Aquatic Vegetation Survey for Lake Roaming Rock, Roaming Shores, OH

Prepared for:

The Roam Rock Association

Prepared by:



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1.0 Introduction

Lake Roaming Rock is a 550-acre lake located in Ashtabula County in Northeast Ohio. It has a highly developed shoreline and is used intensively for recreation and fishing. An impoundment of a section of Rock Creek and portions of the associated Plum Creek and Sugar Creek tributaries form the lake and the continuous flow of water allows for nutrient input from up river and resultant sedimentation to occur. In addition, runoff from the lawns and other activities around the lake add to the lake's nutrient load. This allows for a more fertile lake substrate on which a variety of aquatic plants can establish. Most of these plants are native and provide habitat and resources for fish and waterfowl. However, non-native aquatic plants, such as the exotic Eurasian watermilfoil (*Myriophyllum spicatum*), can quickly out compete the native plants and interfere with recreation, decrease property values, and damage the ecology of the lake.

Without careful monitoring and management, beautiful lakes can become unsightly and unpleasant. An understanding of potential aquatic plant problems is one of the first steps in the process of effectively managing any water body. This can be achieved through regular lake-wide plant surveys. At the request of the Roam Rock Association, EnviroScience Inc. conducted a detailed aquatic vegetation survey on June 7 and 8, 2010, to assess the present conditions of the plant community within Lake Roaming Rock.

2.0 Project Objectives and Review of Available Information

The major objective of the aquatic plant survey is to determine the condition, density, and distribution of the native plant community in the reservoir. The survey also focuses on exotic and possibly invasive plants species suspected of being present in the lake. Collected data serves as a baseline for future surveys. Finally, the report generated outlines available treatment and control options and



the collected data forms the basis for recommendations for future aquatic plant management efforts.

As a first step in the project, in the late Spring of 2010, EnviroScience met with members of the Lake Management Committee (LMC) to discuss prior year activities and conditions. EnviroScience also met with Aqua Doc Lake and Pond Management of Chardon, Ohio, the only herbicide applicator authorized by the LMC to work on Lake Roaming Rock.

These discussions revealed that the Summer of 2009 was characterized by very heavy nuisance plant growth in many of the coves and shallow areas of the lake. Nate Robinson, Aqua Doc's project manager stated that the major nuisance species being treated was Coontail, with localized populations of Eurasian watermilfoil also being present.

At the present time, nuisance aquatic plant treatment is primarily the responsibility of the individual property owner. The Association owns and operates a mechanical weed harvester and this has been used to augment efforts by individual lot owners to clear some of the coves of nuisance vegetation.

Notwithstanding the Association's limited harvesting efforts, each lot owner may also hire the LMC-selected contractor on an annual basis to treat nuisance aquatic plants around their dock and water front. This treatment has generally involved application of a contact herbicide such as Diquat which provides shortterm, but fast treatment.

In the Fall of 2009, the Association drew down the lake level by approximately 8 feet to facilitate dock maintenance and sediment removal from several coves. Although this drawdown was expected to inhibit plant growth for much of the 2010 season, the LMC felt that conducting a plant survey in early summer was important for several reasons. The first of these was to establish a baseline for



all aquatic plant management efforts and to determine the exact composition of the macrophyte community. An early summer survey was also deemed necessary because a number of homeowners had already contracted with Aqua Doc for 2010 treatments and there was a desire on the part of both the homeowners and the contractor to start any necessary treatments as early as possible.

3.0 Aquatic Vegetation Survey Methods

Aquatic vegetation survey procedures used by EnviroScience are patterned after those developed by the Michigan Department of Environmental Quality contained in the <u>Standard Procedures for Surveying Aquatic Plants</u>. The survey is designed to ensure easily replicable surveys of the existing aquatic plant communities.

The survey is carried out by sampling individual Aquatic Vegetation Assessment Sites (AVAS's) throughout out the lakes' littoral zone (i.e. areas where water depth is <20 feet). The locations of the AVAS's are determined by dividing up the lake's shoreline into segments approximately 100 to 300 feet in length. Each AVAS is sampled by using visual observation (depending on water clarity), and weighted rake tows. Each plant species observed as well as an estimate of density are recorded on a Standard Aquatic Vegetation Assessment Site Species Density Sheet (AVAS) developed by the State of Michigan (App. B). On the AVAS density sheets the approximate percent cover was reported rather than narrative ranges. On the summary sheet, however, these percentages were translated into cover codes A, B, C, and D to describe the approximate coverage of each plant within the AVAS area, as outlined in the following table.



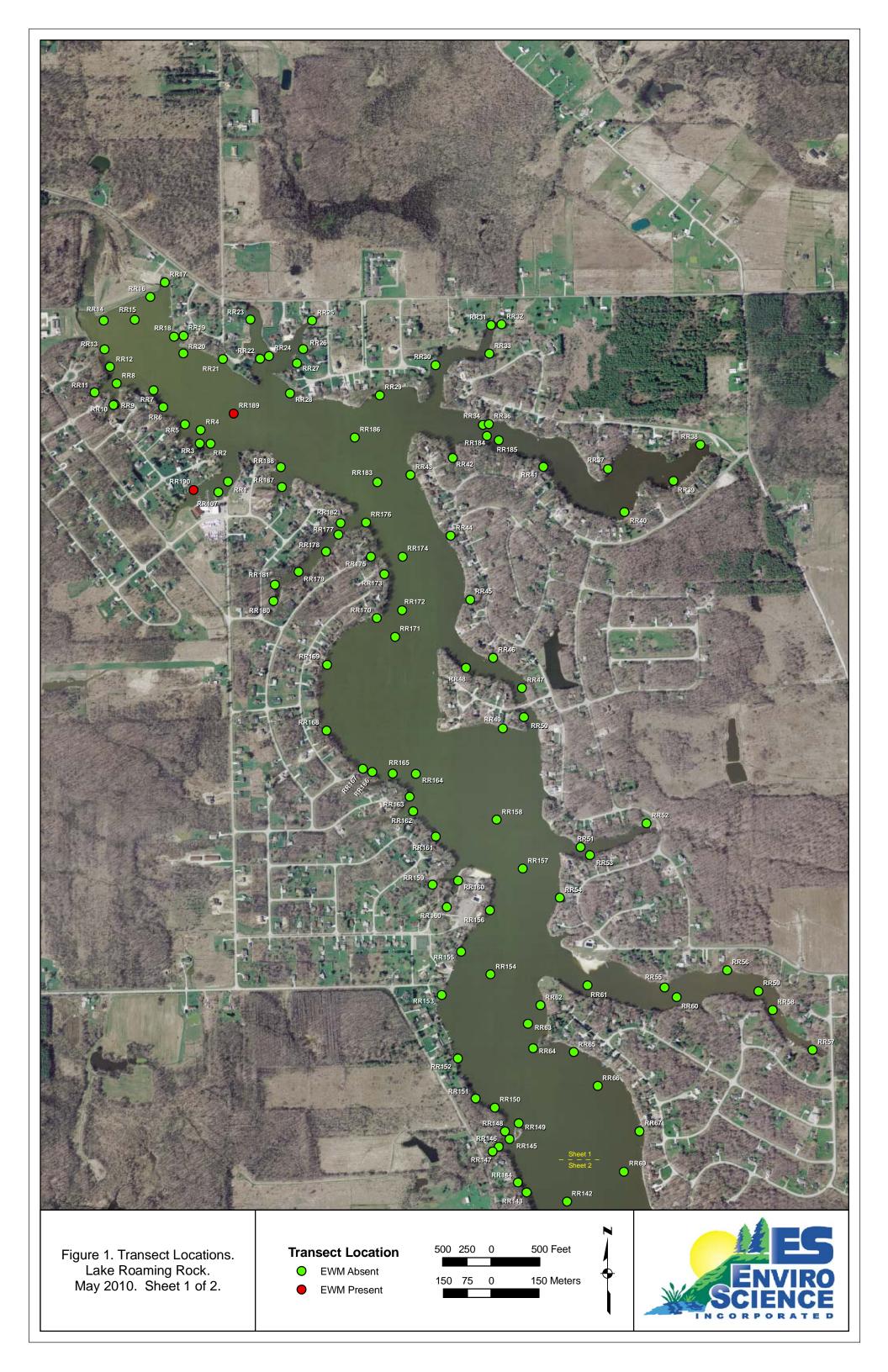
Cover Code	Approximate Cover Range
А	1-2%
В	3-20%
С	21-60%
D	61-100%

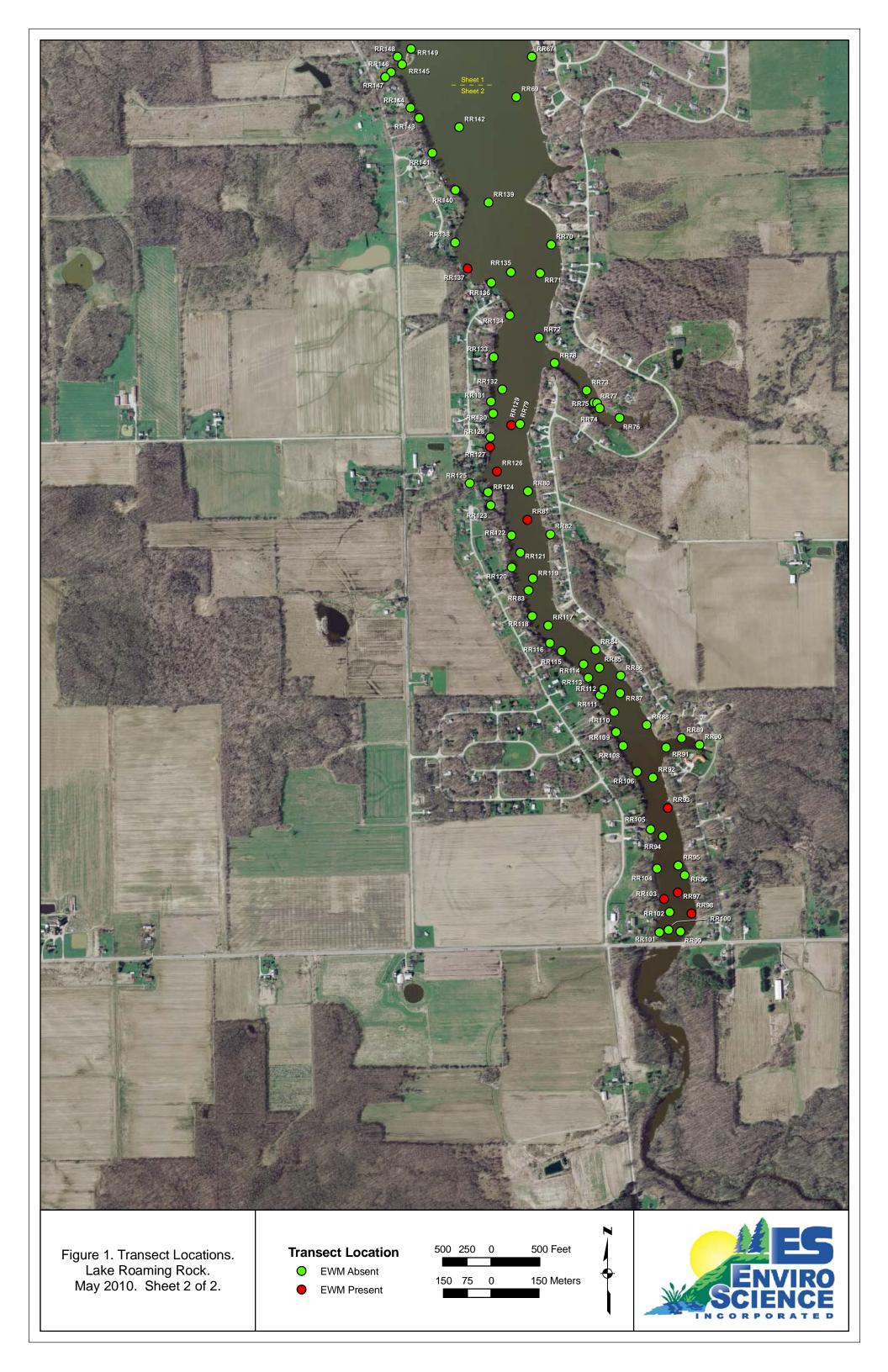
4.0 Survey Results

Due to the poor water clarity on June 7 and 8, visual surveys between rake tows could not be performed. Severe storms prior to those dates caused the water to be chalky and lake water levels were above normal. Rake tows were performed at specific sites around the lake, most within the littoral zone with some in the middle of large coves and the lake proper. Species to be classified were placed in a plastic bag, appropriately labeled, and identified using taxonomic keys at the completion of the survey. The location of each AVAS was determined using differential GPS technology. Lake Roaming Rock was divided into 190 AVAS sample locations as part of this survey (Figure 1).

The June survey identified 10 different aquatic plant species: 7 submersed and 3 floating-leaved species. The plants found at each location are listed in Appendix A. Only two exotic species were found during the survey. The first is Eurasian watermilfoil, which was found in 11 AVAS locations, making up 1.9 percent cumulative cover (CC). (App. B. Table 3). The second exotic species is Brittle naiad, which was found at 8 AVAS locations (4.4 CC) is considered noxious and invasive in some other states, therefore, future monitoring of the densities of this plant are warranted.







According to the calculated cumulative cover (CC) value, the dominant native plant_species in Lake Roaming Rock is Coontail (12.3 CC), found in 70 of the 190 AVAS. Other submersed native plants were found less frequently. These include species such as Small pondweed (2.7 CC), Long leaf pondweed (4.0 CC), Common waterweed or Elodea (1.0 CC).

Floating leaf native plants include White water lily (6.6 CC) and Spadderdock (1.0 CC), along with Small duckweed (1.0 CC).

Due to high water levels and the highly developed shoreline with many manmade seawalls, no emergent native plants were collected in rake tosses.

5.0 Discussion

As noted above, the survey was conducted relatively early in the growing season. This coupled with the heavy drawdown the previous winter makes it clear that the condition of the aquatic plant community at the time of the June 7-8 survey was not representative of the typical condition or the situation that concerned the LMC and many lake residents the previous summer. Despite this, meaningful conclusions can be drawn and recommendations for action can be made.

At the present time, Coontail is the dominant member of the plant community. Information from Aqua Doc indicates that this was also the major nuisance during the summer of 2009. Coontail is a completely submersed plant commonly seen in lakes with moderate to high nutrient levels. It is generally a dark, olive green color, and is often rather hard and crusty to the feel. This is especially true where it grows in hard water lakes (the calcium in the water becomes deposited on the leaf surface, making it seem crunchy). Coontail spreads to new areas either through germination of its seeds, or by regrowth of stem fragments. Coontail does not produce roots, instead it absorbs all the nutrients it requires from the



surrounding water. If it is growing near the lake bottom, it will form modified leaves which it uses to anchor to the sediment. However, it can float free in the water column, and sometimes forms dense mats just below the surface. Because it gets nutrients from the water, it grows best where these nutrient levels are high. It will also tolerate a wide range of water hardness, cool temperatures, and low light conditions. Because Coontail overwinters as an evergreen plant, this species provides important habitat to many invertebrates and fish year- round. Waterfowl feed upon both foliage and fruits. Coontail is found throughout North America.

A major species of concern for the homeowners of Lake Roaming Rock is Eurasian watermilfoil (EWM) due to its invasive potential and tendency to dominate plant communities in northern lakes. At the time of the survey, the EWM was found in 11 / 190 locations and in a sparse density. The native aquatic plant community in Lake Roaming Rock at the time of the survey was dominated by Coontail. At high densities it can form surface mats that resemble EWM beds. That coupled with similarities in leaf structure and overall appearance can create the deception that a lake is infested with the exotic EWM when in fact it is not. This type of misidentification can lead to improper management choices, in particular, the application of herbicides at rates determined for EWM that will not help control some native plants. Expert plant identification is the key to determining the proper plant management strategy for any waterbody.

A healthy lake ecosystem will be the positive outcome of proper lake management. A variety of methods are currently available for controlling nuisance aquatic plants. These include physical, mechanical, chemical, and biological methods. All aquatic plant management techniques have positive and negative attributes. Selection of a method needs to be based on economic, environmental, technical, and sometimes regulatory constraints.



5.1 Control Techniques

Control techniques of nuisance aquatic plants include biological, chemical, mechanical/physical and cultural methods. One important consideration in making management decisions is to recognize that the idea of complete eradication of nuisance aquatic plants is typically unrealistic except in exceptional circumstances. Once a species becomes established in a foreign place, the goal should be detection and management to levels that do not cause ecological, societal or economic impacts. Management plans should ultimately be chosen based on an individual lake's environmental conditions. EnviroScience's 2005 comprehensive report entitled "Lake Diagnostic Study and Management Plan Development for Lake Roaming Rock" provides a framework for basing future management decisions. An overview including advantages and disadvantages of control methods will be discussed below in order to guide management decisions at Lake Roaming Rock.

Biological Control

Biological control of aquatic weeds is typically associated with invertebrate herbivores. For example, Eurasian watermilfoil has been shown to be controlled through several different biological control agents. These include the milfoil weevil, an aquatic beetle (*Euhrychiopsis lecontei*); the naturalized milfoil moth, which has an aquatic larval stage (*Acentria ephemerella*); the milfoil midge (*Cricotopus myriophylli*); and a native caddisfly (*Oecetis* sp.). Thus far, the milfoil weevil has shown the most promising results of control of Eurasian watermilfoil, which is supported by both academic and private research. Other species of insects can be effective at controlling infestations of additional invasive species, such as purple loosestrife. The immediate benefit of a biocontrol program is that it reduces the amount of chemicals (an environmental pollutant) used to control the weed. Well-designed biocontrol programs can also be



sustainable over the long term. As biocontrol agents grow in numbers, control may be more effective. However, that being said, fluctuations in the agent's effective population size are not predicable, so results can vary from lake to lake and year to year. Also the culturing of biocontrol agents is a labor intensive process, thereby making the implementation of such programs in the initial years seemingly more costly than other forms of aquatic macrophyte management.

Another form of biological control is the introduction of grass carp, an herbivorous fish. Although grass carp can be effective at reducing vegetation in some lakes, Eurasian watermilfoil is not the preferred food source for grass carp. Therefore, the beneficial native macrophyte community is generally completely consumed first, which ultimately increases turbidity in the lake. Additionally, because rooted aquatic macrophytes stabilize lake nutrients, the removal of such plants entirely can result in the increased suspension of sediment and nutrients, causing increasingly frequent algal blooms. Lake Roaming Rock has already employed the use of grass carp in the past, and it was not beneficial to the system. Therefore, this technique is not recommended.

Chemical Control

Many different aquatic herbicides are used to control nuisance aquatic vegetation. Chemical herbicides can have an immediate, observable effect in the reduction of biomass. However, many of these herbicides have one or more aquatic use restrictions that limit the availability of the waterbody for recreation, agriculture/gardening, and livestock watering for from 1 to 30 days. Although many herbicides are purported to be selective, over-use or inappropriate choice of herbicide can have non-target effects on native macrophytes as well as on aquatic invertebrate and fish populations. Therefore, judicious use of aquatic herbicides



through targeted spot treatment, rather than lake-wide application, could be integrated into a management plan at Lake Roaming Rock, if and when other options are not available or feasible for one or more reasons.

"Contact herbicides" kill the portion of the plant that they come in contact with. Contact herbicides generally work quickly on the treated portions of the plant. However, these types of herbicides will leave the root system of the plant intact and therefore allow for future regrowth. "Systemic herbicides" are those chemicals that penetrate the plant tissue and are translocated throughout, therefore they are capable of killing the entire plant. In any case, herbicides cannot eradicate aquatic nuisance plants but only offer short-term control. The results are continued costly annual treatments. Seven herbicide compounds are registered for use in aquatic systems. The following paragraphs briefly summarize the use characteristics and restrictions association with the five most commonly used for Eurasian watermilfoil (EWM) control.

- Diquat dibromide i.e. Reward®, RedWing®- is a <u>non-selective</u> <u>contact</u> herbicide that can act within a very short time, causing a rapid die-off of the plant shoots. It is restricted for use in some water bodies because it will bind to particulate and dissolved organic matter. *The label on the Reward® container states that it is toxic to invertebrates. Research has shown that it also is moderately toxic to practically nontoxic to birds and slightly toxic to fish.* The EPA requires a 14-day interval between treatment of water with diquat dibromide and use of treated waters for domestic, livestock, or irrigation purposes.
 Swimming, fishing, and watering of domestic animals should not be allowed for at least 14 days after application of the herbicide to water.
- Fluridone i.e. Sonar® is a <u>fairly-selective systemic</u> herbicide used to treat dicot species like Eurasian watermilfoil. It is slow acting and must be in contact with plants at low concentrations for up t 60 days to



be effective. This feature alone makes it very difficult to use in flowing water or in lakes and reservoirs having fast flushing rates. According to the manufacturer, lake water containing Sonar used at the maximum-labeled rate (150 ppb) may affect domestic plants, especially plants in the *Solanaceae* family (tomato, potato, eggplant, peppers etc.) and is therefore, unsuitable for irrigation.

- Triclopyr i.e. Renovate 3[®] is a <u>selective systemic</u> herbicide with the ability to remove milfoil and allow non-invasive native monocots and tolerant dicots to survive. Use restrictions include that it should not be applied directly to un-impounded rivers or streams and treated water may not be used for irrigation for 120 days following application. In addition a 12-hour swimming restriction is recommended to minimize eye irritation. If a flooding event occurs within 120 days of application, there is a potential for triclopyr to damage upland sensitive species, particularly grapes, vegetable crops and flowers.
- 2,4-D i.e. Aqua-Kleen®, Navigate®, and DMA*4IVM is a relatively fast-acting selective systemic herbicide used for control of Eurasian watermilfoil and other broad-leaved species. There are two formulations of 2,4-D approved for aquatic use. Both the granular and liquid formulations have been shown to be relatively selective to Eurasian watermilfoil when used at the labeled rate, leaving most native aquatic species relatively unaffected. Susceptible weeds include: Water milfoils, Water star grass. Slightly to moderately resistant weeds include: Bladderwort, White water lily, Yellow water lily or Spatterdock*, Water shield, Coontail* (* Repeat treatments may be needed)
- Endothall i.e. Aquathol® is a <u>fast-acting non-selective contact</u> herbicide generally considered to be an effective herbicide for spot treatment. According to a Washington State DOE study, using low levels over a lake's littoral zone does cause adverse impacts in the



short term, since many vascular plants are affected by the treatment. It may be applied in a granular or liquid form. Endothall is toxic to some species of fish.

There are several environmental impacts that must be considered when choosing the appropriate aquatic herbicide. Primary effects on organisms, including humans, from herbicides are usually the first level of concern when it comes to environmental impacts. Registration of a pesticide involves bioassays of the active ingredient across a few taxa of organisms. However, not all phyla are screened so questions remain as to the sensitivity of endangered and not-target species found in aquatic systems. The statements, "No laboratory work was conducted on the effects of triclopyr TEA against amphibians," "It is anticipated that amphibians will be affected by triclopyr TEA both acutely and chronically at concentrations similar to fish," and "Triclopyr is *slightly toxic* to birds when orally consumed in the diet," leave considerable doubt as to the overall safety of some approved herbicides and their long-term effects on all trophic levels and organisms that may be present in a system.

However, even if an herbicide is determined to have no direct effect on a particular organism, a number of indirect effects remain that may impact the aquatic biota and environment. The most significant secondary effect is the reduction of dissolved oxygen (DO) in the water from the decomposition of dying and dead plants. This dramatic change can cause aquatic invertebrate and vertebrate mortality or a transformation from the dominant forms to ones that tolerate low DO levels. Warm water fish such as bass, carp, catfish, shiners, and sunfish can survive and reproduce with relatively low DO, but cold water fish will survive for only a short period and are unlikely to successfully complete a life cycle.



Along with the change in DO, an abundance of decaying plants produce excess nutrients that are released in the form of phosphates and ammonia. Algal blooms often result from this nutrient overload. Of equal concern is the release of unionized ammonia (NH3), which has been reported as toxic to freshwater organisms. Also, when temperature and pH decrease, the toxicity of ammonia increases. Nitrite, produced during the oxidation of ammonia, has been proven to be toxic to fish.

Another area of concern is the use of surfactants in conjunction with aquatic herbicides. Surfactants or adjuvants are mixed with herbicides immediately prior to application to increase herbicide effectiveness by assisting in adherence of the chemical to plant surfaces. Surfactants do not directly cause plant mortality so they are not subjected to the same testing as the active ingredients.

Although EnviroScience did not observe any large algal blooms in Lake Roaming Rock at the time of the survey, the lake has had problems with algae in the past. There are several products available for algae control, although the most typically used are copper-containing compounds, such as copper sulfate and chelated copper. Unfortunately, copper containing compounds can have adverse effects on the invertebrate community. This in turn can affect the fish that feed on invertebrate species. Additionally, copper from these treatments accumulates in the sediment and can build up to levels where the sediment is considered a hazardous waste under Ohio law when it is disposed of following dredging. If a copper algaecide must be used, chelated copper is a safer option than copper sulfate, as it does not release as much free copper into the water column. An alternative algaecide is sodium carbonate peroxyhydrate otherwise known as percarbonate. One trade name for this product is GreenCleanPro[®]. This is a contact algaecide that appears to have less environmental impacts than copper compounds.



Mechanical/ Physical Control

Mechanical and physical methods for the control of aquatic weeds include mechanical-harvesting, bottom barriers, hand-pulling and suctionharvesting. All methods can be quite expensive over large areas and may need to be repeated several times in one season. However, even so, they do provide instantaneous relief from nuisance infestations of aquatic weeds that interfere with recreational activities.

Mechanical harvesting with the 'lawn-mower' boat is a technique currently employed at Lake Roaming Rock. While providing immediate relief from nuisance growth over relatively large areas, this technique has some limitations and drawbacks. These include being generally non-selective, a tendency to remove significant numbers of small fish,, invertebrates and amphibians, and the inability to operate in shallow areas and close to docks. Additionally, this process can actually facilitate the spread of plants such as Eurasian watermilfoil and Coontail since it produces fragments that escape the collection process and can float to other portions of the lake and start new colonies. Bottom barriers and handpulling can be effective but usually are restricted to small areas. Bottom barriers are effective at preventing growth of any aquatic vegetation in the area in which it is placed, but can prevent the growth of native macrophytes important for fish populations and water quality as well as interfere with benthic macroinvertebrates. Hand-pulling a small area around individual docks may suit private property owners on Lake Roaming Rock. However, care must be taken to collect all fragments and to properly dispose of the plant material. Based on the limited water clarity of Lake Roaming Rock, it is likely that this method would be both time-consuming and relatively inefficient. Hand-pulling by certified, trained



scuba divers is one of the highest cost control methods because of the time, labor and equipment needed to accomplish adequate control.

Suction harvesting has had promising results in the ability to selectively and effectively remove the entire plant by sucking it, roots and all, into a hose attached on a specially designed boat. It is most useful for small, dense infestations, or widely-spaced, moderately-sparse infestations. However, it does result in increased sedimentation into the water column temporarily and can be a costly alternative when used in large areas. Additionally, algal blooms from nutrient release can result from the disturbance of bottom sediments. Algal blooms can reduce oxygen in the upper stratified layers of the lake, thereby affecting fish and insect species. Suction harvesting is an expensive method due to the need for specialized scuba divers and equipment, however, the ability to target nuisance plant populations with high specificity in both plant species and location may make this a viable option for Lake Roaming Rock.

Cultural Control

Cultural methods can also be important in slowing or stopping the spread of invasive aquatic plant species. The most successful and simple cultural method of slowing the spread of plants such as Eurasian watermilfoil, would be to limit traffic through or avoid beds of milfoil where present. Additionally, it is important to implement systematic cleaning and disinfection of aquatic gear (especially boats and trailers), as these are likely vectors of introduction. This is evidenced by the presence of Eurasian watermilfoil in the boat launch area of Lake Roaming Rock and past infestations of zebra mussels and the exotic plant Azola. Since Eurasian watermilfoil and Coontail spread effectively through small fragments that can be produced through the action of propellers and can easily become attached to boats and trailers and then spread from lake to



lake, it is imperative that people become aware of the role that they play in transporting invasive plants. Furthermore, lake residents should be informed as to water quality benefits of shoreline buffers and erosion control through vegetated buffers. This will decrease sediment load into the lake. However, care should be taken to ensure that the plants chosen for the buffers do not include other invasive, fast-spreading plants such as yellow flag iris (which was observed in low densities on the shore near the boat launch) and purple loosestrife.

Cultural methods are a low-cost and safe preventative way of slowing the spread of invasive plants. The challenge is educating the public about the issues. An effective education campaign can be a successful tool, if implemented correctly and lake-wide. Most people will be convinced to play a role in plant management through demonstration of utilitarian benefits (improved boat mobility, better fishing habitat, better swimming/recreational attributes). Lake Roaming Rock is at an advantage in that there are many public facilities where educational material about aquatic invasive plants can be posted and distributed.

6.0 Recommendations

EnviroScience is committed to providing lake-wide sustainable and long-term management options that are environmentally and scientifically sound. It should be noted that some of these techniques may require prior approval by certain state agencies before implantation. In order to achieve this goal in Lake Roaming Rock, EnviroScience recommends an integrated approach, as outlined below.

 An important initial step in controlling the spread of aquatic invasive plants is prevention. Therefore, EnviroScience recommends that the Roam Rock Association launch an educational campaign by disseminating educational



materials regarding the importance of cultural methods of aquatic invasive species management. This can be accomplished in a couple of ways. One is to add comprehensive information and photographs of aquatic plants, healthy buffer practices, etc. through the existing Web site (www.roamingshores.org). Another method is to produce posters or fliers that could be read by property owners and visitors of Lake Roaming Rock at key locations. Rock Point Marina, West Beach and East Beach would be ideal areas for posting educational information regarding the spread of invasive aquatic plants and the benefits of native aquatic plants for water quality, invertebrates, fish and waterfowl.

- 2. Because the vegetation survey was conducted early in the growing season following a winter drawdown, it is first recommended that EnviroScience reassess problem areas (i.e. where Eurasian watermilfoil was recorded in the June 2010 vegetation survey) prior to the implementation of management activities. These areas include: the marina; the southern portion of the lake, just north of SR 6; and along the eastern shore of the lake, near RL 16 and RL 18 Nature Trails. This reassessment will allow EnviroScience to identify the plants present and recommend the best management technique for each particular targeted area in the lake.
- 3. Following reassessment of these areas, and in broad open areas where the nuisance plants other than Eurasian watermilfoil are moderately dense, mechanical harvesting could be used as a management tool. However, we do not believe that this should be the primary management tool because its use for Coontail and Eurasian watermilfoil will result in these species continuing to spread to other areas of the lake. Harvesting should never be employed in areas where Eurasian watermilfoil is the dominant species or in areas where it comprises a major part of the overall plant community.



- 4. In areas where nuisance aquatic plant growth is not widespread and occurs closer to shore and around obstructions where mechanical harvesting is not feasible, diver operated suction harvesting may an effective means of removing both vegetative and root biomass. This technique is particularly useful where treatment is desired on a lot by lot basis. This technique is also suitable for use during the growing season, because it is more selective than general herbicide applications. However, selectivity is based on the diver's ability to locate and identify the target plants under water, therefore, consideration must be given to water quality conditions (i.e. water levels and turbidity) during this treatment option.
- 5. In areas with extensive, dense infestations of Eurasian watermilfoil (should this occur later in the growing season or in the future), and if sufficient water clarity and oxygenation is available, milfoil weevils (*Euhrychiopsis lecontel*) are a viable biocontrol option in those low-traffic areas of the lake. This option is considered a long-term sustainable and environmentally-friendly approach. However, the success of the program will depend on water quality considerations, as well as suitable off-shore over-wintering habitats for the weevils. EnviroScience recommends a multi-year weevil stocking plan for lakes in which there is a need, as well as sufficient habitat, for the weevils.
- 6. Herbicide spot treatment with systemic herbicides may be a viable option in those areas with nuisance weeds where suction harvesting or biocontrol options are not available. However, it should be noted that some nontarget effects may be realized. Non-target effects can be minimized if herbicides are applied earlier in the growing season, before many native plants have begun to grow.
- 7. Benthic barriers may be effective at controlling growth of nuisance weeds in limited areas around individual docks. This will allow for easy egress from private docks to the lake proper and help quell the complaints of lakefront property owners that often occur when plants reach their peak.



However, these barriers can be difficult to deploy and they also prevent the growth of native macrophytes and can therefore indirectly affect the invertebrate and fish community in the areas where they are employed.

8. If algae becomes a problem later in the season, it is recommended that a non-copper containing compound, such as sodium carbonate peroxyhydrate (percarbonate) be used to control the algal blooms. Using non-copper based products is an especially important consideration if milfoil weevils are used to control Eurasian watermilfoil in the lake, as copper compounds can affect the success of a stocking project by reducing effective population sizes of the weevil.



<u>Appendix A</u>

Standard Aquatic Vegetation Assessment Site Species Density Sheet, Summary Sheet and Table



Table 3. Aquatic Plan	t Species Encountered in Lake	Roaming Rock
Common Name	Scientific Name	Cumulative Cover
Submersed Plants		
Eurasian watermilfoil	Myriophyllum spicatum	1.9
Coontail	Ceratophyllum demersum	12.3
Brittle naiad	Najas minor	4.4
Small pondweed	Potamogeton pusillus	2.7
American/long-leaf pondweed	Potamogeton nodosus	4.0
Elodea/common waterweed	Elodea Canadensis	1.0
Floating-leaved Plants		
Spatterdock	Nuphar variegate	1.0
White water lily	Nymphaea odorata	6.6
Small duckweed	Lemna minor	1.0



Standard Aquatic Vegetation Summary Sheet

SURVEY BY: Nancy Cushing & Lara Roketenetz

		Total	numba	r of AV	/ A S'e	Calcula	ions			Sum of Previous	Total Number	Quotient of Column 9		
				isity Ca		Catago		Catagory	Catagory	Four	of	divided by		
		A	B	C	D	A x		C x 40	D x 80	Columns	AVAS's	Column 10		
Code	Plant Name	л	Б	C	D	ЛЛ	I DAIO	C A 40	D X 80	Columns	AVASS	Column 10	Code	Plant Name
No	T lank T tanle	1	2	3	4	5	6	7	8	9	10	11	No	T funct i vanice
1	Eurasian milfoil	10	1			10	10			21	11	1.9	1	Eurasian milfoil
2	Curly leaf pondweed												2	Curly leaf pondweed
3	Chara												3	Chara
4	Thinleaf pondweed												4	Thinleaf pondweed
5	Flatstem pondweed												5	Flatstem pondweed
6	Robbins pondweed												6	Robbins pondweed
7	Variable pondweed												7	Variable pondweed
8	Whitestem pondweed												8	Whitestem pondweed
9	Richardsons pondweed												9	Richardsons pondweed
10	Illinois pondweed												10	Illinois pondweed
11	American pondweed	2	1			2	10			12	3	4.0	11	American pondweed
	Floating leaf pondweed	-	-				10							Floating leaf pondweed
	Water stargrass													Water stargrass
14	Wild Celery													Wild Celery
	Small pondweed	31	2	1		31	20	40		91	34	2.7		Small pondweed
16	T f 1 1												16	Que sitterie
	Leafy pondweed Northern milfoil													Sagitteria Northern milfoil
	M. verticillatum													M. verticillatum
	M. herterophyllum	22	22	0	2	22	220	220	240	012	((10.2		M. herterophyllum
20	Coontail	33	22	8	3	33	220	320	240	813	66	12.3	20	Coontail
	Elodea	4				4				4	4	1.0	21	Elodea
	Bladderwort													Bladderwort
	Bladderwort-mini													Bladderwort-mini
	Buttercup													Buttercup
25	Najas spp.												25	Najas spp.
26	Brittle naiad	5	3			5	30	+		35	8	4.4	26	Brittle naiad
	Sago pondweed	5	5			5	50			33	0	-1.1		Sago pondweed
	Water Merigold													Water Merigold
29	Spadderdock	2				2				2	2	1.0	29	Spadderdock
	White water lily	6		1		6		40		46	7	6.6		White water lily
	Yellow water lily	Ű		-		Ű					,	0.0		Yellow water lily
32	Nuphar sp.				\square								32	Nuphar sp.
	Watershield	_		<u> </u>	┝─┤			+						Watershield
	Equisitum	_			╞──┦			1						Equisitum
	Spirodella	_		<u> </u>	╞╴┤			+						Spirodella
	Small Duckweed	4			$\left \right $	4				4	4	1.0		Watermeal
	Arrowhead								[[Arrowhead
	Smartweed	_						<u> </u>						Smartweed
	Quillwort						_	-						Quillwort
	Cattails				\mid			 						Cattails
41	Three square bulrush				$\left \right $								41	Bulrushes
	Iris													Iris
	Swamp Loosestrife		1					1						Swamp Loosestrife
44	Carex spp.							1						Purple Loosestrife
45	Rush spp.		1	1		1		1						Rush spp.
			1	1		1		1						

Appendix **B**

Standard Aquatic Vegetation Assessment Site Species Density Sheets



$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Stan	lard Aquatic Vegetation A	Asse	ssme	ent S	Site	Spec	cies	Den	sity	Shee	t								
$ \begin{array}{cccc} & \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $							•													
No. Plant Name 1 2 3 4 5 6 7 8 No. Plant Name 9 10 11 12 13 14 15 16 1 Eurasian watermilfoil 1 1 Eurasian watermilfoil 1 1 Eurasian watermilfoil 1			A	quatic	Vegeta	tion As	ssessm	ent Site	e Num	ber			А	quatic	Vegeta	tion A	ssessme	ent Site	Num	ber
No. Plant Name 1 2 3 4 5 6 7 8 No. Plant Name 9 10 11 12 13 14 15 16 1 Eurasian watermilfoil 1 1 Eurasian watermilfoil 1 1 Eurasian watermilfoil 1	C. I.		NO	NO	NO	NO	NO	NO	NO	NO	C. I.		NO	NO	NO	NO	NO	NO	NO	NO
Image: second		Plant Name										Plant Name								
2 Curly leaf pondweed Image: Curly leaf pondweed Image: Curly leaf pondweed 3 Chara 3 Chara Image: Curly leaf pondweed Image: Curly leaf pondweed 4 Thin leaf pondweed 4 Thin leaf pondweed Image: Curly leaf pondweed Image: Curly leaf pondweed 6 White stem pondweed 6 White stem pondweed Image: Curly leaf pondweed Image: Curly leaf pondweed 7 Richardsons pondweed 7 Richardsons pondweed Image: Curly leaf pondweed Image: Curly leaf pondweed 9 Large leaf pondweed 10 Variable pondweed Image: Curly leaf pondweed			1	Z	3	4	3	0	/	0			9	10	11	12	15	14	13	10
2 Curly leaf pondweed Image: Curly leaf pondweed Image: Curly leaf pondweed 3 Chara 3 Chara Image: Curly leaf pondweed Image: Curly leaf pondweed 4 Thin leaf pondweed 4 Thin leaf pondweed Image: Curly leaf pondweed Image: Curly leaf pondweed 6 White stem pondweed 6 White stem pondweed Image: Curly leaf pondweed Image: Curly leaf pondweed 7 Richardsons pondweed 7 Richardsons pondweed Image: Curly leaf pondweed Image: Curly leaf pondweed 9 Large leaf pondweed 10 Variable pondweed Image: Curly leaf pondweed	1	Eurasian watermilfoil									1	Eurasian watermilfoil								
3 Chara 1 <td></td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>											2									
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6 White stem pondweed 0	4	Thin leaf pondweed									4	Thin leaf pondweed								
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7 Richardsons pondweed 7 Richardsons pondweed 1 1 8 Flatstem pondweed 9 Large leaf pondweed 1 1 9 Large leaf pondweed 10 1 1 1 10 Variable pondweed 11 12 Learly pondweed 1 1 11 Learly pondweed 11 Learly pondweed 1 1 12 Water stargrass 12 Water stargrass 1 1 13 Mare tail 11 13 Mare tail 1 1 14 Arrowhead 14 Arrowhead 1 1 1 16 Whorled watermilfoil 16 Whorled watermilfoil 1 1 16 Whorled watermilfoil 1 1 1 1 1 1 17 Coontail 1																				
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10 Variable pondweed 10 Variable pondweed 11 11 Leafy pondweed 11 Leafy pondweed 11 12 Water stargrass 12 Vater stargrass 12 13 Mare tail 13 Mare Tail 14 14 Arrowhead 14 Arrowhead 14 15 Northen watermilfoil 16 Whorle watermilfoil 17 16 Whorle watermilfoil 16 Whorle watermilfoil 17 17 Coontail 17 Coontail A B 18 Spatterdock 19 Elodea 19 Elodea 10 19 Elodea 19 Elodea 11 11 11 11 20 Bladderwort 20 Bladderwort 11	8	Flatstem pondweed									8	flatstem pondweed								
10 Variable pondweed 10 Variable pondweed 11 11 Leafy pondweed 11 Leafy pondweed 11 12 Water stargrass 12 Vater stargrass 12 13 Mare tail 13 Mare Tail 14 14 Arrowhead 14 Arrowhead 14 15 Northen watermilfoil 16 Whorle watermilfoil 17 16 Whorle watermilfoil 16 Whorle watermilfoil 17 17 Coontail 17 Coontail A B 18 Spatterdock 19 Elodea 19 Elodea 10 19 Elodea 19 Elodea 11 11 11 11 20 Bladderwort 20 Bladderwort 11	0	Large leaf nondweed									0	I arge leaf nondweed	<u> </u>							
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12 Water stargrass 1 12 Water stargrass 1 1 13 Mare tail 13 Mare Tail 1													-							
13 Mare tail 13 Mare Tail 14 14 Arrowhead 14 Arrowhead 15 15 Northern watermilfoil 16 Whorled watermilfoil 17 16 Whorled watermilfoil 16 Whorled watermilfoil 17 17 Contail 11 17 Contail A 18 19 Elodea 19 Elodea 10 17 Contail 17 20 Bladderwort 20 Bladderwort (mini) 21 Bladderwort (mini) 17 17 21 Bladderwort (mini) 21 Bladderwort (mini) 17 18 14 14 22 Buttercup 22 Buttercup 14 14 14 14 23 Najas spp. 23 Najas spp. 16 16 16 16 24 Brittle naiad 25 Sago pondweed 25 Sago pondweed 16 17 28 White waterlily 28 White waterlily 16 17 17 30 Watermer								-			12	Water stargrass				-				
15 Northen watermilfoil 15 Northern watermilfoil 16 16 Whorled watermilfoil 16 Whorled watermilfoil 17 17 Contail 17 Contail A 8 18 Spatterdock 18 Spatterdock A 16 19 Elodea 19 Elodea 16 17 20 Bladderwort (mini) 20 Bladderwort (mini) 17 17 21 Butercup 22 Butercup 16 16 23 Najas spp. 23 Najas spp. 16 17 24 Brittle naiad 25 Sago pondweed 16 16 25 Sago pondweed 27 Small pondweed 16 16 27 Small pondweed 27 Small pondweed 16 17 28 White waterlily 28 29 Yellow waterlily 16 16 29 Yellow waterlily 29 29 Yellow waterlily 16 17 30 Watershield 30 30											13	Mare Tail								
15 Northen watermilfoil 15 Northern watermilfoil 16 16 Whorled watermilfoil 16 Whorled watermilfoil 17 17 Contail 17 Contail A 8 18 Spatterdock 18 Spatterdock A 16 19 Elodea 19 Elodea 16 17 20 Bladderwort (mini) 20 Bladderwort (mini) 17 17 21 Butercup 22 Butercup 16 16 23 Najas spp. 23 Najas spp. 16 17 24 Brittle naiad 25 Sago pondweed 16 16 25 Sago pondweed 27 Small pondweed 16 16 27 Small pondweed 27 Small pondweed 16 17 28 White waterlily 28 29 Yellow waterlily 16 16 29 Yellow waterlily 29 29 Yellow waterlily 16 17 30 Watershield 30 30																				
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17 Coontail A B B 18 Spatterdock A Image: Constant of the system of th																				
18 Spatterdock A <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5</td><td></td></t<>																			5	
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20 Bladderwort 20 Bladderwort (mini) 1 21 Bladderwort (mini) 21 Bladderwort (mini) 1 22 Buttercup 22 Buttercup 1 1 23 Najas spp. 23 Najas spp. 1 1 24 Brittle naiad 24 Brittle naiad 1 1 25 Sago pondweed 25 Sago pondweed 1 1 26 Water merigold 25 Sago pondweed 1 1 27 Small pondweed 27 small pondweed 1 1 27 Small pondweed 28 White waterlily 1 1 28 White waterlily 28 White waterlily 1 1 30 Watershield 30 Watershield 1 1 1 31 Small duckweed 31 Small duckweed 1 1 1 33 Watermeal 33 Watermeal 1 1 1 34 Arrowhead 34 Arrow arum 1	18	Spatterdock									18	Spatterdock	A							<u> </u>
20 Bladderwort 20 Bladderwort (mini) 1 21 Bladderwort (mini) 21 Bladderwort (mini) 1 22 Buttercup 22 Buttercup 1 1 23 Najas spp. 23 Najas spp. 1 1 24 Brittle naiad 24 Brittle naiad 1 1 25 Sago pondweed 25 Sago pondweed 1 1 26 Water merigold 25 Sago pondweed 1 1 27 Small pondweed 27 small pondweed 1 1 27 Small pondweed 28 White waterlily 1 1 28 White waterlily 28 White waterlily 1 1 30 Watershield 30 Watershield 1 1 1 31 Small duckweed 31 Small duckweed 1 1 1 33 Watermeal 33 Watermeal 1 1 1 34 Arrowhead 34 Arrow arum 1	10	Flodes									10	Flodea								
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30Watershield30Watershield131Small duckweed31Small duckweed132Great duckweed32Great duckweed133Watermeal33Watermeal134Arrowhead34Arrowhead135Pickerelweed35Pickerelweed136Arrow arum36Arrow arum137Cattail37Cattail138Bulrush38Bulrush140Swamp Loosestrife40Swamp Loosestrife141Carex spp41Carex spp143Burr Reed43Burr Reed1	20	Vellow waterlily									20	Vellow waterlily							_	
31Small duckweed31Small duckweed11132Great duckweed32Great duckweed11133Watermeal33Watermeal11134Arrowhead34Arrowhead11135Pickerelweed35Pickerelweed11136Arrow arum36Arrow arum11137Cattail37Cattail11138Bulrush38Bulrush11140Swamp Loosestrife140Swamp Loosestrife1141Carex spp41Carex spp41Carex spp1143Burr Reed43Burr Reed43Burr Reed11			\vdash										—					\vdash		
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34 Arrowhead 34 Arrowhead 34 Arrowhead 36 Arrowhead 37 38 Second S																				
35 Pickerelweed 35 Pickerelweed 1 1 36 Arrow arum 36 Arrow arum 1 1 1 37 Cattail 37 Cattail 1 1 1 1 38 Bulrush 38 Bulrush 1 1 1 1 1 39 Iris 39 Iris 39 Iris 1 1 1 1 40 Swamp Loosestrife 40 Swamp Loosestrife 1																				
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37 Cattail 37 Cattail 1																				
38 Bulrush 38 Bulrush 1																				
39 Iris 39 Iris 10 39 Iris 10 10 10 40 Swamp Loosestrife 40 Swamp Loosestrife 10 10 41 Carex spp 41 Carex spp 10 10 42 Rush spp 42 Rush 10 10 43 Burr Reed 43 Burr Reed 10 10													<u> </u>							
40 Swamp Loosestrife 40 Swamp Loosestrife 1 41 Carex spp 41 Carex spp 1 42 Rush spp 42 Rush 1 43 Burr Reed 43 Burr Reed 1	38	Bulrush									38	Bulrush	<u> </u>							
40 Swamp Loosestrife 40 Swamp Loosestrife 1 41 Carex spp 41 Carex spp 1 42 Rush spp 42 Rush 1 43 Burr Reed 43 Burr Reed 1	30	Iric									30	Iric	<u> </u>							
41 Carex spp 41 Carex spp 42 Rush spp 42 Rush 43 Burr Reed 43 Burr Reed													<u> </u>							
42 Rush spp 42 Rush 42 43 Burr Reed 43 Burr Reed 43													-							
43 Burr Reed 43 Burr Reed													-							
													-							
		American Pondweed																		

Stan	lard Aquatic Vegetation	Asse	ssme	ent S	Site S	Spec	cies	Den	sity	Shee	t								
		A	quatic	Vegeta	tion As	ssessm	ent Site	e Numl	ber			А	quatic	Vegeta	tion As	ssessm	ent Site	Num	ber
Code	Diana Nama	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	Code	Direct Name	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO
No.	Plant Name	17	18	19	20	21	22	23	24	No.	Plant Name	25	26	27	28	29	30	31	32
1	Eurasian watermilfoil									1	Eurasian watermilfoil								-
2	Curly leaf pondweed										Curly leaf pondweed								
3	Chara									3	Chara								
4	Thin leaf pondweed									4	Thin leaf pondweed								
5	Robbins pondweed										Robbins pondweed								-
	White stem pondweed										White stem pondweed								1
	Richardsons pondweed										Richardsons pondweed								
8	flatstem pondweed									8	flatstem pondweed								
9	Large leaf pondweed									9	Large leaf pondweed								┝
10	Variable pondweed	1								10	Variable pondweed	1							
11	Leafy pondweed									11	Leafy pondweed	1							t –
12	Water stargrass									12	Water stargrass								
13	Mare tail									13	Mare Tail								
14	Arrowhead									14	Arrowhead								
	Northen watermilfoil										Northern watermilfoil								
16	Whorled watermilfoil										Whorled watermilfoil								-
-	Coontail		Α				В	А	В		Coontail	В				Α	С	А	В
	Spatterdock							A			Spatterdock						-		-
	Elodea										Elodea								
	Bladderwort										Bladderwort	_							
	Bladderwort (mini) Buttercup										Bladderwort (mini)	_							<u> </u>
	Najas spp.										Buttercup Najas spp.	-							
23	14945 500									23	rujus spp.								
	Brittle naiad										Brittle naiad	В							А
	Sago pondweed										Sago pondweed								
	water merigold										water merigold								
27	small pondweed						Α				small pondweed								
28	White waterlily									28	White waterlily	A							А
	Yellow waterlily										Yellow waterlily	+							<u> </u>
	Watershield										Watershield								
	Small duckweed						А				Small duckweed								
	Great duckweed										Great duckweed								
33	Watermeal									33	Watermeal								
	Arrowhead										Arrowhead								┢──
	Pickerelweed										Pickerelweed								
	Arrow arum										Arrow arum								
	Cattail										Cattail								
38	Bulrush									38	Bulrush	\vdash							<u> </u>
	Iris						L				Iris		L						
	Swamp Loosestrife										Swamp Loosestrife								
	Carex spp										Carex spp								
	Rush spp										Rush	<u> </u>							┣
	Burr Reed American Pondweed										Burr Reed American Pondweed	-				٨			^
44	American Pondweed									44	American Pondweed	1				A			А

Stand	dard Aquatic Vegetation	Asse	ssme	ent S	Site S	Spec	cies	Den	sity	Shee	t								
		А	quatic	Vegeta	tion A	ssessm	ent Site	e Num	ber			А	quatic	Vegeta	tion A	ssessm	ent Site	Num	ber
Cada		NO.	NO.		NO.		NO.	1	NO.	Code		NO.	ŕ	NO.			NO.	NO.	T
Code No.	Plant Name	33	34	35	36	37	38	39	40	No.	Plant Name	41	42	43	44	45	46	47	48
	Eurasian watermilfoil									1	Eurasian watermilfoil								
	Curly leaf pondweed									2	Curly leaf pondweed								
	Chara This lost non-druged									3	Chara This loof nondecod								
4	Thin leaf pondweed	-								4	Thin leaf pondweed								-
5	Robbins pondweed									5	Robbins pondweed								┼──
	White stem pondweed	-									White stem pondweed	-							-
	Richardsons pondweed									7	Richardsons pondweed								
	flatstem pondweed									8	flatstem pondweed								
	1																		1
	Large leaf pondweed										Large leaf pondweed								
10	Variable pondweed										Variable pondweed								
	Leafy pondweed										Leafy pondweed								
	Water stargrass										Water stargrass								
13	Mare tail	_								13	Mare Tail	_							
14	Arrowhead	-								14	Arrowhead	-							
	Northen watermilfoil	-									Northern watermilfoil	-							<u> </u>
	Whorled watermilfoil	-									Whorled watermilfoil	-							-
	Coontail	-			В	С	В	В			Coontail	-			А	А	А		-
	Spatterdock					_					Spatterdock								
10										10									
	Elodea										Elodea								
	Bladderwort										Bladderwort								
	Bladderwort (mini) Buttercup	-									Bladderwort (mini) Buttercup	_							
	Najas spp.	-									Najas spp.	_							_
25	Najas spp.									23	Najas spp.								┢──
24	Brittle naiad	-			А					24	Brittle naiad	-							-
	Sago pondweed										Sago pondweed								
	water merigold										water merigold								
	small pondweed				А						small pondweed								
28	White waterlily				Α					28	White waterlily						Α		
	Yellow waterlily										Yellow waterlily								
	Watershield Small duckweed										Watershield Small duckweed								
	Great duckweed	_			Α						Great duckweed								
	Watermeal	-									Watermeal	-							-
55	w aternicai									55	vv aternicar								┢──
34	Arrowhead	+	-					-		34	Arrowhead	+	-						
	Pickerelweed	+									Pickerelweed	+	-						<u> </u>
	Arrow arum	+									Arrow arum	+							<u> </u>
37	Cattail	1								37	Cattail	1	1						
38	Bulrush									38	Bulrush								
39											Iris								
	Swamp Loosestrife	_	<u> </u>	<u> </u>				<u> </u>			Swamp Loosestrife		<u> </u>						┣
	Carex spp	-									Carex spp	-							<u> </u>
	Rush spp Burr Reed	-									Rush Burr Reed								┣—
	American Pondweed		<u> </u>					<u> </u>			American Pondweed		<u> </u>						┣—
++										++		1							1

Stan	dard Aquatic Vegetation A	Asses	ssme	ent S	ite S	Spec	ies l	Dens	sity	Sheet									
		T										1		-					
		А	quatic	Vegeta	tion As	sessm	ent Site	e Numl	per			А	quatic	Vegeta	tion A	ssessm	ent Site	Num	her
Code		NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	Code		NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
No.	Plant Name	49	50	51	52	53	54	55	56	No.	Plant Name	57	58	59	60	61	62	63	64
1	Eurasian watermilfoil									1	Eurasian watermilfoil								
2	Curly leaf pondweed	-								2	Curly leaf pondweed								
-3	Chara									-3	Chara								
4	Thin leaf pondweed									4	Thin leaf pondweed								
5	Pobling pondwood									5	Pobling pondwood								
	Robbins pondweed White stem pondweed	_								5	Robbins pondweed White stem pondweed								
	Richardsons pondweed	_								7	Richardsons pondweed								
	flatstem pondweed									8	flatstem pondweed								
0	naistenii pondweed	-								0	naisteni ponuweeu	-							
9	Large leaf pondweed		<u> </u>							9	Large leaf pondweed								<u> </u>
	Variable pondweed		<u> </u>								Variable pondweed								<u> </u>
	Leafy pondweed		<u> </u>								Leafy pondweed								
12	Water stargrass	-								12	Water stargrass								
	Mare tail	-									Mare Tail								
10		-								10									
14	Arrowhead	-								14	Arrowhead								
	Northen watermiltoil	-									Northern watermiltoil	-							
16	Whorled watermilfoil										Whorled watermiltoil								
	Coontail	Α		А			А	А	А		Coontail	Α	D						
	Spatterdock										Spatterdock								
19	Elodea								А	19	Elodea								
	Bladderwort										Bladderwort								
	Bladderwort (mini)										Bladderwort (mini)								
	Buttercup										Buttercup								
23	Najas spp.									23	Najas spp.								
	Druttle nored										Druttle noted								
	Brittle naiad										Brittle naiad								
	Sago pondweed										Sago pondweed								
	water merigold small pondweed			~					Λ		water merigold								
27	White waterlily			А			Α		A	27	small pondweed White waterlily	Α							
20	white watering	_								20	white watering								
29	Yellow waterlily	-								29	Yellow waterlily	-							
	Watershield	-									Watershield								
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3%	ureal duckweed										Watermeal								
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33										34	Arrowhead								
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33 34 35 36	Watermeal Arrowhead Pickerelweed Arrow arum									34 35 36	Arrowhead Pickerelweed Arrow arum								
33 34 35 36	Watermeal Arrowhead Pickerelweed									34 35 36 37	Arrowhead Pickerelweed Arrow arum Cattail								
33 34 35 36 37	Watermeal Arrowhead Pickerelweed Arrow arum									34 35 36 37	Arrowhead Pickerelweed Arrow arum								
33 34 35 36 37 38	Watermeal Arrowhead Pickerelweed Arrow arum Cattail Bulrush									34 35 36 37 38	Arrowhead Pickerelweed Arrow arum Cattail Bulrush								
33 34 35 36 37 38 39	Watermeal Arrowhead Pickerelweed Arrow arum Cattail Bulrush Iris									34 35 36 37 38 39	Arrowhead Pickerelweed Arrow arum Cattail Bulrush Iris								
33 34 35 36 37 38 39 40	Watermeal Arrowhead Pickerelweed Arrow arum Cattail Bulrush Iris Swamp Loosestrife									34 35 36 37 38 39 40	Arrowhead Pickerelweed Arrow arum Cattail Bulrush Iris Swamp Loosestrife								
33 34 35 36 37 38 39 40 41	Watermeal Arrowhead Pickerelweed Arrow arum Cattail Bulrush Iris Swamp Loosestrife Carex spp									34 35 36 37 38 39 40 41	Arrowhead Pickerelweed Arrow arum Cattail Bulrush Iris Swamp Loosestrife Carex spp								
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		A	quatic	Vegeta	tion A:	ssessm	ent Site	e Num	ber			A	quatic	Vegeta	tion A	ssessme	ent Site	Num)er
Code	Plant Name	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	Code	Plant Name	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
No.	I funt I funt	65	66	67	68	69	70	71	72	No.	i funt i funte	73	74	75	76	77	78	79	80
1	Eurasian watermilfoil									1	Eurasian watermilfoil								
2	Curly leaf pondweed									2	Curly leaf pondweed								
3	Chara									3	Chara								
4	Thin leaf pondweed									4	Thin leaf pondweed								
Ļ										_									
	Robbins pondweed										Robbins pondweed								
6	White stem pondweed									6	White stem pondweed								
	Richardsons pondweed										Richardsons pondweed								<u> </u>
8	flatstem pondweed									8	flatstem pondweed								
9	Large leaf pendwood	<u> </u>								0	Large leaf pendwood								┣—
	Large leaf pondweed Variable pondweed										Large leaf pondweed Variable pondweed								
	Leafy pondweed										Leafy pondweed								┣—
	Water stargrass										Water stargrass	<u> </u>							┣—
	Mare tail										Mare Tail								<u> </u>
15										15									<u> </u>
14	Arrowhead									14	Arrowhead								
	Northen watermilfoil										Northern watermilfoil								
	Whorled watermilfoil										Whorled watermilfoil								
17	Coontail			Α	С			А			Coontail	А	Α	В		В			
18	Spatterdock										Spatterdock								
	1										1								
19	Elodea	1								19	Elodea								
20	Bladderwort									20	Bladderwort								
21	Bladderwort (mini)									21	Bladderwort (mini)								
	Buttercup										Buttercup								
23	Najas spp.									23	Najas spp.								
	Brittle naiad										Brittle naiad								
	Sago pondweed										Sago pondweed								
	water merigold										water merigold								
27	small pondweed									27	small pondweed			A					
28	White waterlily				Α					28	White waterlily			С					
20	X 11 · · · · · 11									20									
	Yellow waterlily Watershield	1									Yellow waterlily Watershield			Α					┣
	Small duckweed	<u> </u>									Small duckweed								┣—
	Great duckweed	<u> </u>									Great duckweed								┣—
	Watermeal										Watermeal								
55	waterinear									55	vi attilitai	<u> </u>							┣—
34	Arrowhead									34	Arrowhead								┣──
	Pickerelweed										Pickerelweed								<u> </u>
	Arrow arum										Arrow arum								┣──
	Cattail										Cattail								┣──
	Bulrush	-						-		38	Bulrush								-
		-						-											-
39	Iris	1								39	Iris								
	Swamp Loosestrife	1									Swamp Loosestrife								
	Carex spp	1									Carex spp								
	Rush spp	1									Rush								
43	Burr Reed	1								43	Burr Reed								
	American Pondweed	1								44	American Pondweed								
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	ard Aquatic Vegetation A	isses	ssme	ent S	ite S	spec	ies I	Dens	sity S	Sheet									
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		A	quatic	Vegeta	tion As	sessme	ent Site	e Numb	ber			A	quatic	Vegeta	tion As	ssessme	ent Site	e Numl)er
Code	Plant Name	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	Code	Plant Name	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
No.	I funt i tunic	81	82	83	84	85	86	87	88	No.	I funt I fund	89	90	91	92	93	94	95	96
	Eurasian watermilfoil	Α								1	Eurasian watermilfoil					Α			
	Curly leaf pondweed									2	Curly leaf pondweed								
	Chara									3	Chara								
4]	Thin leaf pondweed									4	Thin leaf pondweed								
	Robbins pondweed										Robbins pondweed								
	White stem pondweed									6	White stem pondweed								
	Richardsons pondweed										Richardsons pondweed								
8 f	flatstem pondweed									8	flatstem pondweed								
																			
	Large leaf pondweed										Large leaf pondweed								<u> </u>
10	Variable pondweed										Variable pondweed								
	Leafy pondweed										Leafy pondweed								
12	Water stargrass Mare tail										Water stargrass Mare Tail								—
13 N	ware tall									13	wrate rall								┣—
14	Arrowhead									14	Arrowhead								
	Northen watermilfoil										Northern watermilfoil								──
	Whorled watermilfoil										Whorled watermilfoil								<u> </u>
-	Coontail	٨				В	В	С			Coontail	В	А	В	В	С	В		Δ.
	Spatterdock	Α		Α		D	D	C			Spatterdock	Б	A	D	D	C	D		Α
10 0	Spatieruock									10	Spatierdock								
19 I	Elodea									10	Elodea								──
	Bladderwort										Bladderwort								
	Bladderwort (mini)										Bladderwort (mini)								
	Buttercup										Buttercup								<u> </u>
	Najas spp.										Najas spp.								<u> </u>
23 1	tujus spp.									23	rujus spp.								
24 H	Brittle naiad									24	Brittle naiad								
	Sago pondweed										Sago pondweed								
	water merigold										water merigold								
	small pondweed								А	27	small pondweed		А		А	А			
	White waterlily										White waterlily								
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29	Yellow waterlily									29	Yellow waterlily								
30 \	Watershield									30	Watershield								
	Small duckweed										Small duckweed								
	Great duckweed										Great duckweed								
33	Watermeal									33	Watermeal								
	Arrowhead										Arrowhead								
	Pickerelweed										Pickerelweed								
	Arrow arum										Arrow arum								
	Cattail										Cattail								
38 H	Bulrush									38	Bulrush								
	lris										Iris								
	Swamp Loosestrife									40	Swamp Loosestrife								
	Carex spp									41	Carex spp								
	Rush spp										Rush								
	Burr Reed										Burr Reed								
44 A	American Pondweed									44	American Pondweed								

Stand	lard Aquatic Vegetation A	sses	ssme	ent S	ite S	Spec	ies l	Den	sity	Sheet									
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		А	quatic	Vegeta	tion A:	sessm	ent Site	e Numl	ber			А	quatic	Vegeta	tion A:	ssessme	ent Site	Numl	ber
a 1		NO.	NO.	NO.		NO.	NO.		NO.	<u> </u>		NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
Code No.	Plant Name									Code No.	Plant Name	-							
		97	98	99	100	101	102	103	104			105	106	107	108	109	110	111	112
1	Eurasian watermilfoil	А	А					А		1	Eurasian watermilfoil								
	Curly leaf pondweed	11	11					11		2	Curly leaf pondweed								-
	Chara										Chara						-		
4	Thin leaf pondweed									4	Thin leaf pondweed								
	1										1								
	Robbins pondweed									5	Robbins pondweed								
	White stem pondweed										White stem pondweed								
	Richardsons pondweed										Richardsons pondweed								
8	flatstem pondweed									8	flatstem pondweed								
9	Large leaf pondweed									9	Large leaf pondweed								
	Variable pondweed									10	Variable pondweed								
	Leafy pondweed										Leafy pondweed								
	Water stargrass										Water stargrass							_	
13	Mare tail		L	L				L		13	Mare Tail		L						<u> </u>
14	A 1 1									14									
	Arrowhead										Arrowhead								<u> </u>
	Northen watermilfoil										Northern watermilfoil								
-	Whorled watermilfoil	C	D	Б	D	р	~	C	D		Whorled watermilfoil	D							
	Coontail Spottordo.ak	С	В	В	D	В	С	С	В		Coontail Spottordool	В		Α			Α		Α
18	Spatterdock									10	Spatterdock								
10	Elodea									10	Elodea	Α							
	Bladderwort										Bladderwort	л							
	Bladderwort (mini)										Bladderwort (mini)								
	Buttercup										Buttercup								<u> </u>
	Najas spp.										Najas spp.								
20	rujus opp.									20	rujus spp.								
24	Brittle naiad									24	Brittle naiad								
	Sago pondweed										Sago pondweed								
	water merigold										water merigold								
	small pondweed	Α	Α		Α			Α			small pondweed								
28	White waterlily									28	White waterlily								
	Yellow waterlily										Yellow waterlily								
	Watershield										Watershield								
	Small duckweed										Small duckweed								
	Great duckweed										Great duckweed								
33	Watermeal									33	Watermeal								
	Arrowhead										Arrowhead								
	Pickerelweed										Pickerelweed	<u> </u>							<u> </u>
	Arrow arum										Arrow arum								<u> </u>
	Cattail	<u> </u>									Cattail								┞
38	Bulrush	<u> </u>								38	Bulrush								┞
20	Tu'a									20	T	<u> </u>							<u> </u>
39											Iris Swamp Loosostrifa	<u> </u>							
	Swamp Loosestrife		<u> </u>	<u> </u>				<u> </u>			Swamp Loosestrife	<u> </u>	<u> </u>						┣
	Carex spp	<u> </u>									Carex spp Rush	<u> </u>							┣—
	Rush spp Burr Reed										Rusn Burr Reed								
	American Pondweed										American Pondweed								
44		I								44	American r olluweeu	<u> </u>							L

Image: Control of the second of the	Stand	lard Aquatic Vegetation A	Asses	ssme	ent S	Site S	Spec	ies	Den	sity	Sheet	t								
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4 Thin leaf pondweed 4 4 Thin leaf pondweed 5 5 Robbins pondweed 6 White stem pondweed 6 6 White stem pondweed 7 Richardsons pondweed 1 7 Richardsons pondweed 7 Richardsons pondweed 1 8 flatstem pondweed 7 Richardsons pondweed 1 9 Large leaf pondweed 9 Large leaf pondweed 1 10 Variable pondweed 10 10 11 11 Leafy pondweed 11 1 11 11 12 Water stargrass 11 1 1 1 1 13 Mare tal 11 1 1 1 1 1 14 Arrowhead 14 Arrowhead 1<																				-
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8Ilatstem pondweed8Ilatstem pondweed19Large leaf pondweed10Variable pondweed1110Variable pondweed11Variable pondweed1111Largy pondweed11Leafy pondweed1112Water stargrass12Water stargrass1213Mare tail13Mare Tail1414Arrowhead15Northern watermilfoil1515Northen watermilfoil16Whorled watermilfoil1616Whorled watermilfoil17CoontailDC17CoontailAAB17CoontailDC19ElodeaA19Elodea1414141420Bladderwort20Bladderwort16161621Bladderwort21Bladderwort16161622Buitercup22Bladderwort16161623Najas spp.23Najas spp.16161624Britte naiad22Sago pondweed17161725Sago pondweed23Najas spp.16161624Britte naiad242425Sago pondweed1625Sago pondweed444171726Water merigold2424244427Small duckweed4A1	6	White stem pondweed									6	White stem pondweed								
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10Variable pondweed10Variable pondweed11Leaty pondweed11Leaty pondweed12Water stargrass12Water stargrass13Mare tail13Mare Tail14Arrowhead14Arrowhead15Northen watermilfoil15Northen watermilfoil16Whorled watermilfoil15Northen watermilfoil17ContailAAB17ContailDCA18Spatterdock18Spatterdock19ElodeaA19Elodea20Bladderwort21Bladderwort (mini)21Bladderwort (mini)22Butterduck23Najas spp.23Najas spp.24Brittle naiad24Brittle naiad25Sago pondweed22Sago pondweed26water merigold22Sago pondweed27small pondweedAA28White waterhily2229Yellow waterhily429Yellow waterhily430Watershield3331Small duckweedA4A3476Great duckweed3477Great duckweed478A479Yellow waterhily470Yellow waterhily571Great duckweed472Small duckweed473Small du											_	× 1 0 1 1								
11Leaty pondweed11Leaty pondweed112Water stargrass12Water stargrass113Mare tail13Mare Tail114Arrowhead14Arrowhead115Northen watermilfoil15Northern watermilfoil116Whorled watermilfoil16Whorled watermilfoil117CoontailAAB1717ContailAAB1718Spatterdock18Spatterdock119ElodeaA19Elodea120Bladderwort (mini)21Bladderwort (mini)121Bladderwort (mini)21Bladderwort (mini)123Najas spp.23Najas spp.124Brittle naiad26Sago pondweed125Sago pondweed25Sago pondweed126water merigold44427small pondweedA428White waterhily29Yellow waterhily130Watershield33Small ondweedA433Watershield34Arrowhead134Arrowhead34Arrowhead1135Brickerelweed33Watermeal136Arow arum34Arrowhead1137Cataail33Watermeal34Arrowhead1											9	Large leat pondweed	<u> </u>							<u> </u>
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40 Swamp Loosestrife 40 Swamp Loosestrife 1 41 Carex spp 41 Carex spp 1 42 Rush spp 42 Rush 1 43 Burr Reed 43 Burr Reed 1	38	Duirusn									38	Duifusn	<u> </u>							┣—
40 Swamp Loosestrife 40 Swamp Loosestrife 1 41 Carex spp 41 Carex spp 1 42 Rush spp 42 Rush 1 43 Burr Reed 43 Burr Reed 1	30	Tris									30	Tris								┣──
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Code	Plant Name	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	Code No.	Plant Name	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
No.		129	130	131	132	133	134	135	136	INO.		137	138	139	140	141	142	143	144
1										1									
$\frac{1}{2}$	Eurasian watermilfoil	Α								$\frac{1}{2}$	Eurasian watermilfoil	А							<u> </u>
	Curly leaf pondweed Chara										Curly leaf pondweed Chara								
4	Thin leaf pondweed									4	Thin leaf pondweed								┣──
-	Thin lear polidweed									т	Thin lear polid weed								
5	Robbins pondweed									5	Robbins pondweed						-		
	White stem pondweed										White stem pondweed								
7	Richardsons pondweed										Richardsons pondweed								
8	flatstem pondweed									8	flatstem pondweed								
	Large leaf pondweed										Large leaf pondweed								
10	Variable pondweed										Variable pondweed								
	Leafy pondweed										Leafy pondweed								
	Water stargrass										Water stargrass								
13	Mare tail		L							13	Mare Tail	<u> </u>	L						┣
14	Arrowhead									14	Arrowhead								
	Northen watermilfoil										Northern watermilfoil								
	Whorled watermilfoil										Whorled watermilfoil								
	Coontail	А									Coontail	В							
	Spatterdock	11									Spatterdock	D							
10	oputeruoek									10	Sputterusen								
19	Elodea		А							19	Elodea								
20	Bladderwort									20	Bladderwort								
	Bladderwort (mini)										Bladderwort (mini)								
	Buttercup										Buttercup								
23	Najas spp.									23	Najas spp.								
	Brittle naiad								Α		Brittle naiad								L
	Sago pondweed										Sago pondweed								
26 27	water merigold small pondweed		Λ					٨	٨		water merigold small pondweed	А							
	White waterlily		Α					Α	Α		White waterlily	A							<u> </u>
20	white watering									20	white watering								
29	Yellow waterlily									29	Yellow waterlily	-							<u> </u>
	Watershield										Watershield	-							<u> </u>
	Small duckweed										Small duckweed								<u> </u>
32	Great duckweed									32	Great duckweed								
33	Watermeal									33	Watermeal								
	Arrowhead										Arrowhead								
	Pickerelweed										Pickerelweed								
	Arrow arum										Arrow arum								<u> </u>
	Cattail										Cattail	<u> </u>							┣—
58	Bulrush									38	Bulrush	<u> </u>							┣—
30	Iris		<u> </u>							30	Iris	<u> </u>	<u> </u>						┣—
	Swamp Loosestrife										Swamp Loosestrife	<u> </u>							┣—
	Carex spp										Carex spp	<u> </u>							⊢
	Rush spp										Rush	<u> </u>							⊢
	Burr Reed										Burr Reed	+					\vdash		
	American Pondweed										American Pondweed								<u> </u>
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Stand	lard Aquatic Vegetation A	Asses	ssme	ent S	ite S	Spec	ies l	Dens	sity (Sheet		1							
		Aquatic Vegetation Assessment Site Number						e Numb	ber			A	quatic	Vegeta	tion A	ssessm	ber		
Code	Diana Nama	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	Code	Diana Nama	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO
No.	Plant Name	145	146	147	148	149	150	151	152	No.	Plant Name	153	154	155	156	157	158	159	160
1	Eurasian watermilfoil									1	Eurasian watermilfoil								
2	Curly leaf pondweed									2	Curly leaf pondweed								
	Chara									3	Chara								
4	Thin leaf pondweed									4	Thin leaf pondweed								
	*										.								
5	Robbins pondweed									5	Robbins pondweed								
6	White stem pondweed										White stem pondweed								
7	Richardsons pondweed									7	Richardsons pondweed								
	flatstem pondweed									8	flatstem pondweed								
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9	Large leaf pondweed									9	Large leaf pondweed								-
	Variable pondweed										Variable pondweed								-
11	Leafy pondweed										Leafy pondweed								-
	Water stargrass										Water stargrass								-
	Mare tail									13	Mare Tail								
																			-
14	Arrowhead									14	Arrowhead								-
	Northen watermilfoil										Northern watermilfoil								
	Whorled watermilfoil										Whorled watermilfoil								-
	Coontail							А			Coontail						А		-
	Spatterdock							11			Spatterdock						11		-
10	Spatterudek									10	Spatieradek								-
19	Elodea									19	Elodea								-
	Bladderwort										Bladderwort								-
	Bladderwort (mini)										Bladderwort (mini)								-
	Buttercup										Buttercup								-
	Najas spp.										Najas spp.								-
25	Najas spp.									25	Najas spp.								
24	Brittle naiad								Α	24	Brittle naiad								В
	Sago pondweed								л		Sago pondweed								Б
	water merigold										water merigold								
	small pondweed				В		В		А	27	small pondweed						А	А	С
	White waterlily				D		D		л		White waterlily						A	Л	
20	white watering									20	white watering						Л		
29	Yellow waterlily									20	Yellow waterlily								
	Watershield										Watershield								┣
	Small duckweed										Small duckweed								<u> </u>
	Great duckweed										Great duckweed								
	Watermeal										Watermeal								
33	watermear									33	watermear								
3/	Arrowhead	<u> </u>								3/	Arrowhead	<u> </u>							┣—
	Pickerelweed	<u> </u>									Pickerelweed	<u> </u>							┣—
	Arrow arum										Arrow arum								<u> </u>
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	Cattail Bulrush										Cattail Bulrush								<u> </u>
30	DulluSII	<u> </u>								38	Dullusii	-							<u> </u>
20	Inia	<u> </u>								20	Inia								<u> </u>
39		<u> </u>									Iris Samana Laganatrifa	<u> </u>							<u> </u>
	Swamp Loosestrife	<u> </u>									Swamp Loosestrife	<u> </u>							L
	Carex spp										Carex spp								
42	Rush spp										Rush								
	Burr Reed										Burr Reed	I							
44	American Pondweed									44	American Pondweed								

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		Aquatic Vegetation Assessment Site Number										A	quatic	Vegeta	ation A:	ent Site	Numl	ber	
Code	Plant Name	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	Code	Plant Name	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
No.		161	162	163	164	165	166	167	168	No.		169	170	171	172	173	174	175	176
	Eurasian watermilfoil									1	Eurasian watermilfoil								
2	Curly leaf pondweed									2	Curly leaf pondweed								
	Chara									3	Chara								
4	Thin leaf pondweed									4	Thin leaf pondweed								
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	Robbins pondweed										Robbins pondweed							<u> </u>	
6	White stem pondweed									6	White stem pondweed							<u> </u>	
	Richardsons pondweed flatstem pondweed										Richardsons pondweed flatstem pondweed								<u> </u>
0	naistem pondweed									0	natstem pondweed								
9	Large leaf pondweed									0	Large leaf pondweed								
10	Variable pondweed										Variable pondweed	<u> </u>							┢
	Leafy pondweed										Leafy pondweed								┢──
12	Water stargrass									12	Water stargrass								┣──
	Mare tail	\vdash									Mare Tail								
										15									┢──
14	Arrowhead									14	Arrowhead								
	Northen watermilfoil										Northern watermilfoil								-
	Whorled watermilfoil										Whorled watermilfoil								-
	Coontail		Α								Coontail								-
	Spatterdock										Spatterdock								
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19	Elodea									19	Elodea								
20	Bladderwort									20	Bladderwort								
21	Bladderwort (mini)									21	Bladderwort (mini)								
22	Buttercup									22	Buttercup								
23	Najas spp.									23	Najas spp.								1
	Brittle naiad										Brittle naiad								
	Sago pondweed										Sago pondweed								
	water merigold										water merigold								
27	small pondweed	A								27	small pondweed								
28	White waterlily									28	White waterlily								
	X7 11 · · · · · · · · · · · · · · · · · ·										X 7 11 . 111								
	Yellow waterlily										Yellow waterlily							<u> </u>	L
	Watershield										Watershield								┣—
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32 33	Great duckweed Watermeal										Watermeal								┣
33	w atermeat									55	vv aternical								┣—
24	Arrowhead									21	Arrowhead								┣—
	Pickerelweed										Pickerelweed								┣—
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	Cattail										Cattail	<u> </u>							┢
	Bulrush										Bulrush								┣──
50	Dunuon									50	Duituon								┣──
39	Iris									39	Iris								┣──
	Swamp Loosestrife										Swamp Loosestrife								┣──
	Carex spp										Carex spp								├
	Rush spp										Rush		-	-					├──
	Burr Reed										Burr Reed		-	-					├──
	American Pondweed		В						-		American Pondweed								┢──
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Code No.	Plant Name	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	Code No.	Plant Name	NO.	NO.	NO.	NO.	NO.	NO.		
110.		177	178	179	180	181	182	183	184			185	186	187	188	189	190		
1	Eurasian watermilfoil	-								1	Eurasian watermilfoil					А	А		
2	Curly leaf pondweed	-								2	Curly leaf pondweed					Π	Π		-
	Chara									3	Chara								-
4	Thin leaf pondweed	1								4	Thin leaf pondweed								
	1										1								
	Robbins pondweed										Robbins pondweed								
6	White stem pondweed										White stem pondweed								
	Richardsons pondweed									7	Richardsons pondweed								
8	flatstem pondweed									8	flatstem pondweed								
0	Tanan IngConstant	1								0		<u> </u>							┣
	Large leaf pondweed	4	<u> </u>								Large leaf pondweed	<u> </u>				L			┣
10	Variable pondweed Leafy pondweed										Variable pondweed Leafy pondweed	<u> </u>							┣—
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14	Arrowhead									14	Arrowhead								
	Northen watermilfoil										Northern watermilfoil								
16	Whorled watermilfoil										Whorled watermilfoil								
17	Coontail	1								17	Coontail	1	В	Α			Α		
18	Spatterdock									18	Spatterdock								
	Elodea										Elodea								
	Bladderwort										Bladderwort								
	Bladderwort (mini)	_									Bladderwort (mini) Buttercup								
	Buttercup Najas spp.	-									Najas spp.								
23	Majas spp.	-								23	Najas spp.	-							
24	Brittle naiad	-								24	Brittle naiad		А						-
	Sago pondweed										Sago pondweed								
	water merigold										water merigold								-
	Small pondweed	1								27	small pondweed	İ.	А	Α					
28	White waterlily	1								28	White waterlily	1							
	Yellow waterlily										Yellow waterlily								
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	Small duckweed Great duckweed	┨									Small duckweed Great duckweed	<u> </u>							<u> </u>
	Watermeal	<u> </u>									Watermeal	<u> </u>							┣—
55	waterinear		-							55	waterinear								┢──
34	Arrowhead	+								34	Arrowhead								┣─
	Pickerelweed	+									Pickerelweed								┢──
	Arrow arum	+									Arrow arum	1							┢──
37	Cattail	1								37	Cattail	1							1
38	Bulrush	1	l							38	Bulrush	Ì							Î –
	Iris										Iris								
	Swamp Loosestrife										Swamp Loosestrife								
	Carex spp		<u> </u>								Carex spp	<u> </u>							┣
	Rush spp	┨									Rush Burr Bood	<u> </u>							<u> </u>
	Burr Reed American Pondweed	<u> </u>									Burr Reed American Pondweed	 							┣—
44	American Foliuweeu									44	Anterican Fondweed	1							<u> </u>