

Planting Trees in Stormwater Treatment Dry Ponds

Description In urban areas, lands devoted to treating urban stormwater runoff and septic effluent can comprise up to 3% of the total land area in the watershed (CWP, 2000b). Stormwater dry ponds are one such type of land and are typically maintained as turf. Planting trees in existing dry ponds increases their esthetic value in the community (particularly if they are highly visible) and may increase pollutant removal. Few engineering constraints exist with planting trees in dry ponds as they may be planted anywhere within the practice.

- Pre-Planting Considerations***
- Can I make the pond more attractive with plantings?
 - How do I prevent damage to trees from lawnmowers?
 - How do I manage invasive plants?
 - How do I address potential damage to trees from deer?
 - How do I address soil conditions such as severe compaction and fluctuations in soil moisture?
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Species Selection Selecting appropriate tree species is key because it can address most site conditions and is often more efficient than trying to change the site characteristics. Select a diverse mix of hardy, native species that are adapted to soils and site conditions.

Other desirable species characteristics include the following:

- Tolerates drought
 - Tolerates inundation
 - Tolerates urban pollutants (sediment, nutrients, metals, bacteria, pesticides)
 - Tolerates poor or compacted soils
 - Has fall color, spring flowers, or other esthetic benefit.
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- Site Preparation***
- Remove invasive plants such as multiflora rose (may include mowing or cutting)
 - Improve soil drainage if needed (e.g., amend with compost, mix soils to a depth of 6 to 18 inches).
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**General
Planting
Guidance**

- Plant trees in groups to provide shared rooting space and allow mowing around trees to control invasive species
- Use groupings of species that provide fall color, flowers, evergreen leaves, and varying heights to create an esthetically pleasing landscape (Figure 31)
- When planting on pond side slopes, create small earthen berms around trees to help retain moisture.
- Where soils are compacted and amendments are not possible, provide adequate soil volume in planting hole.

Maintenance

- Plan for little maintenance of trees (regular watering may not be feasible)
- Mow around tree clusters to control invasive plants. Do not mulch deeper than 3 inches or build up mulch around trunks.
- Use mulch to retain moisture

**Potential for
Stormwater
Treatment**

A dry extended detention pond provides treatment of stormwater primarily through settling. After storms, stored runoff is gradually released over a period of 1 to 3 days, allowing an opportunity for pollutants to settle out to the floor of the pond. Trees may increase the pollutant removal ability of a dry pond through nutrient uptake.

**Further
Resources**

Shaw, D. and R. Schmidt. 2003. *Plants for Stormwater Design*. Minnesota Pollution Control Agency. Saint Paul, MN.



This fact sheet was excerpted from:

Cappiella, Karen; Schueler, Tom; Wright, Tiffany. 2005. Urban Watershed Forestry Manual. Part 1: Methods for Increasing Forest Cover in a Watershed. NA-TP-04-05, Newtown Square, PA: p 80-82. USDA Forest Service, Northeastern Area State and Private Forestry.

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