



The Lee County Urban Stormwater Pond Management Program

(Stormwater quality Issues)

1. How the program started

Basis:

Urban stormwater ponds constitute a significant area of wetland habitat ecology in Lee County. Management of these habitats become an important water quality issue as we seek to reduce deleterious impacts on wildlife species (especially birds), reduce nutrient loading, improve pollution control measures and limit 'downstream' impacts on natural areas wetlands

2. Collaborators

- (i) Lee County Hyacinth Control District
- (ii) Pond Watch
- (iii) Lee County Natural Resources Division
- (iv) UF/IFAS Center for Aquatic and Invasive Plants

3. Target Audience

- (i) Homeowners
- (ii) Community (pond and lake) Associations
- (iii) County/City land and water managers
- (iv) DOT operators
- (v) Licensed Pesticide Applicators

4. Program implementation strategy

Not all ponds are alike, and even when similarities exist, homeowner and/or association aims, objectives and use plans vary. In an attempt to create homogeneity as a means to simplify the educational message, urban ponds are divided into the following groups.

Type	Watershed (water runoff area)
<i>Backyard Pond</i>	<i>Backyard</i>
<i>Community Pond (Lakes)</i>	<i>Large parking lots, golf course, roads group of lake-view backyards</i>
<i>County/City Park Ponds</i>	<i>Parks, pathways, golf courses</i>
<i>Retail Stores associated ponds</i>	<i>Delivery truck driveways, roads, parking lots</i>
<i>DOT Roadside Ponds</i>	<i>Major roads and highways</i>

5. Associated Problems

- (i) **Runoff** – point source from watershed; non-point source from birds and other animals including domestic animals
- (ii) **Deliberate action** – human action (dumping)
 - (a) *Invasive species*
 - (b) *Fossil fuel wastes*
 - (c) *Other toxic material*

Implications for wildlife including migrating birds and other wetland species

6. Using littoral plants to aid in stormwater quality management

Challenges

- (i) **Erosion on older ponds**
- (ii) **Access to a wide variety of native aquatic plants suited to the specific objectives of the water quality improvement strategy**
- (iii) **Current plant control strategies used on urban ponds (Plants are killed and allowed to decay in water)**

7. Implication of (6 iii) above

- (a) Nutrient reduction (removal) lowers the risk of establishment and spread of invasive species, an important water quality issue
- (b) Heavy metal uptake by plants (and the eventual removal of these plants) has positive implications for upward movement from detritus feeders to fish and consequently large preying birds

8. Notes:

Effective nutrient and heavy metals reduction require a strategy to remove littoral plants – especially annuals – before they die off and decay to release elements back into the water.

There may be an opportunity for a project (or investor) to engage in harvesting of littorals for recovery of nutrients and metals.

It is unknown whether the cost of recovery outweighs the value of the recovered products.