bayou. They mitigate severe flooding, provide ecological diversity and contribute to a cooling effect during Houston's hot, humid summers. Houston Parks and Recreation's plan stretches more than 70 parks in the greater Houston area — an ambitious undertaking reliant on support from community organizations, city leadership and Houston Parks and Recreation staff.

Nature-based solutions can be time-consuming and require long-term maintenance for success. In Houston, the Riparian Restoration Initiative gained traction when it was included in both the Houston Climate Action Plan and Resilient Houston Plan. Community input and collaboration was imperative to address safety and maintenance concerns. Maintenance of the restoration areas varies based on existing vegetation, and HPARD adapts management methods to site conditions and community feedback. Involving volunteers from the community in the restoration process, talking to park users and informing local stakeholders of the benefits of nature-based solutions are the key to the success of the program.

Volunteers help plant native trees in Stuart Park. Photo courtesy of the City of Houston Parks and Recreation Department.

Planning / Implementing / Maintaining Nature-Based Solutions

The planning, implementation and maintenance of nature-based solutions can be more challenging than that of typical grey infrastructure. However, nature-based solutions last longer and are better for the surrounding environment. While green infrastructure is often seen as undeniably beneficial, Ondracek says these initiatives “can be negatives if planned improperly.” That’s why pre-assessing parks, having a maintenance plan and putting time into building community investment are so important to a project’s long-term health. Three important considerations when planning nature-based interventions in parks are: park context, existing site conditions and funding available.

For more information about how to pre-assess your site and plan for proper maintenance, check out NRPA’s Green Infrastructure in Parks guide, as well as other resources, which can be found on the following page.

Volunteers help plant native trees in Stuart Park. Photo courtesy of the City of Houston Parks and Recreation Department..

Resources

• NRPA's Green Infrastructure in Parks

This resource is useful to dig deeper into types of green infrastructure, planning and maintenance concerns, and sustainable funding. It includes best practices for getting green stormwater initiatives off the ground and highlights lessons from case studies. It offers language that can be used to advocate for green infrastructure and strategies, resources, and examples that address green infrastructure's biggest challenges.

• Coastal Resilience's Green Infrastructure Visualization Apps

This website hosts links to different green infrastructure apps that can help park and recreation departments and individuals visualize change that can be made right in their own backyard. From showcasing international initiatives (e.g., resilient coastal cities in Indonesia) to measuring effectiveness and efficiency of natural coastal defenses across the globe, these apps help expand the imagination of what nature-based solutions in parks can look like.

• NRPA and Sasaki's climate.park.change

This website compiles data on how climate change affects park and recreation spaces and suggests physical design solutions that address climate impact. Focused on the intermountain West region, this tool encourages park and recreation professionals to discover climate adaptation design strategies.

• Louisiana Watershed Initiative's Nature-Based Solutions Trainings

These trainings were originally designed to support grant cohort members through technical assistance around nature-based solutions in parks. The Louisiana Watershed Initiative has released them publicly as a resource for other agencies doing this work. From providing examples of successful projects to analyzing the cost benefit of doing green infrastructure work, these trainings offer skills and language to help advocate for, build and maintain green infrastructure projects.

• FEMA Guide to Building Community Resilience with Nature-Based Solutions

This guide offers five main strategies for people taking on nature-based solution projects. They include Building Strong Partnerships, Engaging the Whole Community, Matching Project Size With Desired Goals and Benefits, Maximizing Benefits, and Designing for the Future.

• The White House Council's Nature-Based Solutions Resource Guide

This guide contains 30 examples of ways that federal agencies have used nature-based solutions to achieve their goals. The diverse set of examples demonstrates that nature-based solutions can provide many different benefits. In addition, this guide contains a summary and links to 177 federal knowledge resources, tools, guidance and technical assistance on nature-based solutions.

This resource document was made possible by a donation from CITGO Petroleum Corporation. The National Recreation and Park Association, which created this resource document, is solely responsible for the content.