



Prospect Heights Natural Resources Commission

Implementation Plan for the Ecological Recommendations
Presented in the Hey and Associates Survey of the
Prospect Heights Slough and Hillcrest Lake

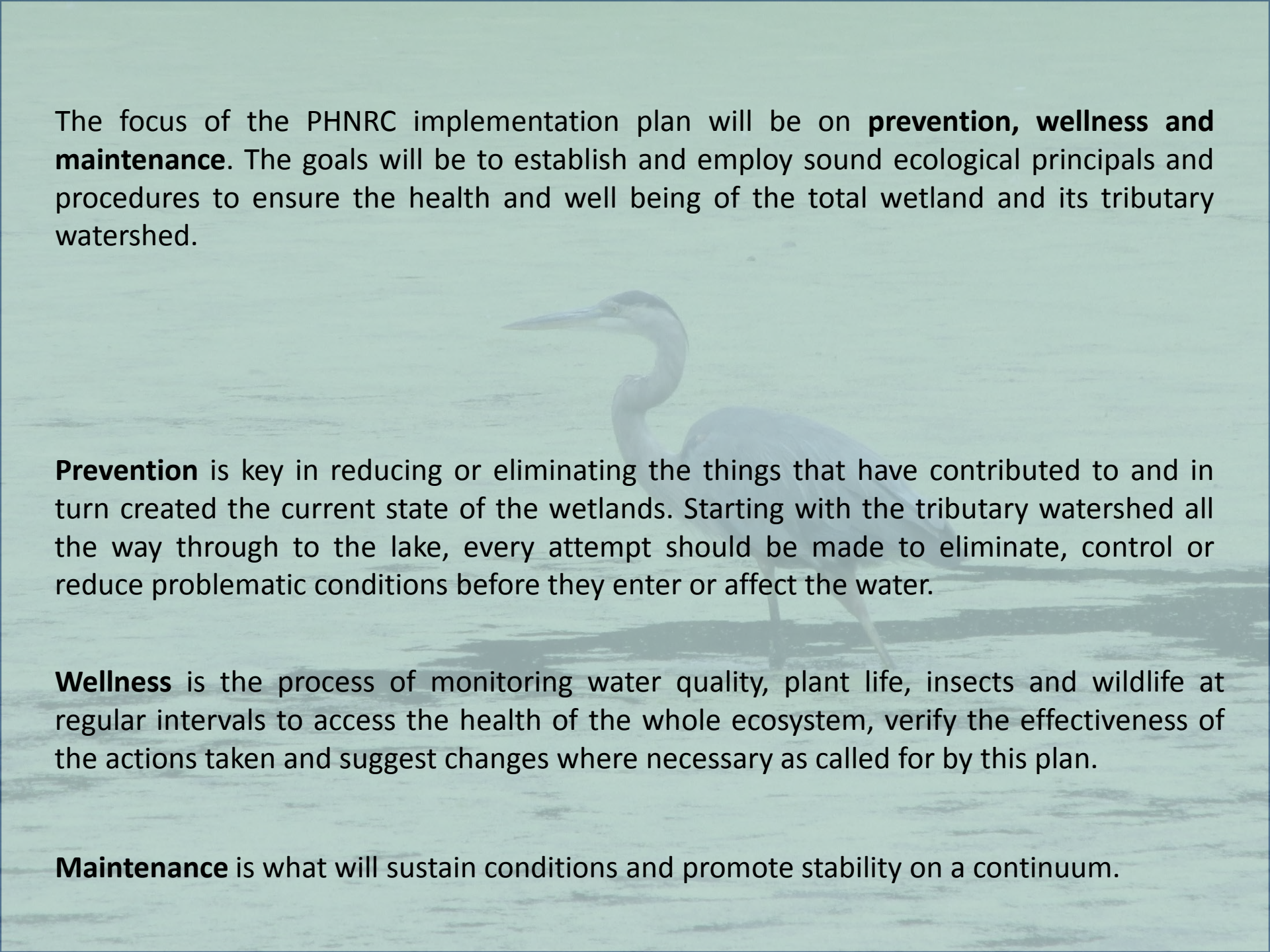
February 22, 2016

At the request of the Natural Resources Commission and in response to residents concerns about conditions at the Prospect Heights Slough and Hillcrest Lake, the Prospect Heights City Council approved an ecological study of the wetlands by Hey and Associates.

In October of 2015, Hey and Associates released their findings and the City Council asked PHNRC to review the report and create recommendations for a plan to implement solutions.

This presentation will present those recommendations.



A large blue heron stands in a shallow, misty wetland. The bird is positioned in the center-right of the frame, facing left. Its long neck is elegantly curved. The background is a soft, hazy expanse of water and sky, creating a serene and atmospheric setting. The overall color palette is dominated by cool blues and greys, with the heron's feathers providing a subtle contrast.

The focus of the PHNRC implementation plan will be on **prevention, wellness and maintenance**. The goals will be to establish and employ sound ecological principals and procedures to ensure the health and well being of the total wetland and its tributary watershed.

Prevention is key in reducing or eliminating the things that have contributed to and in turn created the current state of the wetlands. Starting with the tributary watershed all the way through to the lake, every attempt should be made to eliminate, control or reduce problematic conditions before they enter or affect the water.

Wellness is the process of monitoring water quality, plant life, insects and wildlife at regular intervals to assess the health of the whole ecosystem, verify the effectiveness of the actions taken and suggest changes where necessary as called for by this plan.

Maintenance is what will sustain conditions and promote stability on a continuum.

Summary of the Hey Report

Main Problems:

1. Shoreline erosion
2. High nutrient loads
3. Excessive native aquatic growth
4. Large goose population
5. Shallow water depth
6. Invasive plant species

Recommended Solutions:

1. Removal of turf grass at the shorelines
2. Re-vegetation of shorelines with native plants
3. Reduction of goose populations
4. Removal of invasives
5. Possible treatments of aquatic vegetation at the lake
 - a. Do no treatments
 - b. Herbicide or partial herbicide
 - c. Hand controls
 - d. Raise the water levels.
 - e. Other solutions
6. Community outreach and education
7. Detain, retain or filter incoming storm water
8. Controlled burns or scheduled mowing

PHNRC Recommended Plan of Preventative Action - 2016

This plan will address the problems and the solutions of the three main areas. They are:

The Tributary Creek consisting of Lyons Park, The Sports Complex and the Residential Area

The Slough

Hillcrest Lake



Prospect Heights Natural Resources Commission
Watershed Work Areas Overview: Tributary Creek
(Lyons Park, Sports Complex, Residential Area), the
Slough and Hillcrest Lake

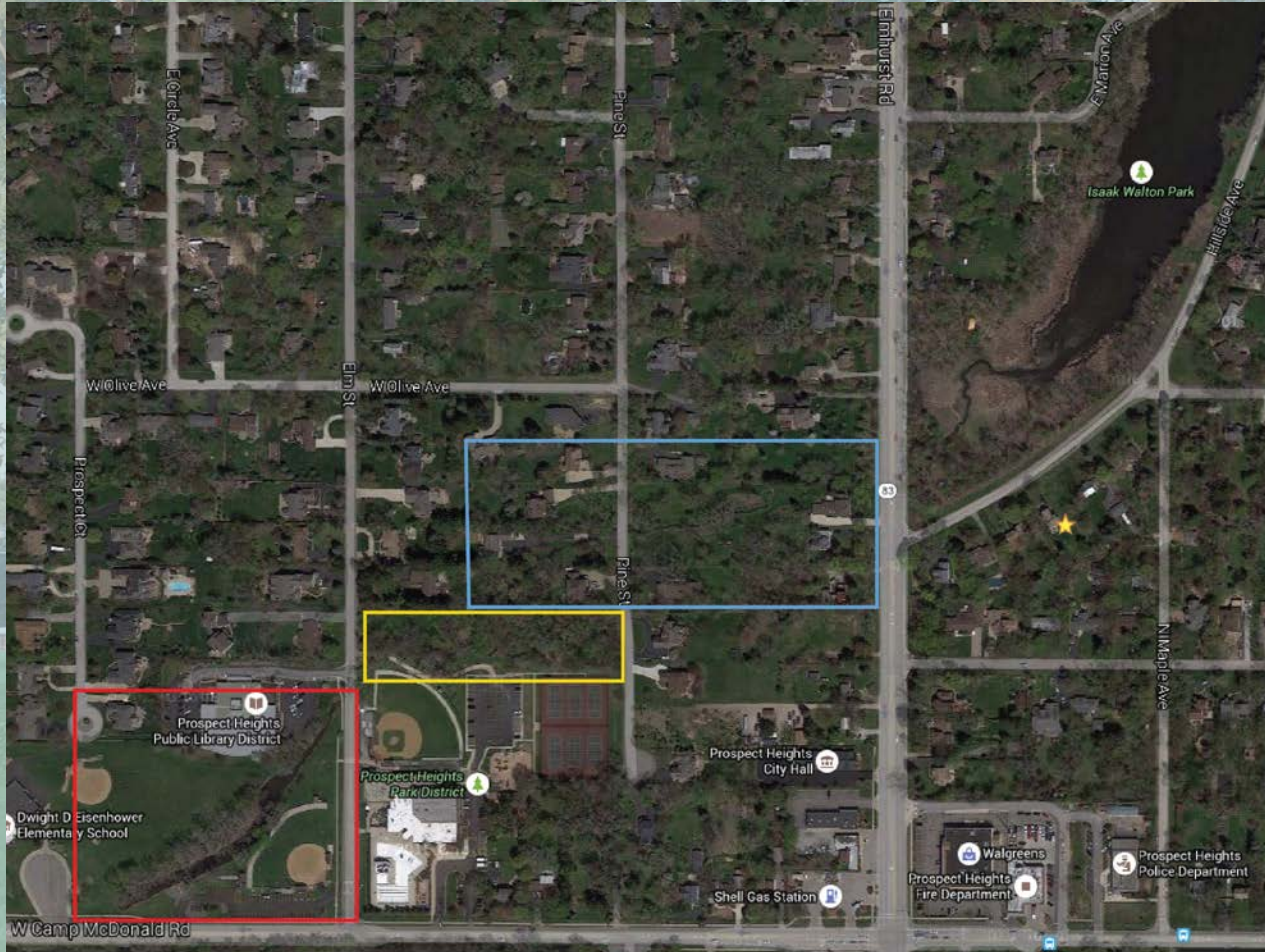
- Lyons Park - Tributary creek
- Sports Complex - Tributary creek
- Residential Area - private property
- Slough
- Hillcrest Lake

Tributary Creek – Problems: Shoreline erosion, contaminated storm water runoff, invasives, goose population.

Lyons Park Public Library remove invasive plants, turf grass and plant 2.75 acres of vegetated buffer strips to retain and filter contaminated storm water runoff before it can enter the tributary creek.

Sports Complex Area Heavily infested with buckthorn and other invasives. Remove invasives and create and 2.25 acres of vegetated buffer strips

Residential Area Turf grass and reed canary. Work with residents to achieve solutions



Prospect Heights Natural Resources Commission

Tributary Creek Work Areas- Lyons Park & Public Library

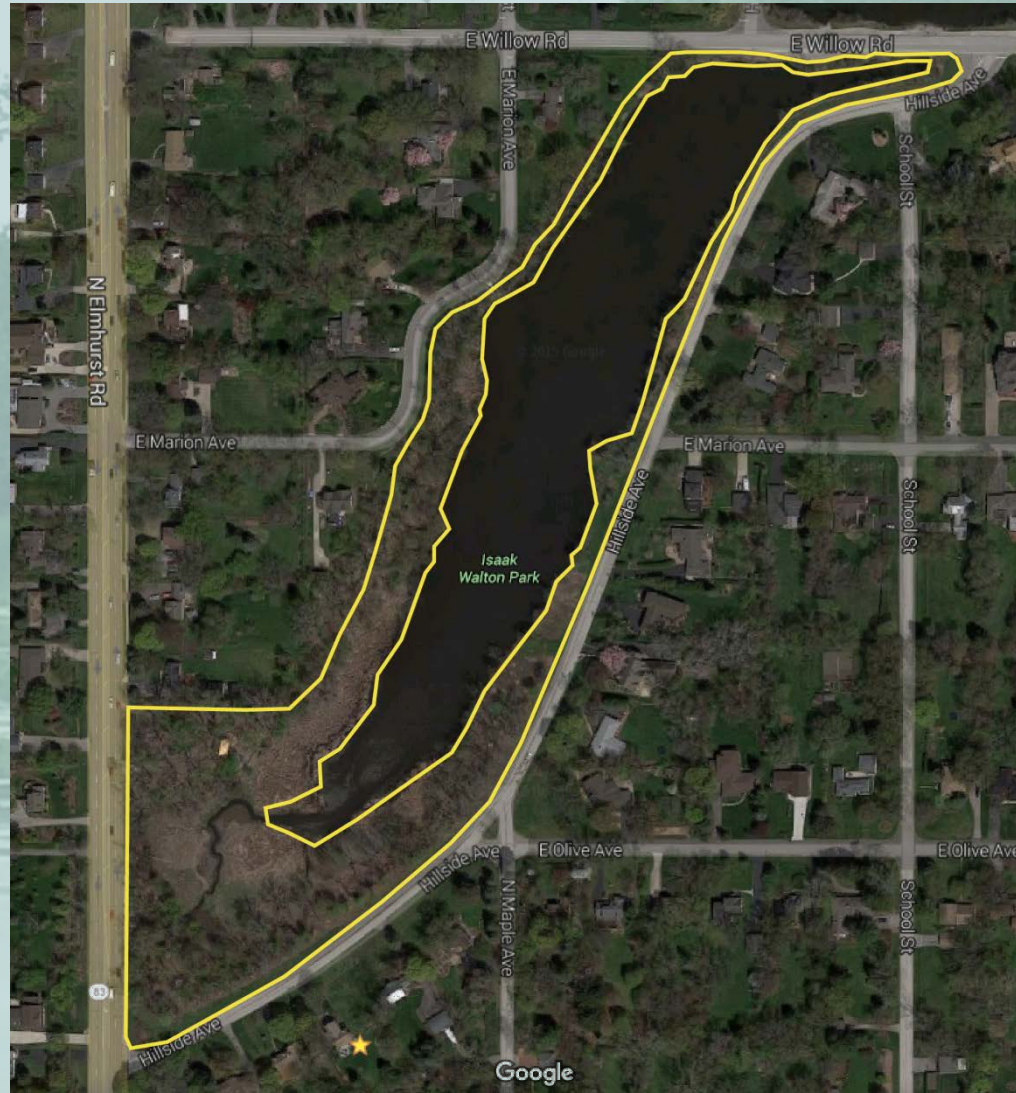
Sports Complex


Residential Area



Slough – Problems: Shoreline erosion, nutrient overload, invasive aquatic growth, goose population, invasive plant species, contaminated storm water runoff, low water levels.

Slough remove invasive plants and turf grass and plant 8 acres of vegetated buffer strips. Plant native aquatic plantings from the shoreline out into the water to enhance the shoreline's visual appeal while providing habitat and shading out other aquatic plants.




Prospect Heights Natural Resources Commission
Slough Work Area - 

Hillcrest Lake – Problems: Shoreline erosion, nutrient overload, non-invasive aquatic growth, goose population, invasive plant species, contaminated storm water runoff, low water levels.

Hillcrest Lake
remove turf grass and planting 3 acres of vegetated buffer strips. Plant native aquatic plantings from the shoreline out into the water.



Prospect Heights Natural Resources Commission
Hillcrest Lake Work Area 

The entire watershed outside of these areas will be addressed with the community outreach and education programs to promote and encourage best management practices.



Scale:



Project Number: 10-0120

Orientation:



Latest Revision: 10/15/2015

Legend:

- FEMA Water Line
- Watershed Boundary

Data Source: GlobalSatellite & FieldClarity, Ltd.

Project Name:

Hillcrest Lake and Slough Assessment

Prepared for:

City of Prospect Heights

Aerial Date:

2014

Exhibit Title:

Watershed Boundary

Exhibit:

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Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

The three main areas all experience the same common core problems to some degree:

Shoreline erosion

High nutrient loads

Excessive native aquatic growth

Large goose population

Shallow water depth

Invasive plant species, land and aquatic

To treat these core problems, the actions taken will generally be the same:

Remove invasives

Create large, deep rooted vegetated buffers along the shoreline

1. Herbicide existing turf grass areas
2. Reseed with site specific native grass and sedge species
3. Plant native trees and shrubs.
4. Augment buffers with flowering natives (seed and plugs)
5. Create mow paths for public access

Community outreach and education

1. Educate about the changes
2. Reduce the use of chemical fertilizers
2. Adopt native landscaping
3. Encourage rain barrel use

Why are invasive plants bad and what role did they play in all this?

Invasive removal is the first step in restoration. While buckthorn is the most prolific and destructive of the invasives in all areas, cattails, reed canary, garlic mustard, ragweed, honeysuckle, teasel, purple loosestrife and several other species populate many of the areas.

Native plants have evolved over time into balanced ecosystems supporting a wide range of life. Invasive plants form monocultures, or large stands of only one species. This decreases the biodiversity that all animals have come to depend on. Instead of hundreds of different native plants and hundreds of species of insects and animals there is one stand of buckthorn or acres of teasel or reed canary grass and a limited amount of inhabitants.

Buckthorn eliminates any hope of native growth, making the ground as absorbent as pavement and increasing runoff into the water. Reed canary and cattails spread like wildfire creating large monocultures, decreasing habitat for birds.

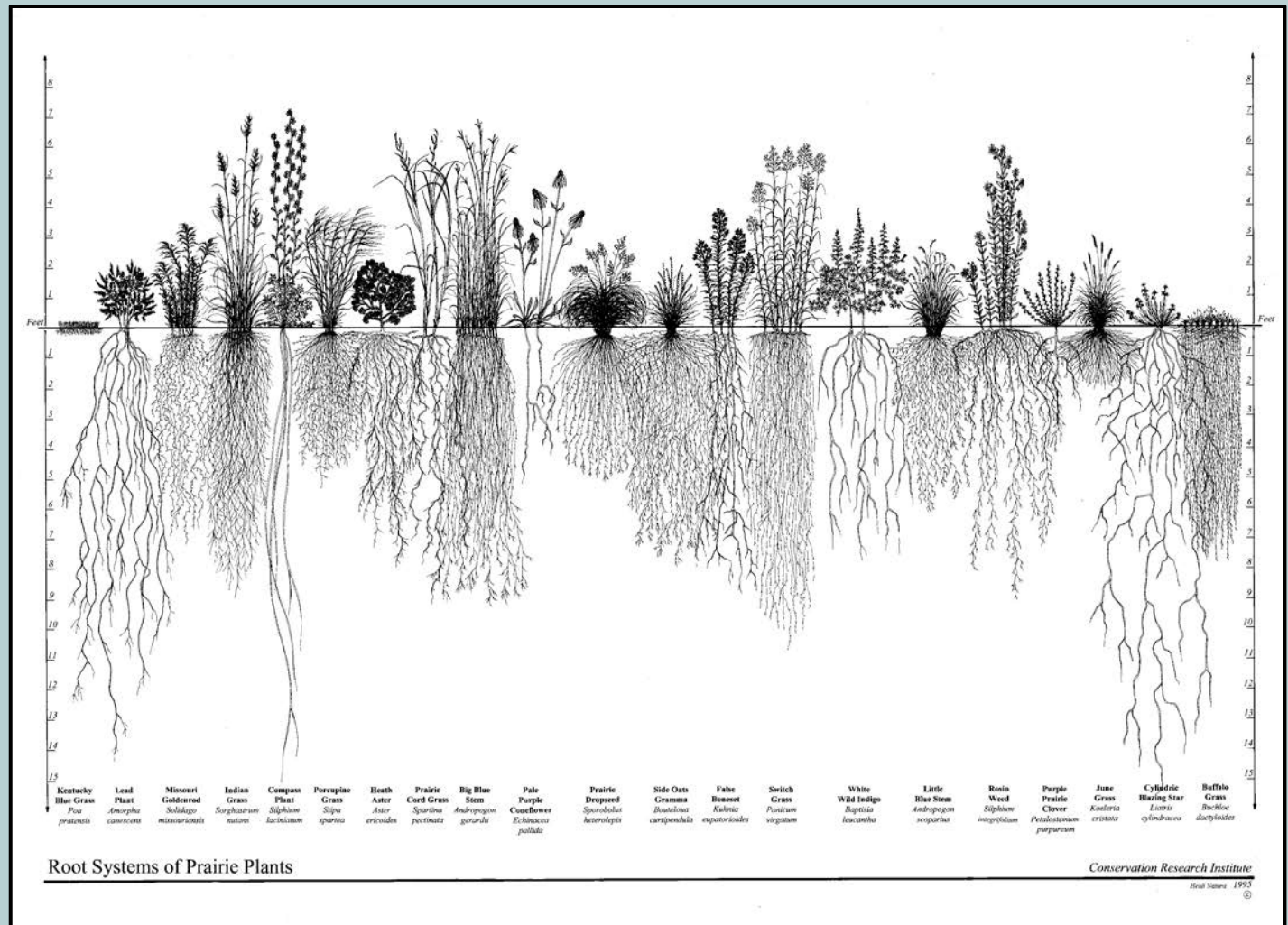
Why are vegetative buffers important and what role do they play ?

Vegetative buffers play a major role in solving our problems. Turf grass while not invasive, is not native and does not provide food, shelter or any other ecological benefit. Additionally, it's very shallow root system provides little water retention or shoreline stabilization.

Native plants have very deep root systems up to 15 feet. Native plants typically have more biomass below ground than above ground.

It is easy to see how native plants will prevent soil erosion, filter harmful elements, and hold back more runoff, reducing the volume of inflow into the watershed.

Over time, vegetative buffers are very effective is reducing nutrient load and stabilizing the ecosystem.



Buffer strips also enhance the visual appeal of the environment.



Buffer strips are created in several ways. Once invasives are removed, the native seed bank has the opportunity to emerge in the presence of light, water and nutrients and contribute significantly.

Prepared areas are also seeded with native seeds, native plugs and plantings of trees and shrubs. It takes time for buffers to fully mature as native plants spend the first two years developing their root systems. This is why community outreach and education are so important in this time of transition.



Buffer strips will also reduce the goose population as it does not provide favorable habitat for geese. Mow paths provide public access through the buffer strips.

Community Outreach and Education

The Natural Resources Commission recognizes that transitioning back into native habitat from mowed turf grass takes time. In that transition period, the landscape may look neglected or abandon to residents who are used to manicured lawns and bushes.

PHNRC will continue its education and outreach programs to inform and educate residents about what to expect and keep them up to date on the progress.

We will also continue our “Grow It Don’t Mow It” outreach program designed to assist residents interested in converting their mowed turf lawns into native habitat. We will encourage residents to take advantage of the free rain barrel program which retains stormwater, preventing it from entering the watershed. Both of these steps can have a big impact on what is coming into the watershed.



Each of the three areas have unique problems outside of the core problems.

Tributary Creek - Residential area

As this is private property, PHNRC would begin with an outreach program to the residents in the residential zone. PHNRC would offer to do the work free of charge or ask the residents to do the work themselves. This area has a limited amount of buckthorn but does contain a great deal of invasive reed canary. As it is immediately upstream from the Slough, it will continue to be a source for the reed canary infestation that plagues the east end of the slough. The plan would call for removing invasive plants, removing turf grass and planting vegetated buffer strips to retain and filter contaminated storm water runoff before it can enter the tributary creek. Changing the turf grass to native buffers will provide inhospitable habitat for congregating geese and the deep root systems will stabilize the shoreline.

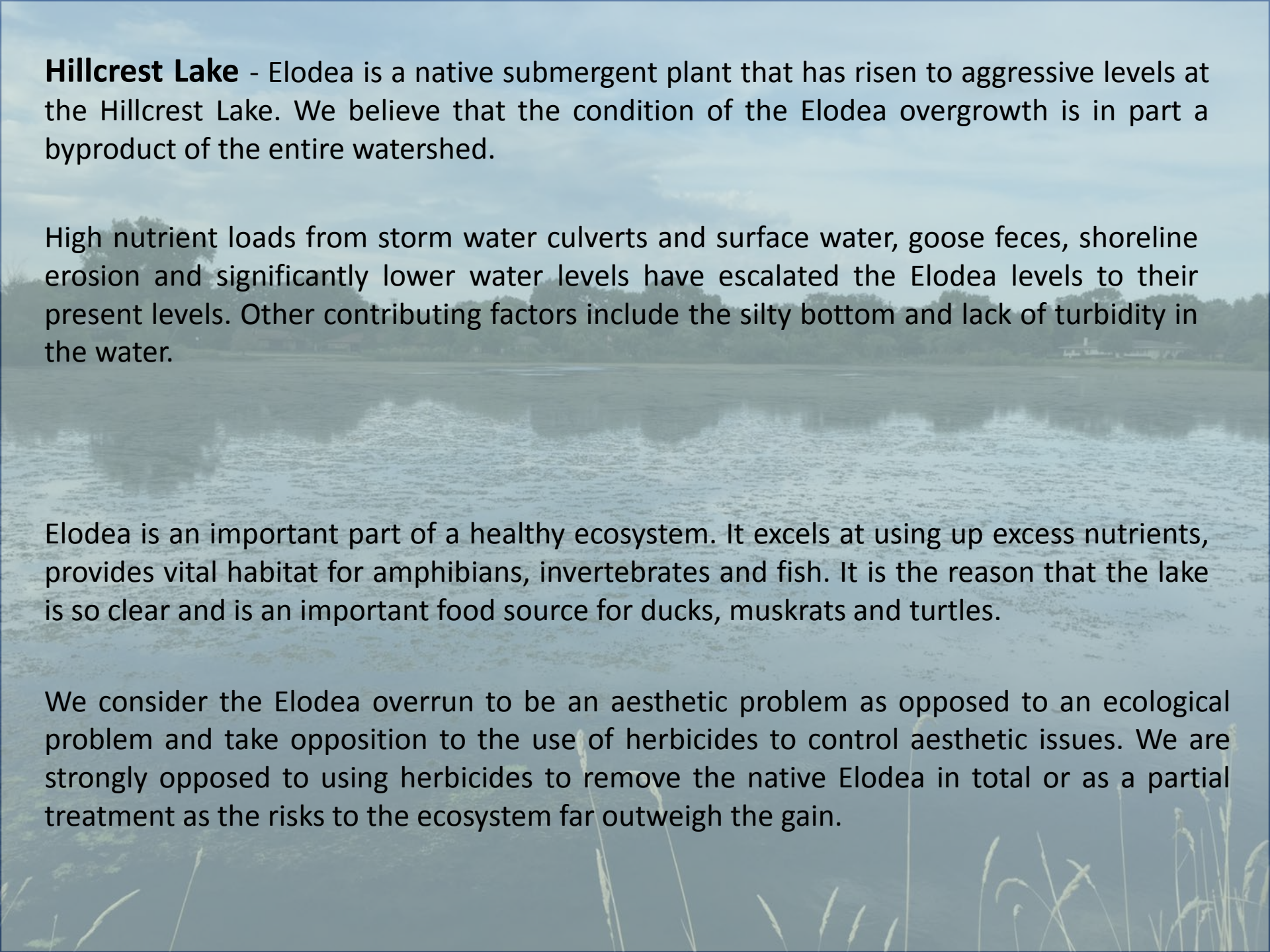
Actions

- a. Educational outreach to residents to determine if work can be done on their property and who will be doing it.
- b. Encourage native planting, reduce the use of fertilizers and adopt natural landscaping with native plants.
- c. Create large, deep rooted vegetated buffers along creek where permitted.
 1. Herbicide existing turf areas
 3. Reseed with site specific native grass and sedge species
 4. Augment buffers with flowering natives (seed and plugs)
- d. Remove invasives
- e. Promote rain barrel programs to hold storm water

The Slough

There is no action to be taken for seasonal Duckweed accumulations at the Slough. Duckweed is a valuable food source for water fowl, habitat for frogs and fish, is very good at absorbing excess nutrients and producing shade which can reduce certain growths of algae and other aquatic plants. With the possible elevation of water levels in the watershed, the duckweed will be more fluid. Educational programs can help change public perception.





Hillcrest Lake - Elodea is a native submergent plant that has risen to aggressive levels at the Hillcrest Lake. We believe that the condition of the Elodea overgrowth is in part a byproduct of the entire watershed.

High nutrient loads from storm water culverts and surface water, goose feces, shoreline erosion and significantly lower water levels have escalated the Elodea levels to their present levels. Other contributing factors include the silty bottom and lack of turbidity in the water.

Elodea is an important part of a healthy ecosystem. It excels at using up excess nutrients, provides vital habitat for amphibians, invertebrates and fish. It is the reason that the lake is so clear and is an important food source for ducks, muskrats and turtles.

We consider the Elodea overrun to be an aesthetic problem as opposed to an ecological problem and take opposition to the use of herbicides to control aesthetic issues. We are strongly opposed to using herbicides to remove the native Elodea in total or as a partial treatment as the risks to the ecosystem far outweigh the gain.

The two biggest concerns are economic and ecological. Once you start with chemical treatments in the water, you are often committing yourself to a never ending cycle of mandatory applications year after year, often multiple times a year. Ten to thirteen thousand dollars every year for a clear water surface for 2 months out of the year does not make economic or common sense to us.

Annual expense aside, the more significant ecological issue is what comes in next to replace it; invasive milfoil, curly pond weed, algae, or worse yet, toxic blue green algae. These are significant problems that mandate the use of herbicides and valuable resources. Worse yet is the possibility that you flip the “lake” from one dominated by macrophytes (leafy plant growth) to one dominated by Phytoplankton (algae).



European studies have shown that chemical control of Elodea is ineffective, only slowing the growth for a year or two. Further, Elodea experiences a rapid growth period for 5-6 years and slows as nutrients are used up which is why Europe has adopted a wait and see approach as the best method of control.

Given the ineffectiveness of chemicals, the annual expense and the potential ecological damage and uncertainty that can result, it simply cannot be recommended.

Perhaps the advice of Senior Biologist Michael Adam at the Lake County Lakes Management Unit provides additional understanding.

“In my experience, once you start an herbicide program it is difficult to get out of that cycle. I’m assuming by the photograph that the lake is shallow. You are correct that since it has high phosphorus, an herbicide treatment may result in severe algae blooms. Something is going to use those nutrients. In situations like this where there are natives dominating the waterbody, an herbicide treatment may either “flip” the lake from a plant dominated one to an algae dominated one (at which point you may be compelled to chemically treat the algae, sometimes several times per year, depending on your constituents demands), or you may open the door for invasives to creep in, making the situation worse. In general, we have also seen herbicide programs start small then gradually increase, using more and more product, often treating the entire lake. If you were looking for a compromise, maybe creating a management plan for the lake that allows for some treatments (say 1/3 of the lake), while leaving other portions untouched. It depends on what you want to use the lake for. If it’s purely for ecologic reasons, I would not treat.”

*Michael Adam, B.S., M.S. – Senior Biologist
Lake County Health Department Ecological Services Unit*

Our recommendation for the Elodea is to continue the pursuit of a managed weir to raise the water level in the Slough and Hillcrest lake. We understand that raising the water level is not going to kill or remove the Elodea. It will keep it more submerged creating a more desirable view while we continue work on prevention.

PHNRC is working with MWRD, IDNR, Globetrotters and the City to acquire a permit for a managed weir to raise water levels at the lake. While it is too early in the process to guarantee it as one of the key solutions to the aesthetic problem at the lake, we are optimistic that it will become a key component.

In lieu of herbiciding native Elodea, the condition should see improvement from increased water levels, decreased nutrient loads, floating leaved aquatic plants and retaining carp in the lake to increase turbidity. Educational programs in conjunction with a more visually appealing shoreline should also help change public perception.

Recommended Wellness Action Plan 2015-2016

Monitoring and keeping records is essential to assessing the wellness of an ecosystem. Monitoring plant species, soil composition, water quality, wildlife, amphibians, bird migrations and insects are key indicators to the health of the habitat they exist in. Recording the results provides a historical record which can be compared so judgments can be made about the steps that have been taken, how effective they have been and if changes need to be made.

1. Establish baselines for all categories
2. Establish a monitoring schedule unique to each category based on predetermined criteria for that category
3. Keep the historical record, set guidelines for review and adjustments
4. Categories
 - a. Plants
 - b. Soil
 - c. Water quality
 - d. Wildlife
 - e. Amphibians
 - f. Birds
 - g. insects
 - h. Education and outreach

Recommended Maintenance Action Plan 2015-2016

1. Make adjustments based on monitoring
2. Continue invasive removal
3. Continue seeding and replanting efforts
4. Prescribed burns
5. Scheduled mowing

Summary

It is critical to understand how important, fragile and essential this wetland is to the community, the state and the overall ecosystem. As guardians and advocates for this historically significant sliver of natural wetland, we have a moral obligation to ensure its health and wellbeing, not only for future generations, but for the reptiles, amphibians, macroinvertebrates, insects, fish, birds, mammals and all of the wildlife that call it home. These residents depend on the wetland for their existence yet they have no voice of their own so they can do nothing to preserve or protect it.

Habitat is the single most important and essential factor in determining what is attracted to it. A healthy environment equates directly to the right abundance of microbiotic and macrobiotic elements, the plants and all of the living things that make it a functional ecosystem. Everything is interdependent, so loss of any one of these components results in a change to the whole. As an entire community changes, so do the parts. It is a cyclical balance that has a tipping point. We have already witnessed changes in plant populations based on changes in the hydrology. As plants disappear, so do the things that depend on them.

The recommendations that we have made have been based on this understanding. They are conservative in action, which means that results will not be immediate. The nutrient overload will not be affected overnight. Lush native buffers and shorelines will not happen overnight. Progress and transformation will be a slow, but with a steady progression. It will take years to see significant impact, but it can happen naturally and in the right way.

It is our sincere hope that the community, local residents and the city council will support our recommendations and their implementation.

PHNRC February 2016