

Spring Lake Aquatic Weed Management Fund Grant

#G030000195

Final Project Report



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King County

Department of Natural Resources and Parks

Water and Land Resources Division

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Preparation for the grant project

In 2002, King County Lake Stewardship Program (KCLSP), King County Noxious Weed Program and the Spring Lake Community worked together to create the Spring Lake Integrated Aquatic Vegetation Management Plan (IAVMP). This process was an excellent way to understand the breadth and depth of the noxious weed problem at Spring Lake as well as get the community involved in selecting the method of treatment for the weeds. The IAVMP effort was also a prerequisite for applying for grant funding from the Aquatic Weed Fund provided by the Washington State Department of Ecology (Ecology).

Slightly before the writing of the IAVMP, a steering committee was established within the Spring Lake community. The Steering committee was established in 2002 and led by community member Ted Barnes; eleven community members participated on the committee. The main mission of the committee was to advise the IAVMP process, the grant application process and execution, as well as participate in community education and help with weed control.

The IAVMP was submitted in October 19, 2002 and Ecology issued final approval for the plan in late 2002. The application for aquatic weed funding was submitted in January 2003 and funding was awarded to begin in June of 2003.

Project Summary

The grant was written to be a seven year aquatic weed control grant with a focus on the eradication and control of four primary weeds: *Myriophyllum spicatum* (Eurasian watermilfoil), *Lythrum salicaria* (purple loosestrife), *Iris pseudacorus* (yellow-flag iris) and *Nymphaea odorata* (fragrant waterlily). Aside from the actual treatment of the weeds, the grant also funded project management, in-water work (e.g. surveys), project reports, and education and outreach.

Task 1 – Project Management: involved the maintenance of the project records, submittal of payment vouchers, hiring and managing contractors selected through the RFP process, attainment of permits and submittal of all required performance items.

Task 2 – Herbicide Treatment: required following the approved IAVMP, documenting all treatments in reports, maps of treated areas, dates of treatments and amounts and concentrations applied.

Task 3 – In-water Work: included reporting pre and post treatment work, herbicide surface water samples, aquatic weed survey reports and submitting required performance items.

Task 4 - Education and Outreach: this task included developing and distributing aquatic weed control announcements, developing education workshops, meeting flyers and developing other educational materials as appropriate.

Task 5- Report Writing: this task included writing all required progress reports, the final grant project report and submitting them to Ecology.

The Lake and Aquatic Weed History

The shallow shoreline area (littoral zone) of Spring Lake provides an excellent habitat for aquatic plants. Non-native Eurasian water milfoil (milfoil), posed the greatest threat to aquatic environments, but other noxious weeds are also present at the lake, including fragrant water lily (lily), purple loosestrife (loosestrife), and yellow flag iris (iris). All of these species are considered noxious weeds as listed in WAC 16-750.

These four weeds were identified as the main threat to the native plants and lake ecosystem at Spring Lake. Loosestrife is considered a Class B weeds according to the King County Noxious Weed Board which, while not required for eradication, is required for control and containment, especially in areas where the weeds are not widespread. Milfoil is not listed as a Class B in King County, although it is listed as Class B by the state. King County has milfoil under the non-regulated noxious weeds list. Water lily and iris are ubiquitous around King County, listed as a Class C weed by the King County Noxious Weed Board, meaning they are not mandated for control. It was determined that if milfoil and loosestrife were to be controlled, efforts should be extended to lilies and iris.

Project Summary by Year

The Spring Lake project was a multiyear, intense project that took careful coordination and scheduling. Below is table that lists the dates of treatments and which noxious weed was treated.

Table 1: Dates of Spring Lake surveys and treatments. Emergent weed surveys and treatments were combined.

Year	Milfoil		Fragrant Water lily	Purple loosestrife	Yellow flag iris
	survey	treatment	treatment	treatment	treatment
2003	Aug 18 Sept 29	July 29th	August 13 August 26	August 13 August 26	August 13 August 26
2004	May 20 July 20/21 Aug 18		June 29 July 30	June 29 July 30	June 29 July 30
2005	June 23, 24 June 30 July 29 Aug 28	June 23, 24 June 30 July 29 Aug 28 Oct 20	June 23	June 30 July 29	June 30 July 29
2006	June 13 July 6 Aug 10 Sept 28	Sept 28	July 14 August 16	July 14 August 16	July 14 August 16
2007	June 2 June 21 July 18 Sept 5	Sept 5	lilies cut July 18	June 2 June 21 Sept 5	June 2 June 21 Sept 5
2008	July 10 Aug 13	July 10 Sept 3 Aug 13	No lilies	June 13, 14 July 10 Aug 13	June 13, 14 July 10 Aug 13
2009	July 28	Aug 5	No lilies	July 18, 19 August 1, 2	July 18, 19 August 1, 2
2010	July 13	Sept 16	No lilies	July 14 June 22, 23	July 14 June 22, 23

2003

Milfoil

Milfoil Weevil Search

Prior to milfoil treatment at Spring Lake, the KCLSP staff were curious to know if natural biological controls already existed in lake in the form of the milfoil weevil, *Euhrychiopsis lecontei*. If the species did exist in the lake, it was possible the milfoil was already being controlled by the weevil. It was thought that the presence was possible considering nearby Lake Sawyer has a healthy weevil population.

On July 15, 2003, two King County staff members and Mariana Tamayo, a Ph.D. student at the University of Washington studying milfoil weevils, conducted a survey for the weevil. The dense milfoil near the boat launch was thoroughly inspected, but found no signs of weevil damage on milfoil plants. Based on hours of searching in the dense milfoil stands in the lake, it was determined there were no weevils present. The findings gave KCLSP staff confidence that herbicide control was going to be necessary to control the milfoil.

Survey

At the onset of this project the Aquatic Plant and Algae permit (WAG-994154) was held by AquaTechnex, the contractor hired to do the spraying.

The contract between AquaTechnex and King County required that AquaTechnex perform a diver survey to map the milfoil infestation in Spring Lake as well as survey for fragrant water lily, purple loosestrife and yellow flag iris. AquaTechnex found that milfoil was most dense just south of the boat ramp, and in three areas along the southwestern shore of the lake. Outside of these areas, the cove at the northeastern end of the lake had the highest concentration of plants. Smaller patches of milfoil were found throughout the lake. (See maps in Appendix A)

Treatment

A total of 24 acres was treated for milfoil on July 29, 2003 by AquaTechnex with the liquid formulation of 2,4-D (DMA*4 IVM). The main treatment area in the lake was a 14-acre shallow area along the southwest and southern shoreline. Five other areas in the lake were also treated. The total acreage of these five treatment areas was approximately 10-acres, with an average depth of 4-5 feet. The largest of these five areas was a 5.5 acre area just north of the boat launch. Other areas were along the northwest shore (1 acre), the northeast cove (2.5 acres) and two small areas along the eastern shore (1 acre total). The herbicide was applied by an airboat with trailing hoses, injecting the herbicide into the water column. (See spray reports in Appendix B)

Post Treatment Survey

On August 18, 2003, King County staff members went to snorkel the shallow areas of Spring Lake to assess the success of the treatment. Areas of the lake shallower than 1.5-feet were surveyed by the boat, and snorkelers surveyed all areas of the lake that were between 1.5-feet and 6-feet deep. No live plants were seen during the survey, although snorkelers did find dead milfoil plants on the bottom. These plants had been damaged by the herbicide and were not considered to be capable of propagating new plants.

A second survey was done on September 29, 2003 mimicked the August survey, and again, there were no signs of milfoil growth or any healthy milfoil plants. Based on these findings, a scheduled second milfoil treatment was cancelled.

Herbicide Monitoring

Prior to herbicide treatment, water samples were collected from five different sites on the lake. Sample sites were chosen based on the lake morphology and weed location. The purpose of the pre-test was to see how much 2,4-D was in the lake prior to milfoil treatment from sources such as “weed’n’feed” products. All of the samples came back with no-detects. See results in Appendix C.

King County staff collected water samples five days after treatment from station 2 and station 4. Additional water samples were collected 16 days after treatment and 49 days after treatment from the same station. 2,4-D concentrations remained much higher than expected and persisted for a longer period of time.

The 2,4-D treatment was effective in removing known milfoil from the lake, assuming no milfoil survived below depths that were visually surveyed, but the 2,4-D levels remained well above the irrigation standard (100ppb) and the drinking water standard (70ppb) for much longer than anticipated. There were no reports of unintended side effects of elevated 2,4-D levels nor were any observed in the lake during by snorkel surveys.

Based on the area treated and the amount of 2,4-D DMA*4IVM used, calculations and monitoring results show that the applicator applied within-label recommended rates. The reason for the slow degradation of 2,4-D in Spring Lake was never determined conclusively. Due to these results and the possibility for unattended consequences, King County decided not to use 2,4-D in future milfoil control efforts at Spring Lake.

Fragrant Water Lily, Purple Loosestrife and Yellow Flag Iris

AquaTechnex also surveyed for fragrant water lily, purple loosestrife and iris at Spring Lake and found that there were three areas with dense patches of fragrant water lily: near the outlet at the southern end of the lake, a small patch along the northwestern shore of the lake, and along the western shoreline north of the boat ramp. Both iris and loosestrife were fairly evenly distributed around the shore of the lake, with several dense iris patches along the northwestern and northeastern shores of the lake, both of which are residential areas of the lake. (See map in Appendix A).

Treatment

AquaTechnex performed an AquaPRO® (active ingredient glyphosate) treatment for the three weeds twice during August. The weeds were spot sprayed on the margin of Spring Lake. Areas along the shoreline that were accessible by foot were treated by an applicator wearing a backpack sprayer with a hand pump. Areas difficult or impossible to access on foot were sprayed using a sprayer from an airboat.

Glyphosate monitoring

1 hour post-treatment and 24-hour post-treatment samples for both August glyphosate applications were collected. On August 13th, samples were taken adjacent to a dense stand of iris

(approx. 200 square feet) as well as adjacent to the largest treated patch of fragrant water lily (approx. 1250 square feet). All samples were collected from the water surface less than 5 feet from the edge of the weeds. The results show expected patterns of no detection in the baseline samples, higher concentrations in the one-hour samples, and complete degradation/dilution with undetectable concentrations in the 24-hour samples (Appendix C).

Effectiveness of treatments

The 2,4-D treatment was highly effective at removing milfoil from the lake, possibly because of the prolonged residual high levels, which meant that milfoil remained in contact with the herbicide throughout the growing season.

Herbicide effectiveness on the lilies and emergent weeds was less apparent. While herbicide damage was seen, healthy stands of all three weeds remained present at the lake at the end of the season.

2004

Milfoil

Survey

In early 2004, King County issued a request for proposals to perform diver surveys to map plants in Spring Lake and remove milfoil by hand, if any was found. Envirovision was awarded the contract.

Two surveys were done for milfoil in the 2004 growing season. The surveys were done with a combination of divers from Envirovision and snorkelers from King County. No milfoil was found in the lake during either survey. Native plants were present, however. Species found included *Elodea canadensis*, *Utricularia vulgaris*, *Nuphar polysepala*, *Ceratophyllum demersum*, *Naja flexilis*, *Utricularia vulgaris*, several species of *Potamogeton* and *Nuphar polysepala*. (See maps in Appendix A)

Treatment

The 2,4-D treatment for milfoil in 2003 was so effective that no herbicide control was necessary for 2004.

Monitoring

Despite no 2,4-D application in 2004, the Spring Lake Community received a grant from King County to pay for 2,4-D analysis of six water samples to determine if the herbicide was still present in the lake. Samples were collected in both spring and autumn. All samples had very low levels of 2,4-D present but the spring samples showed higher concentrations than the fall samples. Although the values are very low, it was determined that instead of being residual 2,4-D from the 2003 treatment, it was more likely that the source of the herbicide was from “weed-n-feed” type products in use on lawns and gardens in the watershed.

Fragrant Water Lily, Purple Loosestrife and Yellow Flag Iris

Survey

Based on a survey and treatment effort done by AquaTechnex on June 24th, yellow flag iris and purple loosestrife remained in several places around the lake. Purple loosestrife was found all along the west side of the shoreline down into the outlet. Loosestrife seemed to be in lesser populations on the east side of the lake in the natural area. Iris was found around the lake, dense in the natural fen area while in smaller stands along residential shorelines.

Treatment

In June and July of 2004, yellow flag iris and purple loosestrife were treated with glyphosate by AquaTechnex. The June treatment was stopped short due to high winds, but the whole lake was treated during the July treatment event (Appendix B).

Fewer fragrant water lilies were found in the lake so instead of using herbicides, King County staff spent one day cutting them with a weed cutter.

Monitoring

King County continued to monitor the glyphosate concentrations after the treatment. The results showed the expected patterns of no detection in the baseline samples, higher concentrations in the one-hour samples and the complete dilution with undetectable concentrations in the 24-hour samples. See Appendix C for the sample results.

Effectiveness of Treatment

The 2003 herbicide treatment of milfoil was so effective that 2004 work focused on surveys. King County considered milfoil surveys as a top priority, but energy was also spent on surveying and treating the lilies and emergent weeds.

Lilies, loosestrife and iris treatments were contracted out to AquaTechnex by the Spring Lake community. According to spray reports provided by AquaTechnex, emergent weeds were treated twice during the summer at the end of June and then iris was again spot treated at the end of July (Appendix B).

2005

Milfoil

Survey and Hand Pulling

To see if milfoil had returned to Spring Lake in 2005, King County retained Envirovision to perform a diver survey to map locations and densities of all milfoil plants in the lake.

Five surveys occurred with both divers from Envirovision, snorkelers from King County and occasionally members from the Spring Lake community. In June, milfoil was found in the northeast cove of the lake and in the shallow south cove. When found, all plants were pulled. By the end of the summer milfoil was found in the south cove, northeast cove and the boat ramp. The wet weight of all plants pulled during summer was 9.8 kilograms.

See Appendix A for maps of the survey work.

Fragrant Water Lily, Purple Loosestrife and Yellow Flag Iris

Survey

Plant distribution and density varied slightly in 2005; however, fragrant water lily, purple loosestrife and yellow flag iris were all found in and along the lake. Purple loosestrife was mainly along the residential property shorelines, while iris seemed to be concentrated in the fen in the southwestern portion of the lake. Water lilies were concentrated in the south cove and along the western edge of the fen, with a few just north of the boat ramp in between private residents docks.

Treatment

Three treatments for these weeds occurred between the end of June and the end of July. All treatments used Aquamaster® (active ingredient glyphosate). The first two treatments focused on all three weeds, while the last treatment focused only on treating any iris or loosestrife that was missed. Treatment was done by King County staff using backpack sprayers and hand held sprayers. Spray reports can be found in Appendix B.

Monitoring

Glyphosate monitoring associated with the June 23rd herbicide application returned anomalous results. Previous sampling efforts associated with glyphosate treatments had followed a pattern of baseline with no detection, 1-hour post treatment which had above detection limits and 24-hours post-treatment which returned to no-detection. However, these samples did not follow the pattern. The samples taken after the June 23rd treatment showed detection of low levels for the baseline sample, one hour after treatment had no detection and 24 hours after treatment had the highest levels of detection. Discussions with the analytic lab showed that there were no bottle labeling errors and the samples were reanalyzed but the results were very similar.

It is possible that sample collection and/or initial bottle labeling errors were responsible. It is also possible that the cause of the high values is attributable to the samples being taken by the same people in the same boat used to mix and apply the herbicide. For further results see Appendix C.

Effectiveness of Treatment

Milfoil did return to Spring Lake in 2005 and it was thought that it was newly introduced from a boat at the boat launch. Since the number of plants was so small, hand pulling was chosen as the best method for control, and excellent control was achieved.

Lilies and loosestrife seemed to be better controlled this year. Iris was a continual struggle as the plants were found throughout the fen and were hard to access either by land due to the boggy nature of the soil or by boat due to shallow depth making it hard to reach the shoreline.

2006

Milfoil

Survey and Hand Pulling

Four surveys for Eurasian water milfoil occurred on Spring Lake throughout the 2006 growing season. A combination of snorkel survey and visual boat surveys were done, and no milfoil was found in the first two surveys. However, by August one plant was located north of the boat launch and in September one more plant was found in the northeast cove. Both plants were pulled and no further milfoil was found.

Treatment

No herbicide treatment was necessary this year as only two plants were found and they were hand pulled.

Fragrant Water Lily, Purple Loosestrife and Yellow Flag Iris

Survey

Spring Lake residents hired AquaTechnex directly to survey and treat the lilies, loosestrife and iris.

Treatment

The Spring Lake community hired AquaTechnex to control water lily, purple loosestrife and yellow flag iris. Two treatments were performed during the summer. The first treatment occurred on July 14th and less than 1 acre of purple loosestrife and yellow flag iris were treated and the same amount was treated again on August 16th.

Effectiveness of Treatment

Milfoil remained in low abundance in 2006, making it easy for surveyors to search the lake for milfoil and pull any found. Hand pulling was the appropriate control method for milfoil in 2006 because only two plants were found.

The Spring Lake Community took the lead on the lilies, iris and loosestrife. The contractor treated less than an acre of loosestrife and yellow flag iris twice during the season. Feedback from the community suggested that herbicide damage was observed on the emergent plants that were treated.

2007

Milfoil

Survey and Hand Pulling

Four surveys were done for milfoil during the 2007 growing season. Both visual survey by a boat and snorkel surveys were used. No milfoil was found in the lake until the last survey in early September. A total of 11 plants were found in the south cove and removed by hand.

Although the source of the re-infestation is unknown, one possibility is that one or more milfoil plants were established in the outlet channel. Plants in the outlet channel would not have been found in visual and snorkel surveys. If plants were in the outlet channel, they could have spread fragments out toward the lake, since beaver dams in the outlet have resulted in little or no flow from the lake in the summer months. It is plausible that plant fragments from the outlet channel were prevented from drifting into the rest of the lake by a dense band of *Brasenia schreberi* just north of the outlet.

Treatment

No herbicide treatment was done, and milfoil was removed through hand pulling.

Fragrant Water Lily, Purple Loosestrife and Yellow Flag Iris

Survey

No formal survey of shoreline weeds was done this year. To streamline the surveys and treatments, surveys and treatments were done in conjunction.

Treatment

On two dates in June the Spring Lake community and King County staff wore backpack sprayers and hand held sprayers to treat iris with Aquamaster®.

In July, King County staff members cut water lilies around the lake using a razor blade cutter. Because water lilies do not propagate from fragments and the total biomass of the infestation was small, plant fragments were left in the lake. By early September, water lilies cut on July 18 had re-grown. At this point, King County staff treated the new growth with glyphosate. Areas treated were the same as those cut on July 18th, maps and spray reports are included in Appendix B

In September, the few remaining purple loosestrife plants along the shoreline of the lake were flowering. To prevent spread of seeds, flower heads were clipped and bagged. The foliage of each plant was sprayed with glyphosate. Spray reports and maps of treatments are included in Appendix B.

Effectiveness of Treatment

Again, hand pulling was a reasonable method for milfoil control, although the plants were being found in the south cove which is difficult to access, especially when snorkeling to perform the hand pulling. In hindsight, perhaps another method of control should have been employed to take care of the milfoil in the south cove because it was hard to survey and ensure all plants were accounted for and pulled.

2008

Milfoil

Survey and Hand Pulling

Three surveys for milfoil were done during the 2008 growing season starting in July. From the first survey it was determined milfoil was back with an abundance not seen since the initial

treatment in 2003. Hand pulling again was the chosen method for control to see if it could be as effective as previous years (Appendix A).

Hand pulling was easy in the deeper areas of the lake, but unfortunately one of the heaviest infestations was found at the south end. A diver and a kayaker tried to tackle this infestation through hand pulling, but access was hard and plants were fragmenting. It was quickly realized that there was no way to remove all the milfoil from the lake and herbicide would have to be used in 2009.

Fragrant Water Lily, Purple Loosestrife and Yellow Flag Iris

Survey and treatment

Most of the emergent effort focused on iris. Three days were dedicated to treating iris with Aquamaster[®]. It was a joint effort between King County staff and the Spring Lake community. Iris was easily controlled along private shoreline properties but again, the fen in the south proved to be the most vexing with access issues and the sheer number of plants.

Community residents took on the task of locating and controlling purple loosestrife plants in 2008. When community members found plants, they clipped and bagged the flowering seed heads, and then pulled plants out by their roots. To help support their efforts, King County staff circled the shoreline in July of the lake to find and pull flowering purple loosestrife plants. Roughly 40 loosestrife plants from five sites in the northern half of the lake and one station in the fen were clipped, pulled and disposed of.

Little water lily treatment was necessary this year, although one day of treatment was done with backpack sprayers full of glyphosate from a boat.

Effectiveness of Treatment

Milfoil was back at higher levels and in areas unreasonable for hand pulling. In retrospect, herbicide perhaps should have been applied in 2008 to control the milfoil. The community was very active in emergent weed control. They managed to achieve excellent control of iris along residential shoreline and loosestrife, but iris in the fen remained a frustrating aspect of emergent weed control, due to difficulty accessing and treating plants.

2009

Milfoil

Survey

On July 28th, 2009 three staff members from King County WLRD snorkeled Spring Lake to assess the milfoil infestation. It was determined that this snorkel event would be for survey purposes only and no hand pulling would occur since the lake would be treated with Renovate OTF[®] (active ingredient triclopyr) later in the summer.

As determined in 2008, milfoil had returned to the south and north coves of the lake. The heaviest infestation was in the shallow south cove. There were dense patches of plants present

that were hard to access due to the extremely shallow depths. Although it was not surveyed, it is likely that milfoil had reached the outlet.

The infestation in the north cove was robust but much more contained. It was much easier to survey the north cove as the water was deeper allowing for good access to both the boat and the snorkelers, and thus giving a much more thorough and detailed view of the infestation.

Treatment

Spring Lake was treated on August 5th, 2009 with Renovate OTF[®], active ingredient triclopyr. The herbicide was applied by using a spreader that was worn around the neck and broadcast through a grinding action, also known as a “belly grinder”.

Work began in the south cove. A boat with an electric motor was driven by one person, while a second staff person sat on the bow and dispersed the herbicide from the belly grinder. The south cove was difficult to treat due to the shallow water conditions, causing the boat motor to periodically get stuck. Also, a large patch of watershield entangled the motor, making consistent herbicide distribution difficult.

After spreading herbicide in the south end, work immediately went to the north cove. Spreading the herbicide in the north cove was much easier and more efficient due to the depth of the water and lack of emergent vegetation. Also, a modified backpack leaf blower, called the “Granblow”, was used to distribute the herbicide, making for a smoother and more efficient coverage.

Spray reports can be found in Appendix B.

Monitoring

After the milfoil treatment, herbicide levels were monitored to determine when watering restrictions could be lifted. These water tests are called FasTests and are delivered to SePro, the company that manufactures the herbicide and has the specialized equipment to look at herbicide concentrations. Samples were taken every two weeks after the initial treatment in August. In order for lakeside property owners to use water for irrigation, the levels had to be below 1 ppb. There were no restrictions for recreation, and there are no potable water intakes on the lake that might be affected. The levels started high, but declined with each successive sample. The southern sampling station took longer to decrease in concentration. It did appear that herbicide levels were trending downwards by the last sampling event in September, suggesting that a level of 1 ppb would have been achieved shortly. However, sampling stopped in late September as the rainy season hit the Northwest and the need to monitor for watering purposes became a non-issue.

Post Treatment Survey

When herbicide samples for milfoil were collected, a visual survey of the milfoil was done by boat. Definite herbicide damage was observed, particularly in the south end.

Fragrant Water Lily, Purple Loosestrife and Yellow Flag Iris

Community Involvement

The community took on full responsibility for yellow flag iris and purple loosestrife control. Two residents became licensed aquatic weed herbicide applicators through the Washington State Department of Agriculture during the spring of 2009.

Survey and Treatment

The community members' first treatment of the season was during the weekend of July 18th and 19th, 2009. The community licensed applicators worked with a team of residents to tackle the yellow flag iris and purple loosestrife populations still present along the shoreline of the lake. No water lily work was done in 2009 because none were present in the lake.

In July, eight community members worked on treating the spring lake shoreline with Aquamaster (active ingredient glyphosate). On these two dates it was found that the undeveloped southwestern shoreline of the lake is the most infested and hardest to reach due to wet, swampy walking conditions. The residential shoreline of the lake was less infested and easier to navigate, allowing the team to cover a greater area. It is still true that on Spring Lake, the yellow flag iris is the predominant noxious emergent weed and purple loosestrife is less abundant.

Six community members returned in August to treat again. The focus of the work was the from the boat launch south to the outlet. The main weed targeted was yellow-flag iris but purple loosestrife was treated when found.

The goal for the community group was to get back out again in the summer to finish the south eastern part of the shoreline, but due to time constraints, it did not happen.

Spray reports and treatment maps are included in Appendix B.

Effectiveness of Treatment

It was the first time since 2003 that herbicide had to be used at Spring Lake to control Eurasian watermilfoil. A new herbicide was used and, based on talking with the chemical company and staff at Ecology, it was felt one treatment should be enough because of the slow rate of chemical decomposition in other King County lakes. Iris remained the most frustrating emergent plant due to its abundance in the hard to access fen. Purple loosestrife was still present but very manageable and easy to target. Lilies were successfully removed from the lake.

2010

Milfoil

Survey

In July, three County staff members surveyed Spring Lake for Eurasian watermilfoil. Two snorkelers surveyed the lake while one staff member provided visual survey and supported the snorkelers. One plant was found on the west side of the shore near the fen but unfortunately was not pulled by the roots. That was the only plant found during this survey event.

On August 23rd, King County WLRD staff received an e-mail message from a Spring Lake resident alerting them to the presence of two milfoil plants found along the west shore and south end. The King County staff advised the community member to partner up with other community members and perform visual surveys of the lake throughout August. By the end of August it was clear that milfoil was still present in the south cove and along the western shore as well as the northeastern cove. Spring Lake community members pulled as many plants as they could but most of the plants in the south end were not pulled due to the access issues with the water being so shallow.

King County staff believed that the cold spring and mild summer resulted in milfoil showing up later than normal. It was apparent that milfoil was still present and treatment had to be done.

Treatment

Treatment occurred on September 16th and was done by two King County WLRD staff members. Based on surveys, it was determined that the focus of the work should be on the south cove. This was a late treatment due to the cold spring and lack of finding any milfoil plants in the mid summer survey. It was identified that the south cove was the heaviest infestation and that is where the treatment focused. One bag of Renovate OTF[®] (active ingredient triclopyr) was used in about two acres of lake which allowed for 0.75 ppm concentration to be applied. It was applied by dispersing the flakes with a scoop throughout the treatment area.

Monitoring

Samples to check for residual triclopyr were taken on October 4th. Levels were a little higher than 1ppb but very low and the rainy season hit the northwest, so no further samples were taken because the need for property irrigation was gone.

Results of the Fastest can be found in Appendix C.

Fragrant Water Lily, Purple Loosestrife and Yellow Flag Iris

Survey and Treatment

There were three surveys done for purple loosestrife and yellow flag iris during the 2010 growing year. The first two surveys done at the end of June and mid July focused on yellow-flag iris, while the third survey and treatment date focused on purple loosestrife. Due to the pervasive presence of the iris, survey and treatment were done at the same time.

The Spring Lake community worked together on the iris treatment and surveys and was led by two licensed applicators within the community. A total of 2.67 acres (or 7,800 linear feet of shoreline with an average of 15 feet from shore) were treated for iris using Aquamaster, (a.i. glyphosate). A total of 1950 mL was used for a concentration of 2.5 %. A combination of hand held sprayers and a back pack sprayer were used.

The purple loosestrife survey and treatment was done in August while the plant was blooming. Five members from the community helped a representative from the King County Noxious Weed Control Program. They spent one day working around the lake treating loosestrife and any iris that was not previously treated. The group covered 1.79 acres (7800 linear feet of shoreline with a 10 foot average distance from shore). Again, Aquamaster was the herbicide used and 200 mL

were used to achieve a 2.5% solution. The plants were spot treated when found using hand held sprayers and one back pack sprayer.

Monitoring

No monitoring for glyphosate was done this year as the treatments occurred landward from Spring Lake. The lilies were absent from the lake and the majority of the emergent weeds are upland of the lake.

Effectiveness of Treatment

Milfoil came back in late summer early fall to Spring Lake at densities that had not been seen in several years. The trickiest part of the milfoil treatment was getting good coverage in the south cove due to its soft sediments and very shallow water depths. In the other areas where milfoil was found, the community managed to hand pull most of them but it does seem likely that some treatment will be necessary in 2011.

Purple loosestrife and lilies are being successfully managed at Spring Lake. As of 2010, there were no fragrant water lilies present at the lake and purple loosestrife has been controlled to low levels that can be controlled in one day of treatment.

Controlling, yellow flag iris continues to be a battle at the lake. While excellent control has been achieved around the residential properties, the south area in the fen has proven to be very problematic due to the water depth when trying to access the shoreline and the difficulty of reaching the iris.

Education and Outreach

Much of the education and outreach was done at the beginning of the grant to educate the community on the problem, the project and how to identify the weeds. All outreach materials can be found in Appendix D.

Community Involvement

Steering Committee

A steering committee meeting was established, made up of the most active members of the Spring Lake community. They worked on the Integrated Aquatic Vegetation Plan, drafting the grant and helping to guide each step of the planning process and act as liaisons to the wider community.

Kick off meeting

On June 19th, 2003 a kickoff presentation was a help for the aquatic weed eradication project at a Spring Lake Community Club Meeting. Extra money was collected at the meeting to help establish funds for indentifying and controlling new weed infestations after the Ecology-funded efforts end.

Milfoil Patrol

Eight lakeside residents participated in an on-lake training to learn how to identify milfoil and to agree upon several reference points around the lake. These residents formed a Milfoil Patrol to routinely survey Spring Lake for weeds over the course of the project.

Seattle Post Intelligencer

On July 29, 2003 the Seattle PI ran a front-page article about the Spring Lake project and other weed control efforts. A Spring lake resident was prominently featured in the article.

Herbicide Applicators License

Two Spring Lake residents tested and received their herbicide applicator licenses with an aquatic endorsement. This allowed for the community to take over treatment of the emergent weeds in the last years of the project and set themselves up for continued treatment of the emergent weeds in the future.

Meetings

Aside from the initial meetings in the beginning of the project, the Spring Lake community group ran meetings themselves and appointed a citizen liaison to receive information from KCLSP staff and to pass the information along to the residents.

Printed Materials

Educational Brochures

The steering committee created an educational brochure to outline the problem with aquatic weeds and the proposed treatment plan. The brochure was mailed to all watershed residents and a copy of the brochure is included in Appendix D.

Overall Project Results

While milfoil has been reintroduced into Spring Lake after several years of excellent control, the project has been successful overall.

The largest success of this project has little to do with directly controlling the weeds, but rather that a community has learned how to identify and manage for invasive, noxious weeds on their own. It is a huge testament to this project that a core group of community members organized themselves to guide and advise on each aspect of the project. Two residents even went so far as to get themselves licensed for aquatic herbicide treatment so they could manage the weeds as a community without the need for much oversight by the county. The Spring Lake community is a model for other community-based aquatic noxious weed projects in the way that they internalized much of the work and cooperated with the county. This dedicated group of citizens kept other residents up to date on the weed work through their community club meetings and e-mail alerts to the residents. The citizen participation and commitment to restoring the native plants of Spring Lake is one of the best outcomes of this grant project.

However, the goals of the grant continue to be an ongoing challenge. Milfoil was removed from the lake in 2003 with a 2,4-D treatment. Upon its return in 2005, hand pulling was sufficient to

remove the few plants that were found. In 2008, herbicide should have been the control method instead of hand pulling due to the difficult access and shallow waters of the south end of the lake. Triclopyr seemed to definitely have an effect on the milfoil plants, but it was not as drastic or as immediate as the 2,4-D that was used in the first season. Triclopyr was used in the end because success had been noticed in the use of the herbicide at Cottage Lake, and it was anticipated that it would be successful at Spring Lake as well.

There were several complications to the last years of treatment at Spring Lake. The first obstacle was the shallowness of the south end making treatment very difficult for a regular boat with an outboard motor. The second complicating factor was milfoil often showed up later in the season at Spring Lake, often late July so treatments were later in the season making them potentially less effective. Triclopyr in Spring Lake had the same issue as in Cottage Lake with residual levels staying higher much longer than the label states.

In hindsight, greater success would probably have been achieved if a contractor was hired to apply 2,4-D to treat the lake as soon as the milfoil reappeared in the lake and have King County perform surveys to assess infestation and treatment effects.

Water lilies and purple loosestrife were very well controlled. While it may have taken a few years to get control of these two plants, lilies have now been eradicated from the lake and are unlikely to come back unless someone plants them along their shoreline. Purple loosestrife is still present, but not nearly to the same degree it was in 2003 and the community has been taking control of the loosestrife since 2008, with limited help from the County.

Over the seven year project, controlling iris has proven to be most difficult. The County and the community have been successful in controlling it in easily accessed areas, especially along privately owned shorelines, mainly due to the firm ground, maintenance of people's yards and easy access. The hardest part of the treatment has been in the south fen area. The fen has very soft soils and is often overgrown with cattails and other emergent vegetation. This makes locating and treating the iris very difficult. It is also hard to access the iris along the shoreline in the fen by boat due to the very shallow water. The community remains committed to tackling the iris in the fen and staying vigilant along residential shorelines.

Budget

The Spring Lake project began in 2003, making it an intensive eight year project. Over the course of eight years, 89% of the budget was spent (Table 1). This budget will change due to the last billing which will be done in January 2011, this will include the summer treatment and survey work as well as the writing of the final project report.

Table 1: Budget summary of the Spring Lake Milfoil Project through June 30, 2010

Spring Lake Milfoil Eradication Project Budget and Expenditures*

Task	Grant	Match	Total
Project Management	\$ 6,504.00		\$ 7,279.93
Herbicide Treatment	\$ 27,466.00	\$ 2,632.50	\$ 32,505.26
In-water Work	\$ 41,026.00	\$ 5,172.96	\$ 35,445.53
Education and Outreach	\$ 9,552.00	\$ 2,295.00	\$ 4,178.80
Project Reports	\$ 2,168.00		\$ 2,751.60
Total	\$ 86,716.00	\$ 10,100.46	\$ 82,161.12

The budget above reports the best estimate for how the final project budget numbers will end up. The tasks were tracked within the King County system but it was not clear how these were grouped for billing as billing was never reported by task. The tasks set forward in the contract were project management, herbicide treatment, in-water work (surveys, monitoring), education and outreach and project reports. It is known that the majority of the expenses went to the in-water work and herbicide treatments as they were the most labor intensive, in some cases required contractors and happened every year. However, the project management and project reports tasks went over budget as it always takes more time and money to perform these tasks than originally thought.

It is likely by the final billing the majority of the grant money will be spent. It is possible that there could have been better success and less money spent if the project went straight back to herbicide treatment after the first milfoil plant that returned in 2005. However, the management decision was made to hand-pull and perform surveys which were much more time and labor intensive. It was also felt that surveys were a mandatory part of this project to ensure infestation levels and treatment effectiveness were closely monitored.

Proposed Management for Future Years

Spring Lake will be well positioned at the sunset of this grant to continue the work. The Community is highly committed to carrying out eradication work and have set up funds within their community group to help pay for the costs. Milfoil will be the top priority of the community in the coming years, and it will be interesting to see if they can replicate the success of the 2003 herbicide treatment. King County recommends that the community use a contractor with an airboat and possibly try some new herbicides on the market such as the triclopyr, 2,4-D combination that was recently approved by Ecology.

The community has already shown their dedication to treating the emergent weeds along the lake shore and has been working with the King County Noxious Weed group to control purple loosestrife. It is helpful that they have two residents who are licensed herbicide applicators with aquatic endorsements to help guide the treatment and who can be instrumental in hiring the appropriate contractor for the job.

Spring Lake volunteers are also involved with the King County weed watchers group. The goal of the program is to train volunteers to survey for aquatic weeds in small lakes in King County, Washington. Volunteers are trained to identify both native and non-native aquatic plants. The goal of the project is to watch for populations of invasive weeds that are not currently known to occur in King County or that have a very limited distribution, but have the potential to spread and cause damage. Detecting these weeds early allows for eradication before they get too entrenched to remove. This is reassuring for the reason that the Spring Lake community will continue to receive technical assistance and training to keep looking for possible invasive weeds that could damage the Spring Lake ecosystem.

APPENDICIES

Appendix A- Survey maps

Appendix B – Treatment Maps and Spray Reports

Appendix C – Herbicide Monitoring

Appendix D – Education and Outreach

APPENDIX A

NOXIOUS WEEDS SURVEYS

Spring Lake 2003 Yellow Flag Iris Survey Map



-  Yellow Flag Iris plant
- Yellow Flag Iris Plants**
-  Dense
-  Moderate
-  Sparse



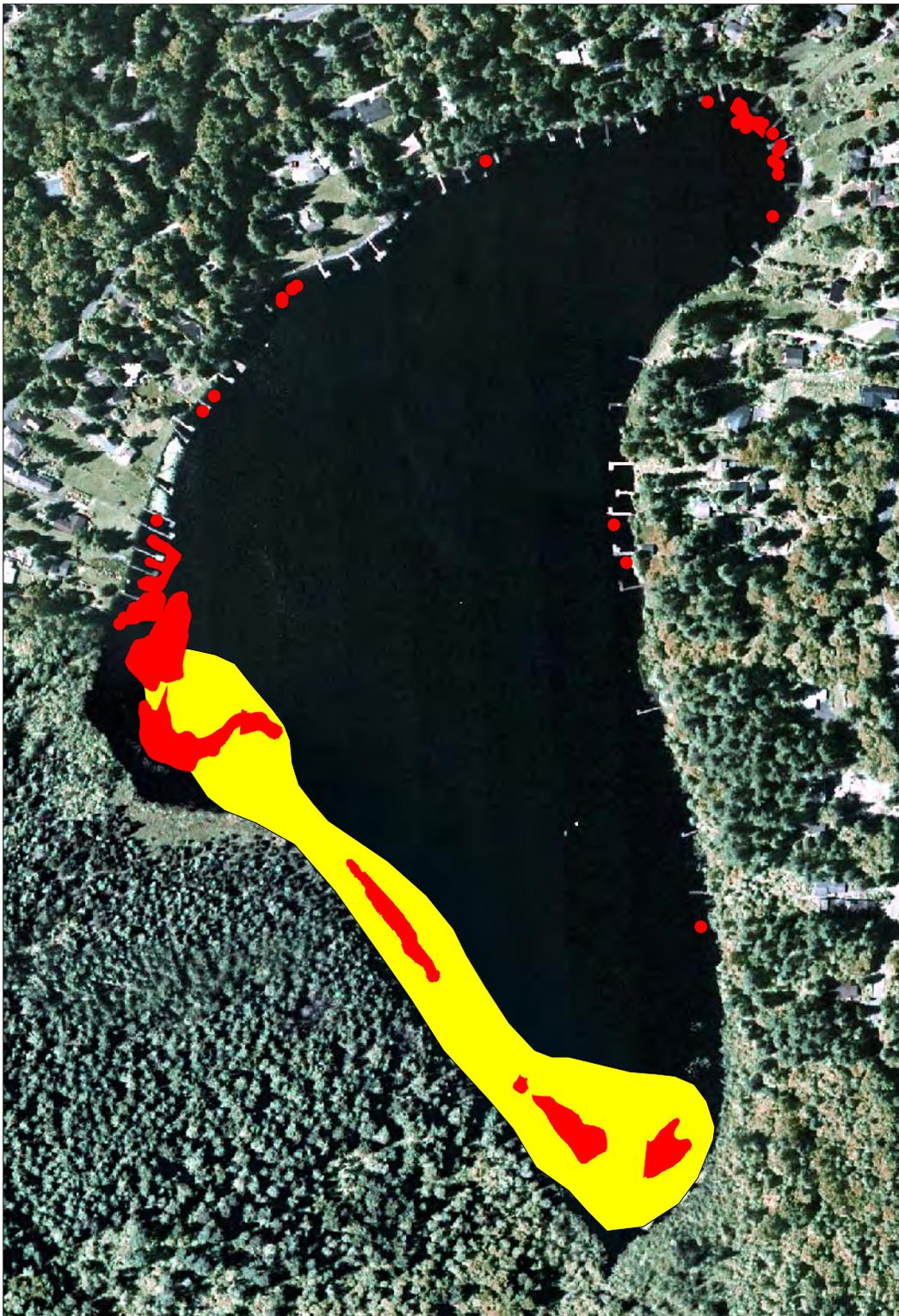


Spring Lake 2003 Purple Loosestrife Survey Map

* Purple Loosestrife



Spring Lake 2003 Eurasian Milfoil Survey Map



-  Dense Eurasian watermilfoil areas
-  Sparse Eurasian watermilfoil areas
-  Eurasian watermilfoil points



Spring Lake 2003 Fragrant white waterlily survey map



Fragrant white waterlily areas

-  Dense
-  Moderate
-  Sparse



Table 1 shows all aquatic plants found during the survey. The table also indicates the relative distribution and density of the plants in the lake. No submerged aquatic plants were found growing at depths deeper than thirteen feet.

Table 1. List of all submerged, floating-leaved, and emergent aquatic plants (including macroalgae) found during survey at Spring Lake on July 20th, 2004.

Scientific Name	Common Name	Distribution/Density⁽¹⁾
<i>Ceratophyllum demersum</i>	Coontail	1
<i>Elodea canadensis</i>	American waterweed	3
<i>Najas flexilis</i>	Slender water-nymph	3
<i>Potamogeton pusillus</i>	Small pondweed	2
<i>Potamogeton epihydrus</i>	Ribbonleaf pondweed	3
<i>Utricularia vulgaris</i>	Common bladderwort	1
<i>Brasenia schreberi</i>	Watershield	2
<i>Nuphar polysepala</i>	Spatterdock	3
<i>Nymphaea odorata</i>	Fragrant waterlily (*)	2
<i>Carex spp.</i>	Sedge spp.	3
<i>Eleocharis spp.</i>	Spike-rush spp.	2
<i>Iris pseudacorus</i>	Yellow-flag iris (*)	3
<i>Juncus spp.</i>	Rush spp.	2-3
<i>Ludwigia palustris</i>	Water purslane	2
<i>Lythrum salicaria</i>	Purple loosestrife (*)	2
<i>Scirpus spp.</i>	Bulrush spp.	2
<i>Spiraea douglasii</i>	Hardhack	3-4
<i>Typha angustifolia</i>	Narrowleaf cattail	2-3
<i>Typha latifolia</i>	Common cattail	2-3
<i>Chara</i>	Muskgrass	2
<i>Nitella</i>	Stonewort	2-3

(1) Ecology distribution value definitions as follows: 1 = few plants in only one or a few locations, 2 = few plants, but with a wide patchy distribution, 3 = plants growing in large patches and co-dominant with other plants, 4 = plants in nearly mono-specific patches and dominant, 5 = thick growth covering the substrate at the exclusion of other species.

* State-listed noxious weed.

Ribbonleaf pondweed American waterweed and slender water-nymph were the dominant submerged plants in the lake, and in some areas formed dense monotypic stands. Slender water-nymph was especially abundant in deeper (>8 feet) waters near the public boat ramp. The floating-leaved plant spatterdock (a.k.a. yellow water lily) was present in most of the nearshore areas, especially in the northern and southern ends of the lake and along the western shoreline. Although documenting shoreline plants was not the primary focus of the survey, cattails, hardhack, sedges, and rushes were the most common emergent plants growing along the shoreline.

Figure 1. Habitat observations during the June 13, 2000 boat survey on Spring Lake, King County.
 Shading and legend from Spring Lake Survey to 2000. (Source: Spring Lake 1457AR, 1998)

Aquatic Plants Map

-  Floating
-  Emergent
-  Submerged
-  No plants or sparse
-  No plants—deep
-  Loosestrife
-  Aralia
-  Shoreline
-  Section boundary





Spring Lake King County Yellow Flag Iris Location Map

2006

 Patch of Yellow Flag Iris
Band of Yellow Flag Iris



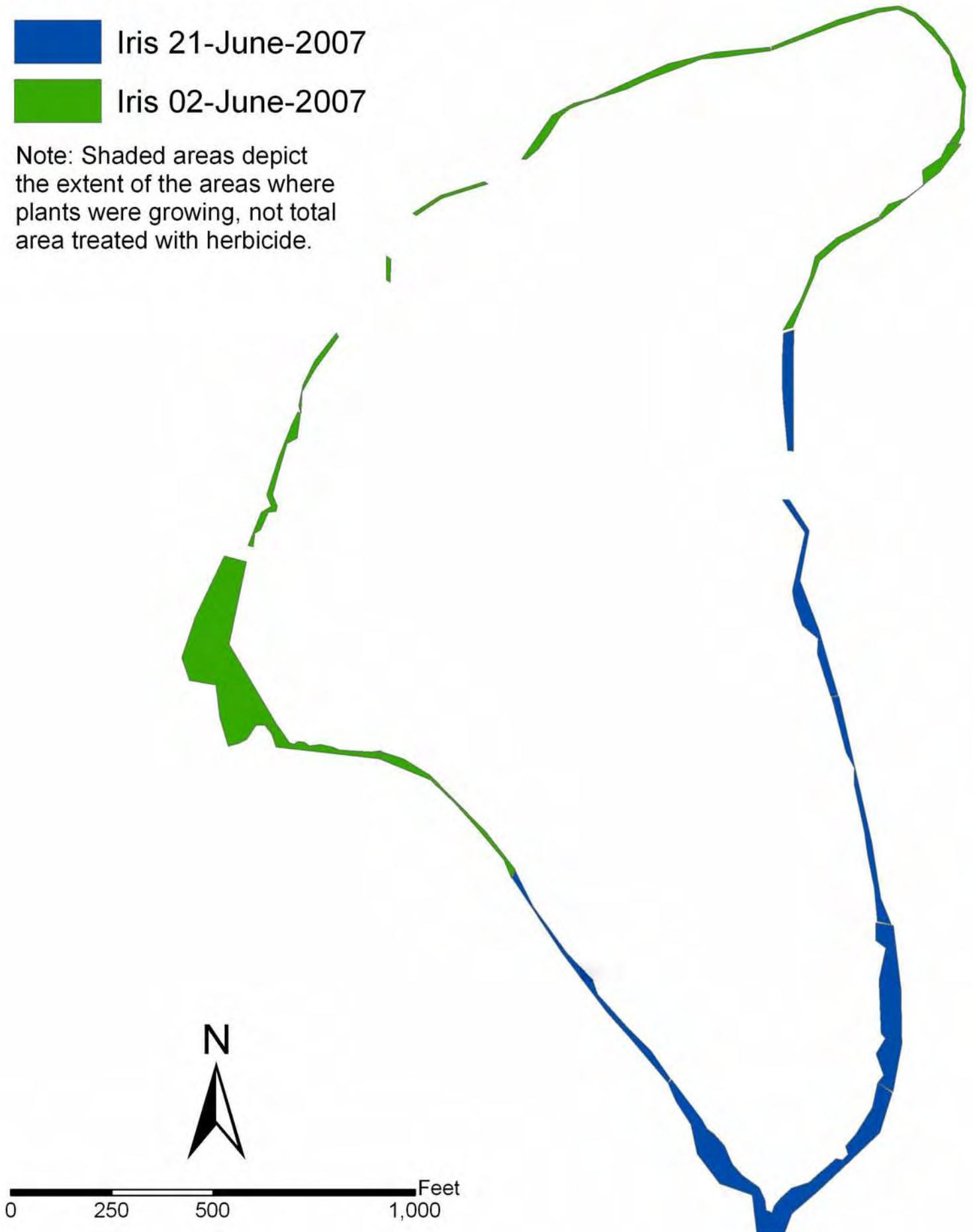
300 0 300 600 Feet

2007 Treatment Areas

 Iris 21-June-2007

 Iris 02-June-2007

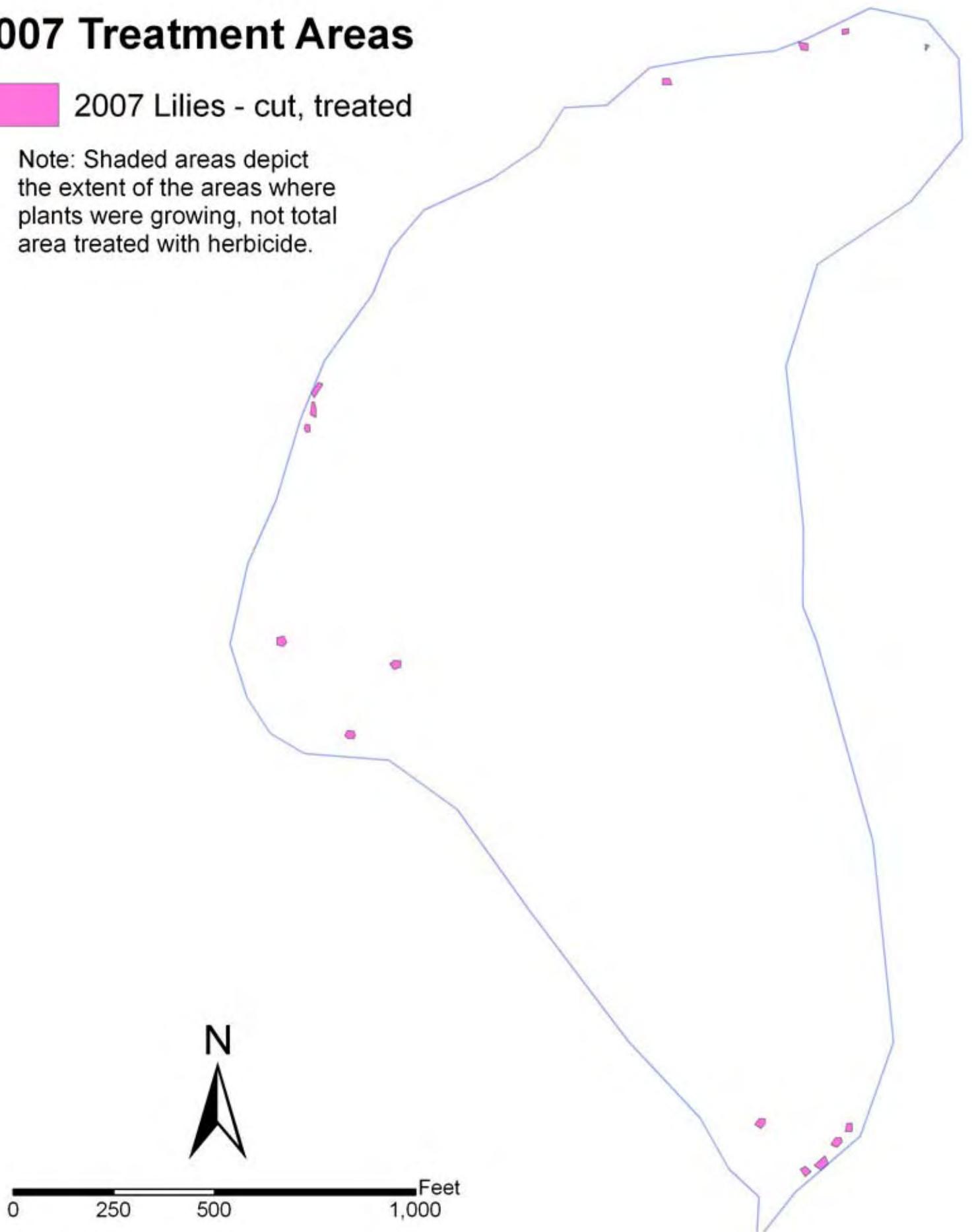
Note: Shaded areas depict the extent of the areas where plants were growing, not total area treated with herbicide.



2007 Treatment Areas

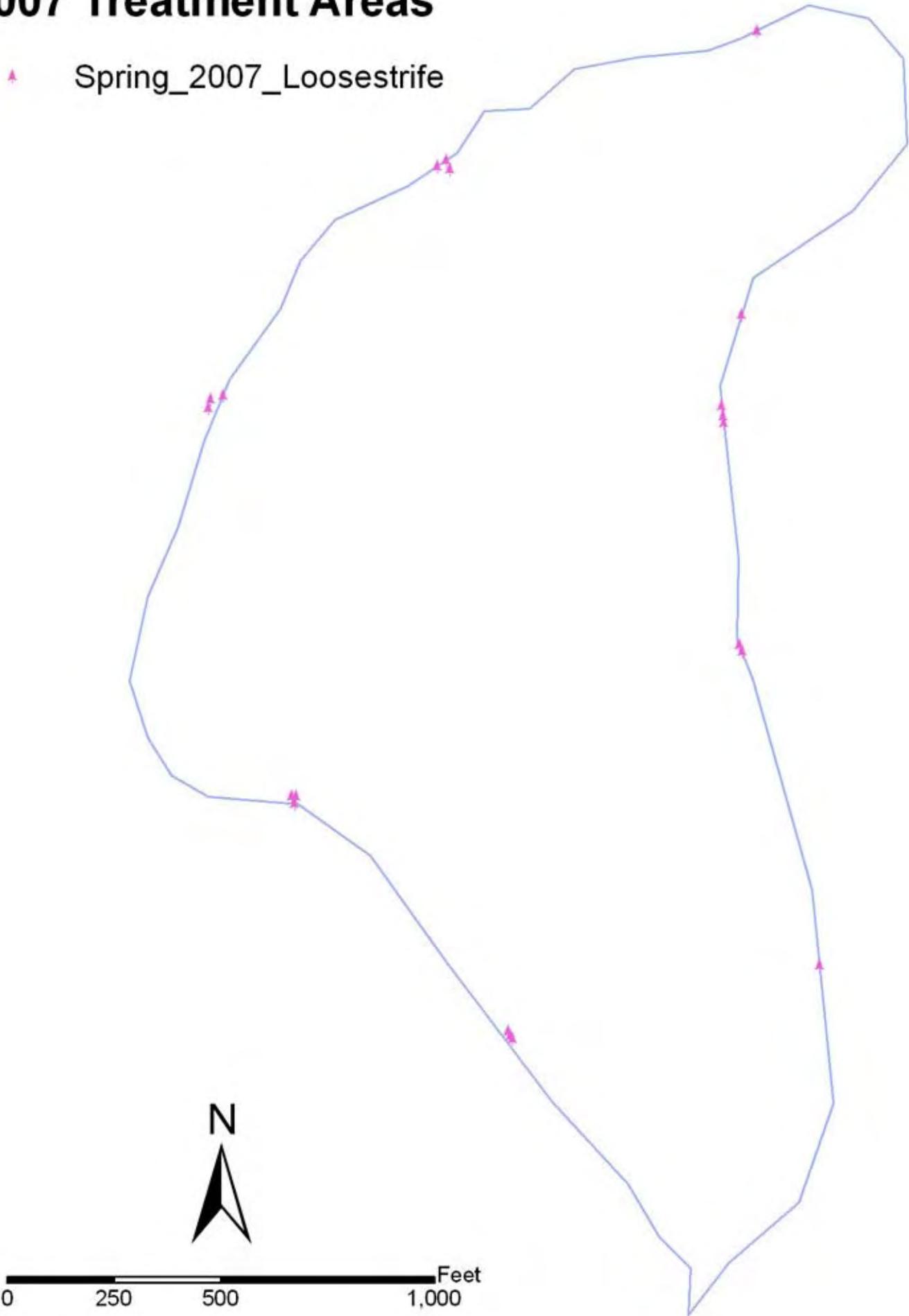
 2007 Lilies - cut, treated

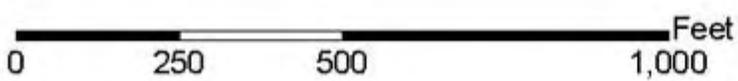
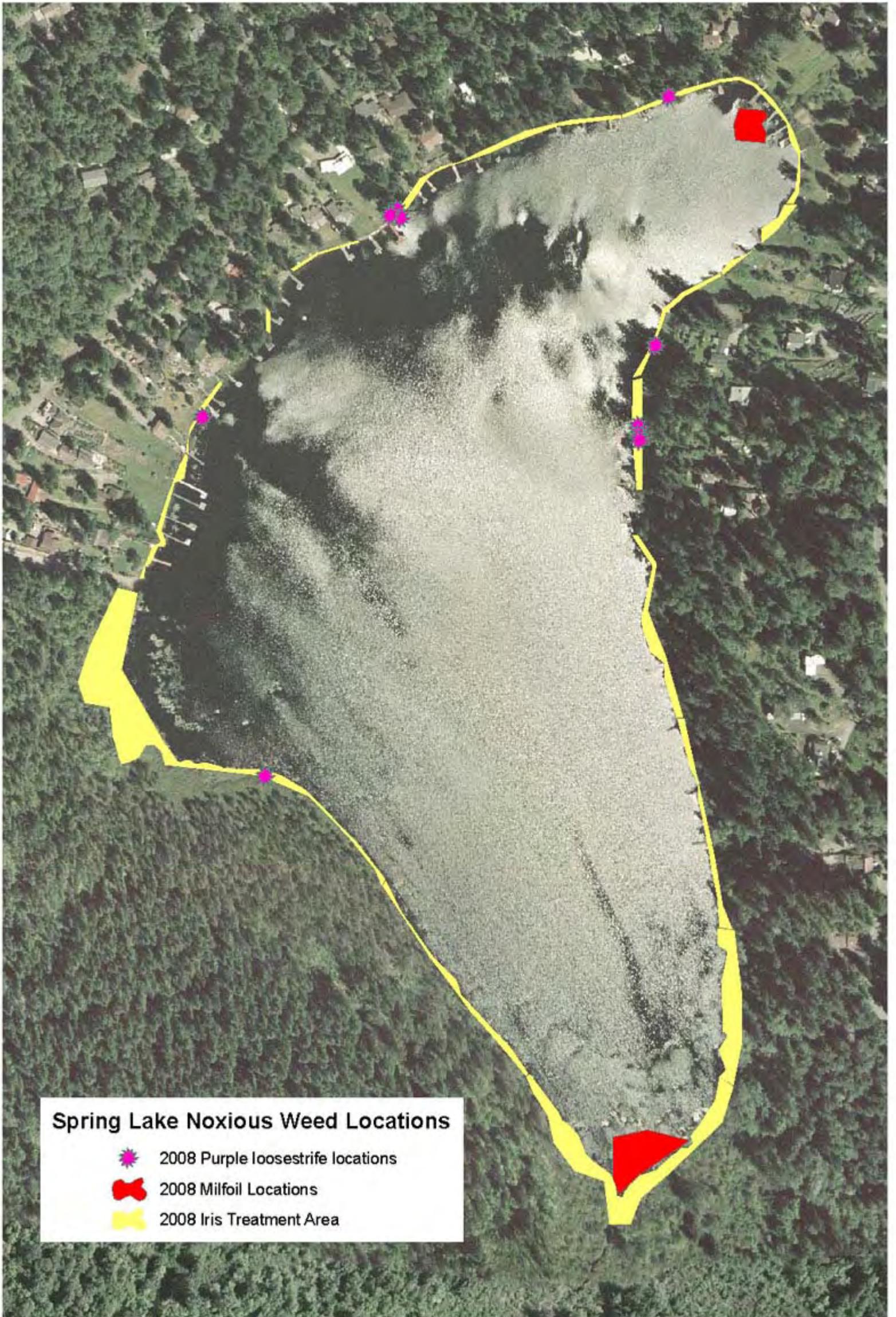
Note: Shaded areas depict the extent of the areas where plants were growing, not total area treated with herbicide.

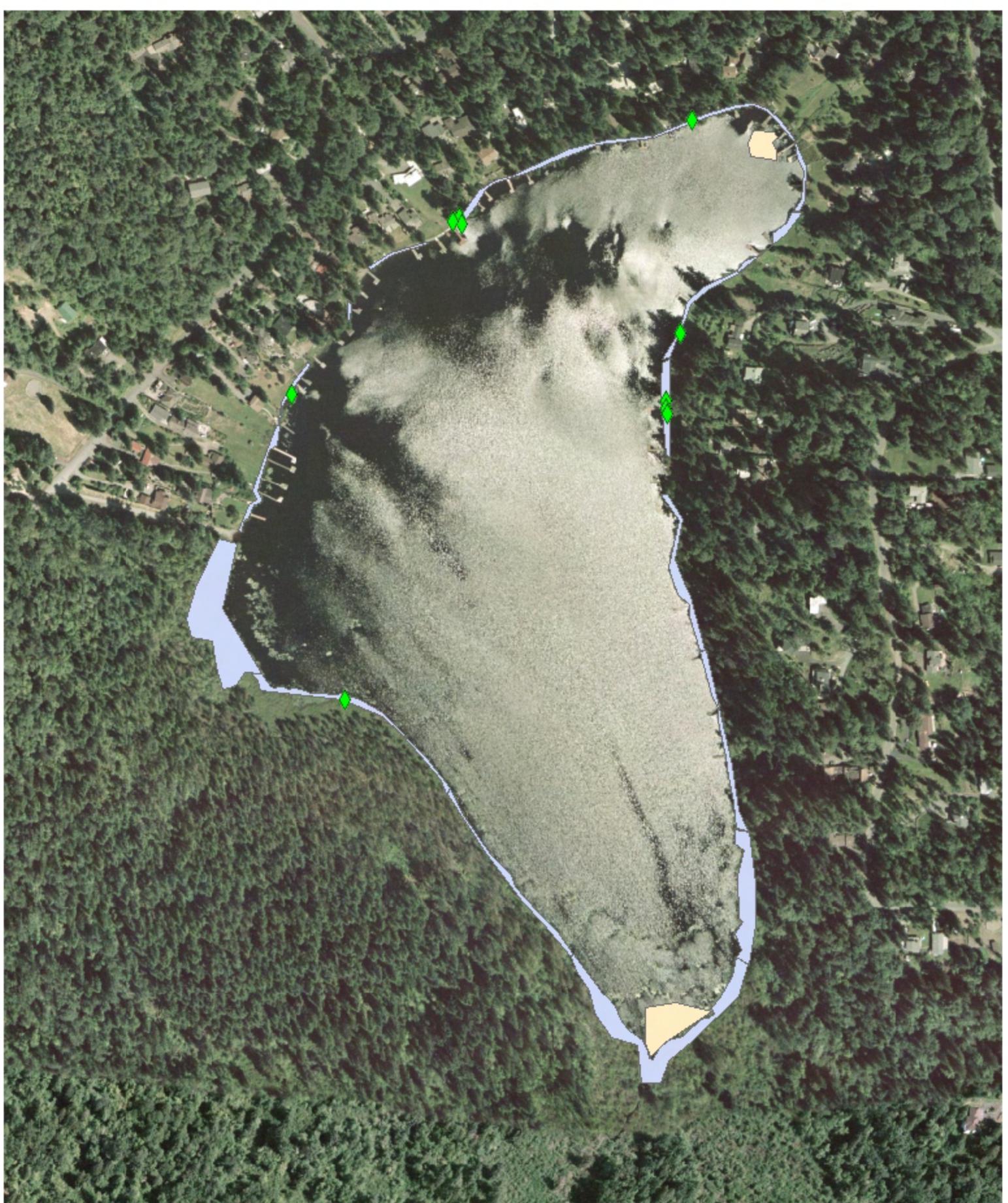


2007 Treatment Areas

▲ Spring_2007_Loosestrife







Spring 2009 Treatment

-  2009 Purple Loosestrife
-  2009 Milfoil Areas
-  2009 Yellow Flag Iris

0 0.03 0.06 0.12 Miles





about 12 plants pulled

1 plant pulled

1 plant pulled

about 9 plants pulled

about 7 plants pulled

lots of plants NOT pulled...
remain in about 2 inches of
water as of 8/28/10



APPENDIX B

TREATMENT MAPS, SPRAY REPORTS

AND HERBICIDE MONITORING

RESULTS

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application
 and it must be retained for 7 years (Ref. RCW 17.21)

1. Date of Application - Year: 2003 Month: July Day: 29 Time: 7am-1pm
2. Name of Person for whom the pesticide was applied: King County DNR
 Firm Name (if applicable): King County DNR
 Street Address: 201 S Jackson Street City: Seattle State: WA Zip: 98124
3. Licensed Applicator's Name (if different from #2 above): Terry McNabb License No. 7973
 Firm Name (if applicable): Aquatechnex, LLC Tel. No. 360-330-0152
 Street Address: PO Box 118 City: Centralia State: WA Zip: 98531
4. Name of person(s) who applied the pesticide (if different from #3 above):
 License No(s), if applicable:
5. Application Crop or Site: Spring Lake, Washington
6. Total Area Treated (acre, sq. ft., etc.): 13.8 Acres in Area One, 10.1 acres in remaining areas
7. Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) #
8. Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Dow DMA 4 IVM (area 1)	62719-3	29 gallons	2.1 / acre	n/a
Dow DMA 4 IVM (other areas)	62719-3	71 gallons	7 gallons / acre	n/a
			/	
			/	

9. Address **or exact location** of application. NOTE: if the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

 This application was made to areas of Spring Lake infested with Eurasian Milfoil, they are shown on the attached map. Area One is the shallows on the southwest and south shoreline with an average depth of 1.5 feet at time of treatment. All other areas had an average depth of 4 feet.
10. Wind direction and estimated velocity during the application: calm
11. Temperature during the application: 75 degrees
12. Apparatus license plate number (if applicable):
13. Air Ground Chemigation
14. Miscellaneous Information:

 This was an aquatic application made by airboat with drop hoses to inject herbicide into the lake.

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only:

Township: N

Range: E OR W (please indicate)

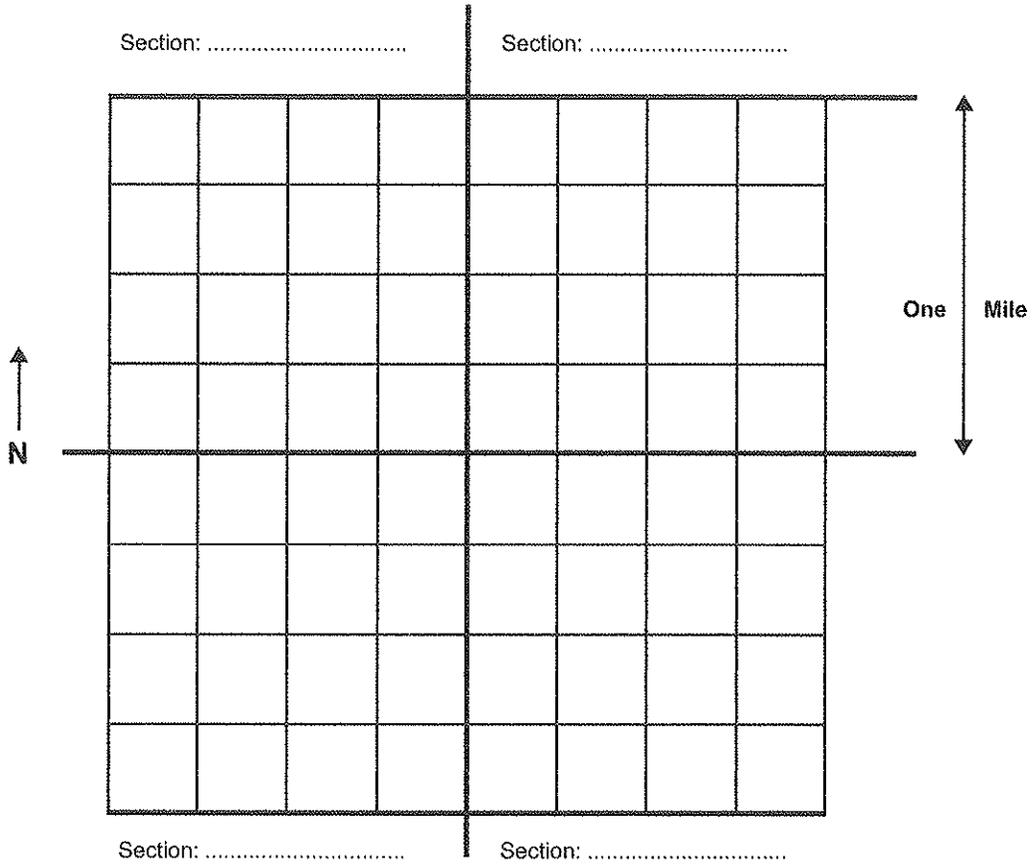
Section(s):

County: King

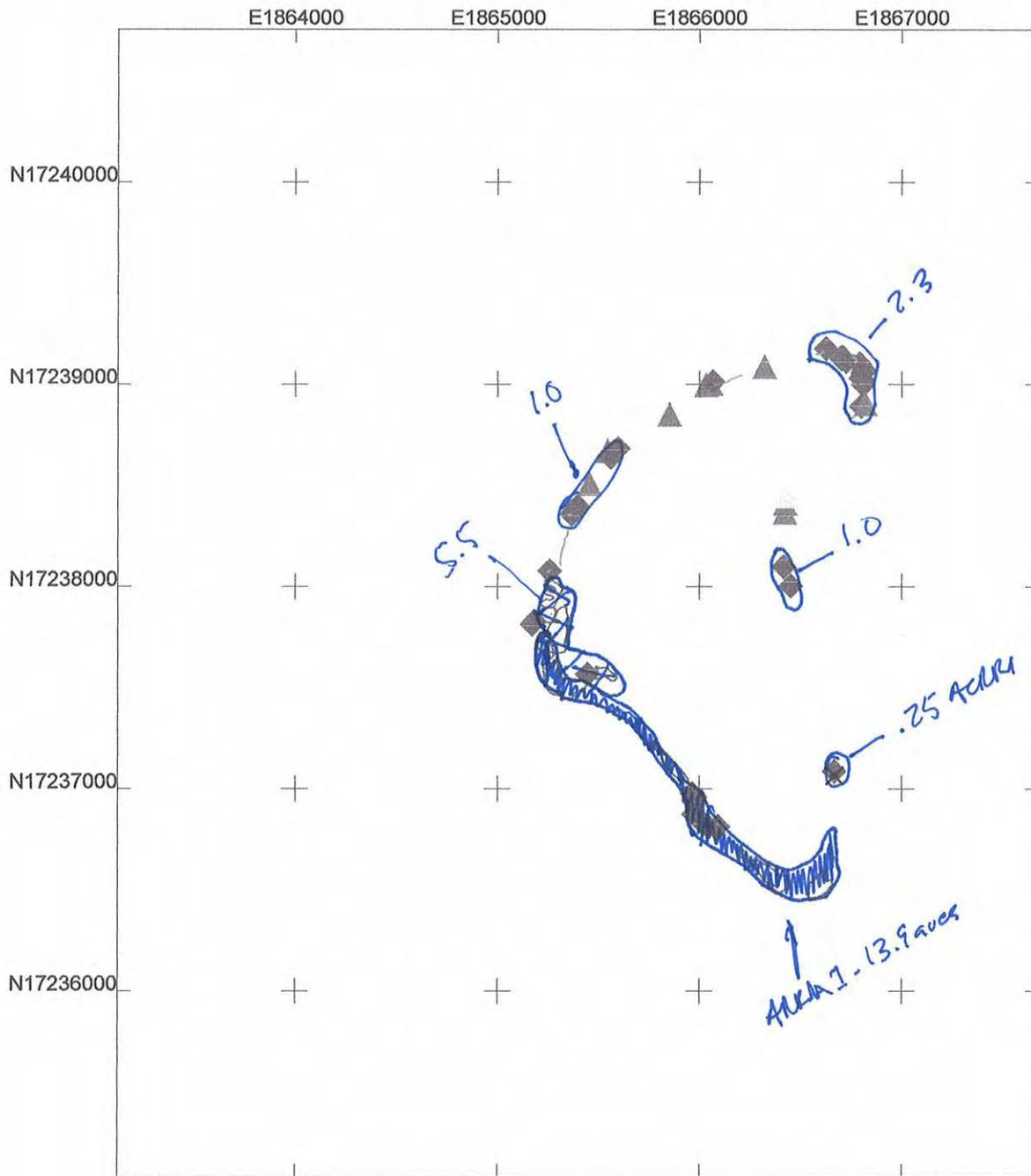
Approximate GPS location of lake is 47.26.15 North, 122.05.15 West

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:



July 29th Treatment Areas

UTM
10 North
NAD 1983 (Conus)



Scale 1:10,000
0 1,250
Feet

spring1.cor
8/28/2003
GPS Pathfinder[®] Office
 **Trimble**[™]

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application
 and it must be retained for 7 years (Ref. RCW 17.21)

1. Date of Application - Year: 2003 Month: August Day: 13 Time: 7am-1pm
2. Name of Person for whom the pesticide was applied: King County DNR
 Firm Name (if applicable): King County DNR
 Street Address: 201 S Jackson Street City: Seattle State: WA Zip: 98124
3. Licensed Applicator's Name (if different from #2 above): Terry McNabb License No. 7973
 Firm Name (if applicable): Aquatechnex, LLC Tel. No. 360-330-0152
 Street Address: PO Box 118 City: Centralia State: WA Zip: 98531
4. Name of person(s) who applied the pesticide (if different from #3 above):
 License No(s), if applicable:
5. Application Crop or Site: Spring Lake, Washington
6. Total Area Treated (acre, sq. ft., etc.): spot sprayed noxious weeds on the margins of the lake totaling approx. 3 acres
7. Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) #
8. Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
AquaPRO	62719-324-67690	67 oz	1.5 / %solution	1.5 %solution
LI 700 Surfactant	n/a	44.8 oz	1 / %solution	1%solution
			/	
			/	

9. Address **or exact location** of application. NOTE: if the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

 This application was made from an airboat and from the shoreline using backpack sprayers as mapped on attached documents

10. Wind direction and estimated velocity during the application: calm
11. Temperature during the application: 78 degrees
12. Apparatus license plate number (if applicable):
13. Air Ground Chemigation
14. Miscellaneous Information:

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only:

Township: N

Range: E OR W (please indicate)

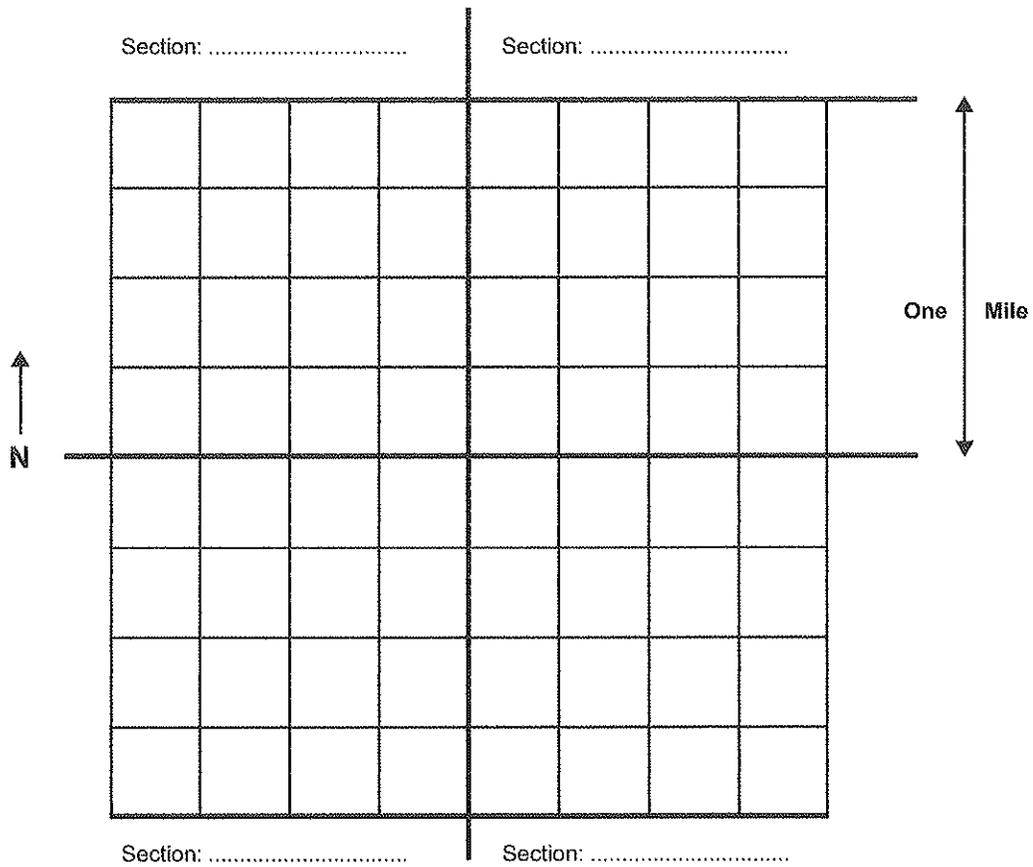
Section(s):

County: King

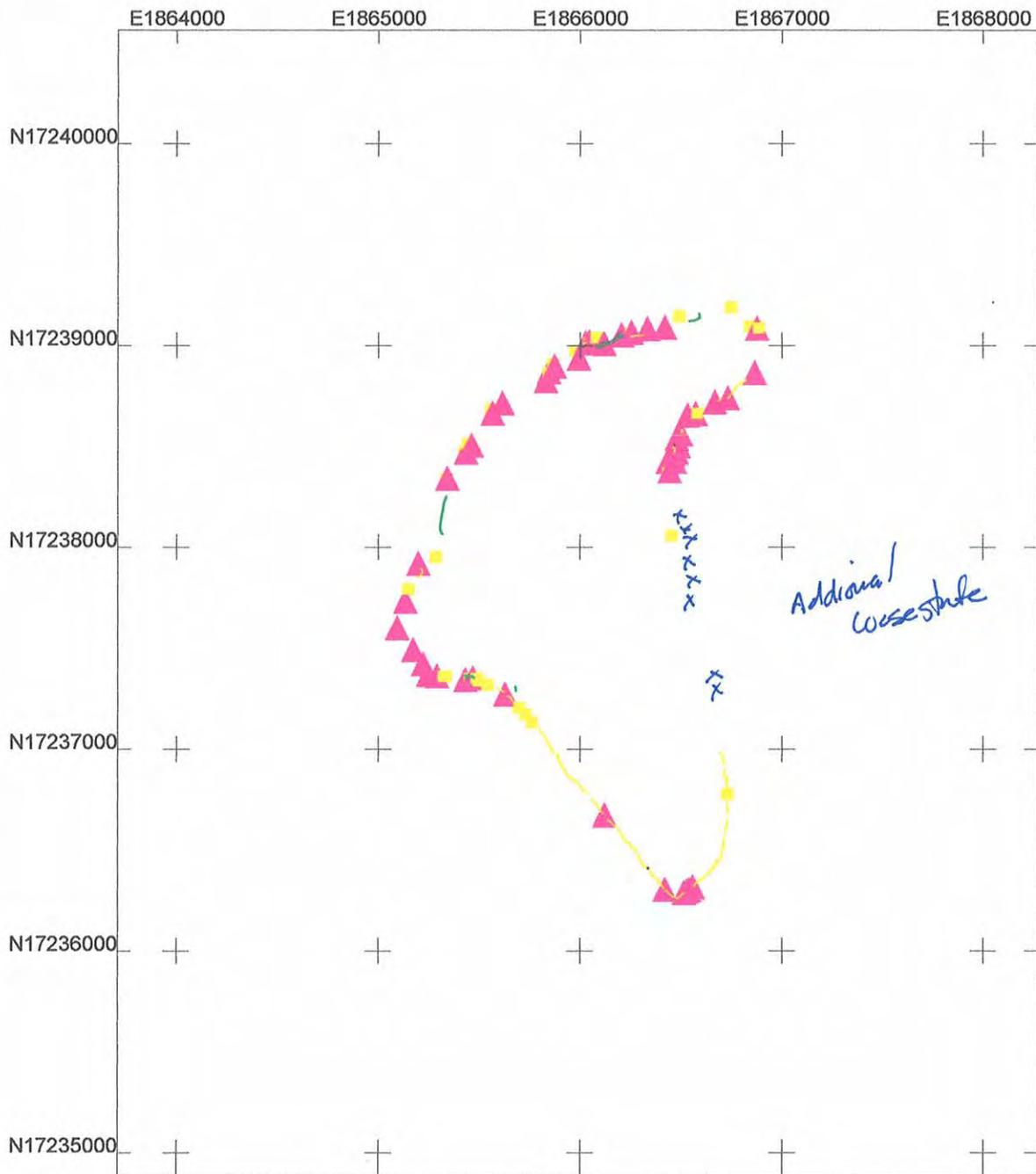
Approximate GPS location of lake is 47.26.15 North, 122.05.15 West

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.

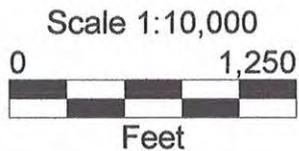


Miscellaneous Information:



August 13th Treatment Sites

UTM
10 North
NAD 1983 (Conus)



spring2.ssf
8/28/2003

GPS Pathfinder[®] Office
 Trimble.

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application
 and it must be retained for 7 years (Ref. RCW 17.21)

1. Date of Application - Year: 2003 Month: August Day: 26 Time: 7am-12:00 pm
2. Name of Person for whom the pesticide was applied: King County DNR
 Firm Name (if applicable): King County DNR
 Street Address: 201 S Jackson Street City: Seattle State: WA Zip: 98124
3. Licensed Applicator's Name (if different from #2 above): Terry McNabb License No. 7973
 Firm Name (if applicable): Aquatechnex, LLC Tel. No. 360-330-0152
 Street Address: PO Box 118 City: Centralia State: WA Zip: 98531
4. Name of person(s) who applied the pesticide (if different from #3 above):
 License No(s), if applicable:
5. Application Crop or Site: Spring Lake, Washington
6. Total Area Treated (acre, sq. ft., etc.): spot sprayed noxious weeds totaling approximately 1 acre
7. Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) #
8. Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
AquaPRO	62719-324-67690	34.4 oz	1.5 / %solution	1.5% solution
LI 700 surfactant	n/a	23 oz	1 / %solution	1 %solution
			/	
			/	

9. Address **or exact location** of application. NOTE: if the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

 This application was made to noxious emergent weeds (P Loosestrife, W Water Lily and Y Iris on the margins of Spring Lake as shown on attached map

10. Wind direction and estimated velocity during the application: variable 0-5 mph
11. Temperature during the application: 65 degrees
12. Apparatus license plate number (if applicable):
13. Air Ground Chemigation
14. Miscellaneous Information:

This application was made by airboat and from the shoreline using backpack sprayers

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only:

Township:N

Range: E OR W (please indicate)

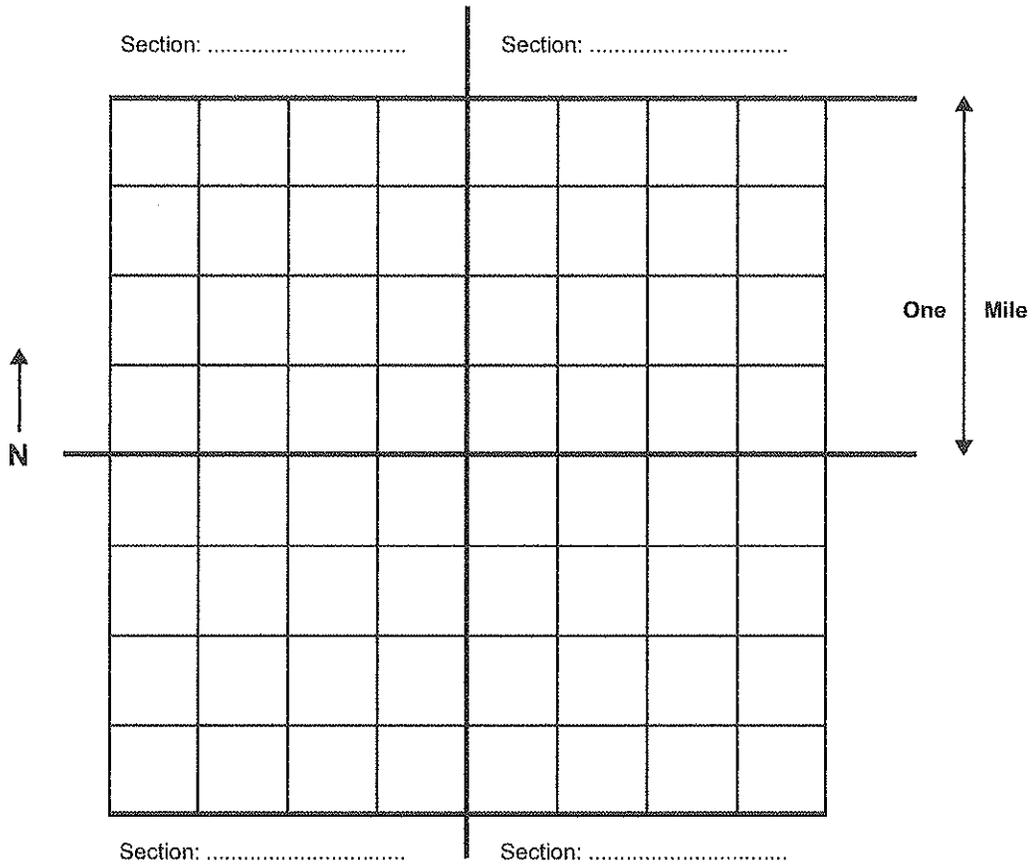
Section(s):

County: King

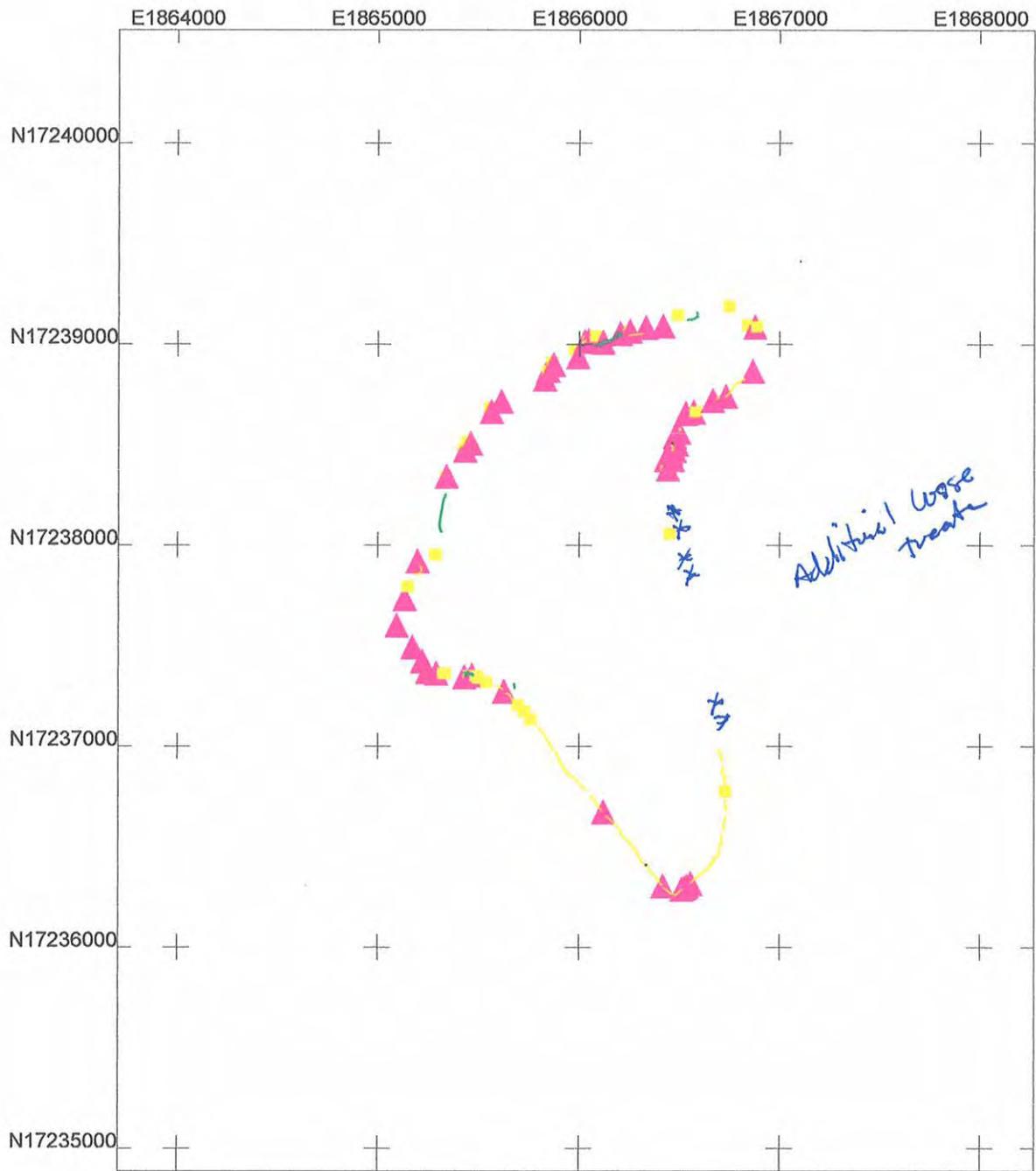
Approximate GPS location of lake is 47.26.15 North, 122.05.15 West

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.

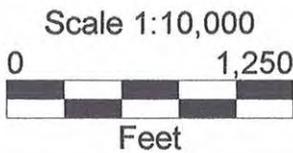


Miscellaneous Information:



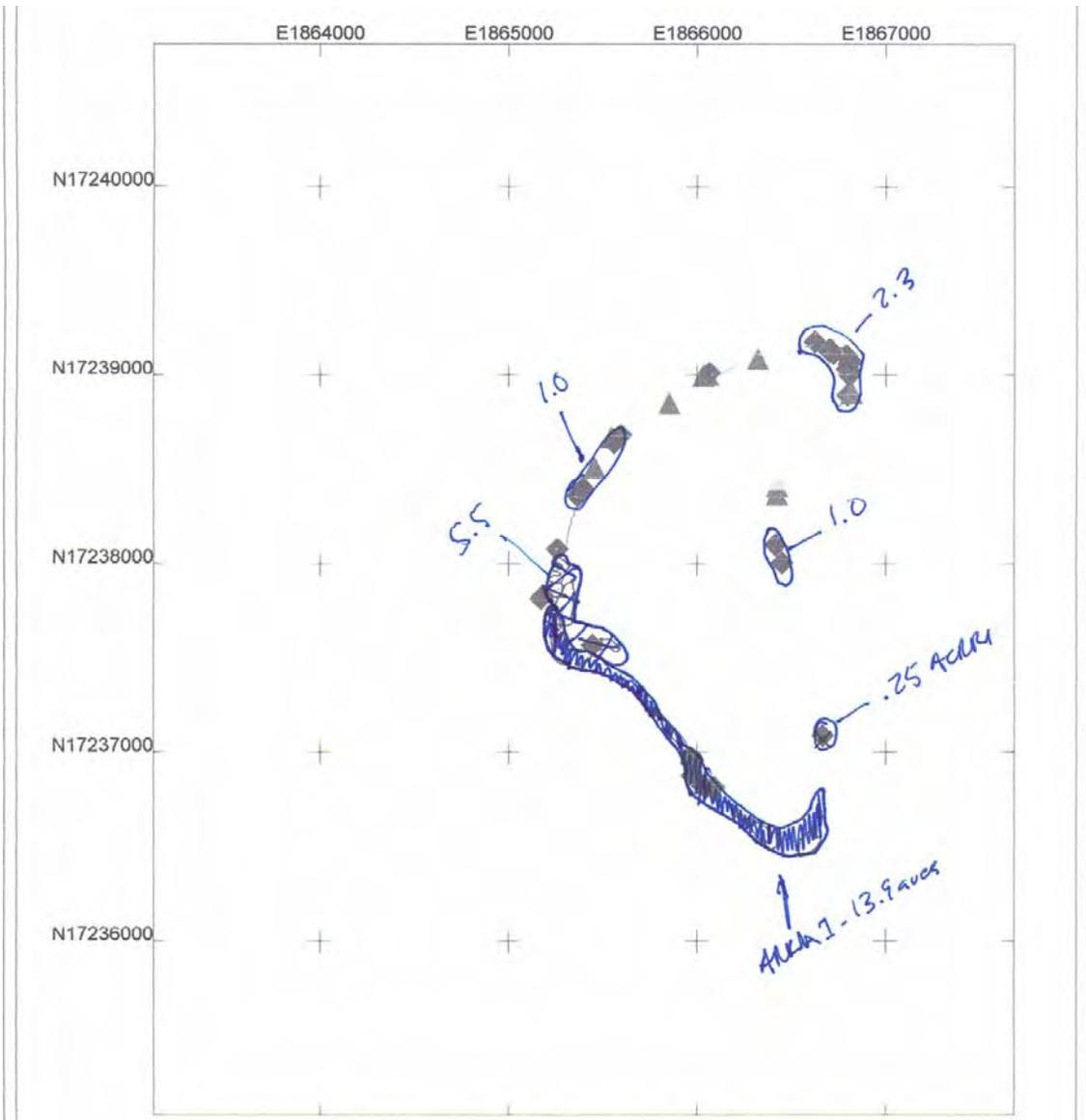
August 26th Treatment Sites

UTM
10 North
NAD 1983 (Conus)



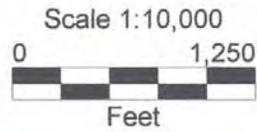
spring2.ssf
8/28/2003

GPS Pathfinder[®] Office
 Trimble.

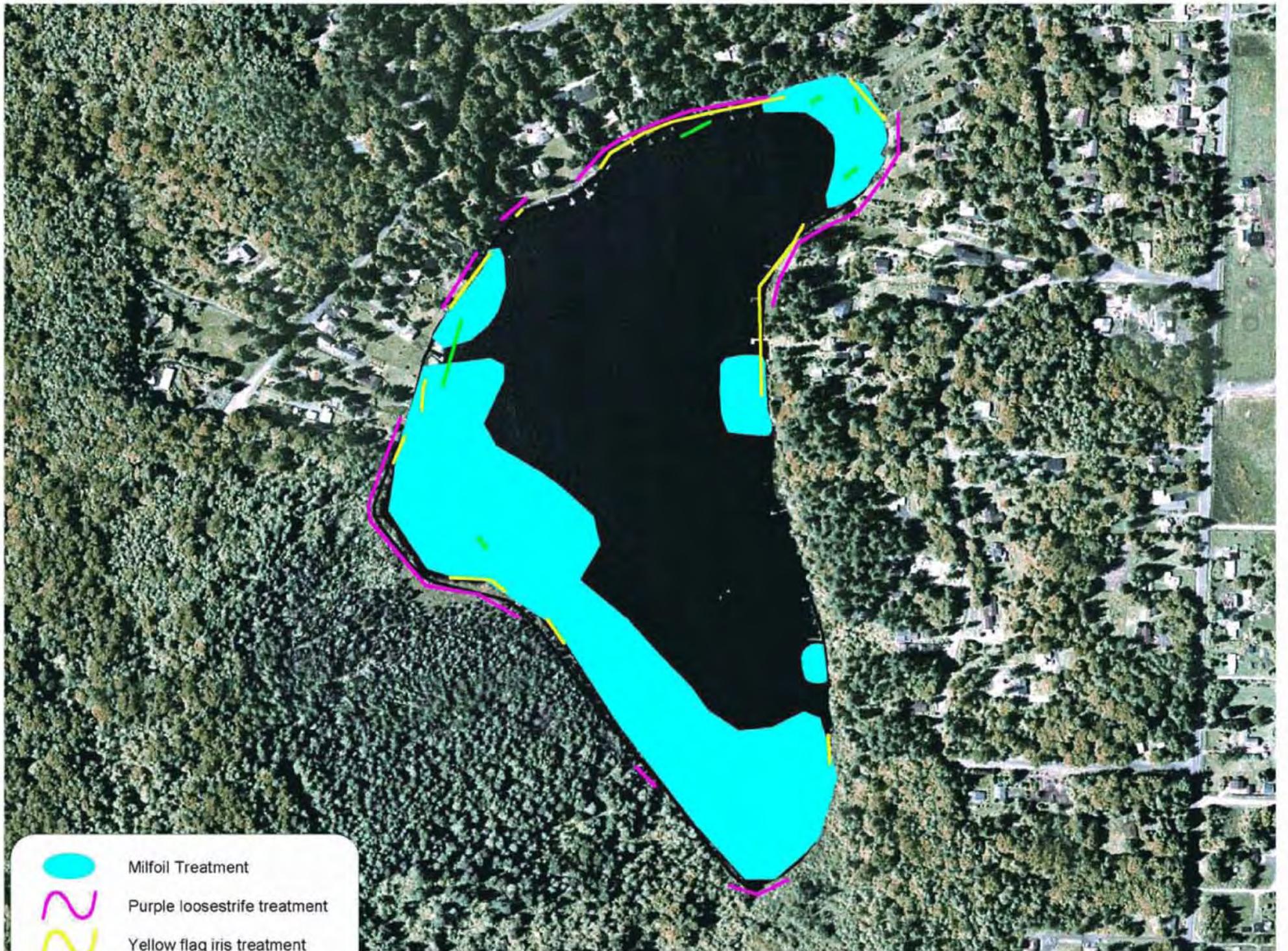


July 29th Treatment Areas

UTM
10 North
NAD 1983 (Conus)



spring1.cor
8/28/2003
GPS Pathfinder[®] Office
 Trimble.



	Milfoil Treatment
	Purple loosestrife treatment
	Yellow flag iris treatment
	Water lily treatment



State of Washington
Department of Agriculture
Olympia, Washington 98504

PESTICIDE APPLICATION RECORD (Version 3)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. RCW 17.21)

- Date of Application - Year: 2002 Month: June Day(s): 29th
- Name of Person for whom the pesticide was applied: _____
Firm Name (if applicable): Spring Lk
Street Address: _____ City: _____ State: WA Zip: _____
- Licensed Applicator's Name (if different from #2 above): Tommy Ellis License No. 66399
Firm Name (if applicable): Agri-Tech LLC Tel. No. 360-332-0152
Street Address: _____ City: Maple Valley State: WA Zip: _____
- Air Ground Chemigation
- Application Crop or Site: Spring Lk
- Total Area Treated (acre, sq. ft., etc.): _____
- Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) # _____
- Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Rate Agri-Pro	62714-324-6760	30 gal	1	1.5%
LI-200	DW 36208-70001	15 gal	1	1.75%
			1	
			1	
			1	

- Address or exact location of application. NOTE: if the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Date	11. Name of person(s) making the application	12. License No.	13. Apparatus Lic. Plate No.	14. Time Start	14. Time Stop	15. Acres Completed	16. Wind Dir.	16. Wind Vel.	17. Temp
6/29	Tommy Ellis	66399		7:00	12:00		E	E	85°

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: Application records must be completed same day as the application. Records must be retained for 7 years.

1. Date of Application - Year: 2005 Month: JUNE Day: 23 Time: 12:00
2. Name of person for whom the pesticide was applied: Spring Lake Community Club
 Firm Name (if applicable): King County Water and Land Resource Division
 Street Address: 201 S. Jackson St. Ste 1000 City: Seattle State: WA Zip: 98104
3. Licensed Applicator's Name (if different from #2 above): Beth Cullen License No.: 166298
 Firm Name (if applicable): King County Tel. No.: (206) 263-6242
 Street Address: 201 S. Jackson St. Ste 1000 City: Seattle State: WA Zip: 98104
4. Name of person(s) who applied the pesticide (if different than #3 above): Monica Walker
 License No(s), if applicable: 12374
5. Application Crop or Site: IRIS, Nymphaeaceae (fragrant water lily)
6. Total Area Treated (acre, sq. ft., etc.): 3 A.C. (Spot spray)
7. Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) #
8. Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied per Acre (or other measure)	e) Concentration Applied
<u>Aquamaster</u>	<u>524343</u>	<u>12 OZ</u>	<u>4 OZ / Ac Spot spray</u>	<u>2 OZ / gal</u>
<u>Aggidex</u>	<u>CA# 590550094-AA</u>	<u>6 OZ</u>	<u>2 OZ / Ac Spot spray</u>	<u>1 OZ / gal</u>
			<u>L</u>	
			<u>L</u>	
			<u>L</u>	

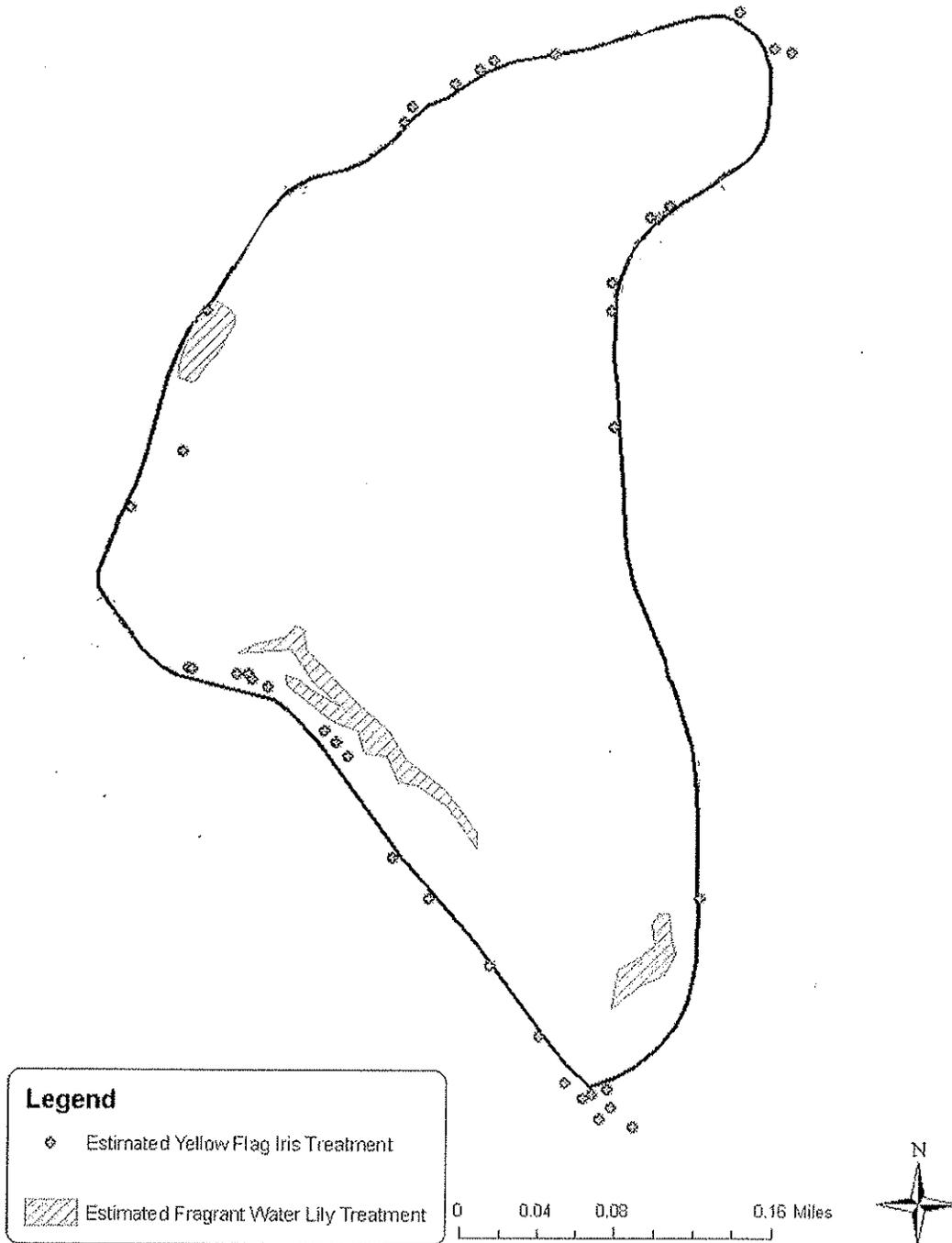
9. Address or exact location of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

Spring Lake, King Co, WA
Map attached.

10. Wind direction and estimated velocity during the application: 5 mph
11. Temperature during the application: 80's
12. Apparatus license plate number (if applicable):
13. Air Ground Chemigation
14. Miscellaneous Information:

Spring Lake

June 23, 2005 – Herbicide treatment areas



PESTICIDE APPLICATION RECORD (Version 1)

NOTE: Application records must be completed same day as the application. Records must be retained for 7 years.

1. Date of Application - Year: 2005 Month: JUNE Day: 30 Time: 9:50

2. Name of person for whom the pesticide was applied: Spring Lake Community Club

Firm Name (if applicable):

Street Address: City: State: Zip:

3. Licensed Applicator's Name (if different from #2 above): Beth Cullen License No: L66298

Firm Name (if applicable): Water and Land Resources Tel. No: (206) 243-6242

Street Address: 201 S. Jackson St STE 600 City: Seattle State: WA Zip: 98104

4. Name of person(s) who applied the pesticide (if different than #3 above):

License No(s), if applicable:

5. Application Crop or Site: Iris pseudacorus (yellow flag iris), Nymphaea odorata (fountain water lilies)

6. Total Area Treated (acre, sq. ft., etc.): Spot spray

7. Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) #

8. Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied per Acre (or other measure)	e) Concentration Applied
<u>Aquamaster</u>	<u>524343</u>	<u>24 oz</u>	<u>Spot Spray</u>	<u>2oz/gal</u>
<u>Aquidex</u>	<u>CA# 590554094-AA</u>	<u>12 oz</u>	<u>Spot Spray</u>	<u>1oz/gal</u>
_____	_____	_____	<u>1</u>	_____
_____	_____	_____	<u>1</u>	_____
_____	_____	_____	<u>1</u>	_____

9. Address or exact location of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

Spring Lake, King Co. WA
Map Attached.

10. Wind direction and estimated velocity during the application: None

11. Temperature during the application: 75-80

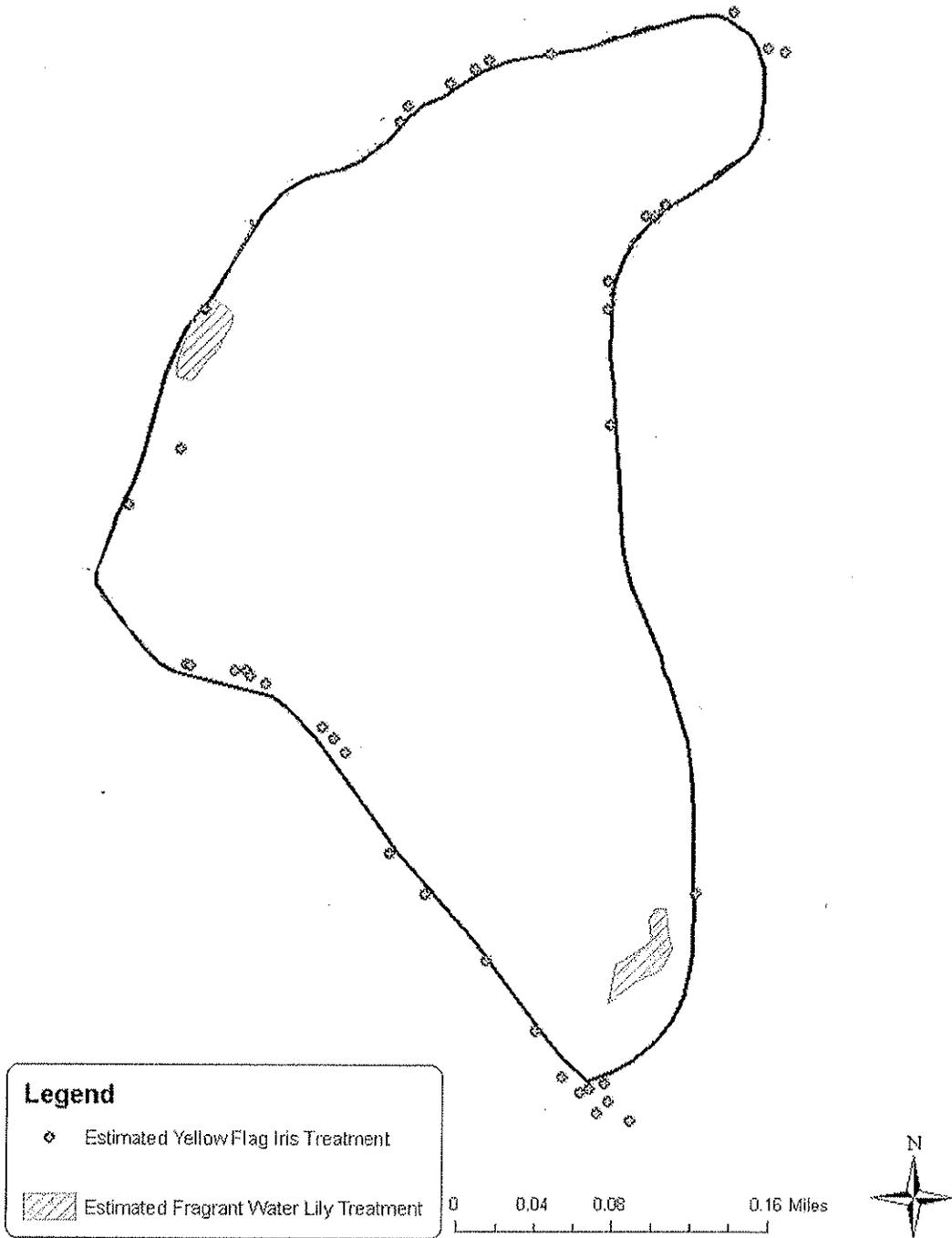
12. Apparatus license plate number (if applicable):

13. Air Ground Chemigation

14. Miscellaneous Information:

Spring Lake

June 30, 2005 – Herbicide treatment areas



PESTICIDE APPLICATION RECORD (Version 1)

NOTE: Application records must be completed same day as the application. Records must be retained for 7 years.

1. Date of Application - Year: 2005 Month: July Day: 29 Time: 10:00
2. Name of person for whom the pesticide was applied: Spring Lake Community Club
 Firm Name (if applicable): _____
 Street Address: _____ City: _____ State: _____ Zip: _____
3. Licensed Applicator's Name (if different from #2 above): Beth Cullen License No: 16298
 Firm Name (if applicable): King County Water & Land Resources Tel. No: (206) 263-6242
 Street Address: 201 S. Jackson St Ste 600 City: Seattle State: WA Zip: 98104
4. Name of person(s) who applied the pesticide (if different than #3 above): Monica Walker
 License No(s), if applicable: 62374
5. Application Crop or Site: less pseudocercus (yellow flag iris), Nymphas odorata (fragrant water lily)
6. Total Area Treated (acre, sq. ft., etc.): Spot Spray
7. Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) # _____
8. Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied per Acre (or other measure)	e) Concentration Applied
<u>Aquomaster</u>	<u>524343</u>	<u>14oz</u>	<u>Spot 1 Spray</u>	<u>2oz/gal</u>
<u>Axidex</u>	<u>59055094-AA</u>	<u>7oz</u>	<u>Spot 1 Spray</u>	<u>1oz/gal</u>
_____	_____	_____	<u>1</u>	_____
_____	_____	_____	<u>1</u>	_____
_____	_____	_____	<u>1</u>	_____

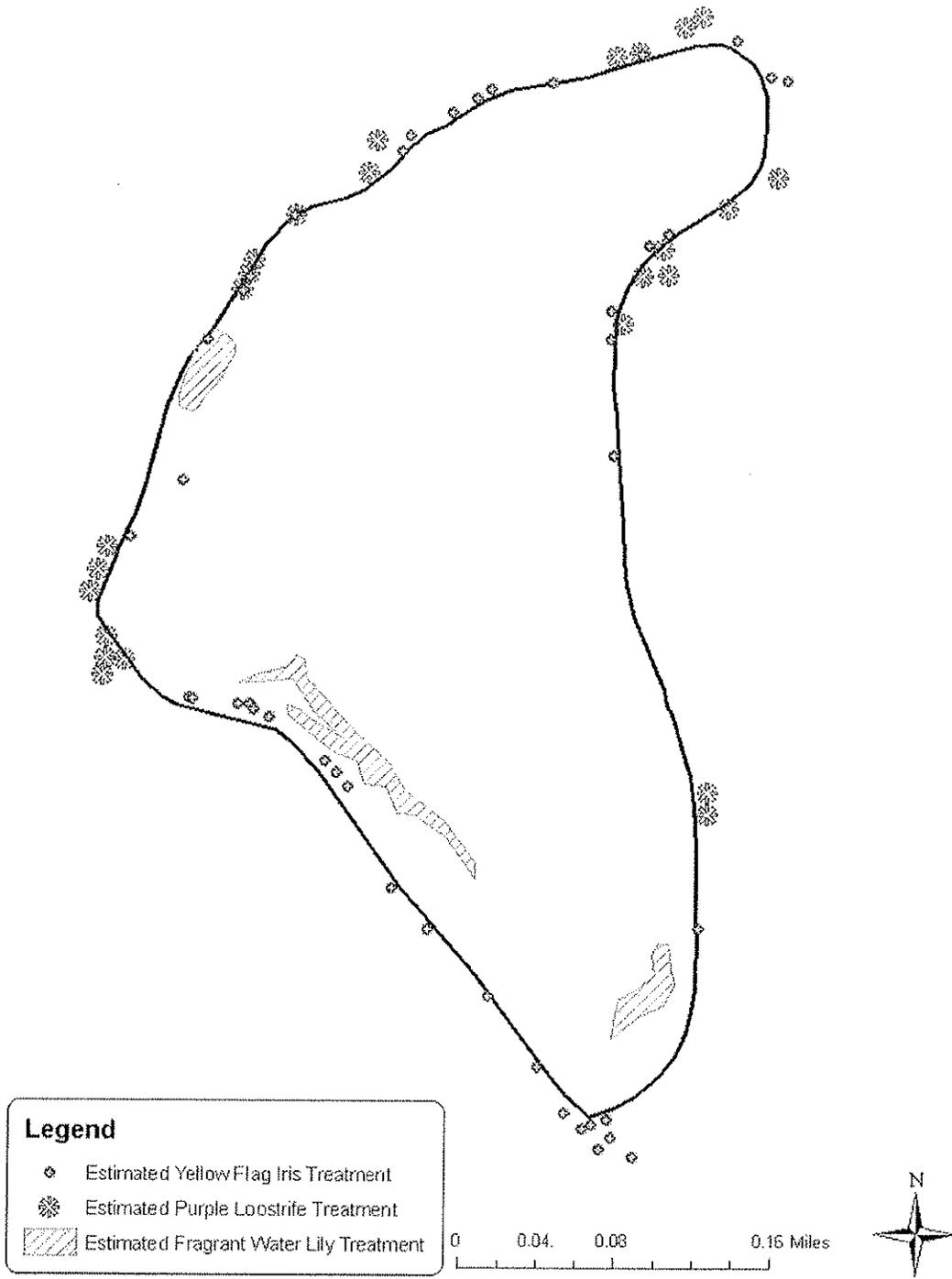
9. Address or exact location of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

Spring Lake, King Co., WA
 Map Attached

10. Wind direction and estimated velocity during the application: _____
11. Temperature during the application: _____
12. Apparatus license plate number (if applicable): _____
13. Air Ground Chemigation
14. Miscellaneous Information: _____

Spring Lake

July 29, 2005 – Herbicide treatment areas

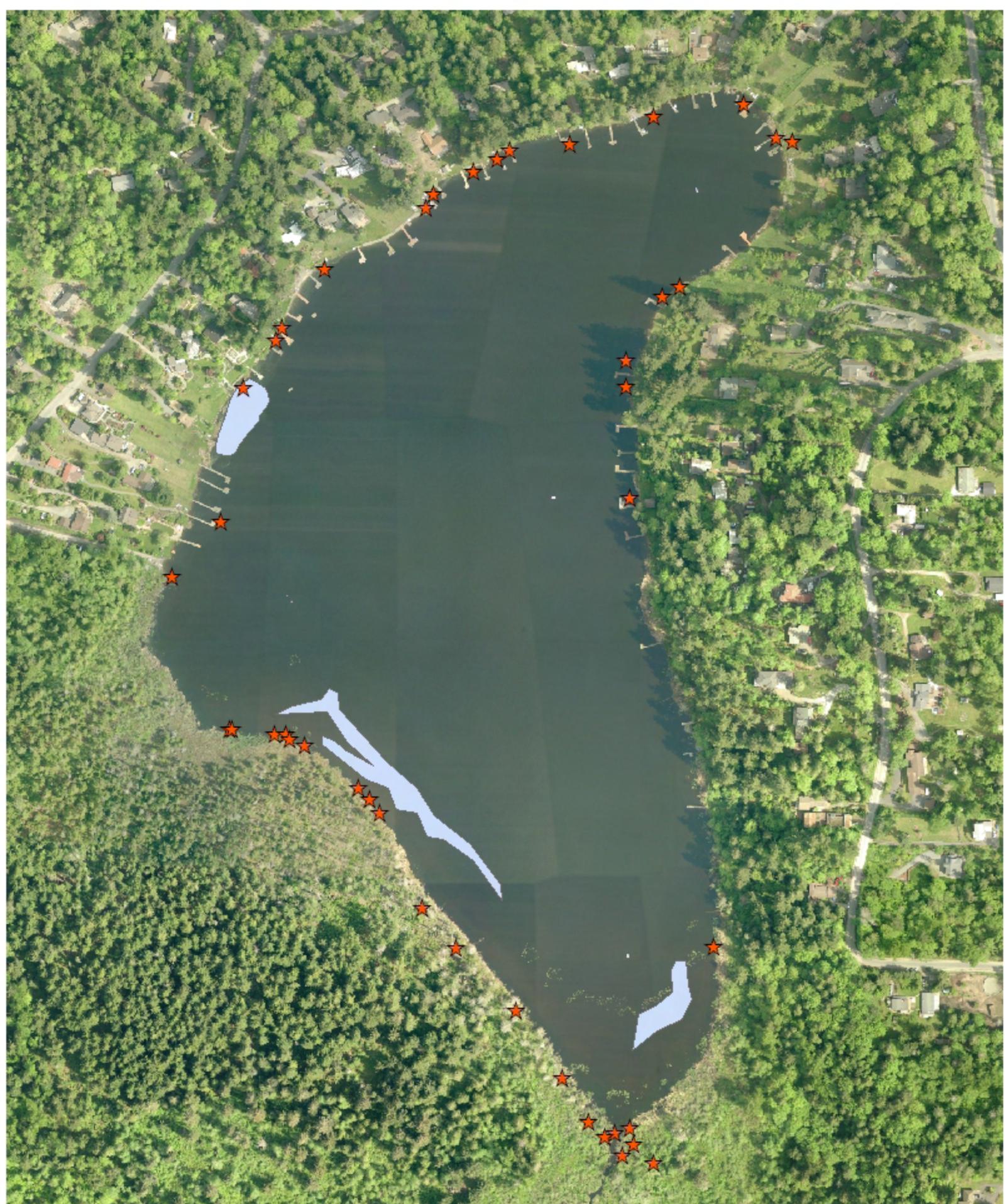


Spring Lake

June 30, 2005 – Estimated herbicide treatment areas



For information contact Michael Murphy at 206-296-8008



Legend

- ★ Iris Treatment 2005
- Lily Treatment 2005

0 0.04 0.08 Miles





Spring Lake

Boat Ramp

* Milfoil plant found and removed

Outlet



Spring Lake

Boat Ramp

* Milfoil plant found and removed

Outlet

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application
 and it must be retained for 7 years (Ref. RCW 17.21)

1. Date of Application - Year: 2006 Month: July Day: 14 Time: 8:00 am
2. Name of Person for whom the pesticide was applied: Ted
 Firm Name (if applicable): Spring Lake HOA
 Street Address: 201 South Jackson, Suite 600 City: Seattle State: WA Zip: 98104-3855
3. Licensed Applicator's Name (if different from #2 above): Terry McNabb License No. 7973
 Firm Name (if applicable): Aquatechnex, LLC Tel. No. 360-330-0152
 Street Address: PO Box 118 City: Centralia State: WA Zip: 98531
4. Name of person(s) who applied the pesticide (if different from #3 above): Tommy Elder
 License No(s), if applicable:
5. Application Crop or Site: Purple Loosestrife and Yellow Flag Iris
6. Total Area Treated (acre, sq. ft., etc.): less than 1 acre
7. Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) #
8. Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Rodeo	62719-324	15 oz	4 pints / acre	1.5% solution
LI-700	AW36208-70004	7.5 oz	2 pints / acre	0.75% solution
			/	
			/	

9. Address **or exact location** of application. NOTE: if the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

Spring Lake shoreline.

10. Wind direction and estimated velocity during the application: 0-5 mph sw
11. Temperature during the application: 65
12. Apparatus license plate number (if applicable): N/A
13. Air Ground Chemigation
14. Miscellaneous Information:

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application
 and it must be retained for 7 years (Ref. RCW 17.21)

1. Date of Application - Year: 2006 Month: August Day: 16 Time: 2:00 pm
2. Name of Person for whom the pesticide was applied: Ted
 Firm Name (if applicable): Spring Lake HOA
 Street Address: 201 South Jackson, Suite 600 City: Seattle State: WA Zip: 98104-3855
3. Licensed Applicator's Name (if different from #2 above): Terry McNabb License No. 7973
 Firm Name (if applicable): Aquatechnex, LLC Tel. No. 360-330-0152
 Street Address: PO Box 118 City: Centralia State: WA Zip: 98531
4. Name of person(s) who applied the pesticide (if different from #3 above): Tommy Elder
 License No(s), if applicable:
5. Application Crop or Site: Purple Loosestrife and Yellow Flag Iris
6. Total Area Treated (acre, sq. ft., etc.): less than 1 acre
7. Was this application made as a result of a WSDA Permit? No Yes (if yes, give Permit No.) #
8. Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Rodeo	62719-324	40 oz	4 pints / acre	1.5% solution
LI-700	AW36208-70004	20 oz	2 pints / acre	0.75% solution
			/	
			/	

9. Address **or exact location** of application. NOTE: if the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

Spring Lake shoreline.

10. Wind direction and estimated velocity during the application: 0-5 mph sw
11. Temperature during the application: 68
12. Apparatus license plate number (if applicable): N/A
13. Air Ground Chemigation
14. Miscellaneous Information:



Legend

* 2006_milfoil

0 0.03 0.06 0.12 Miles





PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

1. Date of Application - Year: 2007 Month: June Day: 2 Start Time: 0900
Stop Time: 1600

2. Name of person for whom the pesticide was applied: King County - Spring Lake
Firm Name (if applicable): King County Department of Natural Resources & Parks
Street Address: 201 S Jackson St 600 City: Seattle State: WA Zip: 98104

3. Licensed Applicator's Name (if different from #2 above): Michael F. Murphy License No.: 74407
Firm Name (if applicable): King Co. DNRP Tel No.: 206-296-8008
Street Address: same as above City: _____ State: _____ Zip: _____

4. Name of person(s) who applied the pesticide (if different from #3 above): _____
License No(s). If applicable: _____

5. Application Crop or Site: Spring Lake

6. Total Area Treated (acre, sq. ft., etc.): < .5 acres

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # WAG 993000

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Aquamaster</u>	<u>524-343</u>	<u>634 ml</u>	<u>~1200ml/ ac</u>	<u>1.7 %</u>
<u>LI 700</u>	<u>34704-50035</u>	<u>211 ml</u>	<u>~400ml/ ac</u>	<u>.5%</u>
			<u>1</u>	
			<u>1</u>	
			<u>1</u>	

9. Address or exact location of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: Light & variable

11. Temperature during the application: 15° C 59° F

12. Apparatus license plate number (if applicable): _____

13. Air Ground Chemigation

14. Miscellaneous Information: Spot treatment of yellow iris along margin of lake

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only.)

Township: 23 N

Range: 6 E W (please indicate)

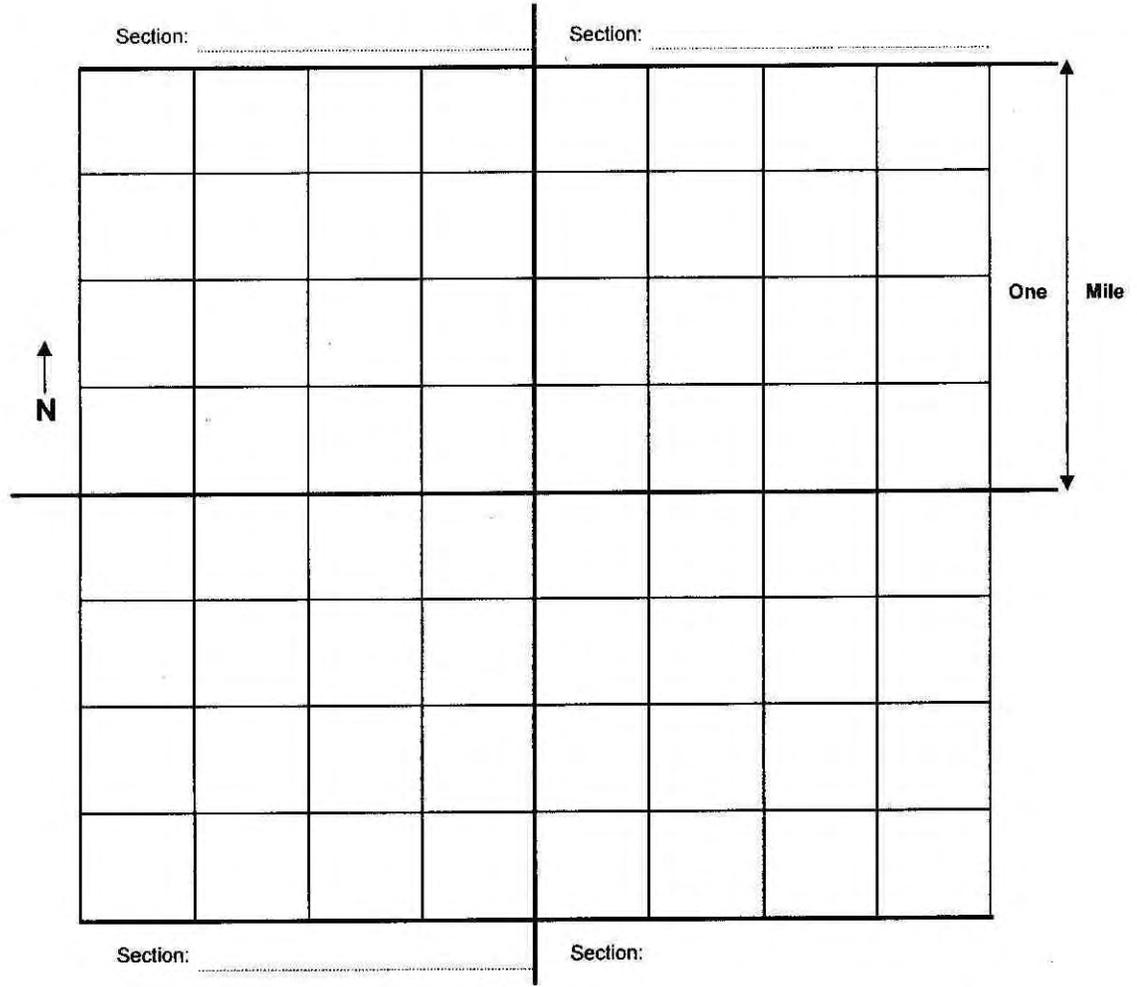
Section(s): 31

Block: _____ Farm Unit: _____

or GPS: _____

County: King

PLEASE NOTE:
The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:
See Attached Map



PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

1. Date of Application - Year: 2007 Month: June Day: 21 Start Time: 1000
Stop Time: 1500

2. Name of person for whom the pesticide was applied: King County DNRP - Spring Lake
Firm Name (if applicable): KC DNRP

Street Address: 201 S Jackson St. Suite 600 City: Seattle State: WA Zip: 98104

3. Licensed Applicator's Name (if different from #2 above): Michael Murphy License No.: 74407

Firm Name (if applicable): King Co DNRP Tel No.: 206-296-8008

Street Address: SAME AS ABOVE City: _____ State: _____ Zip: _____

4. Name of person(s) who applied the pesticide (if different from #3 above): _____
License No(s). If applicable: _____

5. Application Crop or Site: Spring Lake

6. Total Area Treated (acre, sq. ft., etc.): < .25 acre

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # WAG-993000

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Aqua master</u>	<u>524-343</u>	<u>180 ml</u>	<u>120 ml' ac</u>	<u>1.5 %</u>
<u>L1700</u>	<u>34704-50035</u>	<u>60 ml</u>	<u>240ml' ac</u>	<u>.5 %</u>
			<u>1</u>	
			<u>1</u>	
			<u>1</u>	

9. Address or exact location of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: South < 5 kts

11. Temperature during the application: 17°C

12. Apparatus license plate number (if applicable): _____

13. Air Ground Chemigation

14. Miscellaneous Information:

Follow up spot treatment of Iris

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only.)

Township: 23 N

Range: 6 E W (please indicate)

Section(s): 31

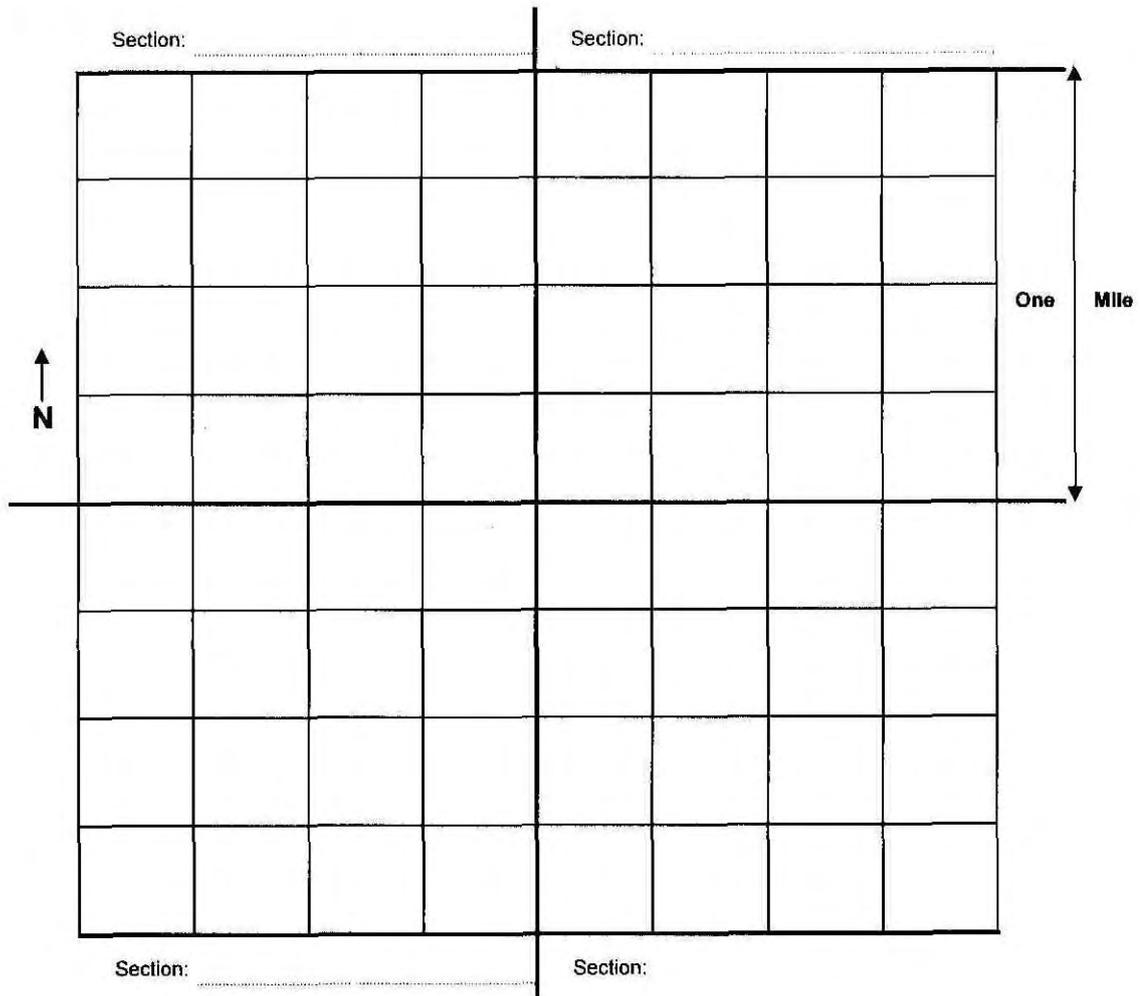
Block: _____ Farm Unit: _____

or GPS: _____

County: King

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:

See attached map



PESTICIDE APPLICATION RECORD (Version 1)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 2007 Month: September Day: 5 Start Time: 1100
Stop Time: 1500

2. Name of person for whom the pesticide was applied: King County - Spring Lake
Firm Name (if applicable): King Co. DNRP
Street Address: 201 S Jackson St Suite 600 City: Seattle State: WA Zip: 98104

3. Licensed Applicator's Name (if different from #2 above): Michael Murphy License No.: 77707
Firm Name (if applicable): King Co DNRP Tel No.: _____
Street Address: Same as above City: _____ State: _____ Zip: _____

4. Name of person(s) who applied the pesticide (if different from #3 above): _____
License No(s). If applicable: _____

5. Application Crop or Site: Spring Lake

6. Total Area Treated (acre, sq. ft., etc.): < .25 acre

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # Treated under Ecology Agrat.c permit.

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Aquamaster</u>	<u>524-343</u>	<u>120 ml</u>	<u>480 ml / 1 ac</u>	<u>1.5%</u>
<u>L1 700</u>	<u>37704-50035</u>	<u>40 ml</u>	<u>160 ml / 1 ac</u>	<u>.5%</u>
			<u>1</u>	
			<u>1</u>	
			<u>1</u>	

9. Address or exact location of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: Light & Variable

11. Temperature during the application: 20° C

12. Apparatus license plate number (if applicable): _____

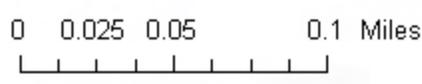
13. Air Ground Chemigation

14. Miscellaneous Information: Treated patches of fragrant lily and some loosestrife.



Legend

- ✱ 2007_milfoil
- 2007 Lily Area - cut18July
- ★ Spring_2007_Loosestrife





PESTICIDE APPLICATION RECORD (Version 1)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application
and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 2008 Month: August Day: 13 Start Time: _____
Stop Time: _____

2. Name of person for whom the pesticide was applied: King County WRPD

Firm Name (if applicable): _____

Street Address: 201 S. Jackson St Ste 600 City: SEA State: WA Zip: 98104

3. Licensed Applicator's Name (if different from #2 above): Michael Murphy License No.: 74409

Firm Name (if applicable): Same as above Tel No.: _____

Street Address: _____ City: _____ State: _____ Zip: _____

4. Name of person(s) who applied the pesticide (if different from #3 above): _____

License No(s). If applicable: _____

5. Application Crop or Site: beaumont water lily

6. Total Area Treated (acre, sq. ft., etc.): 1/2 Acre

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # _____

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Aquamosack</u>	<u>924-343</u>	<u>15mL</u>	<u>60mL¹ ac</u>	<u>1.5%</u>
<u>L1700</u>	<u>34704-50035</u> <u>WA 34761-04007</u>	<u>5mL</u>	<u>20mL¹ ac</u>	<u>0.5%</u>
			<u>1</u>	
			<u>1</u>	
			<u>1</u>	

9. Address or exact location of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: NA

11. Temperature during the application: _____

12. Apparatus license plate number (if applicable): 78°F

13. Air Ground Chemigation

14. Miscellaneous Information: _____

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only.

Township: 23 N

Range: 6 E W (please indicate)

Section(s): 31

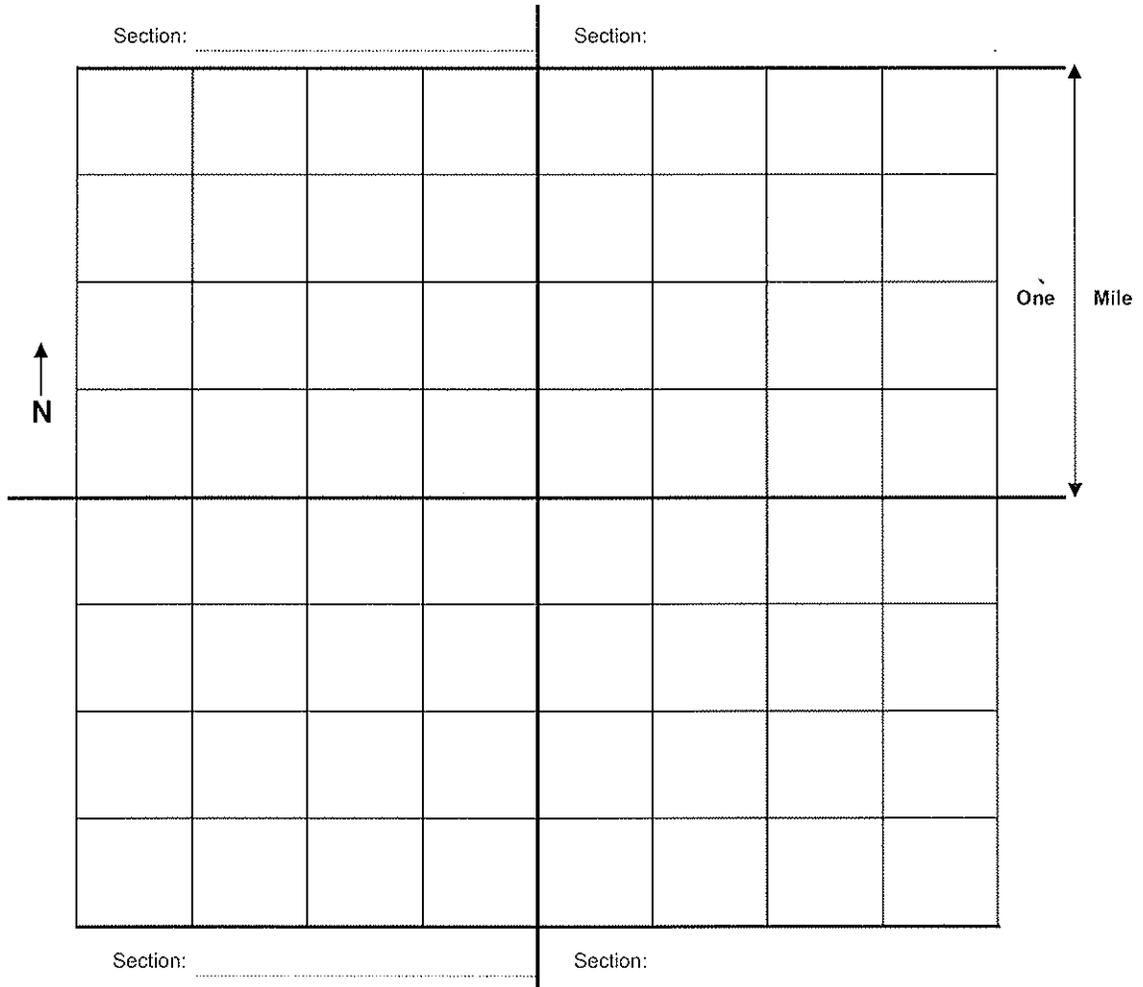
Block: Farm Unit:

or GPS:

County: King

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:



PESTICIDE APPLICATION RECORD (Version 1)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 2008 Month: July Day: 10 Start Time: 9am
Stop Time: 3pm

2. Name of person for whom the pesticide was applied: WLRD King County

Firm Name (if applicable): 201 S.

Street Address: 201 S. Jackson St. Seattle City: Seattle State: WA Zip: 98104

3. Licensed Applicator's Name (if different from #2 above): Beth Cullen License No.: 606298

Firm Name (if applicable): _____ Tel No.: _____

Street Address: _____ City: _____ State: _____ Zip: _____

4. Name of person(s) who applied the pesticide (if different from #3 above): _____

License No(s). If applicable: _____

5. Application Crop or Site: Yellow flag iris

6. Total Area Treated (acre, sq. ft., etc.): 2 acres

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # _____

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Agua master</u>	<u>524-343</u>	<u>390 mL</u>	<u>195 mL / acre</u>	<u>1.5%</u>
<u>LI 700</u>	<u>AW 3-208-70004</u> <u>WA 39704-04007</u>	<u>150 mL</u>	<u>75 mL / acre</u>	<u>1.5%</u>
			<u>1</u>	
			<u>1</u>	
			<u>1</u>	

9. Address or exact location of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: E 3 mph

11. Temperature during the application: 80 F

12. Apparatus license plate number (if applicable): _____

13. Air Ground Chemigation

14. Miscellaneous Information: _____

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only.)

Township: 23 N

Range: 6 E W (please indicate)

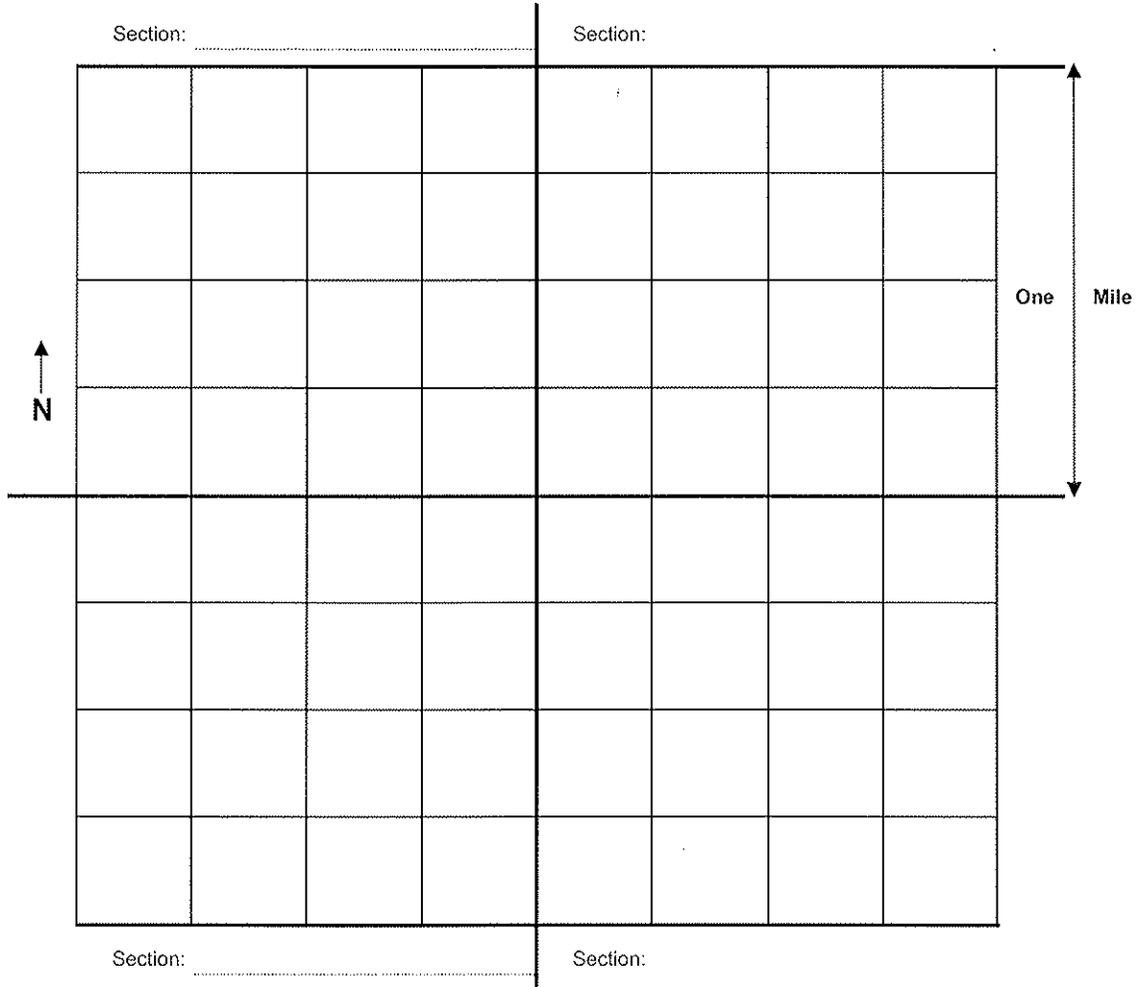
Section(s): 31

Block: _____ Farm Unit: _____

or GPS: _____

County: King

PLEASE NOTE:
The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:



PESTICIDE APPLICATION RECORD (Version 1)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 13 2008 Month: June Day: 2 13/14 Start Time: 9am
Stop Time: 3pm

2. Name of person for whom the pesticide was applied: WLRD King County

Firm Name (if applicable): _____

Street Address: 201 S Jackson St Ste 600 City: Sea State: WA Zip: 98104

3. Licensed Applicator's Name (if different from #2 above): Beth Cullen License No.: 66298

Firm Name (if applicable): _____ Tel No.: _____

Street Address: Same as above City: _____ State: _____ Zip: _____

4. Name of person(s) who applied the pesticide (if different from #3 above): _____

License No(s). If applicable: _____

5. Application Crop or Site: yellow flag iris, purple loosestrife

6. Total Area Treated (acre, sq. ft., etc.): spot sprayed for approx 2 acres

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # _____

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Aquanaster</u>	<u>524-343</u>	<u>1020 ml</u>	<u>510 ml / acre</u>	<u>1.5%</u>
<u>LI 700</u>	<u>AW36208-70004</u>	<u>340 ml</u>	<u>170 ml / acre</u>	<u>0.5%</u>
	<u>WA34704-04007</u>		<u>1</u>	
			<u>1</u>	
			<u>1</u>	

9. Address **or exact location** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: _____

11. Temperature during the application: 75°F

12. Apparatus license plate number (if applicable): _____

13. Air Ground Chemigation

14. Miscellaneous Information: _____

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only.)

Township: 23 N

Range: 6 E W (please indicate)

Section(s): 31

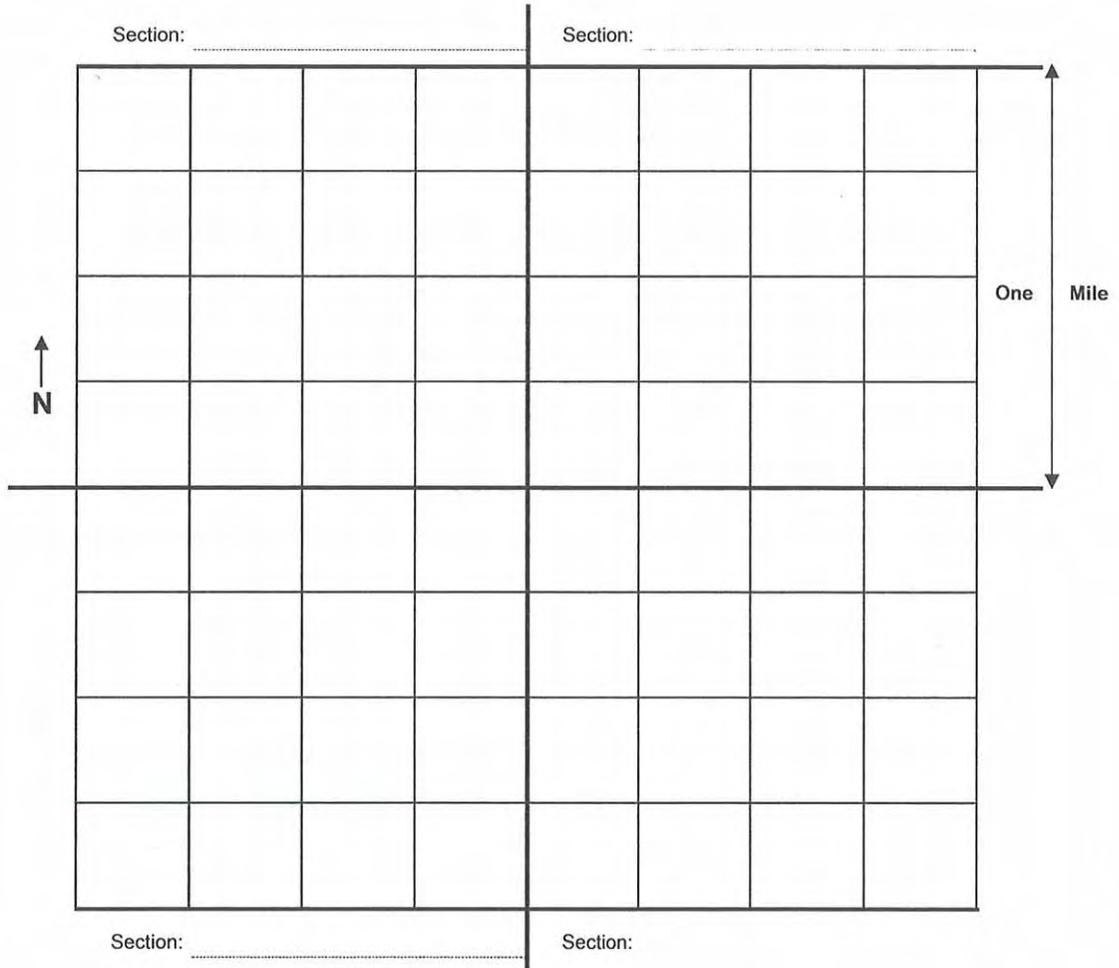
Block: _____ Farm Unit: _____

or GPS: _____

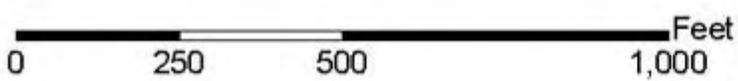
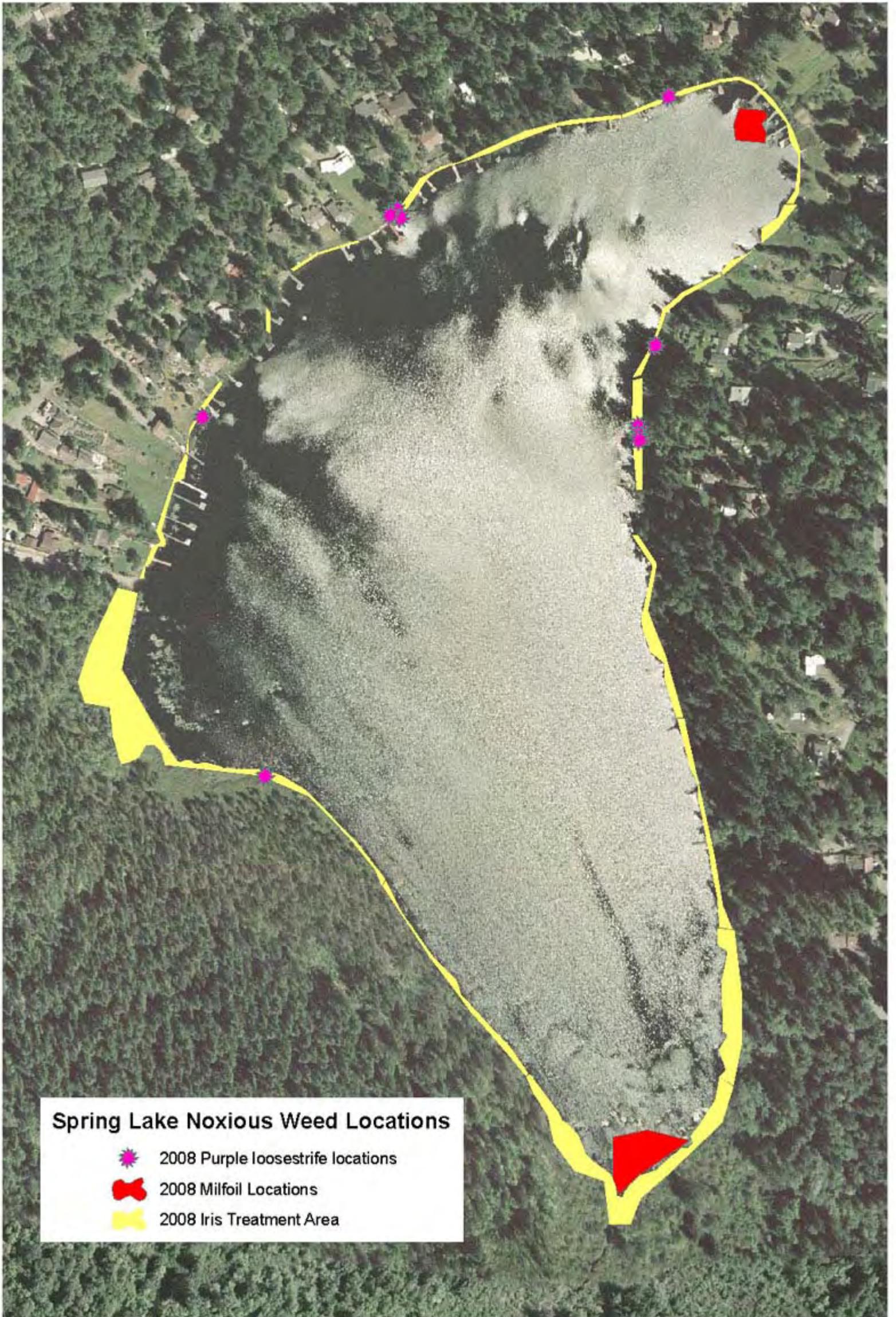
County: King

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:





PESTICIDE APPLICATION RECORD (Version 1)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 2009 Month: July Day: 18 Start Time: 5am 7am

Stop Time: 8pm 1pm

2. Name of person for whom the pesticide was applied: King County WCRD

Firm Name (if applicable): _____

Street Address: 201 S. Jackson St Ste 600 City: Seattle State: WA Zip: 98104

3. Licensed Applicator's Name (if different from #2 above): Tom Rohrer License No.: 78576

Firm Name (if applicable): 18026 W Spring Lk Dr SE Tel No.: (425) 433-8369

Street Address: 1 City: Renton State: WA Zip: 98058

4. Name of person(s) who applied the pesticide (if different from #3 above): Valerie Weber

License No(s). If applicable: 78579

5. Application Crop or Site: yellow flag iris & purple loosestrife

6. Total Area Treated (acre, sq. ft., etc.): 1.3 ac

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # _____

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Aquamaster</u>	<u>524-343</u>	<u>570mL</u> 38 liters	<u>438mL/acre</u>	<u>1.5%</u>
<u>L1-700</u>	<u>34704-0407</u>	<u>190 mL</u>	<u>140mL/acre</u>	<u>0.5%</u>
			<u>/</u>	
			<u>/</u>	
			<u>/</u>	

9. Address **or exact location** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: NW 4mph

11. Temperature during the application: 79°F

12. Apparatus license plate number (if applicable): _____

13. Air Ground Chemigation

14. Miscellaneous Information: _____

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only.)

Township: 23 N

Range: 6 E W (please indicate)

Section(s): 31

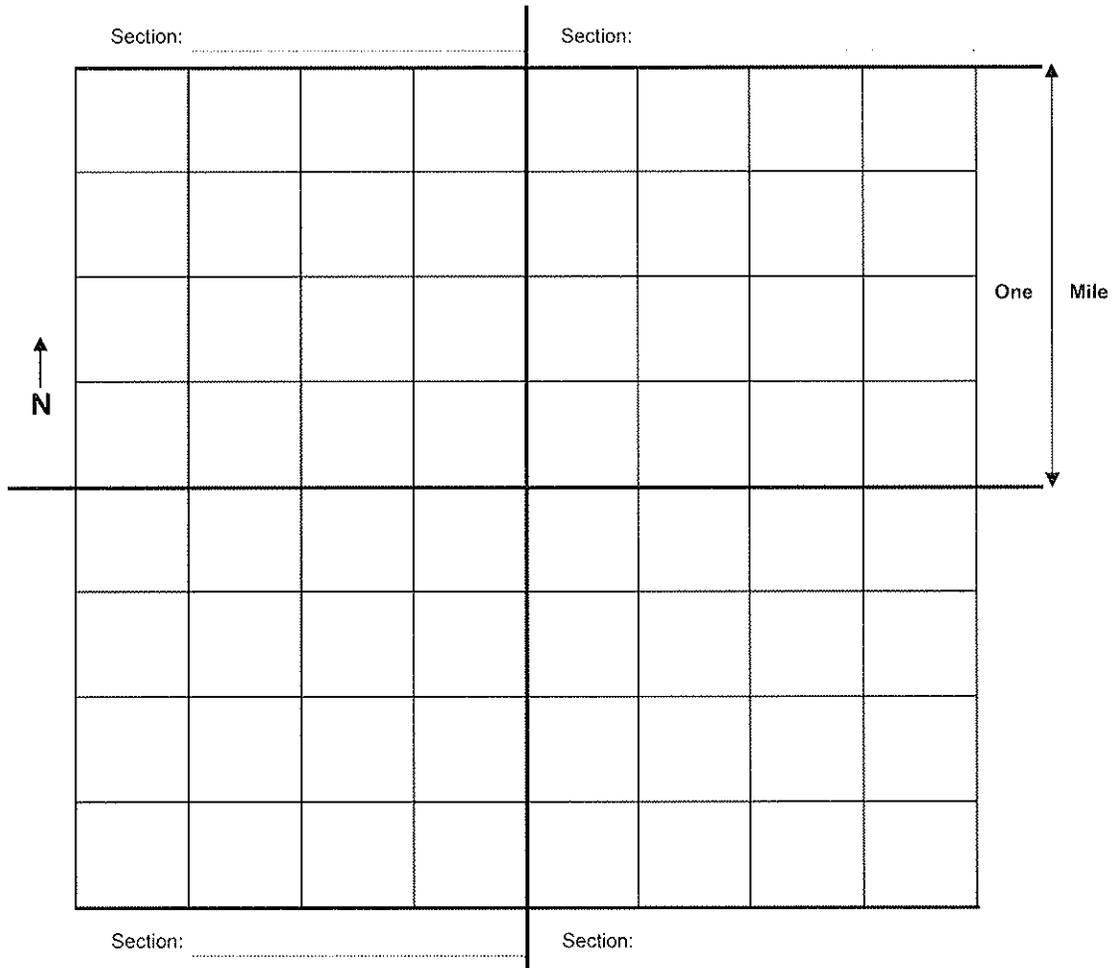
Block: _____ Farm Unit: _____

or GPS: _____

County: King

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:



PESTICIDE APPLICATION RECORD (Version 1)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 2009 Month: August Day: 13² Start Time: 8am
Stop Time: 1pm

2. Name of person for whom the pesticide was applied: King County WIRD
Firm Name (if applicable): _____

Street Address: 201 S Jackson St Ste 600 City: Sea State: WA Zip: 98109

3. Licensed Applicator's Name (if different from #2 above): Tom Rohrer License No.: 78576

Firm Name (if applicable): _____ Tel No.: 425-933-8369

Street Address: # 18026 W Spring Lk Dr SE City: Renton State: WA Zip: 98058

4. Name of person(s) who applied the pesticide (if different from #3 above): Valerie Weber
License No(s). If applicable: 78579

5. Application Crop or Site: yellow flag iris / purple loosestrife

6. Total Area Treated (acre, sq. ft., etc.): 0.82

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # _____

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Aquamaster</u>	<u>524-343</u>	<u>690 ml</u>	<u>690 l acre</u>	<u>1.5%</u>
<u>Li700</u>	<u>34764-04007</u>	<u>230 mL</u>	<u>230 l acre</u>	
			<u>l</u>	
			<u>l</u>	
			<u>l</u>	

9. Address **or exact location** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: NW

11. Temperature during the application: 88 / 83 F

12. Apparatus license plate number (if applicable): _____

13. Air Ground Chemigation

14. Miscellaneous Information: _____

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only.)

Township: 23 N

Range: 6 E W (please indicate)

Section(s): 31

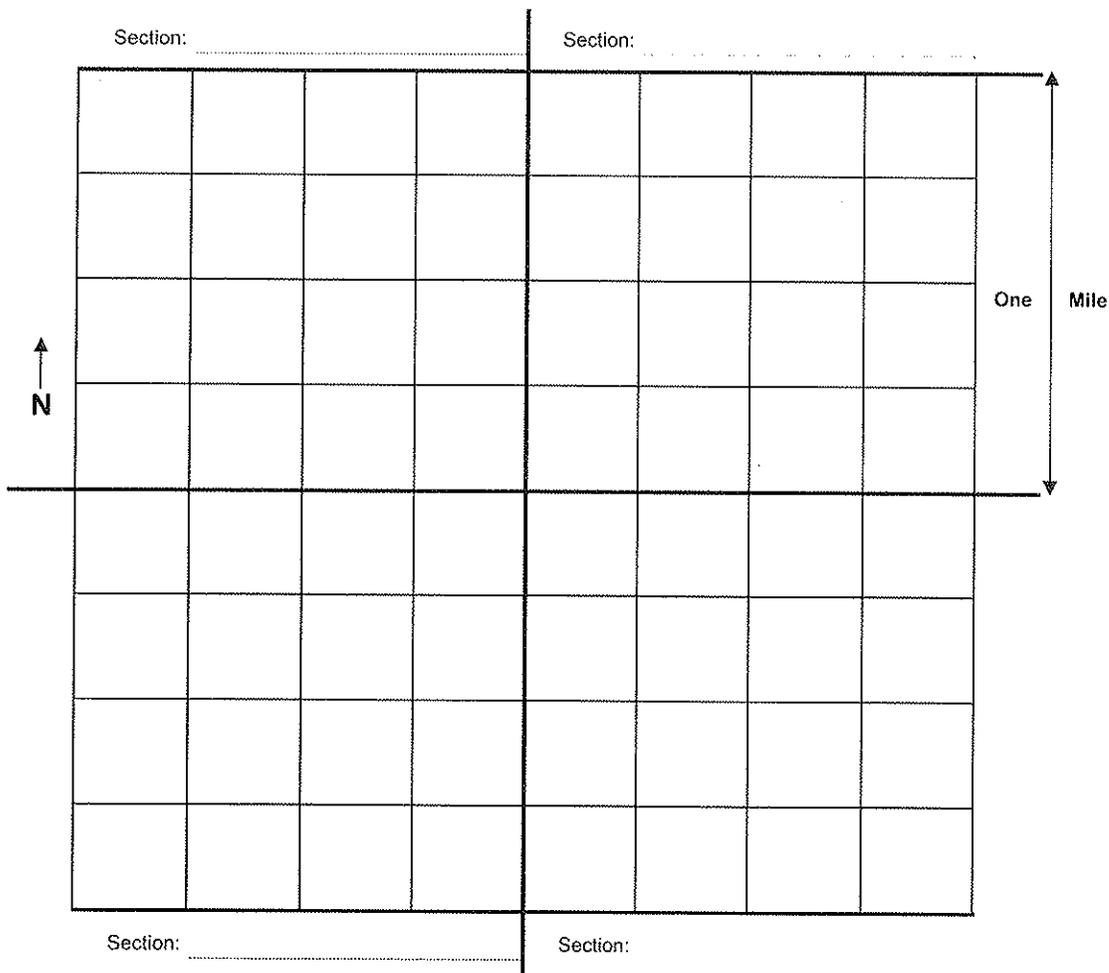
Block: _____ Farm Unit: _____

or GPS: _____

County: King

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:

Pesticide Application Record

Dates: August 1 & 2, 2009

Applied for: King County Department of Natural Resources
Contact: Beth Cullen, Lake Stewardship Program

Licensed Applicators:

Thomas Rohrer (Lead Supervising) - License #78576
18026 W Spring Lake Dr SE
Renton WA 98058
425-433-8369

Valerie Weber - License #78579
18026 W Spring Lake Dr SE
Renton WA 98058
425-433-8369

Supervised applicators (all residents of W Spring Lake Dr SE):

Mike O'Brien
Leah Mickelson
Caren Adams
Darcie MacEwen

Application Site: Ground application to Spring Lake shoreline for Yellow Iris and Purple Loosestrife

Total Treated Area: 0.82 acre (2370 linear ft of shoreline x 15 ft avg distance from shore)

WSDE Permit #: WAG - 993000

Pesticide Information

Full Product Name: Aquamaster
EPA Reg #: 524-343
Total Applied: 570 ml. Aquamaster (in 38 liters 1.5% solution)
Pesticide per acre: 695 ml. Aquamaster / acre (46 liters solution / acre)
Concentration: 1.5% solution

Adjuvant Information

Full Product Name: LI-700 Penetrant Acidifier Deposition Aid Drift Control Agent
WA Reg #: 34704-04007
Total Applied: 190 ml. LI-700 (in 38 liters solution)
Adjuvant per acre: 232 ml. LI-700 / acre (46 liters solution / acre)
Concentration: 0.5%

Pesticide Application Record

Specific Application information:

Date	Applicators	Time	Acres	Wind	Temp
08/01/2009	Tom Rohrer (Lic. #78576) Valerie Weber (Lic. #78579) Mike O'Brien Leah Mickelson Darcie MacEwen	1700-1900	0.16	NW - 10 mph	88 F

Location: 460 linear ft of shoreline along Spring Lake outlet (230 linear ft on each side). (see map attached)

Total Pesticide Applied: 180 ml. Aquamaster (in 12 liters 1.5% solution)

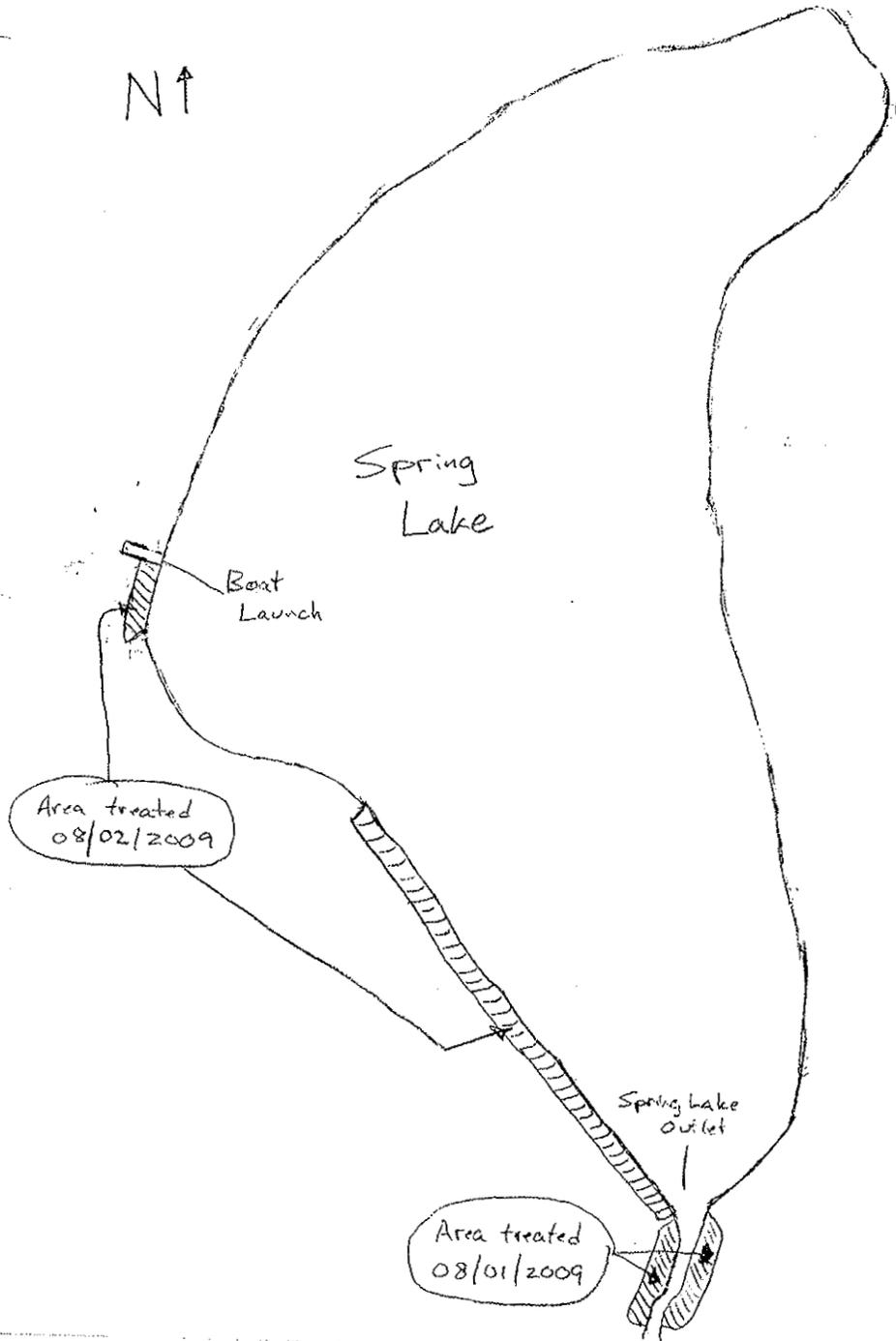
Date	Applicators	Time	Acres	Wind	Temp
08/02/2009	Tom Rohrer (Lic. #78576) Valerie Weber (Lic. #78579) Mike O'Brien Leah Mickelson Caren Adams Darcie MacEwen	0900-1330	0.66	NW - 8 mph	71-84 F

Location: 240 linear ft of shoreline from boat launch south; 1670 linear ft of shoreline from point 830 ft south of boat launch along western shore to Spring Lake outlet. (see map attached)

Total Pesticide Applied: 390 ml. Aquamaster (in 26 liters 1.5% solution)

Pesticide Application Record

N ↑





PESTICIDE APPLICATION RECORD (Version 1)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 2009 Month: August Day: 5 Start Time: 10 AM
Stop Time: 12:30

2. Name of person for whom the pesticide was applied: King County WLRD

Firm Name (if applicable): _____

Street Address: 201 S. JACKSON ST STE 600 City: SEA State: WA Zip: 98104

3. Licensed Applicator's Name (if different from #2 above): Beth Cullen License No.: 66298

Firm Name (if applicable): SAME AS ABOVE Tel No.: 206-263-6242

Street Address: _____ City: _____ State: _____ Zip: _____

4. Name of person(s) who applied the pesticide (if different from #3 above): _____

License No(s). If applicable: _____

5. Application Crop or Site: Spring Lake - Eurasian milfoil

6. Total Area Treated (acre, sq. ft., etc.): 1.5 acre

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # _____

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Renovate OTF</u>	<u>67690-42</u>	<u>240 lbs</u>	<u>2 160 lb/ ACRE</u>	<u>1.5%</u>
			<u>1</u>	

9. Address **or exact location** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

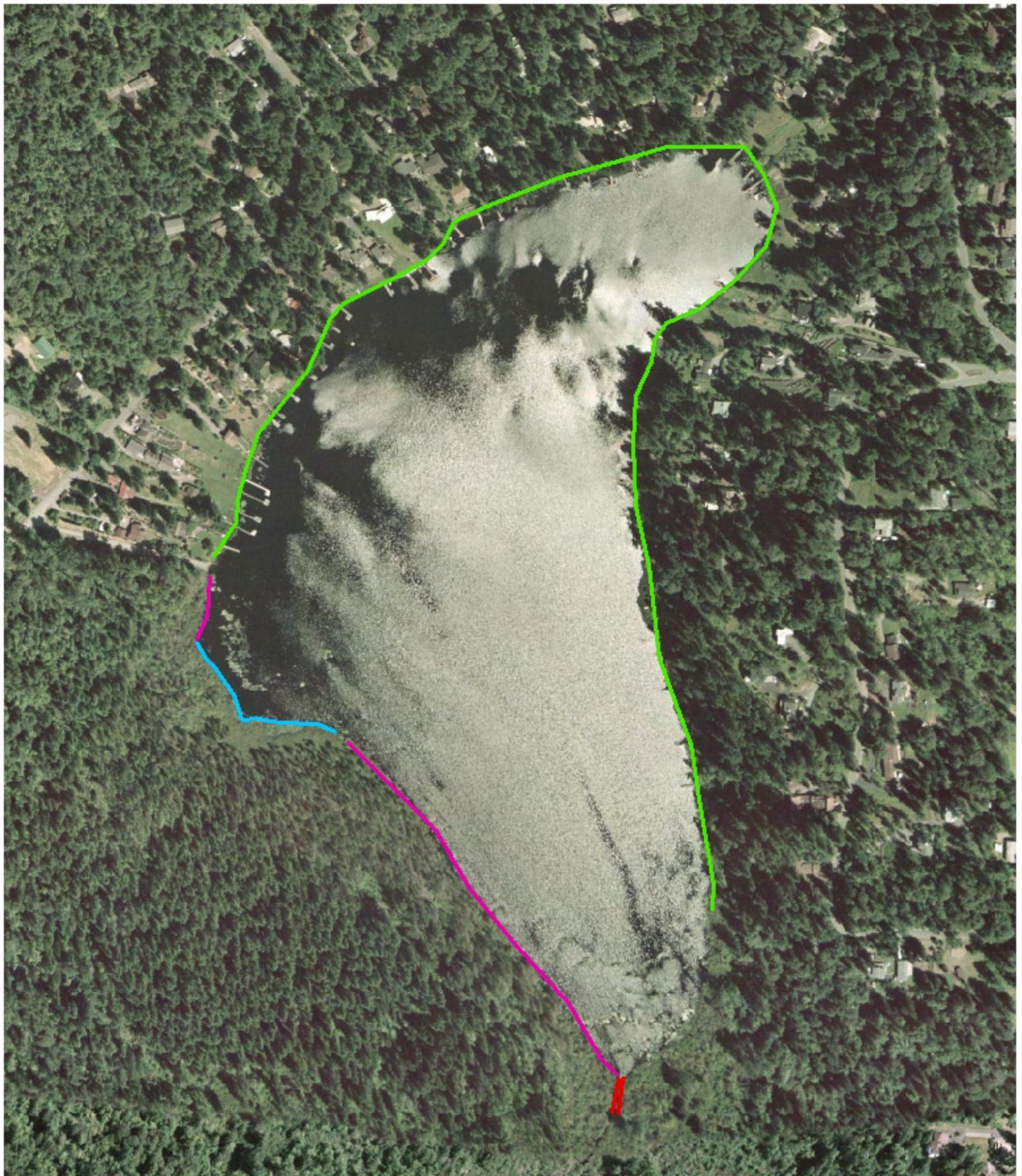
10. Wind direction and estimated velocity (mph) during the application: NA

11. Temperature during the application: 62° F

12. Apparatus license plate number (if applicable): _____

13. Air Ground Chemigation

14. Miscellaneous Information: _____

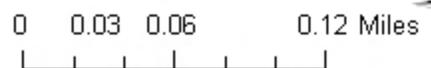


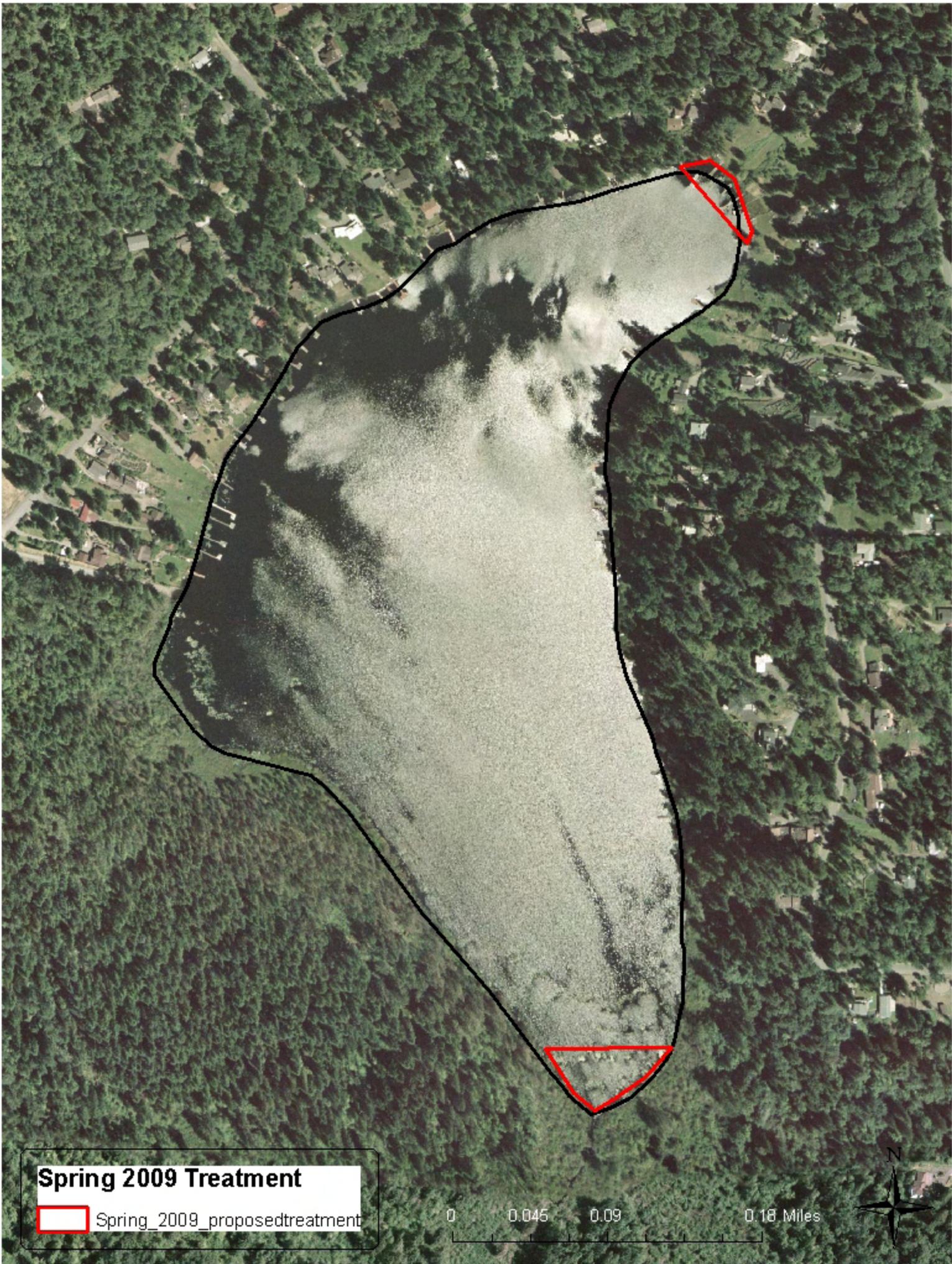
Spring 2009 Treatment

2009 Iris and Loosestrife Treatment

Date Treated

-  7/18/2009
-  7/19/2009
-  8/1/2009
-  8/2/2009





Spring 2009 Treatment

 Spring_2009_proposedtreatment

0 0.045 0.09 0.18 Miles





PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

1. Date of Application - Year: 2010 Month: July Day: 14 Start Time: _____
Stop Time: _____

2. Name of person for whom the pesticide was applied: King County WLRD

Firm Name (if applicable): 2

Street Address: 201 S. Jackson St Ste 600 City: Seattle State: WA Zip: 98115

3. Licensed Applicator's Name (if different from #2 above): Tom Rehner License No.: 78576

Firm Name (if applicable): _____ Tel No.: 425-433-8369

Street Address: 18026 W Spring Lk Dr SE City: Renton State: WA Zip: 98058

4. Name of person(s) who applied the pesticide (if different from #3 above): Valerie Weber

License No(s). If applicable: 78579

5. Application Crop or Site: yellow flag iris

6. Total Area Treated (acre, sq. ft., etc.): .41

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # _____

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Aquamaster</u>	<u>524-343</u>	<u>425 mL</u>	<u>1020 mL / acre</u>	<u>2.5%</u>
<u>LI 700</u>	<u>34704-04007</u> <u>AW36208-70004</u>	<u>85 mL</u>	<u>207 mL / acre</u> <u>85</u>	<u>0.5%</u>
			<u>1</u>	
			<u>1</u>	
			<u>1</u>	

9. Address **or exact location** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: _____

11. Temperature during the application: _____

12. Apparatus license plate number (if applicable): _____

13. Air Ground Chemigation

14. Miscellaneous Information: _____

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only.)

Township: N

Range: E W (please indicate)

Section(s):

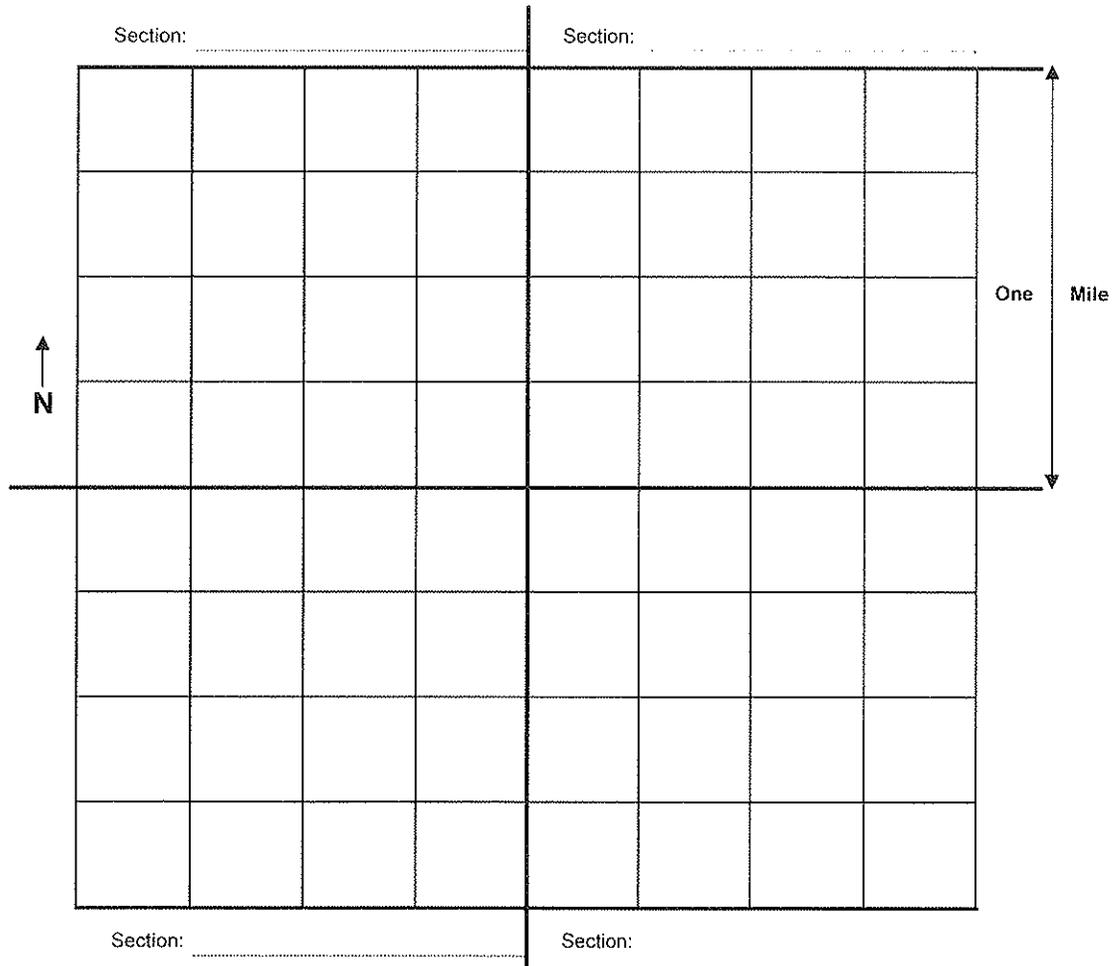
Block: Farm Unit:

or GPS:

County:

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:



PESTICIDE APPLICATION RECORD (Version 1)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 2010 Month: June Day: 22nd Start Time: 4:30pm
Stop Time: 8:30pm

2. Name of person for whom the pesticide was applied: King County WLRD

Firm Name (if applicable): _____

Street Address: 201 S. Jackson St Ste 600 City: Sea State: WA Zip: 98115

3. Licensed Applicator's Name (if different from #2 above): Tom Rohrer License No.: 78576

Firm Name (if applicable): _____ Tel No.: 425-433-8369

Street Address: 180.26 W Spring Uk Dr SE City: Renton State: WA Zip: 98058

4. Name of person(s) who applied the pesticide (if different from #3 above): Valerie Weber

License No(s). If applicable: 78579

5. Application Crop or Site: yellow flag iris

6. Total Area Treated (acre, sq. ft., etc.): 0.5 acre

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # _____

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
<u>Aquamaster</u>	<u>524-343</u>	<u>1,525 mL</u>	<u>⁶⁷²3050 mL/acre</u>	<u>2.5%</u>
<u>L-700</u>	<u>AW 36208-70004</u> <u>WA 34704-04007</u>	<u>305 mL</u>	<u>134 mL/acre</u>	<u>0.5%</u>
			<u>/</u>	
			<u>/</u>	
			<u>/</u>	

9. Address **or exact location** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: _____

11. Temperature during the application: _____

12. Apparatus license plate number (if applicable): _____

13. Air Ground Chemigation

14. Miscellaneous Information: _____

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only.

Township: N

Range: E W (please indicate)

Section(s):

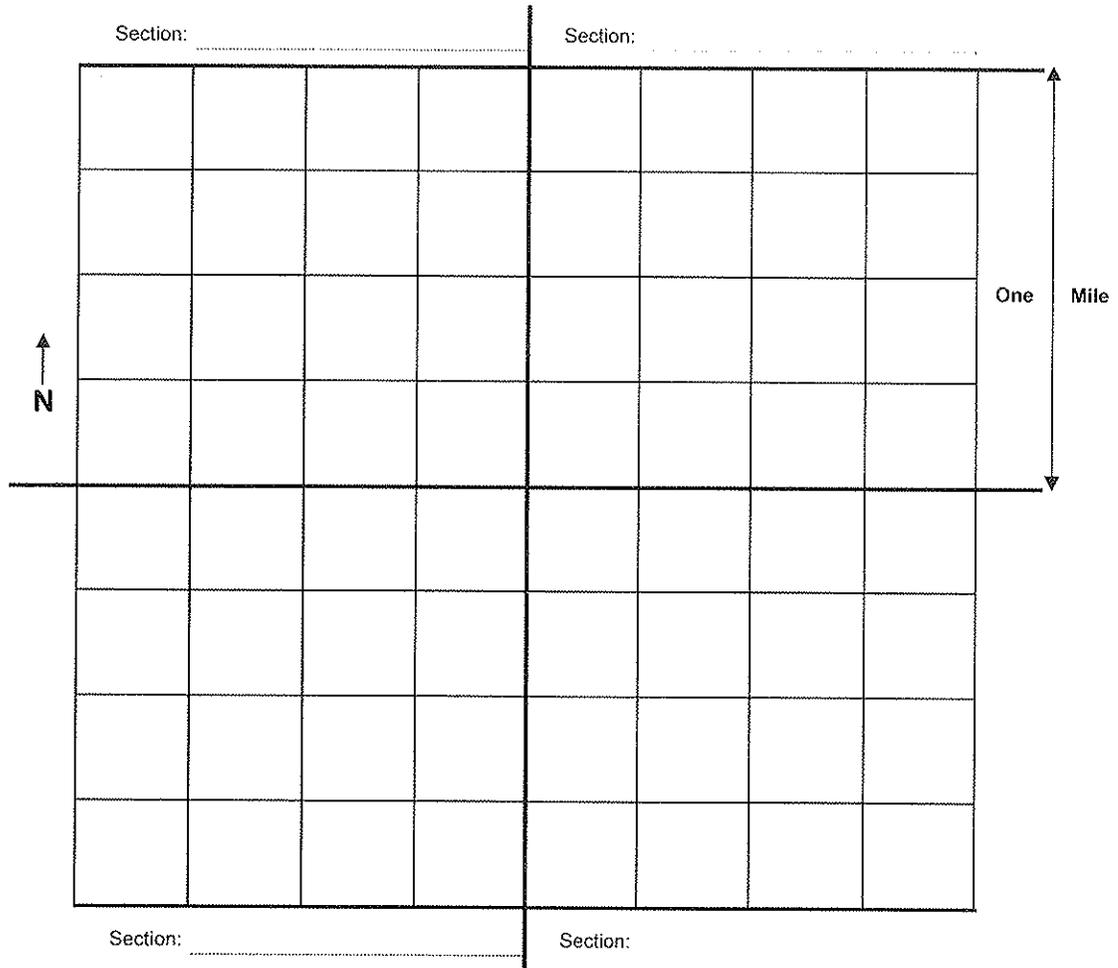
Block: Farm Unit:

or GPS:

County:

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:



PESTICIDE APPLICATION RECORD (Version 1)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 2010 Month: September Day: 16 Start Time: ~~11:00~~ 12:00

Stop Time: 13:00

2. Name of person for whom the pesticide was applied: King County WCRD

Firm Name (if applicable): _____

Street Address: 201 S. Jackson St Seattle City: Sea State: WA Zip: 98104

3. Licensed Applicator's Name (if different from #2 above): Jenice Colton License No.: 78139

Firm Name (if applicable): King County WCRD Tel No.: _____

Street Address: 201 S. Jackson St Seattle City: Seattle State: WA Zip: 98104

4. Name of person(s) who applied the pesticide (if different from #3 above): _____

License No(s). If applicable: _____

5. Application Crop or Site: Eurasian milfoil

6. Total Area Treated (acre, sq. ft., etc.): 2 acres

7. Was this application made as a result of a WSDA Permit? No Yes (If yes, give Permit No.) # _____

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
RENOVATE OTF	67690-42	40 lbs	40 lbs / Acre	0.75 ppm
			/	
			/	
			/	
			/	

9. Address **or exact location** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

10. Wind direction and estimated velocity (mph) during the application: < 3 mph

11. Temperature during the application: 65°F / 18°C

12. Apparatus license plate number (if applicable): _____

13. Air Ground Chemigation

14. Miscellaneous Information: _____

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only.)

Township: N

Range: E W (please indicate)

Section(s):

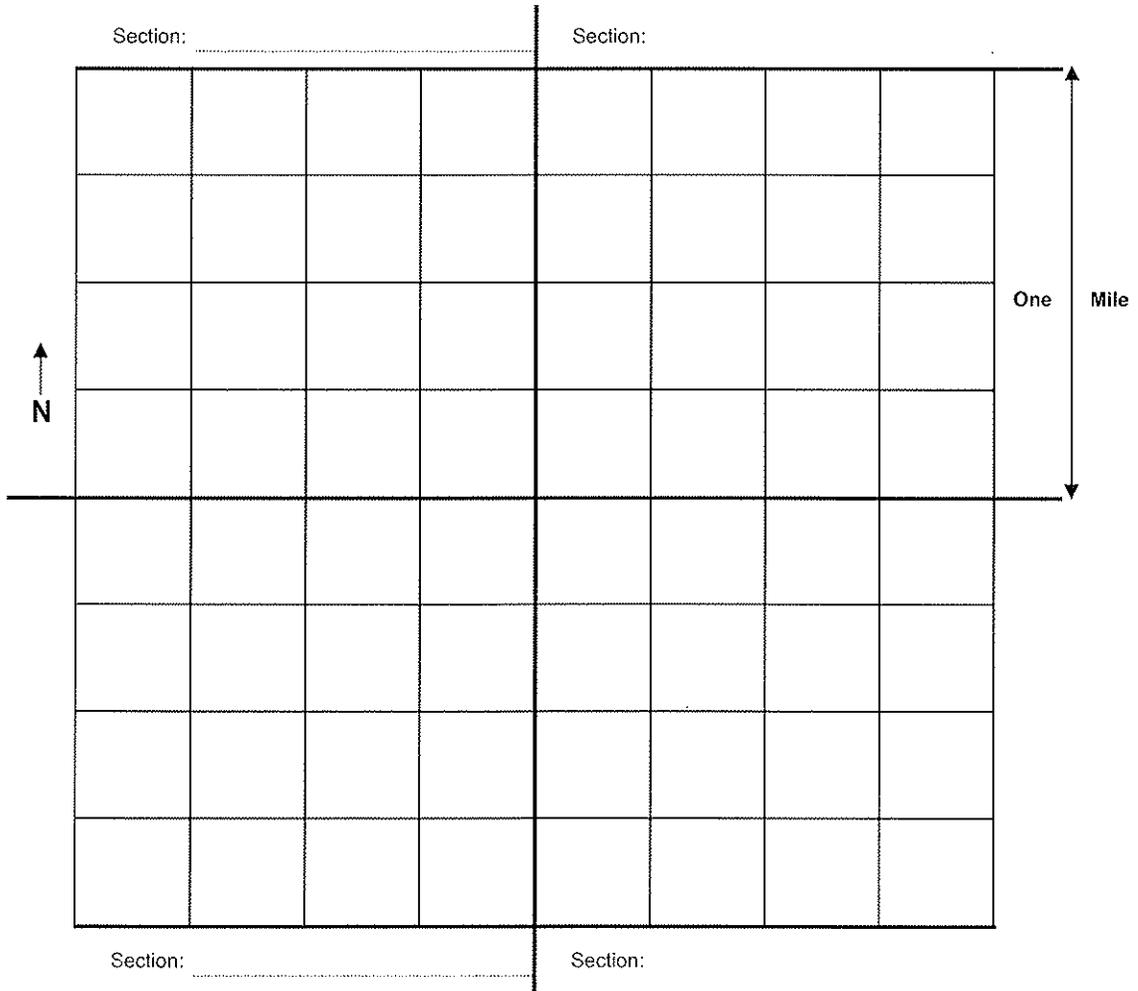
Block: Farm Unit:

or GPS:

County:

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.



Miscellaneous Information:

Pesticide Application Record

Date: August 18, 2010

Applied for: King County Department of Natural Resources
Contact: Beth Cullen, Lake Stewardship Program

Licensed Applicators:

Thomas Rohrer (Lead Supervising) - License #78576
18026 W Spring Lake Dr SE
Renton WA 98058
425-433-8369

Valerie Weber - License #78579
18026 W Spring Lake Dr SE
Renton WA 98058
425-433-8369

Supervised applicators (all residents of W Spring Lake Dr SE except Stevenson):

Ted Barnes
Darcie MacEwen
Leah Mickelson
Ann Stevens (from King County DNR Noxious Weed Control Program)

Application Site: Ground application to Spring Lake shoreline for Purple Loosestrife and Yellow Iris

Total Treated Area: 1.79 acres (7800 linear ft of shoreline x 10 ft avg distance from shore)

WSDE Permit #: WAG – 993000

Pesticide Information

Full Product Name: Aquamaster
EPA Reg #: 524-343
Total Applied: 200 ml. Aquamaster (in 8 liters solution)
Pesticide per acre: 112 ml. Aquamaster / acre (4.5 liters solution / acre)
Concentration: 2.5% solution

Adjuvant Information

Full Product Name: LI-700 Penetrant Acidifier Deposition Aid Drift Control Agent
WA Reg #: 34704-04007
Total Applied: 40 ml. LI-700 (in 8 liters solution)
Adjuvant per acre: 207 ml. LI-700 / acre (4.5 liters solution / acre)
Concentration: 0.5%

Pesticide Application Record

Specific Application information:

Date	Applicators	Time	Acres	Wind	Temp
08/18/2010	Tom Rohrer (Lic. #78576) Valerie Weber (Lic. #78579) Ted Barnes Darcie MacEwen Leah Mickelson Mike O'Brien Ann Stevens	1600-2030	1.79	S - 7 mph	70 F

Location: All 7800 linear feet of Spring Lake shoreline as shown in attached map. Treatment to average of 10 feet from shore for treatment area of 1.79 acres. Spot-treated individual Purple Loosestrife and Yellow Iris plants.

Pesticide Application Record



Pesticide Application Record

Date: July 14, 2010

Applied for: King County Department of Natural Resources
Contact: Beth Cullen, Lake Stewardship Program

Licensed Applicators:

Thomas Rohrer (Lead Supervising) - License #78576
18026 W Spring Lake Dr SE
Renton WA 98058
425-433-8369

Valerie Weber - License #78579
18026 W Spring Lake Dr SE
Renton WA 98058
425-433-8369

Supervised applicators (all residents of W Spring Lake Dr SE):

Darcie MacEwen
Leah Mickelson
Mike O'Brien

Application Site: Ground application to Spring Lake shoreline for Yellow Iris

Total Treated Area: 0.41 acres (1200 linear ft of shoreline x 15 ft avg distance from shore)

WSDE Permit #: WAG – 993000

Pesticide Information

Full Product Name: Aquamaster
EPA Reg #: 524-343
Total Applied: 425 ml. Aquamaster (in 17 liters solution)
Pesticide per acre: 1037 ml. Aquamaster / acre (42 liters solution / acre)
Concentration: 2.5% solution

Adjuvant Information

Full Product Name: LI-700 Penetrant Acidifier Deposition Aid Drift Control Agent
WA Reg #: 34704-04007
Total Applied: 85 ml. LI-700 (in 17 liters solution)
Adjuvant per acre: 207 ml. LI-700 / acre (42 liters solution / acre)
Concentration: 0.5%

Pesticide Application Record

Specific Application information:

Date	Applicators	Time	Acres	Wind	Temp
07/14/2010	Tom Rohrer (Lic. #78576) Valerie Weber (Lic. #78579) Darcie MacEwen Leah Mickelson Mike O'Brien	1600-2030	0.41 (1200 ft)	NW - 4 mph	78 F

Location: 1200 linear feet of Spring Lake shoreline as shown in attached map. Treatment to average of 15 feet from shore for treatment area of 0.41 acres. Spot-treated individual Yellow Iris plants.

Pesticide Application Record



Pesticide Application Record

Date: June 22 and 23, 2010

Applied for: King County Department of Natural Resources
Contact: Beth Cullen, Lake Stewardship Program

Licensed Applicators:

Thomas Rohrer (Lead Supervising) - License #78576
18026 W Spring Lake Dr SE
Renton WA 98058
425-433-8369

Valerie Weber - License #78579
18026 W Spring Lake Dr SE
Renton WA 98058
425-433-8369

Supervised applicators (all residents of W Spring Lake Dr SE):

Ted Barnes
Darcie MacEwen
Leah Mickelson
Mike O'Brien

Application Site: Ground application to Spring Lake shoreline for Yellow Iris

Total Treated Area: 2.27 acres (6600 linear ft of shoreline x 15 ft avg distance from shore)

WSDE Permit #: WAG – 993000

Pesticide Information

Full Product Name: Aquamaster
EPA Reg #: 524-343
Total Applied: 1525 ml. Aquamaster (in 61 liters solution)
Pesticide per acre: 672 ml. Aquamaster / acre (27 liters solution / acre)
Concentration: 2.5% solution

Adjuvant Information

Full Product Name: LI-700 Penetrant Acidifier Deposition Aid Drift Control Agent
WA Reg #: 34704-04007
Total Applied: 305 ml. LI-700 (in 61 liters solution)
Adjuvant per acre: 134 ml. LI-700 / acre (27 liters solution / acre)
Concentration: 0.5%

Pesticide Application Record

Specific Application information:

Date	Applicators	Time	Acres	Wind	Temp
06/22/2010	Tom Rohrer (Lic. #78576) Valerie Weber (Lic. #78579) Ted Barnes Darcie MacEwen Leah Mickelson Mike O'Brien	1600-2030	1.17 (3400 ft)	NW - 3 mph	72 F
06/23/2010	Tom Rohrer (Lic. #78576) Valerie Weber (Lic. #78579) Ted Barnes Darcie MacEwen Leah Mickelson Mike O'Brien	1600-2030	1.10 (3200 ft)	none	75 F

Location: 6600 linear feet of Spring Lake shoreline as shown in attached map. Treatment to average of 15 feet from shore for treatment area of 2.27 acres. Spot-treated individual Yellow Iris plants.

Pesticide Application Record





Legend

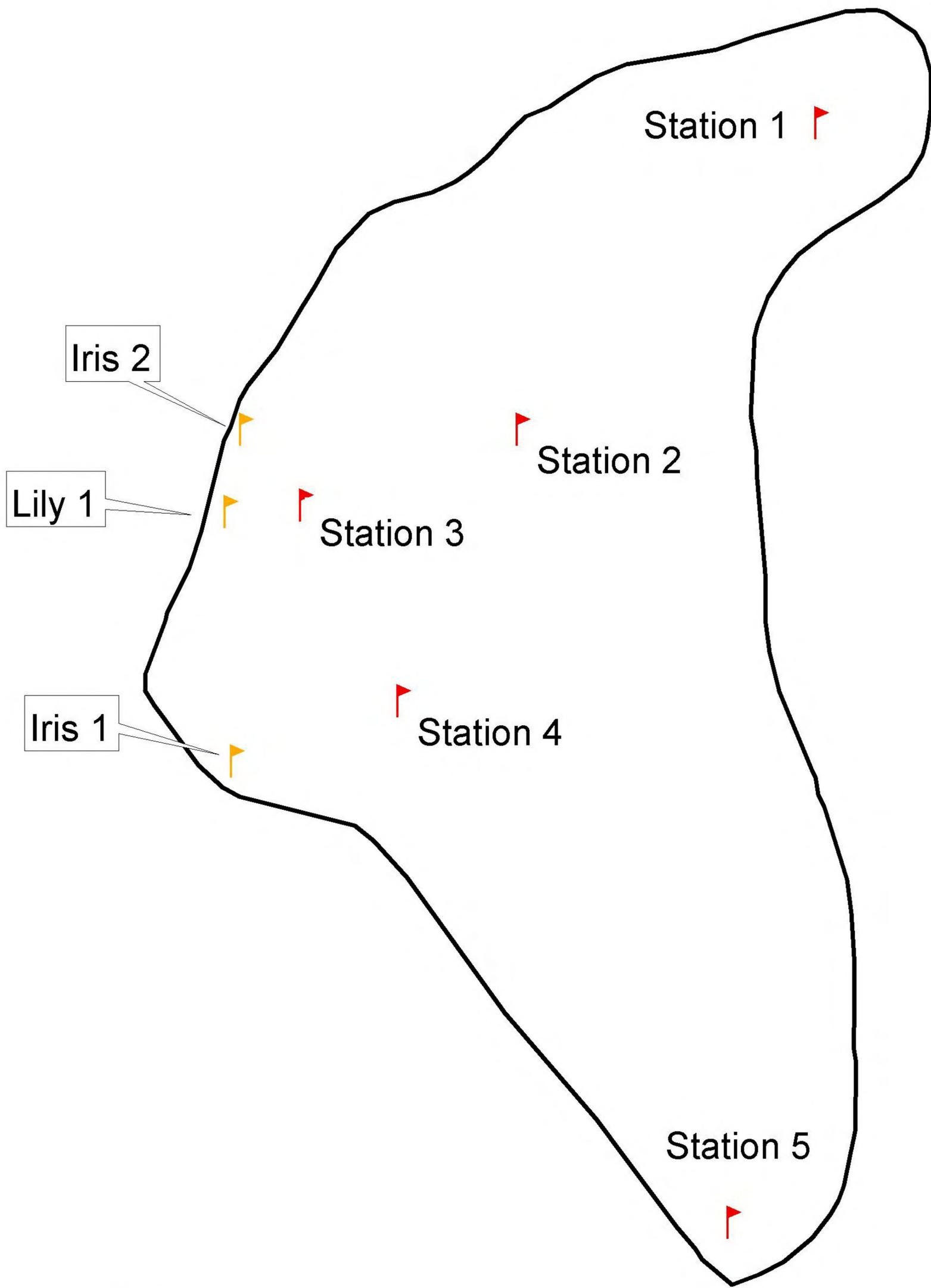
-  2010 Iris Treatment
-  2010 Eurasian watermilfoil Treatment

0 0.045 0.09 0.18 Miles



APPENDIX C

HERBICIDE MONITORING RESULTS



2003

Sampling Sites

-  2,4-D
-  Glyphosate



Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

WA STATE DEPT OF AG.

GREG HAUBRICH
21 N 1ST AVE, #103
YAKIMA, WA 98902

Project: WSDA - NPDES

Certificate of Analysis - EPA 547

Sample:	SPRING LAKE - 1	Analyte	Result	Units	PQL	Analyst
Collect Date:	8/13/2003	Glyphosate	ND	mg/L	0.01	JWC
Date Received:	8/18/2003					
Lab Sample #	03X1709-01					
Date Analyzed	8/19/2003					

Sample:	SPRING LAKE - 2	Analyte	Result	Units	PQL	Analyst
Collect Date:	8/13/2003	Glyphosate	0.03	mg/L	0.01	JWC
Date Received:	8/18/2003					
Lab Sample #	03X1709-02					
Date Analyzed	8/19/2003					

Sample:	SPRING LAKE - 3	Analyte	Result	Units	PQL	Analyst
Collect Date:	8/14/2003	Glyphosate	ND	mg/L	0.01	JWC
Date Received:	8/18/2003					
Lab Sample #	03X1709-03					
Date Analyzed	8/19/2003					

Sample:	CC #1	Analyte	Result	Units	PQL	Analyst
Collect Date:	8/13/2003	Glyphosate	ND	mg/L	0.01	JWC
Date Received:	8/18/2003					
Lab Sample #	03X1709-04					
Date Analyzed	8/19/2003					

Sample:	CC #2	Analyte	Result	Units	PQL	Analyst
Collect Date:	8/13/2003	Glyphosate	ND	mg/L	0.01	JWC
Date Received:	8/18/2003					
Lab Sample #	03X1709-05					
Date Analyzed	8/19/2003					

Sample:	CC #3	Analyte	Result	Units	PQL	Analyst
Collect Date:	8/14/2003	Glyphosate	ND	mg/L	0.01	JWC
Date Received:	8/18/2003					
Lab Sample #	03X1709-06					
Date Analyzed	8/19/2003					

Laboratory Supervisor 8/19/03

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

KING COUNTY DNRP/WLRD - LAKE STEW

MICHAEL F MURPHY
201 S JACKSON ST. STE 600
SEATTLE, WA 98104

Project: SPRING LAKE LILY
MONITORING

Certificate of Analysis - EPA 547

Sample:	SPR LK - A	Analyte	Result	Units	PQL	Analyst
Collect Date:	8/13/2003	Glyphosate	0.31	mg/L	0.01	JWC
Date Received:	8/18/2003					
Lab Sample #	03X1710-01					
Date Analyzed	8/19/2003					

Sample:	SPR LK - B	Analyte	Result	Units	PQL	Analyst
Collect Date:	8/14/2003	Glyphosate	ND	mg/L	0.01	JWC
Date Received:	8/18/2003					
Lab Sample #	03X1710-02					
Date Analyzed	8/19/2003					

Laboratory Supervisor

8/19/03



STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: August 15, 2003

TO: Michael Murphy
King Co WLRD Lake Stewardship
201 S. Jackson St. Suite 600
Seattle, WA 98104

PROJECT: Spring Lake 2.4-D Monitoring

REPORT NUMBER: 115255

TOTAL NUMBER OF PAGES: 8

Enclosed are the test results for two samples received at STL Seattle on August 4, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Katie Downie
Project Manager

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STL Seattle

Sample Identification:

<u>Lab. No.</u>	<u>Client ID</u>	<u>Date/Time Sampled</u>	<u>Matrix</u>
115255-1	SPR2-03AUG03	08-03-03 11:35	Liquid
115255-2	SPR4-03AUG03	08-03-03 11:48	Liquid

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STL Seattle

Client Name	King Co WLRD Lake Stewardship
Client ID:	SPR2-03AUG03
Lab ID:	115255-01
Date Received:	8/4/2003
Date Prepared:	8/5/2003
Date Analyzed:	8/8/2003
% Solids	-
Dilution Factor	50

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	125		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	405	4.85	0.97	

STL Seattle

Client Name	King Co WLRD Lake Stewardship
Client ID:	SPR4-03AUG03
Lab ID:	115255-02
Date Received:	8/4/2003
Date Prepared:	8/5/2003
Date Analyzed:	8/8/2003
% Solids	-
Dilution Factor	50

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	134	X8	42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	325	4.82	0.964	

STL Seattle

Lab ID:	Method Blank - HW0280
Date Received:	-
Date Prepared:	8/5/2003
Date Analyzed:	8/8/2003
% Solids	-
Dilution Factor	0.5

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	107		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	ND	0.05	0.01	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: HW0280
Date Prepared: 8/5/2003
Date Analyzed: 8/8/2003
QC Batch ID: HW0280

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
2,4-D	0	5	5.83	117	5.7	114	-2.6	



STL Seattle
5755 6th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

DATA QUALIFIERS AND ABBREVIATIONS

- B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.
- C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.
- C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be \leq 30%.
- C4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The original analysis was reported unless anomalies were noted.
- M: GC/MS confirmation was performed. The result derived from the original analysis was reported.
- D: The reported result for this analyte was calculated based on a secondary dilution factor.
- E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
- J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- MRL: Method Reporting Limit
- N: See analytical narrative
- ND: Not Detected
- PQL: Practical Quantitation Limit
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
- X2: Contaminant does not appear to be "typical" product.
- X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.
- X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.
- X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5: Matrix spike recovery was not determined due to the required dilution.
- X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.
- X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.
- X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.
- X8: Surrogate recovery was not determined due to the required dilution.
- X9: Surrogate recovery outside advisory QC limits due to matrix interference.

Chain of Custody Record

STL Seattle
 5755 8th Street E.
 Tacoma, WA 98424
 Tel. 253-922-2310
 Fax 253-922-5047
 www.stl-inc.com

STL

**SEVERN
 TRENT**

Client: King Co.
 Project Manager: Michael F. Murphy
 Date: 4 Aug 03
 Chain of Custody Number: 04170

Address: 201 S. Jackson St Suite 600
 City: Seattle
 State: WA Zip Code: 98104
 Telephone Number (Area Code)/Fax Number: 206-296-8008 / 206-296-0192
 Lab Number: 115955

Project Name and Location (State): Spring Lake 2-HD Monitoring
 Contract/Purchase Order/Quote No.: _____
 Carrier/Waybill Number: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix			Containers & Preservatives														
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH								
SFR 2 - 03 AUG 03	3-Aug-03	1135	X	X																
SFR 4 - 03 AUG 03	3-Aug-03	1148	X	X																

Special Instructions/Conditions of Receipt: _____
 Analysis (Attach list if more space is needed): _____
 2,4-D (Low level) X

Cooler: Yes No Cooler Temp: _____
 Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown
 Sample Disposal: Disposal By Lab Archive For _____ Months
 (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): 10 Days 15 Days Other _____
 QC Requirements (Specify): _____

1. Relinquished By	Date	Time	1. Received By	Date	Time
<u>Michael F Murphy</u>	<u>4 Aug 03</u>	<u>1105</u>	<u>R. King</u>	<u>8/13/03</u>	<u>11:05P</u>
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: August 26, 2003

TO: Michael Murphy
King Co WLRD Lake Stewardship
201 S. Jackson St. Suite 600
Seattle, WA 98104

PROJECT: Spring Lake 2,4-D Monitoring (WA)

REPORT NUMBER: 115524

TOTAL NUMBER OF PAGES: 7

Enclosed are the test results for one sample received at STL Seattle on August 15, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,



Katie Downie
Project Manager

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STL Seattle

Sample Identification:

<u>Lab. No.</u>	<u>Client ID</u>	<u>Date/Time Sampled</u>	<u>Matrix</u>
115524-1	SPR2-14 AUG03	08-14-03 09:24	Liquid

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STL Seattle

Client Name	King Co WLRD Lake Stewardship
Client ID:	SPR2-14 AUG03
Lab ID:	115524-01
Date Received:	8/15/2003
Date Prepared:	8/19/2003
Date Analyzed:	8/20/2003
% Solids	-
Dilution Factor	50

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	120		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	235	4.89	0.978	

STL Seattle

Lab ID:	Method Blank - HW0282
Date Received:	-
Date Prepared:	8/19/2003
Date Analyzed:	8/20/2003
% Solids	-
Dilution Factor	0.5

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	93.5		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	ND	0.05	0.01	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: HW0282
Date Prepared: 8/19/2003
Date Analyzed: 8/20/2003
QC Batch ID: HW0282

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
2,4-D	0	5	3.39	67.8	3.73	74.7	9.7	



STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

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www.stl-inc.com

DATA QUALIFIERS AND ABBREVIATIONS

- B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.
- C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.
- C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be \leq 30%.
- C4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The original analysis was reported unless anomalies were noted.
- M: GC/MS confirmation was performed. The result derived from the original analysis was reported.
- D: The reported result for this analyte was calculated based on a secondary dilution factor.
- E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
- J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- MRL: Method Reporting Limit
- N: See analytical narrative
- ND: Not Detected
- PQL: Practical Quantitation Limit
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
- X2: Contaminant does not appear to be "typical" product.
- X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.
- X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.
- X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5: Matrix spike recovery was not determined due to the required dilution.
- X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.
- X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.
- X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.
- X8: Surrogate recovery was not determined due to the required dilution.
- X9: Surrogate recovery outside advisory QC limits due to matrix interference.



STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

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TRANSMITTAL MEMORANDUM

DATE: July 31, 2003

TO: Michael Murphy
King Co WLRD Lake Stewardship
201 S. Jackson St. Suite 600
Seattle, WA 98104

PROJECT: Spring Lake 2,4-D Monitoring

REPORT NUMBER: 114943

TOTAL NUMBER OF PAGES: 10

Enclosed are the test results for five samples received at STL Seattle on July 18, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

A handwritten signature in blue ink that reads "Katie Downie".

Katie Downie
Project Manager

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STL Seattle

Sample Identification:

<u>Lab. No.</u>	<u>Client ID</u>	<u>Date/Time Sampled</u>	<u>Matrix</u>
114943-1	SPR1-17JUL03	07-17-03 12:50	Liquid
114943-2	SPR2-17JUL03	07-17-03 13:05	Liquid
114943-3	SPR3-17JUL03	07-17-03 13:40	Liquid
114943-4	SPR4-17JUL03	07-17-03 14:15	Liquid
114943-5	SPR5-17JUL03	07-17-03 14:30	Liquid

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STL Seattle

Client Name	King Co WCRD Lake Stewardship
Client ID:	SPR1-17JUL03
Lab ID:	114943-01
Date Received:	7/18/2003
Date Prepared:	7/24/2003
Date Analyzed:	7/26/2003
% Solids	-
Dilution Factor	0.5

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	110		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	ND	0.0488	0.00976	

STL Seattle

Client Name	King Co WCRD Lake Stewardship
Client ID:	SPR2-17JUL03
Lab ID:	114943-02
Date Received:	7/18/2003
Date Prepared:	7/24/2003
Date Analyzed:	7/26/2003
% Solids	-
Dilution Factor	0.5

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	109		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	ND	0.0503	0.0101	

STL Seattle

Client Name	King Co WCRD Lake Stewardship
Client ID:	SPR3-17JUL03
Lab ID:	114943-03
Date Received:	7/18/2003
Date Prepared:	7/24/2003
Date Analyzed:	7/26/2003
% Solids	-
Dilution Factor	0.5

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	105		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	ND	0.0511	0.0102	

STL Seattle

Client Name	King Co WCRD Lake Stewardship
Client ID:	SPR4-17JUL03
Lab ID:	114943-04
Date Received:	7/18/2003
Date Prepared:	7/24/2003
Date Analyzed:	7/26/2003
% Solids	-
Dilution Factor	0.5

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	109		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	ND	0.0501	0.01	

STL Seattle

Client Name	King Co WCRD Lake Stewardship
Client ID:	SPR5-17JUL03
Lab ID:	114943-05
Date Received:	7/18/2003
Date Prepared:	7/24/2003
Date Analyzed:	7/26/2003
% Solids	-
Dilution Factor	0.5

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	115		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	ND	0.0498	0.00996	

STL Seattle

Lab ID:	Method Blank - HW0274
Date Received:	-
Date Prepared:	7/24/2003
Date Analyzed:	7/25/2003
% Solids	-
Dilution Factor	0.5

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	88.7		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	ND	0.05	0.01	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: HW0274
Date Prepared: 7/24/2003
Date Analyzed: 7/25/2003
QC Batch ID: HW0274

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
2,4-D	0	5	4.88	97.5	5.12	102	4.5	



STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

DATA QUALIFIERS AND ABBREVIATIONS

- B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
- B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
- C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.
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- C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.
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- M: GC/MS confirmation was performed. The result derived from the original analysis was reported.
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- E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
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- MCL: Maximum Contaminant Level
- MDL: Method Detection Limit
- MRL: Method Reporting Limit
- N: See analytical narrative
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- PQL: Practical Quantitation Limit
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- X2: Contaminant does not appear to be "typical" product.
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- X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.
- X8: Surrogate recovery was not determined due to the required dilution.
- X9: Surrogate recovery outside advisory QC limits due to matrix interference.

STL Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

Chain of Custody Record

Severn Trent Laboratories, Inc.



STL-9274 (01/02)
 Client: King Co WLRD - Lake Stewardship
 Address: 201 S. Jackson St. Ste 600
 City: Seattle State: WA Zip Code: 98104
 Project Manager: Michael F. Murphy
 Telephone Number (Area Code/Fax Number): (206) 296-3008
 Date: 18 July 03
 Chain of Custody Number: 0838
 Lab Number: 114943
 Page: 1 of 1

Site Contact: SAME
 Lab Contact: SAME
 Project Name and Location (State): Spring Lake 2, 4-D Monitoring
 Contract/Purchase Order/Quote No.:
 Analysis (Attach list if more space is needed):
 Special Instructions/Conditions of Receipt:

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix					Containers & Preservatives				Herbicides (Low level 29-D)	
			Air	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnOH			
SPR1 - 17 JUL 03	17 Jul 03	1250	X		X								X
SPR2 - 17 JUL 03	17 Jul 03	1305	X		X								X
SPR3 - 17 JUL 03	17 Jul 03	1340	X		X								X
SPR4 - 17 JUL 03	17 Jul 03	1415	X		X								X
SPR5 - 17 JUL 03	17 Jul 03	1430	X		X								X

Possible Hazard Identification:
 Non-Hazard Flammable Skin Irritant Poison B Unknown Disposal By Lab Archive For _____ Months
 Cooler: Yes No Cooler Temp: _____
 Turn Around Time Required (business days): 24 Hours 48 Hours 5 Days 10 Days 15 Days Other: _____
 1. Relinquished By: Michael F. Murphy (KC WLRD) Date: 18 Jul 03 Time: 1022
 2. Relinquished By: Michael F. Murphy Date: 7/18/03 Time: 1355
 3. Relinquished By: Michael F. Murphy Date: 7/18/03 Time: 1550
 Comments: 0



STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: September 10, 2003

TO: Michael Murphy
King Co WLRD Lake Stewardship
201 S. Jackson St. Suite 600
Seattle, WA 98104

PROJECT: Spring Lake 2,4-D Monitoring

REPORT NUMBER: 115849

TOTAL NUMBER OF PAGES: 8

Enclosed are the test results for two samples received at STL Seattle on September 3, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,



Katie Downie
Project Manager

STL Seattle is a part of Severn Trent Laboratories, Inc.

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

Sample Identification:

<u>Lab. No.</u>	<u>Client ID</u>	<u>Date/Time Sampled</u>	<u>Matrix</u>
115849-1	SPR2-02SEP03	09-02-03 13:25	Liquid
115849-2	SPR10-03SEP03	09-03-03 09:00	Liquid

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STL Seattle

Client Name	King Co WLRD Lake Stewardship
Client ID:	SPR2-02SEP03
Lab ID:	115849-01
Date Received:	9/3/2003
Date Prepared:	9/8/2003
Date Analyzed:	9/10/2003
% Solids	-
Dilution Factor	25

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	154	X9	42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	158	2.4	0.48	

STL Seattle

Client Name	King Co WLRD Lake Stewardship
Client ID:	SPR10-03SEP03
Lab ID:	115849-02
Date Received:	9/3/2003
Date Prepared:	9/8/2003
Date Analyzed:	9/10/2003
% Solids	-
Dilution Factor	0.5

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	105		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	ND	0.0486	0.00972	

STL Seattle

Lab ID:	Method Blank - HW0285
Date Received:	-
Date Prepared:	9/8/2003
Date Analyzed:	9/9/2003
% Solids	-
Dilution Factor	0.5

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits	
			Low	High
2,4-Dichlorophenylacetic acid	111		42	131

Analyte	Result (ug/L)	PQL	MDL	Flags
2,4-D	ND	0.05	0.01	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID: HW0285
Date Prepared: 9/8/2003
Date Analyzed: 9/9/2003
QC Batch ID: HW0285

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
2,4-D	0	5	4.45	88.9	4.45	88.9	0	

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Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

WA STATE DEPT OF AG.

GREG HAUBRICH
21 N. 1ST AVE, SUITE 103
YAKIMA, WA 98902

Project: WSDA - NPDES, SPRING LK
(KING Co)

Certificate of Analysis - EPA 547

Sample:	SPRING LAKE 01	Analyte	Result	Units	PQL
Collect Date:	6/28/2004	Glyphosate	ND	mg/L	0.01
Lab Sample #	04X1567-01				
Date Analyzed	7/12/2004				

Sample:	SPRING LAKE 02	Analyte	Result	Units	PQL
Collect Date:	6/28/2004	Glyphosate	0.05	mg/L	0.01
Lab Sample #	04X1567-02				
Date Analyzed	7/12/2004				

Sample:	SPRING LAKE 03	Analyte	Result	Units	PQL
Collect Date:	6/29/2004	Glyphosate	ND	mg/L	0.01
Lab Sample #	04X1567-03				
Date Analyzed	7/12/2004				

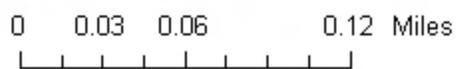
Laboratory Supervisor

7/13/2004



Legend

● Spring FasTest Stations



FastEST Results Confidential - Not For Distribution

Cooperator:	King County WLRD	Phone:	(206) 263-6242
Beth Cullen	201 S. Jackson St. Ste. 600	Fax:	
Territory:	Seattle	WA	98104-
Scott Shuler			

Sample	Date(s) Treated	Herbicide	Date Collected	Rate Applied	Acres Treated	Sample Location Description	Results	UOM
1.	08/05/09	Renovate	8/19/2009	160 lb/AC	15	Spring 1	0.017	ppm
2.						Spring 2	0.011	ppm
3.						Spring 3	0.006	ppm
4.								
5.								
6.								
7.								
8.								
9.								
10.								

Depth Sample Collected:	Date Sample Received: 8/21/2009
Storage Conditions: Analyzed upon receipt	Condition of Sample(s) Box/Water Containers: Excellent
Date Shipped to SePRO: 8/20/2009	Date Analysis was Performed: 8/21/2009
Run #: TR0156 % Control Rec: 106 Correlation: 0.997	Date Results Sent to Cooperator: 8/21/2009

Back of Data Sheet	Back of Data Sheet
Name of Waterbody: Spring Lake	Size of Waterbody in Acres: 68
Average Depth in Feet: 0	Target Plant(s) to Control: Eurasian watermilfoil

FastEST Results Confidential - Not For Distribution

Cooperator:	King County, WLRD	Phone:	(206) 263-6242
Beth Cullen	201 S. Jackson St., Ste 600	Fax:	
Territory:	Seattle	WA	98104-

Sample	Date(s) Treated	Herbicide	Date Collected	Rate Applied	Acres Treated	Sample Location Description	Results	UOM
1.	08/05/09	Renovate 3	9/2/2009	160lb/ac	1.5ac	Spring 1 (north end)	0.013	ppm
2.	08/05/09	Renovate 3	9/2/2009	160lb/ac	1.5ac	Spring 2 (mid station-no treatment)	0.012	ppm
3.	08/05/09	Renovate 3	9/2/2009	160lb/ac	1.5ac	Spring 3 (south end)	0.012	ppm
4.								
5.								
6.								
7.								
8.								
9.								
10.								

Depth Sample Collected:	surface	Date Sample Received:	9/4/2009
Storage Conditions:	Refrigerated	Condition of Sample(s) Box/Water Containers:	Excellent excellent
Date Shipped to SePRO:	9/3/2009	Date Analysis was Performed:	9/8/2009
Run #: TR0163E	% Control Rec: 98	Correlation: 0.998	Date Results Sent to Cooperator: 9/8/2009

Back of Data Sheet	Back of Data Sheet
Name of Waterbody: Spring Lake	Size of Waterbody in Acres: 68
Average Depth in Feet: 5	Target Plant(s) to Control: Eurasian watermilfoil



Chain of Custody 74E4F013-5

Customer Company

Company Name: King County WRLD
Address: 201 S. Jackson St. Ste. 600
City: Seattle
State: WA 98104

Customer Contact

Contact Person: Beth
E-mail Address: beth.cullen@kingcounty.gov
Phone:
Fax:

Payment Information

Payment Type: PO Number
Card Number/Expiration Num: 68382

Waterbody Information

Waterbody: Spring Lake
Waterbody Size (acres): 0.00
Depth Average: 2.00
Target Plants Eurasian Watermilfoil,

Sample Information

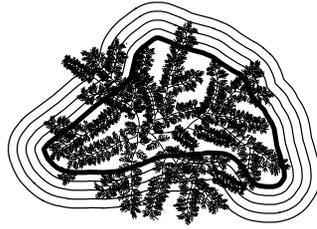
Sample Site ID	Date Treated	Date Sample Collected	Sample Location	Products	Acres Treated	Rate	Active	Result
Spring 3A	09/16/2010	09/29/2010	outside watershed patch	Renovate OTF	1	0.75	Triclopyr	0.003 ppm
Spring 3	09/16/2010	09/29/2010	outlet	Renovate OTF	1	0.75	Triclopyr	0.004 ppm

Laboratory Information

Date Received: 11/1/2010
Date Results Sent: 11/1/2010
Date Analysis Performed: 11/1/2010
Storage Conditions Analyzed Immediately

APPENDIX D

EDUCATION AND OUTREACH



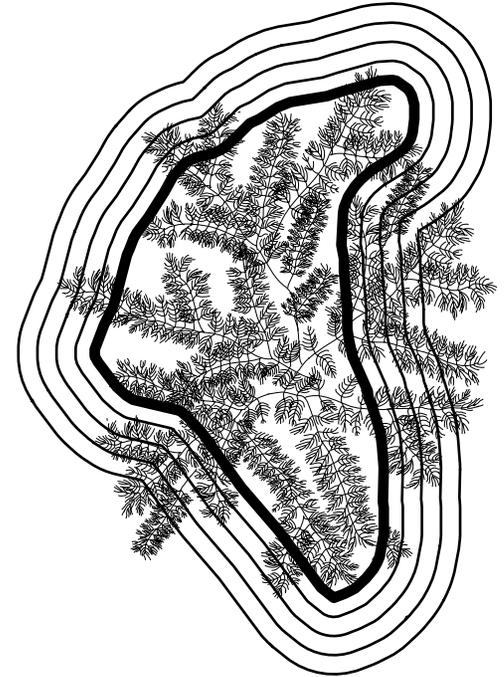
King County

Department of Natural Resources and Parks

Water and Land Resources Division

201 South Jackson, Suite 600
Seattle, WA 98104

Spring Lake
is **CHOKING!**



**Noxious aquatic weeds are
overgrowing Spring Lake.
The sooner we act, the more likely
we can totally get rid of the weeds.**



King County

Department of
Natural Resources and Parks

Water and Land Resources Division

Information presented here is
available in alternate formats.
Reasonable accommodations for
people with disabilities available
upon request number.
Please call 206-296-8008 or TTY 711.

Spring Lake is CHOKING!

Eurasian watermilfoil (*Myriophyllum spicatum*) is a submersed aquatic plant native to Europe and Asia that grows very rapidly when introduced to lakes in the northwest. It is a listed Noxious weed in Washington State. Unchecked, milfoil will quickly expand throughout the lake, creating thick, tangled mats of weeds.

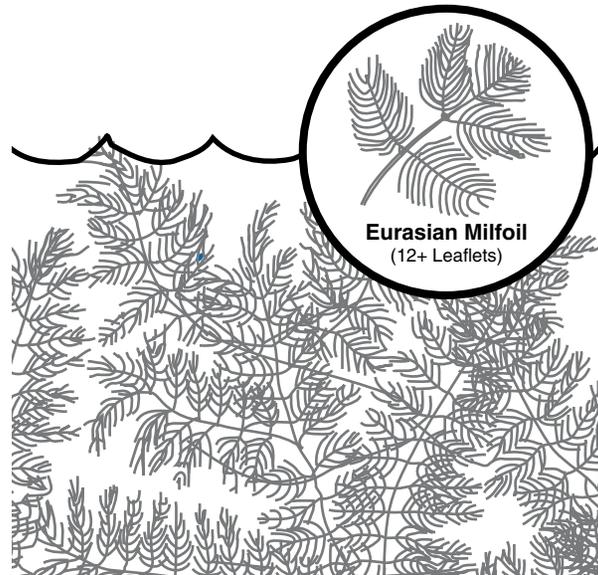
Dense mats of milfoil will:

- make swimming very dangerous
- snag fishhooks on every cast
- make boating difficult
- harm fish, plants, and animals
- degrade the lake for years to come

Some of your neighbors are working with King County on a proposal to the Washington Department of Ecology for a grant to fund weed removal efforts.

They need your input to help decide:

- The best short-term weed removal strategy
- The best long-term community-based options for monitoring and control



Please attend a watershed-wide meeting to discuss plans to control aquatic weeds threatening Spring Lake.

Thursday August 22, 7-9 pm
17956 W Spring Lake Drive SE
Renton, 98058
(Greg and Donna Smith's Guest House)

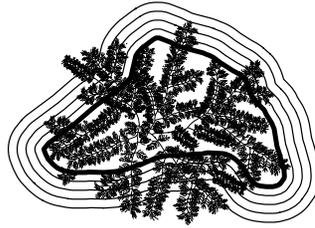
Parking is limited - please walk (or boat) if possible. And bring a folding chair if you can.

For information about the meeting contact Michael Murphy at King County 206-296-8008 or michael-wlr.murphy@metrokc.gov

For more information about problem aquatic weeds, check out the Department of Ecology's website:<http://www.ecy.wa.gov/programs/wq/plants/index.html>

**MILFOIL PROJECT
STEERING COMMITTEE**

- Caren Adams**, Resident
- Ted Barnes**, Resident
- Jerry Bronson**, Resident
- Betty Cheung**, Resident
- Elaine Cruickshank**, Resident
- Ellon Jarvis**, Resident
- Linda O'Brien**, Resident
- Mike O'Brien**, Resident
- Steve Smith**, Resident
- Donna Smith**, Resident
- Greg Smith**, Resident
- Drew Kerr**, King County DNRP
- Mike Murphy**, King County DNRP



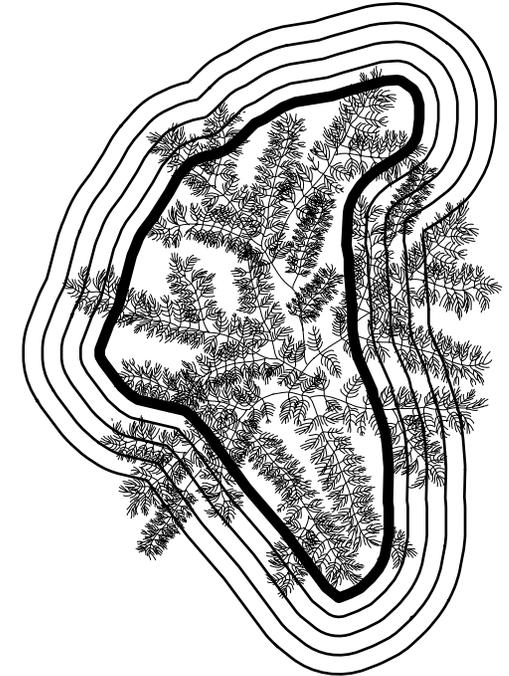
King County

Department of Natural Resources and Parks

Water and Land Resources Division

201 South Jackson, Suite 600
Seattle, WA 98104

Spring Lake
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Spring Lake is CHOKING!

Eurasian watermilfoil (*Myriophyllum spicatum*) is a submersed aquatic plant native to Europe and Asia that grows very rapidly when introduced to lakes in the northwest. It is a listed Noxious weed in Washington State. Unchecked, milfoil will quickly expand throughout the lake, creating thick, tangled mats of weeds.

Dense mats of milfoil will:

- make swimming very dangerous
- snag fishhooks on every cast
- make boating difficult
- harm fish, plants, and animals
- degrade the lake for years to come



Some of your neighbors are working with King County on a proposal to the Washington Department of Ecology for a grant to fund weed removal efforts.

At the first community meeting on August 22 the steering committee (your neighbors and King County staff),

- presented information about why milfoil is a problem
- outlined the options for management
- and got input from the community

At the September 19 meeting, the steering committee will

- present a suggested milfoil management strategy
- outline estimated costs of the project
- Assess community support on the selected management strategy

Your participation at this stage is very important to decision making and the grant application process.

The problem will only get worse if no action is taken.

Please attend the second of two watershed-wide meetings to discuss plans to control aquatic weeds threatening Spring Lake.

Thursday September 19, 7-9pm
18023 E. Spring Lake Drive SE
Renton, 98058
(Curt Heikell's house)

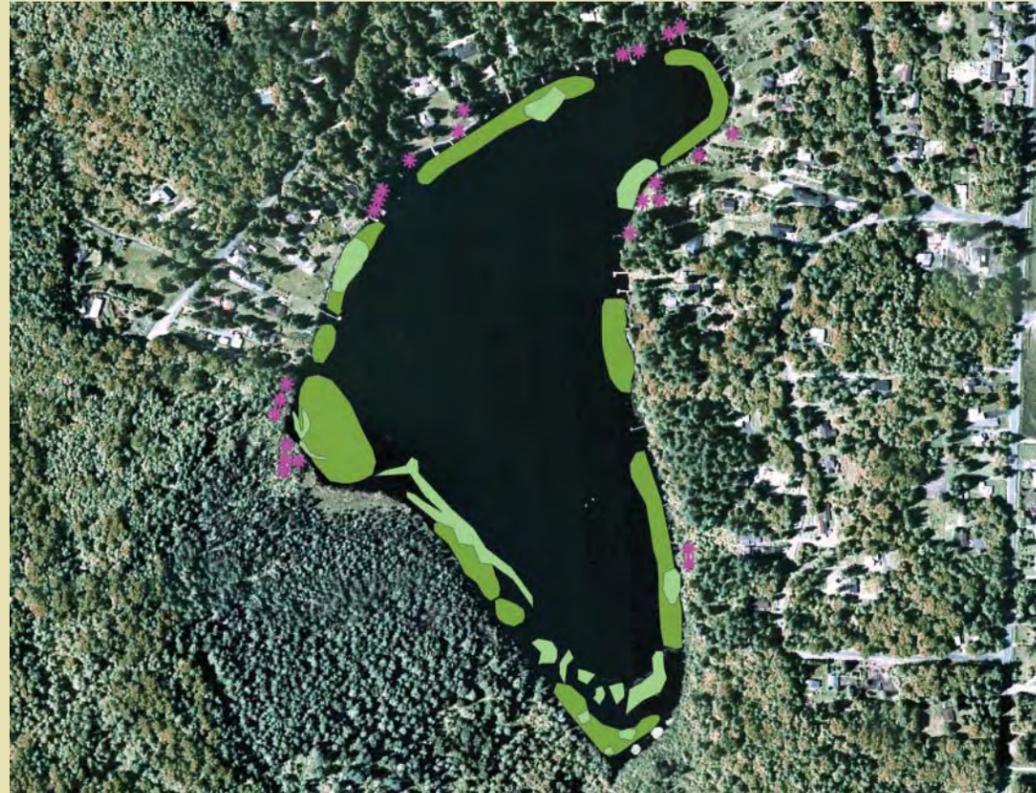
Parking is limited - please walk (or boat) if possible. And bring a folding chair if you can.



For information about the meeting contact Michael Murphy at King County 206-296-8008 or michael-wlr.murphy@metrokc.gov

For more information about problem aquatic weeds, check out the Department of Ecology's website:<http://www.ecy.wa.gov/>

NOXIOUS WEED REMOVAL PLAN



Legend

-  Eurasian water milfoil
-  Fragrant water lily
-  Purple loosestrife

SPRING LAKE PLANT LOCATOR



What: Eurasian water milfoil
(*Myriophyllum spicatum*)

Description: Submersed perennial plant with feather-like leaves, which forms dense mats of vegetation below the water surface.

Spreads: In late summer and fall, plants break into fragments with attached roots that float with the current and attach elsewhere in the lake.

Harmful effects: Crowds out native vegetation and reduces dissolved oxygen: major hindrance to fishing, swimming, and boating



What: Fragrant water lily
(*Nymphaea odorata*)

Description: Round, floating green leaves with white, pink, or light yellow flowers.

Spreads: Through seeds and rhizomes.

Harmful effects: Can decrease dissolved oxygen levels, hinder recreational pursuits, and limit native water lily growth.



What: Yellow flag iris
(*Iris pseudacorus*)

Description: Large yellow flowers are a distinguishing characteristic on this shoreline weed, but when not flowering it may be confused with cattail.

Spreads: Through seeds and rhizomes.

Harmful effects: Alters hydrologic dynamics and, displaces native vegetation.



What: Purple loosestrife
(*Lythrum salicaria*)

Description: Shoreline perennial, can grow to nine feet tall with long spike of magenta flowers.

Spreads: Through seeds and by vegetative production through shoots and rhizomes.

Harmful effects: Displaces native and beneficial plants and animals and clogs irrigation systems

HERBICIDE APPLICATION:

- First treatment, for milfoil (using 2, 4-D) and water lilies (using Glyphosate), in July 2003.
- Second treatment, for milfoil, purple loosestrife, and yellow flag iris control, in August 2003.
- Final work will entail a single diver pulling weeds by hand in September 2003.

If you have any questions please contact: Michael Murphy, King County Water and Land Resources, at (206)296-8008, michael-WLR.murphy@metrokc.gov or the Spring Lake Club at SpringLakeClub@aol.com
For more information, please contact the Spring Lake Club at <http://www.SpringLakeClub.com>

SEVERAL **INVASIVE AQUATIC NOXIOUS WEEDS** are reaching dense infestation levels in Spring Lake. If left untreated, the worst of these weeds, Eurasian watermilfoil, will blanket the lake in a short time, preventing most recreational uses and eliminating badly needed wildlife habitat. The loss of recreational and conservation areas, combined with financial impacts, will create long-term affects for the residents in this watershed and lake recreationalists.

To combat these noxious weeds, King County, the Spring Lake Community, and the Washington State Department of Ecology have developed a management plan. The plan involves initial control of Eurasian watermilfoil through the use of herbicide followed by manual control – pulling weeds by hand – methods. Purple loosestrife, yellow flag iris, and fragrant water lily will also be controlled using a combination of herbicides and manual control methods.

Combining these techniques with community education and support, Spring Lake will retain its environmental benefits and recreational value and remain a source of pride for its community.

SPRING LAKE
NOXIOUS WEED
REMOVAL PLAN

**Department of
Natural Resources and Parks**
Water and Land Resources Division
201 South Jackson Street, Suite 600
Seattle, WA 98104

King County



CARING FOR SPRING LAKE
LOOKING BENEATH THE SURFACE

SPRING LAKE
NOXIOUS WEED
CONTROL PLAN



King County

Department of Natural Resources and Parks
Water and Land Resources Division

Spring Lake Milfoil Project

Letter of Community Support

September 19, 2002

By signing this letter, we, the members of the Spring Lake community, agree

- ❖ that Eurasian watermilfoil and other listed noxious aquatic weeds present a serious threat to the natural beauty, ecological integrity, and safe recreational activities on Spring Lake.
- ❖ that controlling the noxious weeds is an immediate priority and that ongoing monitoring and control should be a continuing priority into the future
- ❖ that community-based funding will be necessary to maintain a milfoil-free lake after initial eradication efforts
- ❖ that the proposed treatment strategy outlined below is reasonable but may be altered by experts at the Department of Ecology to achieve the greatest likelihood of success

Recommended Treatment Strategy

Initial Treatment (Year 1)

Treat infested areas with 2, 4 D

Diver-dredging

Install bottom barrier at boat ramp

Community education – milfoil ID and survey methods training

Year 2

Diver surveys

2,4 D for spot control as necessary

Diver hand-pulling and dredging as necessary

Bottom barrier maintenance

Continued community education

Ongoing management

Continued community education

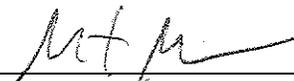
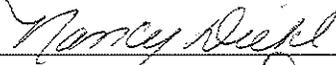
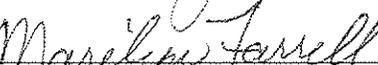
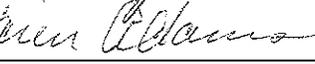
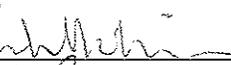
Community survey

Diver survey

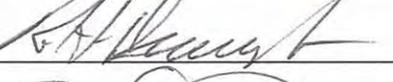
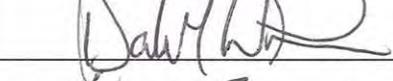
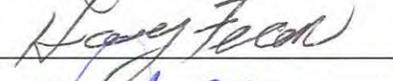
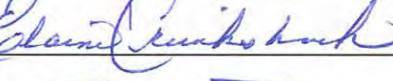
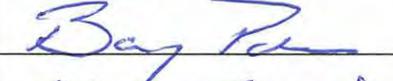
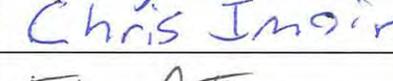
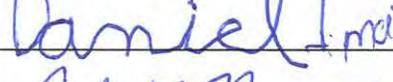
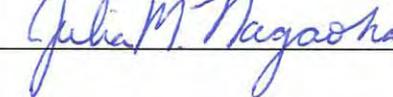
Diver hand-pulling as necessary

Bottom barrier maintenance

Spring Lake Community Letter of Support

	Name	Address	Signature	Date
1.	Robert Keller	18032 W. Spring Lake Dr SE		9/19/02
2.	Nancy Diehl	17836 W. Spring Lk Dr SE		9/19/02
3.	DAVID DIEHL	17836 W. Spring Lk Dr SE		9/19/02
4.	Susan Barnes	18302 W. Spring Lake Dr SE		9/19/02
5.	H. Lyle Torsten	18308 W. Spring Lake Dr SE		9/19/02
6.	BARBARA JANISCH	18028 W. SPRING LAKE DR SE	Barbara Janisch	9/19/02
7.	Marilyn Farrell	19202 SE 184		9/19/02
8.	Caren Adams	17928 W. Spring Lk. Dr. SE		9/19/02
9.	Peter + Michelle Kiehlman	18324 W Spring Lake Dr SE		9/29/02
10.	^{of Essex} Kelly Fowler	18401 W. Spring Lk. Dr. SE		9/29/02
11.				
12.				
13.				
14.				
15.				

Spring Lake Community Letter of Support

	NAME	ADDRESS	SIGNATURE	DATE
16.	BARBARA SECOR	18113 E. SPUR DR SE 98057 RENTON WA		9-19-02
17.	ROBERT STEVENS	18026 W SPRING WOODS		9-19-02
18.	Sharon Stevens	18026 W SPUR DR SE, Rtn WA 98035		9-19-02
19.	R.H. Naughton	18109 W. Springdale Dr SE		9/19/02
20.	Jami Penay	18515 E Spring Lake Dr SE		9-19-02
21.	Dale Wase	18010 E Spring Lk Dr SE		9-19-02
22.	HARVEY FERRIN	19317 SE 178 th PL		9/19/02
23.	DICK NIEMIEC	19302 - SE 178 th PL.		9-19-02
24.	AMY PALMER	17972 W. SPRING LK DR SE		9-19-02
25.	Elaine Crumbank	17978 W. Spring Lk Dr SE		9/19/02
26.	Bary Palmer	17972 W. Spring Lake Dr SE		9-19-02
27.	Chris Imoino	18333 E. Spring Lake DR SE		9-19-02
28.	Eva Imoino	18333 E Spring Lk Dr SE		9-19-02
29.	Daniel Imoino	18333 E Spring Lk Dr SE		9/19/02
30.	Julia Nagaoaka	18625 E Spring Lake Dr SE		9/19/02

Spring Lake Community Letter of Support

31.	Mrs. A. Tamm	19216 SE 184th P1	(425) 432-0706
32.	Jill Winter	184704 W Spring Lake Dr SE	425 432 0130
33.	Laurie Winter	18464 W Spring Lake Dr SE	425 432 0130
34.	Joyce Weikell	17886 W. Spring LK Dr SE	425-432-0507
35.	Kenneth K. Kuttar	17963 W Spring Lake Dr SE Renton WA 98058	425-432-7092
36.	Ronald Kuttar	17963 W Spring LK Dr SE Renton, WA 98058	425-432-7092
37.	Jerry Milam	18210 W. SPRING LK DR SE RENTON, WA 98058	425-432-7104
38.	Linda Milam	18210 W SPLK DR SE RENTON WA 98058	425 432 7104
39.			
40.	Frank Stadel	17886 W SPRING LAKE DRIVE SE RENTON, WA 98058	(425) 432-0507
41.	Leah Mickelson	18214 W Spring Lake Drive SE	425-432-2798
42.	Michael O'Brien	18214 W Spring Lake Dr SE	425-432-2798
43.	KAREN HALL	18316 W. SPRING LAKE DR. SE	425-432-1973
44.	MICHAEL HALL	18316 W. SPRING LK DR SE	425-432-1973
45.	ELLEN JARVIS	18118 W Spring LK Dr SE RENTON	425-432-4888

Spring Lake Community Letter of Support

	NAME	ADDRESS	SIGNATURE	DATE
61.	SCOTT Jarvis	18118 W Spring Lk Dr SE	425-432-4888	9/19/02
62.	Arlina Laddson	18210 W Spring Lake Dr SE	425-432-7164	9/19/02
63.	Jake Niehaus	18210 W. Springlake Dr SE	425-432-7104	9/19/02
64.	Peggy Veroy	18715 E. Springlake Dr SE	425-432-8463	9/19/02
65.	TED Barnett	18302 W Sparks Lake Dr SE	425-415-7873	9/19/02
66.	Artini Bauer	18335 E. Springlake Dr SE	425 432 4768	9/19/02
67.	Frank Bauer	18335 E Springlake Dr SE	425 432-4768	9/19/02
68.				
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Spring Lake Community Letter of Support

	NAME (SIG)	ADDRESS	(SIGNATURE)	(DATE)
76.	Doug Jaarschoff	17904 W. SPAIN LAKE DR. SE.	RENTON, WA	9/20/02
77.	MIKE MULHAY	18015 E Springlake Dr. S.E.	RENTON, WA	9/20/02
78.	Bob Mamm	17916 W. Spring Lk Dr.	RENTON, WA	9/20/02
79.	Yung Brunner	18338 W SPAIN LK DR SE	RENTON, WA	9/20/02
80.	Ken Mitchell	17906 E Spring Lk Dr SE	RENTON	9/20/02
81.	Richard Farrell	19202 SE 184 th ST	RENTON, WA	9/20/02
82.	Walter Aspelund	17918 - S. Springlake Dr. SE.	RENTON, WA	9/20/02
83.	Marcia Aspelund	17918 E. Spring Lk Dr SE	RENTON, WA	9/20/02
84.	Angela Wilhelm	17906 E Spring Lake Drive SE	RENTON, WA	9/20/02
85.	Robert D Bell	1807 E. Spring Lake Dr. SE WA	RENTON, WA	9/20/02
86.	HELEN A. BELL	18607 E. SPRING LK DR. SE. RENTON	RENTON, WA	9/20/02
87.	SUSAN S. TILL	17916 W. Spring Lk Dr SE RENTON	RENTON, WA	9/20/02
88.	Raymond F. Till	17916 W. Spring Lake Dr SE, RENTON	RENTON, WA	9/20/02
89.	Sheila Farley	18215 E. Spring Lk Dr SE. RENTON	RENTON, WA	9/20/02
90.	RODMAN K. GROSS	18104 E SPRING LAKE DR SE RENTON	RENTON, WA	9/20/02

Spring Lake Community Letter of Support

	NAME	ADDRESS	SIGNATURE	DATE
91.	JERRY & EVA OOSTRAAL	18525 E SPRING LAKE DR. SE, RENTON, WA. 98058	<i>[Signature]</i>	9-28-02
92.	Seana Clark	18315 E. Spring Lake Dr SE WA 98058 Renton	<i>[Signature]</i>	9-29-02
93.	Ted Clark	18315 E. Spring Lk. Dr SE Renton WA 98058	<i>[Signature]</i>	9-29-02
94.	Gordon Traine	18333 E Spring Lk Dr SE Renton WA 98058	<i>[Signature]</i>	9-28-02
95.	Tara Dail	18636 E Spring Lk Dr SE Renton, WA 98058	<i>[Signature]</i>	9-29-02
96.	Chris Dail	-1-	<i>[Signature]</i>	9-29-02
97.	KELLI DIXE WIDDE			
98.	<i>[Signature]</i>	18608 E Spring Lake Dr SE	<i>[Signature]</i>	9/29/02
99.				
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105.				

Spring Lake Community Letter of Support

106.	<i>Len Hansen</i> Len Hansen	19206 SE 184 th	Renton	98058
107.	<i>Kenneth Farrell</i> Kenneth Farrell	19210 SE 184 th St	Renton	98058
108.	<i>Laryce Farrell</i> Laryce Farrell	19210 SE 184 th St	Renton	98058
109.	<i>Shari Hansen</i> Shari Hansen	19206 SE 184 th St	Renton	98058
110.	<i>Lillian A Freeman</i> Lillian Freeman	19222 SE 184 th Pl	Renton	98058
111.	<i>Elizabeth Toner</i> Elizabeth Toner	19216 SE 184 th Pl	Renton	98058
112.				
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120.				

Spring Lake Community Letter of Support

	NAME	ADDRESS	SIGNATURE	DATE
121.	Neil Slater	17910 W. Spring Lk Dr. S.E.	Neil W. Slater	10/1/2002
122.	Dorothy Slater <i>(Dorothy Slater)</i>	17910 W. Spring Lk Dr SE	Dorothy Slater	10-1-2002
123.	Susan Edwards	17820 W. Spring Lk Dr SE	Susan Edwards	10/3/02
124.	FANCES GIBBERT <i>(Frances Gibbert)</i>	17927 E. Spaulce Lk Dr. S.E.	Frances Gibbert	10/2/02
125.	RAYMOND J. PARKER	18028 187th Ave SE.	Raymond J. Parker	10/3/02
126.	MARTHA L. PARKER	18028 - 187th Ave SE	Martha L. Parker	10/3/02
127.	GREGG GARRSON <i>(Gregg Garrison)</i>	18516 E Spaulce Lk Dr SE	Gregg Garrison	10/3/02
128.	Andie Harold	18101 E Springlake Dr SE	Andie Harold	10/5/02
129.	NEAL HAROLD	18101 E Spring Lake Dr SE	Neal C Harold	10/5/02
130.	Steve Smith	18410 W. Spring Lake Dr SE	Steve Smith	10/5/02
131.	Dixie Smith	18410 W. Spring Lk. Dr SE.	Dixie Smith	10/9/02
132.				
133.				
134.				
135.				

Spring Lake Community Letter of Support

	NAME	ADDRESS	SIGNATURE	DATE
136.	DAN CUMMINGS	18127 W SPR LK DR SE Renton WA 98058	Dan Cummings	9/22/02
137.	Geo Ann Cummings	18127 W. Sp. Lk. Drive Renton WA 98058	Geo Ann Cummings	9/22/02
138.	Marion Fearn	19317 SE 178 th Pl Renton, WA 98058	Marion Fearn	9/24/02
139.	DANNA KYRISIS	18410 E SPRING LK. DR SE	Danna Kyrisis	9/23/02
140.	Jami Bunnay	18515 E Spring Lake Dr SE	Jami Bunnay	9-23-02
141.	Christ Mitchell	18023 E SPRING LK DR SE	Christ Mitchell	9/23/02
142.	Diane Heikell	18023 E Spring Lk Dr SE Renton 98058	Diane Heikell	9/23/02
143.	MARY A. SHOLDRA	18415 W. SPRING LK SE RENTON 98058	Mary A. Sholdra	9/23/02
144.	THEODORE SHOLOMAN	18415 W. Spring Lk Dr SE	Theodore Sholman	9-23-02
145.	Robert L. JANISCH	18028 W. Spring Lk. Dr. SE	Robert L. Janisch	9-25-02
146.	Patricia K. Calhoun	19802 E. Spring Kk. Dr. SE. Renton 98058	Patricia K. Calhoun	9-24-02
147.	Robert R. Calhoun	19802 E. Spring Lk. Dr. SE. Renton WA 98058	Robert R. Calhoun	9-24-02
148.	Kathy I. Stephenson	17874 W. Spring Lake Dr. SE. Renton WA 98058	Kathy I. Stephenson	9-25-02
149.	DAREN B. STEPHENSON	17874 W. SPRING LAKE DR SE 98058	Daren B. Stephenson	9/25/02
150.	MADE FARLEY	18215 E SPRING LK DR SE 98058	Made Farley	9/26/02

APPENDIX A:

AQUATIC WEEDS ARE CHOKING AREA LAKES, AND FORCES HAVE JOINED TO BATTLE AGAINST THEM HERBICIDE ISSUE HAS MUDDIED THE WATERS

BY LISA STIFFLER P-I reporter

Tuesday, July 29, 2003

Section: News, Page: A1

Caren Adams doesn't seem like someone who'd endorse the use of herbicides in her beloved Spring Lake.

She's spent most of her 57 years at this watery jewel in rural King County. Gray-haired and fit, she lives in her childhood home, nestled among giant firs and cedars. She knows the lake well enough to recognize the calls of individual Canada geese.

She also knows the lake has a growing problem.

Over the years, invasive weeds have taken root - creeping across the bottom, ringing the shore, squeezing out native plants. To combat the menace, herbicides will be sprayed at the lake, starting this week.

"Exotic weeds create some dilemmas that take more complicated thought," Adams said. "Doing nothing is not an option."

It's not an option at Lake Sammamish, either, where some residents are taking a no-herbicide stand.

"We are spraying toxic chemicals into the lake," said one of the concerned homeowners, Frank Lill. "Although the state approves it, who knows what affect it can have on children swimming in the lake or pets drinking the water?"

Across Washington, property owners, swimmers and boaters are peering into their favorite lakes and rivers to find invasive plants taking over. Water weeds are spreading each year, and new, troublesome varieties keep popping up, experts say.

The solution, however, is murky.

"It's becoming a really, really big issue," said Kathy Hamel, aquatic plant specialist with the state Department of Ecology. "It's worldwide."

Worried about how herbicides might hurt his seven grandkids, Lill grabs a rake and pulls the weeds from his shoreline property every summer. On his dock he heaps a soggy pile of Eurasian milfoil, a feathery weed that can tangle up people, boat propellers and fishing lines. There are various strategies for battling milfoil and other weeds, but none are permanent or 100 percent effective.

State and county officials say the problem is best tackled on a lake-by-lake basis. For small lakes with limited infestations, hand-pulling and mechanical removal efforts can be effective. When the weeds carpet a waterway, or in places where boats regularly carry stowaway weeds that reignite infestations, herbicides are the cheapest alternative.

The state permits the use of aquatic herbicides, but after two years lake communities are required to come up with a plan that also incorporates non-chemical controls. That rule also applies to individuals.

"Obviously, these chemicals are not going to be right in front of their homes," Hamel said.

"They're going to drift."

She urged spray-minded residents to "work with their neighbors" to make sure everyone is safe. This year, applicators received permits to treat more than 1,000 lake and river acres statewide. More than 250 acres are in Lake Washington alone. The state recently started to track herbicide use by acre, so it's unclear whether the numbers are on the rise.

"The concerns with the herbicides are pretty straightforward," said Angela Storey of the Washington Toxics Coalition, which opposes pesticide use. "They pose pretty significant hazards not only to people but to salmon."

Juvenile chinook migrate along lake beaches en route to the sea. The herbicide sprays are timed to reduce the likelihood of exposing fish to the chemicals, but there are no guarantees. Spring Lake residents spent 18 months working with King County officials on their weed-control plan. They weighed all the options before coming up with a plan for their 68-acre lake, settling on a seven-year plan that relies on a broad herbicide application this year, followed by spot spraying and hand-pulling.

At the lake's lone public boat launch, sediment will be blanketed with a fabric that smothers weeds and blocks sunlight. The project is funded primarily by a \$65,000 state grant.

This week, an aquatic herbicide applicator is scheduled to motor onto the lake and spray 2,4-D into the water to kill the tenacious milfoil.

Fragrant water lilies - another invader - will be individually sprayed with glyphosate, the active ingredient in Roundup and Rodeo. Along the shore, purple loosestrife and yellow flag iris also will be doused with glyphosate.

The weeds "all threaten the quality of the lake environment," Adams said. "The boating, the swimming, the wildlife diversity that we love."

The form of 2,4-D used at Spring Lake has a low toxicity for fish and water birds. At very high levels, the herbicide can be toxic to dogs.

Glyphosate has low toxicity for fish and mammals. It's slightly toxic to birds and aquatic bugs, and can remain for months in the sediment. Both chemicals are an eye irritant.

The Spring Lake plan is to use the herbicides in a controlled manner to prevent killing native plants.

"We didn't want to zap everything," Adams said.

Natural predators to milfoil remain elusive.

Researchers here and elsewhere have been studying a weevil that munches the weeds. But it's been tough to grow the bugs into large enough populations to have an effect. Sunfish - another non-native species - are suspected of gobbling them up.

There are also problems with some of the non-herbicide controls. The sediment fabric kills native plants, too, and it needs to be maintained or will be buried and rendered useless. It covers cobbles that could provide spawning habitat for fish.

Pulling the milfoil can break bits off that help the plant spread.

But Lill and others would rather work a little harder and settle for some of the tradeoffs than add chemicals to the lake.

As vice president of Save Lake Sammamish, Lill is also concerned about the effect of the dead weeds on water quality. The rotting vegetation can release nutrients, feeding algal blooms.

"Spraying with an herbicide does not get rid of it permanently. You're going to be out there doing something every year," said Lill, a retiree who's been a year-round lake resident for nearly 30 years.

Through postcards and e-mails, he's urged neighbors to rake or pay divers to pull the weeds. At least six are still opting for herbicides.

"We're asking people to do it the safe way," he said. "It's a bother, no doubt about that."

P-I reporter Lisa Stiffler

can be reached at 206-448-8042

or lisastiffler@seattlepi.com

This article contained at least one photo or illustration as described below:

Type: Color Photo & Chart

Description: (1) GILBERT W. ARIAS/P-I: Caren Adams heads to her boat dock on Spring Lake in Maple Valley. Adams and other lakeside residents have joined King County in an effort to control the weeds that are squeezing out native plants in the lake.

(2) SPRAYING PERMITS

Spring Lake Community Newsletter—July 2004

Spring Lake: A Unique Resource

Spring Lake has hosted our community for the past fifty years, but its history goes back nearly 11,000 years, to the retreat of the Vashon glacier. The Spring Lake area is unique among King County lakes in that almost half the shoreline is undeveloped, and includes a high quality peat wetland, or fen, at the southeast shore of the lake. It has been called the most pristine wetland in the immediate King County area. The lowland forest surrounding the lake and the myriad plants and animals who know it as home rely on our good stewardship to maintain and preserve the intricate balance that makes Spring Lake such a natural treasure.

Spring Lake is alive, not just with our children playing at the surface and along the shores, but with the building and breaking down of organic matter beneath the surface. Through photosynthesis, algae and plants produce organic matter. Plants, fish and animals then use oxygen to break down the organic matter to create energy. Decomposition follows. Eroded sediments, debris and other pollutants washed from the watershed are deposited via streams and ground water. Through these processes, lakes eventually fill with sediment. Even without human influence, natural lakes move from deep pond, to marsh and finally to lowland forest. In terms of age and productivity, Spring Lake is a mesotrophic lake, in the middle stage of its life. Human activity is accelerating the natural life cycle of the lake.

This wondrous ecosystem is more than waterfront footage for our homes and a pool for swimming and fishing. Its health and vitality are our responsibility, and our actions can have adverse impacts on the lake's well being. The trees that surround us absorb rainfall and runoff, removing pollutants and slowing introduction of excess waters into the lake. Cutting down trees have the effect of increasing runoff, resulting in warmer lake temperatures, less water clarity and higher lake levels. Emergent native plants along the shoreline naturally filter toxins and pollutants. Removing them to create lawns at lakeside means loss of buffer, even while we are contributing an extra burden with fertilizers and herbicides. Human activity is also responsible for the introduction of invasive, noxious plant species into the lake environment, which can have a major impact on the lake's natural plant and animal life, as well as the recreational opportunities, such as swimming and fishing. In recent years the lake has experienced the rapid growth of Eurasian Water milfoil, as well as other noxious weeds, which have become the subject of a cooperative weed control plan between the Spring Lake Community Club and King County

Noxious Aquatic Weed Control Program Update

2003 marked the first year of the project to control noxious weeds in Spring Lake. The King County Department of Natural Resources & Parks are administering the project

funded with a grant from the state Department of Ecology (DOE). The grant was awarded in late 2002 as a result of an extensive cooperative effort between concerned community club members and the county's Lake Stewardship Program. The rapid growth of water milfoil was threatening to become a detriment to the lake ecosystem, as well as safety hazard to boaters and swimmers. The goals of the project are to eradicate the water milfoil and prevent re-introduction through a long-term program of monitoring and control that will become the responsibility of the community club once the funding by the grant is completed.. In addition three other invasive weeds will be targeted for eradication and control: purple loosestrife, fragrant pond lily and yellow flag iris. All three threaten to displace native vegetation and degrade the ecosystem if not controlled.

Chemical treatment of the lake last summer appears to have effectively removed the water milfoil, according to a survey of the lake this spring by staff members of the county's Lake Stewardship Program. This is good news for residents and all those that use the lake for boating, fishing and recreation. The lake was treated in late July 2003, with 100 gallons of liquid 2,4-D by a licensed contractor. Six separate shallow areas of the lake where the milfoil growth was concentrated were treated at a rate of 2 to 7 gallons per acre. Diver surveys in late summer and fall reported no surviving milfoil. In August the lake was treated with Glyphosate for the other three noxious weeds. The contractor spot sprayed noxious weeds on the margins of the lake covering about 3 acres. A second treatment was performed 2 weeks later.

Water samples were taken and analyzed to monitor the concentration of both chemicals following the treatments. Sampling for Glyphosate near treatment areas found no measurable concentrations 24 hours after the treatment indicating a very quick degradation of the herbicide. The monitoring of the 2,4-D concentrations revealed a slower degradation. At a mid-lake location the 2,4-D concentration was measured at 405 parts per billion (ppb) 5 days after the treatment. The concentration decayed to 235 ppb after 16 days, 158 ppb after 35 days and .545 ppb after 49 days. A sample taken in the spring of this year measured .37 ppb. This concentration of 2,4-D is well below the drinking water standard (70ppb) and the irrigation standard (150ppb) and therefore poses no threat to lake users. Additional samples will be taken this year, although no more treatments of 2,4- D are planned.

With the survey this spring showing no milfoil and reduced purple loosestrife evidence, the thrust of this year's program will be the control of yellow flag iris and fragrant water lily. Again, Glyphosate spot treatments will be applied to concentrations of these weeds. A diver survey of the lake is planned for late July. Any remaining milfoil will be hand pulled and a second treatment of Glyphosate will be applied to the water lily and iris as required.

All in all, the noxious weed control program has had a very successful start with the present elimination of the water milfoil. The challenge for upcoming years, when the responsibility for weed control efforts shifts to the Spring Lake community, is to make sure the milfoil and other weeds do not become reestablished in the lake.

Homeowner Actions

All area residents, whether they have waterfront property or not, have a stake in the health of Spring Lake. Here are the top ten things you, as a homeowner, can do to enhance the health of the Spring Lake ecosystem:

1. Do not use weed and feed products.
2. Use only slow release organic fertilizers, and use them sparingly.
3. Resort to pesticide use only if other methods of control have failed, and you are able to positively identify what you are trying to control. Natural Lawn and Garden Hotline 206-633-0224.
4. Make use of native plants when landscaping to reduce water and fertilizer needs. Maintain a native plant buffer at the shoreline.
5. Learn to identify invasive and noxious weeds and how to control them. Call the Noxious Weed Control Program, 206-296-0290 for help.
6. Protect existing trees by removing ivy. English ivy is now classified as a class C noxious weed.
7. Maintain your septic system. Do not use septic system additives and minimize use of a garbage disposal.
8. Use phosphate free biodegradable soaps and laundry detergents.
9. Minimize impervious surfaces on your property.
10. Get involved. Join the Spring Lake Community Club and volunteer for community projects.

The creation of this Spring Lake Community newsletter was made possible through a **WaterWorks fund** awarded by the King County Department of Natural Resources & Parks.