BSC GROUP

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Nature-Based Solutions Implementation Resource Guide

Nature-based Solution (NbS): Pocket Forest

Project Number per matrix: **9**

A pocket forest is a planting and management of a novel ecosystem of trees and understory selected for carbon sequestration rank, habitat rank, structure, urban compatibility, shade, wind break, and forest product value. The established and managed structure allows forests to be in closer proximity to structures and infrastructure while limiting the growth of hazardous trees.

PREREQUISITES

- Obtain Town or City Conservation Commission, DPW, and/or landowner approval.
- Obtain appropriate permits.
- Coordinate restoration with funder (e.g., MA MVP), if applicable.

RECOMMENDED IMPLEMENTATION STEPS

- **Project Planning and Administration**
  - Consider a public/private landowner or forest management partnership.
  - Conduct site preparation to include drainage assessment, soil tests, selective invasive vegetation removal, soil amendment, assessment of solar aspect, and threats.
  - Assess bordering threats such as the proximity of established invasive seed sources.
  - Select plants relative to town-wide inventory managed by the appointed Town Tree Warden or Forestry Agent.
- **NbS Installation**
  - Plant high-carbon sequestration species: tulip poplar, black walnut, American sweetgum, red pine, white pine, American sycamore, scarlet, white, red, or black oak. Evergreens sequester more carbon but may not be ecologically resilient.
    - An urban wood lot or wooded pasture is a densely planted savannah with active use landscape including canopy trees and soil structures of a pocket forest but with a ground cover of cultural grassland, pasture, roadway, parking, or other active human use.
  - Plant high forest product value species for urban woodlot: black walnut, cherry, white oak, black locust, and tulip poplar. Identify use compatibility conflicts and consider these for wood lot farming to incentivize private stakeholders.
    - At pocket scale or linear form, a forest achieves a high ratio of edge condition understory which can generate biomass more quickly and provide ecosystem services that complement the large forests they connect with.
  - Plant high habitat species: linden, catalpa, locust, black cherry, black walnut, willow, pussy willow, tupelo, chestnut, tulip tree, sweet birch, white oak, hackberry, sugar maple, hickory, apple, hawthorn, cherry, hazelnut, serviceberry, sourwood, and others.
    - The approach greatly differs from conventional gardens, farms, and landscapes, where individual species are aesthetically spaced individual specimens. In the pocket forest, plants are clustered for mutual benefit, as well as structural and ecological protection. These focus on perimeter understory, ground cover, seeding of mycorrhizae, and soil-building macroinvertebrates.
  - Avoid future management that could include biomass harvesting select species with high structural harvest value for accessible locations and longest-lived high habitat value for inaccessible locations.
  - Install temporary establishment irrigation.

- **Maintenance**
  - Establishment period (2) two years. Establishment period to include bi-annual removal of invasive plants and weeds, annual replacement of failed plantings, and watering, as needed, to naturalize plantings.
  - Conduct perpetual maintenance program as coordinated with managing stakeholders.

NATURE-BASED SOLUTION SPECS

- Typical project size: 3,000 sq. ft. (300 sq. ft. minimum).

BUDGET ESTIMATE

- Typical project budget (order of magnitude): $15,000 - $20,000
- Use the BSC Group Nature-based Solutions budget tool to develop more detailed concept budgets

SCHEDULE ESTIMATE

- Construction time dependent on labor.
- 2 years of establishment.
- Twice-annual maintenance during establishment. Once annually thereafter.
- Annual assessment.