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# Cattail Management Strategies Using Cattzilla by Naturalake Biosciences

Residential Retention Pond Case Study



## Introduction

This report has been compiled by Aquatic Plus Pond Management (APP), in an effort to share practical data obtained in the results of the following case study. In the Fall of 2017, APP was retained by the property owner to execute the treatment plan detailed in this report.

The Study Site is located within the Great Miami River watershed in Southwest Ohio. The Case Study Pond (Pond) is specifically located within a residential development that was completed in the mid 90s through early 2000s. The Pond consists of a 0.80-acre retention pond that was completed in 1994 (See Appendix). Prior to construction, this site was an upland cornfield. Exact location and ownership will remain confidential as courtesy to clients and colleagues.

Residential developments in the region have incorporated drainage retention water features on an increasing basis over the last three decades. Dynamic changes in ecology are typical of suburban landscapes. Nutrient loading and all manner of anthropomorphic influence present unique challenges to aquatic resource managers. With multiple sources of inflow and a regulated outflow, the Pond is no exception to this. A moderate refresh rate and at present, an average depth of 6 feet makes this aging pond susceptible to colonization by rooted emergent plants throughout the entire body. Sedimentation in the early stages of construction has created an optimal littoral habitat for the establishment of Cattails. Prior to contracting with APP, the Pond was cleared of all vegetation in 2009 by physical and mechanical means, but a Cattail infestation has persisted in the following seasons.

## Objectives

The Objectives illustrated herein were set by client communication and by developing metrics by which to measure success. Client requirements can sometimes be subjective or categorical rather than empirical so an effort was made to enumerate the existing and desired conditions. The clearly stated goals and objectives were;

- Reduce the prevalence of Cattails in the Pond to Maintained Plots
- Meet client budget constraints
- Minimize disturbance in the Pond and riparian area

## Method/Approach

There are typically many more constraints to achieving a goal than there are options. While considering the findings of this case study one must account for the ubiquitous factors of; logistics, treatment area size, accessibility, weather, seasonality, feasibility and budget among others.

In regard to Cattail control there are essentially three options including mechanical removal, physical removal or biological removal. Each method and any mix of the three should have their place in every manager’s knowledge base. We chose to develop a biological only strategy using Cattzilla by Naturalake Biosciences as the removal agent at the Pond. Prior to treatment, we developed the following metrics to determine success;

- Amorphous Cattail Coverage Divided into 3 Management Plots
  - These plots represent where the client wanted the Cattails to be reduced to
- Cost per unit reduction as compared to other Methods
  - \$/sq ft basis
- Reduction area
  - Measured in square feet
  - Reduction Goal of 50% total cover

Treatment consisted of 2 localized site applications in each Cattail Plot. Each plot includes Emergent Vegetation intended to be left untreated. Application prescription for both treatments included Herbicide as well as Cattzilla by Naturalake Biosciences mixed and applied at label rates by a licensed applicator.

## Results

All Objectives were met and exceeded using the prescribed application. Total Cattail coverage across the Pond was reduced by 58%. All detritus from the prior treatment was broken down by the active enzymes and absent. Each plot was reduced to the approximate configuration requested by the client (See Appendix).

**Table 1.** Cattail Area Reduction Detail

<b>Plot Identification</b>	<b>2017 Pre-Treatment Cattail Coverage area (sq ft)</b>	<b>2018 Post Treatment Cattail Coverage area (sq ft)</b>	<b>Area of Reduction area (sq ft) Per Plot</b>	<b>Percent Reduction Per Plot</b>
Plot 1	1,261	867	394	31%
Plot 2	2,470	888	1,582	64%
Plot 3	1,278	986	292	78%
<b>Total</b>	<b>5,009</b>	<b>2,741</b>	<b>2,268</b>	<b>58%</b>

Treatments consisted of one technician and two site visits lasting less than five hours total. No heavy equipment or hauling rigs were used and no material removed from the Pond or its banks. The impact to the resource and disturbance of the grounds were kept to a minimum meeting client request.

Management priorities regarding other ponds on the property left a small budgetary window for this work to get done. By electing to use the Naturalake Bio Catalyst approach, we were able to save this client 70% over a conservative quote for physical removal. Our approach to building the estimates for Cattail removal were focused on maintaining our minimum profit margin while still completing the clients desired scope of work. These constraints led to a very conservative estimate and proposal in regard to the physical removal option. Cost of removal calculated on a per square foot basis showed us that in this case, physical removal would be approximately \$3.25 compared to \$1.00 per square foot using Cattzilla by Naturalake Biosciences. This factor exceeded client expectations and strongly accomplished a project priority objective.


## Discussion

In the objectives section we touched on the ubiquitous constraints of scope and scale. These factors weigh particularly heavily on physical and mechanical removal. As the job gets larger, the overhead cost of equipment and logistics tend to balance themselves out. A large excavator is not the best option to remove a tenth acre Cattail infestation for example as the cost outweighs the benefit. A large excavator can remove more material in an hour than a typical field crew can remove in a whole work day so large-scale control may require such heavy equipment. With that said; hand removal requires quite a lot of man hours and logistical support as well, thinning the profit margins on this type of work as the treatment area decreases. Cattzilla removes the solid waste handling parameter which opens up a lot of room in your estimate where the scope allows for it.

In scenarios where the client wishes all of the material removed at once and gone from the pond, physical/ mechanical removal is the only option. The active enzymes in Cattzilla will break down dead stalks and thatch at, above and below the water surface but this does take time. Client education and long-term management planning can help to make the biological removal option viable and profitable in favorable scenarios.

Cattzilla is perhaps best suited to long term maintenance programs where periodic growth beyond established parameters is “set back” by managers. The biological approach allows for the least invasive and logistically challenging alternative to removal.

Cattail removal is a mainstay of aquatic management programs the world over. A balanced population of Typha species has a place in most management strategies, particularly in larger water bodies. Cattzilla by Naturalake Biosciences is a truly advanced management tool. Given certain parameters and project goals this tool can make the difference between a client having a lingering management issue or being glad that they hired you to do the job.



# Cattail Control in Residential Retention Ponds

A cost effective and efficient approach



# Plot 1 Breakdown Progression

2017 Pre-Treatment

2017 Post-Treatment

2018 Spring

2018 Late Season





# Plot 2 Breakdown Progression

2017 Pre-Treatment

2017 Post-Treatment

2018 Spring

2018 Late Season





# Plot 3 Breakdown Progression

2017 Pre-Treatment

2017 Post-Treatment

2018 Spring

2018 Late Season





# 2017 Pre Treatment Condition





# 2018 Post Treatment Condition

