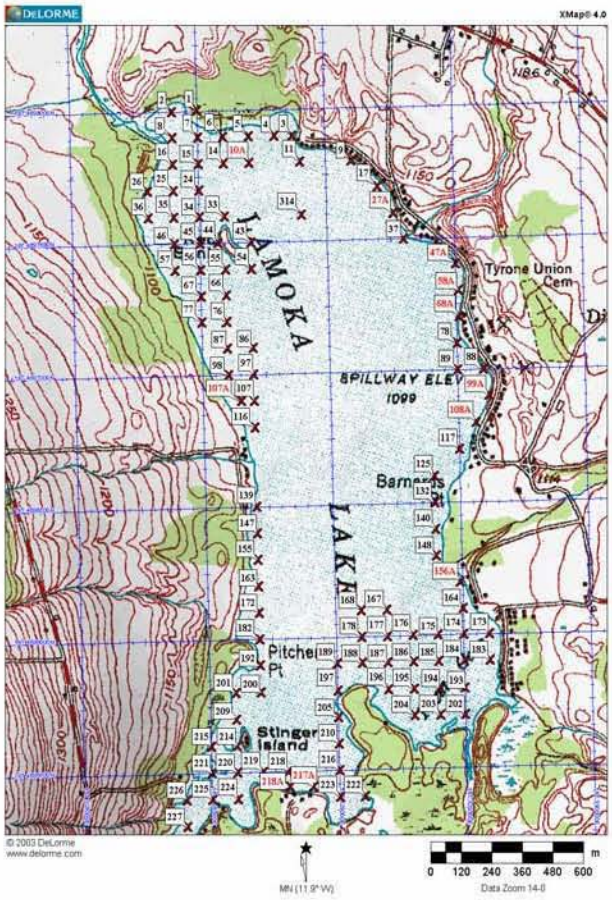
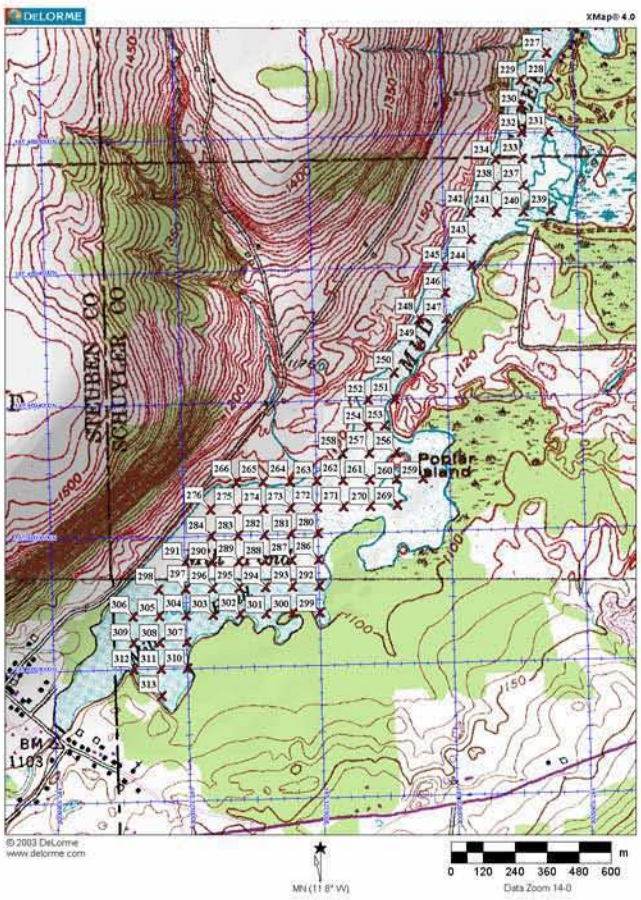
Waneta and Lamoka Lakes' Plant Community Response to the 2009 Application of the Herbicide Triclopyr to Control Eurasian Watermilfoil



Lamoka Lake



Mud Creek and Mill Pond

Racine-Johnson Aquatic Ecologists

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Contents

Cover Map

We show on the cover maps of the locations of the 180 sample points (SPs) in Lamoka Lake, Mud Creek and Mill Pond where we surveyed after the herbicide treatment with triclopyr (Renovate®) in 2009. We found species presence by two rake tosses and collected plant biomass by sampling at 50 locations in Lamoka Lake in 2009.

Most sample points (SPs) in Lamoka Lake are at the line intercept of 100m X 100m UTM transect grid (NAD27 datum and true north). Generally, each SP represents 1 hectare in the original littoral zone as defined by Madsen *et al*. (2001). To secure additional information on the lake plant communities the Lakes' Association and the NYSDEC added and revised SPs since 2000.

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Introduction and Executive Summary

This report summarizes the 2009 survey by Racine-Johnson Aquatic Ecologists for the Lamoka Waneta Lakes' Association, following the protocol and format used in previous years by the Cornell University Research Ponds, Department of Ecology and Evolutionary Biology, Cornell University, Ithaca, NY. In 2009, we continued to conduct evaluation of the aquatic plant communities in Waneta and Lamoka Lakes for the Lamoka Waneta Lakes' Association in order to understand the role and impact of the 2008 and 2009 herbicide treatment of these two lakes with triclopyr (Renovate®). The triclopyr treatment dates in 2008 were June 9 - June 10 for Lamoka Lake and June 10 - June 12 for Waneta Lake. In 2009, triclopyr treatments took place in both lakes during the week of May 11 - 15.

The recent herbicide treatment history is very different between the two lakes with the previous 2003 fluridone (Sonar®) whole lake herbicide application to Waneta Lake and not to Lamoka Lake. This 2003 treatment removed all but trace plant fragments from Waneta Lake in 2003 with the following two years of 2004 and 2005 showing very little recovery of any plant growth. In 2006 and 2007, Eurasian watermilfoil returned to become the overwhelming dominant species leading to the 2008 and 2009 herbicide treatment with triclopyr (Renovate®). This sequence of management may have influenced some of the native plant species population differences measured between the two lakes in 2008 and 2009. We contrast 2009 results with our 2003 - 2008 studies in Waneta Lake (Johnson *et al*. 2003, Lord *et al*. 2005, Johnson *et al*. 2006, Johnson and Keith 2006, and Johnson *et al*. 2008) and the earlier pretreatment study (Madsen *et al*. 2001, Madsen *et al*. 2008). In addition, we report the results of our 2009 aquatic plant community study of Lamoka Lake as we did in Waneta using a rake-toss method to determine plant species presence, location, and an estimate of species abundance. We further measured plant biomass in both lakes. We contrast Lamoka species occurrence in 2009 to data collected in 2000, 2006 and 2008 (Madsen *et al*. 2001, Johnson and Keith 2006 and Johnson *et al*. 2008).

The principal data collected in 2009 replicates the documentation of Waneta and Lamoka Lake's plant communities by methods specified in Madsen *et al*. (2001, 2008), and expanded upon by personal communication (Madsen, 2003). Further, we refined our plant measurement methods to include an estimate of abundance of each species. Interested parties for these two lakes have previously debated the meaning of the term "plant or species diversity", therefore we depart from the term although widely used in the pre-treatment report of Madsen *et al*. (2001). However, the original measures taken in 2000 and reported in Madsen *et al*. (2001), Johnson *et al*. (2003), Lord *et al*. (2005), Johnson *et al*. (2006), Johnson and Keith (2006) and Johnson *et al*. (2008) remain part of this report in a similar format. For example, where Madsen *et al*. (2001) states "Change in diversity as measured by average number species per sample site", or "Waneta Lake plant diversity was lower than for Lamoka, with only 2.16 species per littoral zone point and 1.37 native species per littoral zone point"; we use, for this report, the term species occurrence or the number of species per sample point (SP). We will use in some instances the term richness where reporting the number of species.

Our reporting of aquatic plant species presence in Waneta and Lamoka Lakes uses predetermined sampling points (SPs) located and recorded by GPS at the line intercepts of 100m X 100m UTM transect grids (NAD27 datum and true north) and additional SPs requested by the Lamoka Waneta Lakes' Association and the NYSDEC to determine presence, richness, littoral zone coverage and biomass of plant species. Each original SP is at the center of a 100m X 100m quadrant, or 1 hectare, of the original littoral zones of Waneta and Lamoka Lakes as defined by Madsen *et al*. (2001). We conducted our macrophyte samplings for plant species presence and biomass at locations identified by GPS to be able to define lake-wide trends in species richness and plant community structure spatially and temporally.

Findings – Waneta Lake

- We did not find Eurasian watermilfoil through either rake-toss or biomass sampling methods in Waneta Lake in 2009. (Tables 1 - 3; Appendix Table A).

- Native plant frequency in Waneta Lake (*expressed as the number of sampling points (SPs) where we found at least one native species by two rake tosses per point*) increased in 2009 to all of the 102 SPs measured compared to 100, 57, 45, 37, 50, 54 and 64 in 2008, 2007, 2006, 2005, 2004, 2003 and 2000 respectively (Tables 1, 2).

- Native plant species occurrence in Waneta Lake increased slightly in 2009 to 3.57 species per SP, up from 3.49, 1.29, 0.91, 0.60, 0.58, 0.79 and 1.37 in 2008, 2007, 2006, 2005, 2004, 2003 and 2000 respectively (Table 1).

- Native plant species richness identified in Waneta Lake from all sampling methods increased to 17 species from 15, 15, 12, 10 and 9 in 2008, 2007, 2006, 2005 and 2004 respectively. This is the same number of species recorded in 2000 (Tables 1 - 3; Madsen *et al*. 2001; Lord *et al*. 2005; Johnson *et al*. 2006; Johnson and Keith 2006 and Johnson *et al*. 2008).

- The biomass of all native species for the 50 original SPs in Waneta Lake greatly increased to 86 gDW/m^2 in 2009, up from 24.0, 7.5, 3.8, 0.73 and 1.1 gDW/m^2 in 2008, 2007, 2006, 2005 and 2004 respectively. This is much greater than the native species biomass in 2000 of 23 gDW/m^2 (Madsen *et al*. 2001). *Najas guadalupensis* and *Elodea sp*. accounted for 58% and 32% of the total species biomass respectively, for a combined 90% of the total biomass (Tables 3, 4). Although not counted towards biomass, filamentous algae remained dense, but decreased in occurrence in the littoral zone (Tables 2, 3).

- Non-native plant species occurrence (*number of non-native species per SP*s) that can include *Myriophyllum spicatum*, *Potamogeton crispus, Najas minor, and Nitellopsis obtusa* in Waneta Lake decreased to 0.43 species per SP in 2009 from 0.64 in 2008 and 1.25 in 2007 (Table 1).

- Non-native plant species richness identified by all sampling methods in Waneta Lake in 2009 is two species, *Potamogeton crispus* and *Najas minor* (Tables 1- 3; Appendix Table A).

- Waneta Lake's all plant species frequency (*expressed as the number of SPs where we found at least one native and/or non-native species by two rake tosses per point*) increased to all 102 SPs in 2009 from 100, 96, 68, 58, 53, 55 and 91 in 2008, 2007, 2006, 2005, 2004, 2003 and 2000 respectively (Table 1).

- Plant species occurrence (*native and non-native*) in Waneta Lake decreased slightly to 4.0 species per SP in 2009 from 4.1 in 2008. However, plant species occurrence increased from 2.6, 1.6, 1.0, 0.8 and 0.8 species per SP in 2007, 2006, 2005, 2004 and 2003 respectively (Table 1).

- The number of all plant species combined (*native and non-native*), expressed as richness, remained the same in Waneta Lake in 2009. We found 19 plant species in 2009 (*17 native and 2 non-native)* and 2008 (*15 native and 4 non-native)*, up from 15 in 2005 and 2006 (Tables 1- 3).

- Mean Waneta Lake water depth at the sample points measured in 2009 remained the same as 2008 at 1.9 m, which is up slightly from previous years (Table 1).

Findings – Lamoka Lake (including Mud Channel and Mill Pond)

- We did not find Eurasian watermilfoil through either rake-toss or biomass sampling methods in Lamoka Lake in 2009 (Tables 5, 6).
- Native plant frequency in Lamoka Lake (*expressed as the number of sampling points (SPs) where we found at least one native species by two rake tosses per point*) is 165 SPs in 2009, up from 161 SPs in 2008 and 153 SPs in 2006. Madsen *et al*. 2001 reports native plant frequency in 2000 at 142 SPs (Tables 5, 6).
- Native plant species occurrence (*number of native species per SP*) in Lamoka Lake is 6.4 native species per SP, up slightly from 5.4 in 2008 and 5.6 in 2006 before herbicide treatment (Table 5). Madsen *et al*. 2001 reports 2.8 native species per SP in 2000.
- Native plant species richness identified in Lamoka Lake by the two rake tosses at 169 SPs and the sampling of 50 biomass SPs is 26 species, down 1 from 27 in 2008 and equal to 26 in 2006 before herbicide treatment (Tables 5, 6, 7, Appendix Table B). Madsen *et al*. 2001 reports 18 species in 2000 (Table 5).
- The biomass of native plant species in all of Lamoka Lake (*including Mud Channel and Mill Pond*) in 2009 is 49.9 gDW/m^2 (Table 7), down from 295.1 gDW/m^2 in 2008 (Johnson *et al.* 2008) and 316.2 gDW/m^2 in 2006 before herbicide treatment (Johnson and Keith 2006).
- The biomass of all native species in Lamoka Lake "proper" in 2009 is 74.7 gDW/m^2 (*recorded by sampling 29 SPs in the lake and none of the SPs in Mud Channel and Mill Pond of the 50 historical predetermined SPs*) (Table 8), which is down from 107.1 gDW/m^2 in 2008 (Johnson *et al.* 2008) and 268.0 gDW/m^2 in 2006 before herbicide treatment (Johnson and Keith 2006).
- Non-native plant species occurrence (*number of non-native species per SP*) in Lamoka Lake is 0.5 in 2009 down from 0.6 in 2008 and 1.0 in 2006 (Table 5). Madsen *et al*. 2001 reports 0.8 non-native species per SP in 2000 (Table 5).
- Lamoka Lake's all plant species frequency (*expressed as the number of SPs where we found at least one native and/or non-native species by two rake tosses per point*) is 165 SPs in 2009, up from 161 SPs in 2008 and down from 166 SPs in 2006 before herbicide treatment (Table 5). Madsen *et al*. 2001 reports 163 SPs with plants in 2000 (Table 5).
- Plant species occurrence (*native and non-native*) in Lamoka Lake is 6.9 species per SP in 2009, up from 6.0 in 2008 and 6.6 in 2006 (Table 5). Madsen *et al*. 2001 reports 3.6 species per SP in 2000 (Table 5).
- The biomass of all plant species in Lamoka Lake "proper" in 2009 is 76.8 gDW/m^2 (*recorded by sampling 29 SPs in the lake and none of the SPs in Mud Channel and Mill Pond of the 50 historical predetermined SPs*) (Table 8), which is down from 107.1 gDW/m^2 in 2008 (Johnson *et al.* 2008) and 378.0 in 2006 for the 29 SPs (Johnson and Keith 2006).
- The biomass of all plant species in all of Lamoka Lake (*including Mud Channel and Mill Pond*) in 2009 is 51.2 gDW/m^2 (Table 7), down from 405.5 gDW/m^2 in 2006 before herbicide treatment (Johnson and Keith 2006).
- Mean littoral zone depth on Lamoka Lake at the SPs measured in 2009 was at 1.5m, down from 1.6m in 2008 and 1.7m in 2006 before herbicide treatment (Table 5). Madsen *et al*. 2001 reported Lamoka's mean littoral zone depth at 1.5 meters in 2000 (Table 5).

Methods

Plant Species Sampling

The sampling for aquatic plant species presence and abundance in Waneta and Lamoka Lakes uses predetermined sampling points (SPs) located at the line intercepts of 100m X 100m UTM transect grids (NAD27 datum and true north) supplemented with additional SPs added through the years to determine presence, richness, littoral zone coverage, relative abundance, and biomass. Each original sample point (SP) is at the center of a 100m X 100m quadrant or 1 hectare.

We conducted our macrophyte samplings to determine plant species presence and biomass at locations identified by GPS to be able to identify lake-wide trends in species richness and plant community structure spatially and temporally. The principal data accumulated replicates the Lamoka and Waneta Lakes pre-treatment methods specified by Madsen *et al*. (2001, 2008) and expanded upon in personal communication (Madsen, 2003). We used hand-held GPS equipment to guide us to and record all SPs in this study.

We used the point sampling and line intercept methods (Madsen, 1999) initiated for this study in 2000 (Madsen *et al*. 2001). At each SP we used a grapple hook (throw-rake) formed by connecting the "heads" of two garden rakes back-to-back attached to a line and tossed approximately 10m from the boat to sample the plants on the lake bottom. At each SP our crew threw two rake tosses to record plant species presence required by this study's criteria since the Madsen *et al*. (2001) study used two rake tosses (Madsen, 2003).

In addition, we made an estimate of total plant abundance on the rake as "dense", "medium", "sparse", "trace" or "zero" along with an estimate of the percentage of each individual species. We transcribed all information on-site onto data sheets for later entry into a data spreadsheet when back at the Research Ponds. In 2009, we recorded two rake tosses at each SP in Lamoka Lake and Waneta Lakes.

We sampled 138 SPs for Waneta Lake plant species presence, location, littoral zone coverage and estimated relative abundance by rake-toss on August 4 - 5, 2009.

We sampled Lamoka Lake at 180 SPs for plant species presence, location, littoral zone coverage and estimated relative abundance from July 23 - 30, 2009 by the rake-toss method.

Biomass Sampling:

On August 10, 2009, we sampled 72 Waneta Lake sample points for plant species abundance by collecting biomass samples as described in Madsen *et al*. (2001, 2008). We sampled the original 50 littoral zone SPs chosen in 2000 (Madsen *et al*. 2001, 2008) and 22 additional substitute SPs authorized by the NYSDEC for 2004 - 2009.

On August 6, 2009, we sampled 29 Lamoka Lake SPs for plant species abundance by collecting biomass samples as described in Madsen *et al*. (2001). We sampled 29 original littoral zone SPs within Lamoka Lake "proper" that were chosen and collected in 2000 (Madsen *et al*. 2001), except for SPs 124, 138, 156 and 162. These SPs were determined to have a greater depth than the littoral zone depth suggested by Madsen *et al*. (2001) depth measurements taken in 2000. The Lamoka Waneta Lakes' Association in consultation with the NYSDEC replaced the four deep SPs with shallower SPs 125, 139, 148 and 163. We collected biomass from the revised SPs in 2006 before the herbicide treatments in 2008 and 2009. In 2008 and 2009, we collected biomass from these revised SPs and document results in this report. In addition, we collected biomass measurements in 2009 from 21 SPs located in Mud Creek and Mill Pond, totaling 50 locations sampled in Lamoka Lake - Mill Pond.

At each biomass SP location, we tossed a $0.1m^2$ quadrat into the lake from the boat. After locating the quadrat, a diver collected all plants growing within the $0.1m^2$ frame by cutting them off at the substrate-water interface. Alternatively, plants pulled from the substrate with below sediment plant material had that material removed in plant processing before being placed in a drying oven. Members of the crew placed the collected plant material into labeled plastic bags and stored it on ice until returned to the laboratory where samples were stored in refrigerators or freezers until processed.

We washed plant samples with tap water to remove soil, animals, weakly adhering algae and decayed material. Plant mass was separated to individual species. We removed below sediment plant material (such as roots) and did not include it for dry weight determination. Plant turions (winter buds; vegetative plant parts), if not decayed, were included as plant material. After washing, we dried individual species in ovens at 105^oC for at least 48 hours and then weighed and recorded all species as species dry weight/$0.1m^2$.

Results

We summarize and display the results of our 2008 aquatic plant species monitoring at Waneta and Lamoka Lakes in the text, tables and figures that follow. We have listed in the Executive Summary main results summarized from the data tables in this report. We leave the interpretation and further analysis of these results, as requested, to the Lamoka Waneta Lakes' Association, their consultants and the NYSDEC.

Waneta Lake

Table 1 (page 11) summarizes the primary results of 2009 compared with the historical results reported in previous years. Table 1 summarizes the 2000 pre-treatment measurements (Madsen *et al*. 2001) before the April 2003 whole lake treatment with the herbicide fluridone. Post-treatment measurements were collected from 2003 - 2007 and summarized in the table. We collected further measurements in 2008 and 2009 with the application of the herbicide triclopyr to control Eurasian watermilfoil growth. This table is a summary of species occurrences and lake depths at the same 102 sample points (SPs) in Waneta Lake for August 2000, 2003, 2004, September 2, 2005, August 10, 2006, August 2007, August 6 - 12, 2008 and August 4 - 5, 2009.

Table 2 (pages 12 - 16) depicts aquatic plant species' presence in 2009 at a total of 138 SPs (the 102 original pretreatment SPs from 2000 plus 5 of the 18 additional SPs chosen by the NYSDEC for 2003 - 2006 and the 31 new SPs added in 2008) in Waneta Lake from two rake tosses on August 4 - 5, 2009. Appendix Table A shows the results of two rake tosses in detail, listing species presence, location and relative abundance and is the data used to complete species presence in Table 2.

Table 3 (pages 17 - 19) shows aquatic plant biomass ($gDW/0.1m^2$) from Waneta Lake sampled on August 10, 2009 from the 50 pre-treatment original littoral zone SPs and 50 alternatively revised littoral zone SPs. The 50 alternatively revised littoral zone SPs include 28 original and 22 substitute SPs measured in 2004 - 2009.

Table 4 (page 20) shows Waneta Lake aquatic plant biomass summarized as non-native, native and total dry mass as gDW/m^2 from 2000, and 2004 -2009.

Figure 1 (page 20) graphically depicts Waneta Lake biomass changes from 2000 - 2009 that were potentially influenced by herbicide treatments.

Figure 2 (page 32) shows the locations of previous Waneta Lake sampling points in black type with the red number type indicating new sampling points measured in 2008 and 2009.

Our measures of Waneta Lake's mean littoral zone depth at the SPs measured in 2009 shows 1.9 meters, which is equal to 2008, but slightly greater than previous annual measurements (Table 1).

Lamoka Lake

Table 5 (page 21) summarizes the primary results of 2009 contrasted to an earlier survey by Madsen *et al*. (2001) in 2000, our 2006 report (Johnson and Keith 2006) and our 2008 report (Johnson *et al.* 2008) . This table is a summary of species occurrences and lake depths at 169 sample points (SPs) in Lamoka Lake from July 23 - 30, 2009, August 27 - September 15, 2008, July 25 - August 1, 2006 and August 2000.

Table 6 (pages 22 - 27) depicts aquatic plant species' presence at 180 SPs in Lamoka Lake from two rake tosses on July 23 - 30, 2009. For Lamoka Lake, Appendix Table B (pages 49 - 62) shows the results of the two rake tosses in detail, listing the species presence, location and relative abundance and is the data used to complete species presence in Table 6.

Table 7 (pages 28 - 29) shows recorded biomass (gDW/0.1m^2) for Lamoka Lake's 50 historical pre-determined SPs measured on August 6, 2009 at 46 of the 50 sample points (SPs) where biomass was collected in 2000 (Madsen *et al*. 2001). The Lake Association and DEC substituted four new SPs in 2006 within the littoral zone for four deep SPs measured in 2000 (see Methods, Johnson and Keith 2006), resulting in 50 revised biomass SPs measured in 2009.

Table 8 (pages 30 - 31) shows recorded biomass (gDW/0.1m^2) for Lamoka Lake's 50 historical pre-determined SPs measured on August 6, 2009, but divided into Lamoka Lake "proper," which includes the 29 SPs in the main lake, from the 21 SPs in Mud Channel and Mill Pond to compare to 2008.

Figure 3 (page 33) shows the locations of previous Lamoka Lake sampling points in black type with the red number type indicating new sampling points measured in 2008 and 2009.

Figure 4 (page 34) shows the locations of the sampling points for Mud Channel and Mill Pond measured July 23 - 30, 2009.

The mean littoral zone depth on Lamoka Lake at the SPs measured in 2009 is at 1.5m, which is equal to 1.5m in 2008, but down from 1.7m in 2006 (Table 5). Madsen *et al*. (2001) reported Lamoka's littoral zone depth at 1.5m in 2000 (Table 5).

Table 1. Summary of species occurrences and lake depths at 102 sample points (SPs) in Waneta Lake in August 2000, 2003, 2004, September 2, 2005, August 10, 2006, August 12, 2007, August 6-12, 2008 and August 4-5, 2009.

Scientific Name	Common Name	Madsen 2000 Littoral Zone (Z<12')		2003 Littoral Zone (in 2000)		2004 Littoral Zone (in 2000)		2005 Littoral Zone (in 2000)		2006 Littoral Zone (in 2000)		2007 Littoral Zone (in 2000)		2008 Littoral Zone (in 2000)		2009 Littoral Zone (in 2000)	
		FREQ	%	FREQ	%	FREQ	%	FREQ	%	FREQ	%	FREQ	%	FREQ	%	FREQ	%
Ceratophyllum demersum	coontail	42	41	47	46	2	2	2	2	12	12	5	5	40	39	71	70
Chara vulgaris	chara, muskgrass	4	4	8	8	20	20	2	2	13	13	20	20	29	28	11	11
Elodea sp.	elodea	17	17	0	0	0	0	0	0	2	2	7	7	79	77	97	95
Fontanalis sp.	water moss	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Lemna minor	duckweed	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	2
Lemna trisulca	star duckweed	0	0	0	0	0	0	0	0	0	0	0	0	4	4	2	2
Myriophyllum spicatum	**Eurasian watermilfoil**	**80**	**78**	**1**	**1**	**0**	**0**	**5**	**5**	**50**	**49**	**94**	**92**	**5**	**5**	**0**	**0**
Najas flexilis	bushy naiad	9	9	0	0	0	0	13	13	16	16	19	19	30	29	10	10
Najas guadalupensis	southern naiad	29	28	0	0	0	0	4	4	11	11	35	34	99	97	102	100
Najas minor	**minor naiad**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**5**	**5**	**5**	**16**	**16**	**3**	**3**
Nitella flexilis	nitella, stonewort	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Nitellopsis obtusa	**starry stonewort**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**
Nuphar advena	yellow water lily	2	2	1	1	1	1	2	2	0	0	0	0	0	0	0	0
Nymphaea odorata	white water lily	4	4	1	1	2	2	0	0	1	1	2	2	1	1	2	2
Potamogeton amplifolius	wideleaf pondweed	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potamogeton crispus	**curly-leaf pondweed**	**0**	**0**	**1**	**1**	**20**	**20**	**40**	**39**	**19**	**19**	**29**	**28**	**43**	**42**	**41**	**40**
Potamogeton diversifolius	water-thread pondweed	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potamogeton foliosus	leafy pondweed	0	0	0	0	14	14	28	27	27	26	27	26	10	10	1	1
Potamogeton praelongus	tall pondweed	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potamogeton pusillus	small pondweed	2	2	0	0	0	0	0	0	0	0	2	2	38	37	17	17
Potamogeton robbinsii	Robbin's pondweed	8	8	24	24	18	18	1	1	0	0	1	1	5	5	2	2
Potamogeton zosteriformis	flatstem pondweed	2	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Ranunculus trichophyllus	water buttercup	0	0	0	0	0	0	0	0	0	0	0	0	3	3	12	12
Spirodela polyrhiza	great duckweed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
Stuckenia pectinata	sago pondweed	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0
Vallisneria americana	eel grass, water celery	12	12	0	0	0	0	7	7	8	8	13	13	16	16	28	27
Wolffia columbiana	water-meal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Zosterella dubia	water stargrass	2	2	0	0	2	2	1	1	1	1	1	1	1	1	1	1
Total occurrences, at all SPs, of all species		220		83		81		106		167		260		421		408	
		mean		mean		mean		mean		mean		mean		mean		mean	
Plant Species Occurrence (species per SP)		**2.16**		**0.81**		**0.79**		**1.04**		**1.64**		**2.55**		**4.13**		**4.00**	
Non-native Species Occurrence (species per SP)		**0.78**		**0.02**		**0.20**		**0.44**		**0.73**		**1.25**		**0.64**		**0.43**	
Native Plant Occurrence (species per SP)		**1.37**		**0.79**		**0.58**		**0.60**		**0.91**		**1.29**		**3.49**		**3.57**	
		FREQ	%	FREQ	%	FREQ	%	FREQ	%	FREQ	%	FREQ	%	FREQ	%	FREQ	%
Native Plant Frequency (SPs with a native plant)		**64**	63	**54**	53	**50**	49	**37**	36	**45**	44	**57**	56	**100**	98	**102**	100
Plant Frequency (SPs with a plant species)		**91**	89	**55**	54	**53**	52	**58**	57	**68**	67	**96**	94	**100**	98	**102**	100
		mean	SE	mean	SE	mean	SE	mean	SE	mean	SE	mean	SE	mean	SE	mean	SE
Depth (ft)		5.91	0.25	5.96	0.30	5.86	0.33	5.65	0.28	5.71	0.26	6.16	0.27	6.26	0.28	6.22	0.25
Depth (m)		1.80	0.08	1.82	0.09	1.79	0.10	1.72	0.08	1.74	0.08	1.88	0.08	1.91	0.09	1.90	0.08
Number of Sampling Points		102		102		102		102		102		102		102		102	

Table 2. Aquatic plant species' presence in Waneta Lake from two rake tosses on August 4 -5, 2009. Entries of "1" indicate species identified at that sample point (SP). Sample points are on a 100-meter UTM grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Presence of a Species	Non-Native Species	Presence of Native Species	filamantous algae
1	327100	4703400	◘				0.6	2.0	1		1					1				1		1				1			6	1	1	1	1
2	327000	4703400	◘				0.8	2.5	1	1	1					1				1		1				1			7	1	1	1	1
3	326900	4703400	◘				0.5	1.6	1	1	1				1	1	1					1				1			8	1	1	1	1
4	327300	4703300	◘				1.2	3.9	1		1					1													3	1	0	1	1
5	327200	4703300	◘				1.3	4.3	1		1					1								1					4	1	0	1	
6	327100	4703300	◘				1.0	3.1	1		1					1													3	1	0	1	
7	327000	4703300	◘				2.0	6.6	1		1					1										1			4	1	0	1	
8	326900	4703300	◘				2.0	6.6	1		1					1													3	1	0	1	
9	326800	4703300	◘				1.9	6.2	1		1					1													3	1	0	1	
10	327300	4703200	◘				2.1	6.9	1		1					1													3	1	0	1	
11	327200	4703200	◘				2.7	8.9	1		1					1													3	1	0	1	
12	327100	4703200	◘				2.8	9.2	1		1					1				1		1							5	1	1	1	
13	327000	4703200	◘				3.0	9.8	1		1					1				1		1							5	1	1	1	
14	326900	4703200		■			3.2	10.5	1		1					1				1		1							5	1	1	1	
15	326800	4703200	◘				2.7	8.9	1		1					1													3	1	0	1	
16	326700	4703200	◘				0.6	2.0	1	1					1	1						1				1		1	7	1	0	1	1
17	327300	4703100	◘				2.8	9.2			1					1				1		1							4	1	1	1	1
18	327200	4703100			•		3.2	10.5	1		1					1													3	1	0	1	1
19	327100	4703100			•		4.0	13.1			1					1													2	1	0	1	
20	327000	4703100			•		4.5	14.8																					0	0	0	0	
21	326900	4703100			•		4.5	14.8																					0	0	0	0	
22	326800	4703100			•		4.0	13.1			1					1						1							3	1	0	1	
23	326700	4703100	◘				1.0	3.3			1					1													2	1	0	1	1
24	327300	4703000		■			3.0	9.8	1		1					1				1		1							5	1	1	1	1
24A	327343	4703000				○	1.4	4.6	1		1					1										1			4	1	0	1	1
30	326700	4703000	◘				1.7	5.6			1					1													2	1	0	1	1
31	327300	4702900	◘				2.2	7.2	1		1					1													3	1	0	1	1
37	326700	4702900	◘				1.5	4.9			1					1										1			3	1	0	1	1
38	327300	4702800	◘				0.7	2.3	1		1					1						1							4	1	0	1	
44	326700	4702800	◘				1.1	3.6		1	1				1	1										1			5	1	0	1	1

Table 2. (continued) Aquatic plant species' presence in Waneta Lake from two rake tosses on August 4 -5, 2009. Entries of "1" indicate species identified at that sample point (SP). Sample points are on a 100-meter UTM grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Presence of a Species	Non-Native Species	Presence of Native Species	filamantous algae
45A	327274	4702700				○	1.4	4.6			1					1										1			3	1	0	1	1
50	326700	4702700	◘				0.8	2.5		1	1				1	1					1					1			6	1	0	1	1
51A	327269	4702600				○	1.5	4.9			1					1				1		1							4	1	1	1	1
56	326700	4702600	◘				0.6	2.0			1				1	1										1			4	1	0	1	1
57A	327283	4702500				○	1.4	4.6	1		1					1										1			4	1	0	1	1
62	326700	4702500	◘				0.9	3.0			1					1										1			3	1	0	1	1
63	327300	4702400	◘				2.2	7.2	1		1					1													3	1	0	1	1
69	326700	4702400	◘				1.4	4.6			1					1													2	1	0	1	1
70A	327286	4702300				○	1.5	4.9	1		1					1				1									4	1	1	1	1
76	326700	4702300	◘				1.8	5.7			1					1													2	1	0	1	1
77A	327346	4702200				○	1.5	4.9			1					1						1							3	1	0	1	1
83	326700	4702200	◘				1.4	4.4			1					1													2	1	0	1	1
84A	327364	4702100				○	1.5	4.9			1					1				1									3	1	1	1	
90	326700	4702100	◘				1.4	4.6	1		1					1						1							4	1	0	1	1
91A	327352	4702000				○	1.5	4.9	1		1					1													3	1	0	1	1
97	326700	4702000	◘				1.8	5.7			1				1	1	1												4	1	1	1	1
98	327300	4701900		■			3.1	10.2			1					1													2	1	0	1	
98A	327304	4701900				○	1.5	4.9	1		1					1				1		1							5	1	1	1	1
104	326700	4701900	◘				2.7	8.9	1		1					1													3	1	0	1	1
105A	327334	4701800				○	1.5	4.9	1		1				1	1					1								5	1	0	1	
111	326700	4701800	◘				3.9	12.8			1					1													2	1	0	1	1
111A	326670	4701800				○	1.5	4.9			1					1													2	1	0	1	1
112A	327368	4701700				○	1.5	4.9			1				1	1					1								4	1	0	1	
118A	326670	4701700				○	1.6	5.2			1					1													2	1	0	1	1
119A	327375	4701600				○	1.5	4.9			1					1				1									3	1	1	1	
125A	326655	4701600				○	1.5	4.9			1					1													2	1	0	1	1
126A	327373	4701500				○	1.5	4.9	1		1					1						1				1			5	1	0	1	
132	326700	4701500	◘				1.9	6.2			1					1													2	1	0	1	1
133A	327356	4701400				○	1.5	4.9	1		1					1	1			1	1								6	1	2	1	1
139A	326650	4701400				○	1.5	4.9	1		1					1													3	1	0	1	1

Table 2. (continued) Aquatic plant species' presence in Waneta Lake from two rake tosses on August 4 -5, 2009. Entries of "1" indicate species identified at that sample point (SP). Sample points are on a 100-meter UTM grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Presence of a Species	Non-Native Species	Presence of Native Species	filamantous algae
140A	327378	4701300				○	1.5	4.9			1					1													2	1	0	1	
146A	326654	4701300				○	1.4	4.6			1					1													2	1	0	1	1
147A	327405	4701200				○	1.5	4.9	1		1					1													3	1	0	1	
153A	327416	4701100				○	1.5	4.9			1					1						1							3	1	0	1	
160A	327408	4701000				○	1.5	4.9			1					1				1									3	1	1	1	
167	327400	4700900	◘				1.9	6.1			1					1													2	1	0	1	
173	326800	4700900	◘				1.9	6.2			1					1													2	1	0	1	
174	327400	4700800	◘				1.8	5.9			1					1				1									3	1	1	1	
179	326900	4700800	◘				1.1	3.6		1	1				1	1		1											5	1	0	1	1
180	327400	4700700	◘				1.8	5.7			1					1										1			3	1	0	1	
185	326900	4700700	◘				1.1	3.6		1	1					1													3	1	0	1	1
186A	327422	4700600				○	1.5	4.9	1		1					1													3	1	0	1	
191	326900	4700600	◘				1.8	5.9	1	1	1					1													4	1	0	1	
192	327400	4700500	◘				1.5	4.9	1		1					1													3	1	0	1	
197	326900	4700500	◘				2.7	8.9	1		1					1				1									4	1	1	1	
198A	327371	4700400				○	2.0	6.6	1	1	1				1	1	1					1				1			8	1	1	1	
203A	326860	4700400				○	1.5	4.9	1		1					1								1					4	1	0	1	
204A	327437	4700300				○	1.5	4.9	1		1					1													3	1	0	1	
210A	327500	4700200				○	1.5	4.9	1		1					1													3	1	0	1	1
216	327500	4700100	◘				1.8	5.9	1		1					1													3	1	0	1	
223A	327539	4700000				○	1.7	5.6	1		1					1				1									4	1	1	1	
237A	327566	4699800				○	1.5	4.9	1		1					1													3	1	0	1	
243	326900	4699800	◘				2.7	8.9	1		1					1				1									4	1	1	1	
244A	327567	4699700				○	1.5	4.9	1	1	1					1													4	1	0	1	
249	327000	4699700		■			4.5	14.8	1							1													2	1	0	1	
250	326900	4699700	◘				2.1	6.9	1		1					1				1		1							5	1	1	1	
251	327600	4699600	◘				1.5	4.9	1		1					1													3	1	0	1	
257	327000	4699600		■			3.2	10.5								1													1	1	0	1	
258	327600	4699500	◘				2.6	8.5	1		1					1				1									4	1	1	1	
263	327100	4699500		■			3.7	12.1								1													1	1	0	1	

Table 2. (continued) Aquatic plant species' presence in Waneta Lake from two rake tosses on August 4 -5, 2009. Entries of "1" indicate species identified at that sample point (SP). Sample points are on a 100-meter UTM grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Presence of a Species	Non-Native Species	Presence of Native Species	filamantous algae
264	327000	4699500	◘				1.9	6.2	1		1					1				1									4	1	1	1	
265	327600	4699400		■			3.2	10.5	1		1					1				1									4	1	1	1	
270	327100	4699400		■			2.9	9.5	1		1					1													3	1	0	1	
271	327700	4699300	◘				0.9	3.0		1	1				1	1						1				1			6	1	0	1	1
272	327600	4699300	◘				3.1	10.2	1		1					1				1									4	1	1	1	
273	327500	4699300		■			3.4	11.2			1					1													2	1	0	1	
276	327200	4699300		■			3.4	11.2								1													1	1	0	1	
277	327100	4699300	◘				1.8	5.7	1		1	1				1				1		1			1		1		8	1	1	1	
278	327700	4699200	◘				1.3	4.3	1		1					1				1						1			5	1	1	1	
279	327600	4699200	◘				2.7	8.9	1		1					1						1							4	1	0	1	
280	327500	4699200	◘				2.7	8.9	1		1					1				1									4	1	1	1	
281	327400	4699200		■			3.1	10.2			1					1				1				1					4	1	1	1	
282	327300	4699200	◘				3.0	9.8	1		1					1				1						1			5	1	1	1	
283	327200	4699200	◘				2.5	8.2	1		1					1				1				1					5	1	1	1	
284	327700	4699100	◘				1.5	4.9	1		1		1			1										1			5	1	0	1	
285	327600	4699100	◘				2.3	7.5	1		1					1													3	1	0	1	1
286	327500	4699100	◘				2.3	7.4	1		1					1				1									4	1	1	1	
287	327400	4699100	◘				2.5	8.2	1		1					1				1									4	1	1	1	
288	327300	4699100	◘				2.6	8.5	1		1					1													3	1	0	1	
289	327200	4699100	◘				2.0	6.6	1		1					1				1									4	1	1	1	
290	327700	4699000	◘				1.4	4.6	1		1		1			1				1									5	1	1	1	1
291	327600	4699000	◘				1.9	6.2	1		1					1				1						1			5	1	1	1	
292	327500	4699000	◘				1.9	6.2	1		1					1				1									4	1	1	1	
293	327400	4699000	◘				2.0	6.6	1		1					1				1						1			5	1	1	1	
294	327300	4699000	◘				2.0	6.6	1		1					1				1									4	1	1	1	
295	327200	4699000	◘				1.5	4.9	1		1					1				1						1			5	1	1	1	
296	327700	4698900	◘				1.3	4.3	1		1					1				1				1		1			6	1	1	1	1
297	327600	4698900	◘				1.5	4.9	1		1					1				1				1		1			6	1	1	1	1
298	327500	4698900	◘				1.5	4.9	1		1					1				1						1			5	1	1	1	1
299	327400	4698900	◘				1.6	5.2	1		1					1				1						1			5	1	1	1	

Table 2. (continued) Aquatic plant species' presence in Waneta Lake from two rake tosses on August 4 -5, 2009. Entries of "1" indicate species identified at that sample point (SP). Sample points are on a 100-meter UTM grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella flexilis	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Presence of a Species	Non-Native Species	Presence of Native Species	filamantous algae
300	327300	4698900	◘				1.5	4.9	1		1					1				1				1		1			6	1	1	1	1
301	327700	4698800	◘				1.0	3.3	1		1					1			1	1				1	1	1			8	1	1	1	1
302	327600	4698800	◘				1.1	3.6	1		1					1				1				1					5	1	1	1	
303	327500	4698800	◘				1.1	3.6	1	1	1					1							1	1					6	1	0	1	
304	327400	4698800	◘				1.3	4.3	1		1					1			1				1	1					6	1	0	1	
305	326900	4699600	◘				1.6	5.2			1					1										1			3	1	0	1	1
306	327100	4699200	◘				1.1	3.6	1		1				1	1	1			1				1		1			8	1	2	1	1
307	327800	4699100	◘				0.5	1.6	1		1	1				1								1	1	1	1		8	1	0	1	1
308	326800	4699900	◘				1.3	4.3	1		1					1				1		1							5	1	1	1	1
309	326800	4699800	◘				0.8	2.6	1	1	1					1													4	1	0	1	
310	326800	4700000	◘				1.3	4.3	1		1					1													3	1	0	1	1
311	327600	4699900	◘				1.3	4.1	1		1					1													3	1	0	1	
312	326800	4700200	◘				1.8	5.7	1		1					1													3	1	0	1	
313	326800	4700100	◘				1.7	5.6	1		1					1				1									4	1	1	1	
314	326700	4701000	◘				1.3	4.3			1				1	1						1				1			5	1	0	1	1
315	326800	4700300	◘				1.9	6.1	1		1					1													3	1	0	1	
316	326700	4701200	◘				2.0	6.6			1					1				1									3	1	1	1	1
317	326700	4701100	◘				1.8	5.9			1					1													2	1	0	1	1
Totals for 138 sampling points									90	13	131	2	2	0	13	136	5	1	2	49	4	24	2	13	3	33	2	1	526	136	54	136	58
Totals for 102 sampling points									**71**	**11**	**97**	**2**	**2**	**0**	**10**	**102**	**3**	**1**	**2**	**41**	**1**	**17**	**2**	**12**	**3**	**28**	**2**	**1**	**408**	**102**	**44**	**102**	**42**
Totals for 91 sampling points									66	11	90	2	2	0	10	91	3	1	2	37	1	15	2	11	3	28	2	1	378	91	40	91	41

◘ Denotes 91 original sampling points with plants in 2000.
■ Denotes 11 original littoral zone sampling points without plants in 2000.
• Denotes 5 remaining sampling points of the 18 that were added in 2003. 13 were removed in 2008.
○ Denotes 31 new sampling points added in 2008. These 91+11+5+31 SP locations equal 138 total sampling points in 2008 and 2009.

Table 3. Recorded biomass (gDW/0.1m^2) for Waneta Lake sampled on August 10, 2009 from the 50 original sample points (SPs) and the 50 revised SPs for 2004 - 2009. SPs are on a 100-meter UTM grid. Each sampled point is theoretically the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 50 original biomass SPs	♦ DEC substitute SPs	— 50 revised biomass SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Potamogeton crispus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Vallisneria americana	Total Biomass (gDW/0.1m^2)	Non-Native (gDW/0.1m^2)	Native Species (gDW/0.1m^2)
1	327100	4703400		♦	—	0.6	2.0		0.0045	0.5789				0.0535						0.64	0	0.637
3	326900	4703400		♦	—	0.5	1.6		1.6827				0.1483	0.1395	0.3174	0.0010				2.29	0.317	1.972
5	327200	4703300		♦	—	1.3	4.3	0.7403		7.57				13.78	0.2331			0.0458		22.37	0.233	22.136
7	327000	4703300	◘		—	2.0	6.6	2.1828		2.08				7.90	0.1801					12.34	0.180	12.163
9	326800	4703300	◘		—	1.9	6.2			0.1416				0.2996	1.5329					1.97	1.533	0.441
10	327300	4703200	◘		—	2.1	6.9	0.9027		2.11				31.12						34.13	0	34.133
12	327100	4703200	◘		—	2.8	9.2	0.0210		6.42				16.54	0.7004					23.68	0.700	22.981
16	326700	4703200	◘		—	0.6	2.0						0.0154	1.8835						1.90	0	1.899
17	327300	4703100		♦	—	2.8	9.2	0.0223		8.92				32.01	0.9032	0.0048			0.0050	41.87	0.903	40.962
19	327100	4703100	◘			4.0	13.1							0.0148						0.01	0	0.015
22	326800	4703100	◘			4.0	13.1							0.0176						0.02	0	0.018
23	326700	4703100		♦	—	1.0	3.3							3.3800						3.38	0	3.380
24	327300	4703000	◘			3.0	9.8	0.6366		0.0362				14.21	0.6428				0.0080	15.53	0.643	14.891
37	326700	4702900	◘		—	1.5	4.9			0.2691				16.81					2.3403	19.42	0	19.419
38	327300	4702800		♦	—	0.7	2.3			0.0693				13.76						13.83	0	13.829
44	326700	4702800	◘		—	1.1	3.6		0.0865					9.53					0.2535	9.87	0	9.870
56	326700	4702600		♦	—	0.6	2.0						0.5831	1.97					0.7179	3.27	0	3.271
63	327300	4702400	◘		—	2.2	7.2			0.2115				12.17						12.38	0	12.382
76	326700	4702300	◘		—	1.8	5.9			0.0676				28.64						28.71	0	28.708
77	327300	4702200	◘			8.2	26.9													0	0	0
97	326700	4702000	◘		—	1.8	5.9			0.0402				19.75						19.79	0	19.790
125	326700	4701600	◘			5.5	18.0	no plants												0	0	0
132	326700	4701500	◘		—	2.4	7.9			0.2437				2.0400						2.28	0	2.284
138	326800	4701400	◘			7.1	23.3	no plants												0	0	0
146	326700	4701300	◘			5.3	17.4	no plants												0	0	0
152	326800	4701200	◘			7.7	25.3	no plants												0	0	0
159	327400	4701100	◘			6.5	21.3	no plants												0	0	0
160	327400	4701000	◘			1.9	6.2			1.3149				3.58						4.89	0	4.895
167	327400	4700900		♦	—	1.9	6.2	0.0273		2.17				8.22						10.42	0	10.417
173	326800	4700900	◘		—	1.9	6.2			0.0524				1.0621	0.0501					1.16	0.050	1.115
179	326900	4700800	◘		—	1.1	3.6		0.2153	0.2065			0.2829	0.6363					0.0140	1.36	0	1.355

Table 3. (continued) Recorded biomass (gDW/0.1m^2) for Waneta Lake sampled on August 10, 2009 from the 50 original sample points (SPs) and the 50 revised SPs for 2004 - 2009. SPs are on a 100-meter UTM grid. Each sampled point is theoretically the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 50 original biomass SPs	♦ DEC substitute SPs	— 50 revised biomass SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Potamogeton crispus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Vallisneria americana	Total Biomass (gDW/0.1m^2)	Non-Native (gDW/0.1m^2)	Native Species (gDW/0.1m^2)
180	327400	4700700	◘		—	1.8	5.9			0.6847				10.03						10.71	0	10.715
191	326900	4700600	◘		—	1.8	5.9			0.2081				8.20	0.3070					8.72	0.307	8.408
203	326900	4700400	◘			5.0	16.4	no plants												0	0	0
209	326900	4700300	◘			5.1	16.7	no plants												0	0	0
210	327400	4700200	◘			5.5	18.0	no plants												0	0	0
223	327500	4700000	◘			2.1	6.9	0.0531		6.58				6.58	0.2521					13.47	0.252	13.213
229	326900	4700000	◘			4.2	13.8	no plants												0	0	0
236	326900	4699900	◘			3.9	12.8	no plants												0	0	0
250	326900	4699700	◘		—	2.1	6.9			36.10				0.0094	1.73					37.84	1.730	36.109
251	327600	4699600	◘		—	1.5	4.9			19.10				10.44						29.54	0	29.540
257	327000	4699600	◘			3.2	10.5	0.0320												0.03	0	0.032
264	327000	4699500	◘		—	1.9	6.2	0.3825		22.87				13.07	3.6445					39.97	3.645	36.323
265	327600	4699400	◘		—	3.2	10.5			0.6399				0.1211	0.1074					0.87	0.107	0.761
270	327100	4699400	◘			2.9	9.5	no plants												0	0	0
271	327700	4699300	◘		—	0.9	3.0	0.0042	0.0942	0.1204			0.2622	1.79		0.0048			0.2693	2.55	0	2.545
272	327600	4699300	◘			3.1	10.2			0.0413										0.04	0	0.041
277	327100	4699300		♦	—	1.8	5.9	0.5746		28.47			0.0062	2.28	1.1690					32.50	1.169	31.331
278	327700	4699200		♦	—	1.3	4.3	2.0041		117.27	0.0032			30.73	0.6866	0.0032		0.0645	0.2661	151.03	0.687	150.341
280	327500	4699200	◘			2.7	8.9	0.2175		1.3554				0.1474	3.1614					4.88	3.161	1.720
282	327300	4699200	◘			3.0	9.8	0.0769							0.1117					0.19	0.112	0.077
283	327200	4699200	◘		—	2.5	8.2			18.32				0.1791	0.6088					19.11	0.609	18.499
284	327700	4699100	◘		—	1.5	4.9	0.0037		6.05				7.17	0.0933					13.32	0.093	13.224
286	327500	4699100	◘			2.3	7.5	2.6558		8.42				4.45	4.2534					19.78	4.253	15.526
287	327400	4699100		♦	—	2.5	8.2			9.33				18.13	3.49					30.95	3.490	27.460
290	327700	4699000	◘		—	1.4	4.6	0.1047		0.2205				1.55	0.5662				3.25	5.69	0.566	5.125
291	327600	4699000	◘		—	1.9	6.2	0.0852		0.19				1.1166	0.3982					1.79	0.398	1.392
294	327300	4699000	◘		—	2.0	6.6			0.0135				0.9250	1.8633					2.80	1.863	0.939
295	327200	4699000		♦	—	1.5	4.9			31.38				0.0623				0.02		31.46	0	31.462
297	327600	4698900	◘		—	1.5	4.9	1.4738		1.1835				14.03	0.4279					17.12	0.428	16.687
298	327500	4698900	◘		—	1.5	4.9	3.09		7.76				3.46	2.27					16.58	2.270	14.310
300	327300	4698900		♦	—	1.5	4.9	0.6088		5.21				9.36	1.63				8.30	25.11	1.630	23.479

Table 3. (continued) Recorded biomass (gDW/0.1m^2) for Waneta Lake sampled on August 10, 2009 from the 50 original sample points (SPs) and the 50 revised SPs for 2004 - 2009. SPs are on a 100-meter UTM grid. Each sampled point is theoretically the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 50 original biomass SPs	♦ DEC substitute SPs	— 50 revised biomass SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Potamogeton crispus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Vallisneria americana	Total Biomass (gDW/0.1m^2)	Non-Native (gDW/0.1m^2)	Native Species (gDW/0.1m^2)
301	327700	4698800		♦	—	1.0	3.3	0.7613		0.9649				3.3298	**0.0172**				10.76	15.83	**0.017**	15.816
303	327500	4698800	◘		—	1.1	3.6	0.9663		1.7588				14.61	**0.2446**		0.1848		2.49	20.25	**0.245**	20.010
307	327800	4699100		♦	—	0.5	1.6	0.1534		0.6347				0.4092	**0.1791**				9.12	10.50	**0.179**	10.317
308	326800	4699900		♦	—	1.3	4.3		0.1481	0.8172				2.57	**1.5753**					5.11	**1.575**	3.535
310	326800	4700000		♦	—	1.3	4.3			11.81				0.1449						11.95	**0**	11.955
311	327600	4699900		♦	—	1.3	4.3			0.7155				4.8908						5.61	**0**	5.606
312	326800	4700200		♦	—	1.8	5.9	0.5696		4.16				1.2699	**1.7983**					7.80	**1.798**	6.000
315	326800	4700300		♦	—	1.9	6.2	0.5591		0.2322				8.67						9.46	**0**	9.461
316	326700	4701200		♦	—	2.0	6.6			0.2417				33.84	**0.2904**					34.37	**0.290**	34.082
317	326700	4701100		♦	—	1.8	5.9			17.03				12.55	**0.0613**					29.64	**0.061**	29.580
Total (gDW) 50 original SPs								12.89	0.3960	144.81	0.0000	**0**	0.5605	264.08	**23.15**	0.0048	0.1848	0.0000	8.63	454.70	**23.15**	431.55
Total (gDW) 50 revised SPs								15.24	2.23	374.64	0.0032	**0**	1.30	436.63	**27.08**	0.0138	0.1848	0.1303	37.79	895.23	**27.08**	868.15

◘ Denotes 50 original (Madsen, *et al* ., 2001) biomass sampling points (SPs) reported in 2000.

♦ Denotes 22 substitute biomass sampling points (SPs) authorized by NYSDEC for 2004 - 2009 sampling.

— Denotes 50 biomass sampling points (SPs) authorized by NYSDEC for 2004 - 2009 sampling.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 50 original biomass SPs	♦ DEC substitute SPs	— 50 revised biomass SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Potamogeton crispus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Vallisneria americana	Total Biomass (gDW/0.1m^2)	Non-Native (gDW/0.1m^2)	Native Species (gDW/0.1m^2)
Mean (gDW/0.1m^2) for 50 original SPs								0.2578	0.0079	2.90	0.0000	**0**	0.0112	5.28	**0.4629**	0.0001	0.0037	0.0000	0.1725	9.09	**0.463**	8.63
Mean (gDW/0.1m^2) for 50 revised SPs								0.3048	0.0446	7.49	0.0001	**0**	0.0260	8.73	**0.5415**	0.0003	0.0037	0.0026	0.7557	17.90	**0.542**	17.36
Mean (gDW/m^2) for 50 original SPs								2.58	0.0792	28.96	0.0000	**0**	0.1121	52.82	**4.63**	0.0010	0.0370	0.0000	1.73	**90.94**	**4.63**	**86.31**
Mean (gDW/m^2) for 50 revised SPs								3.05	0.4463	74.93	0.0006	**0**	0.2596	87.33	**5.42**	0.0028	0.0370	0.0261	7.56	**179.05**	**5.42**	**173.63**

Table 4. Recorded biomass of aquatic plants (gDW/m^2) measured in Waneta Lake from 50 locations sampled first in 2000 and then annually 2003 - 2009. A second grouping of 50 locations, including 28 of the original locations, was sampled from 2003 - 2009.

50 original SPs	2000	2004	2005	2006	2007	2008	2009
Non-native biomass	24.3	0.0284	1.53	22.01	59.29	3.8	4.63
Native biomass	23	1.0815	0.7302	3.84	7.49	23.89	86.31
Total biomass	47.3	1.1099	2.26	25.85	66.78	27.69	90.94

50 revised SPs	2004	2005	2006	2007	2008	2009
Non-native biomass	0.025	2.3	32.41	99.23	5.17	5.42
Native biomass	1.3655	2.33	10.22	13.82	40.97	173.63
Total biomass	1.3905	4.63	42.63	113.05	46.14	179.05

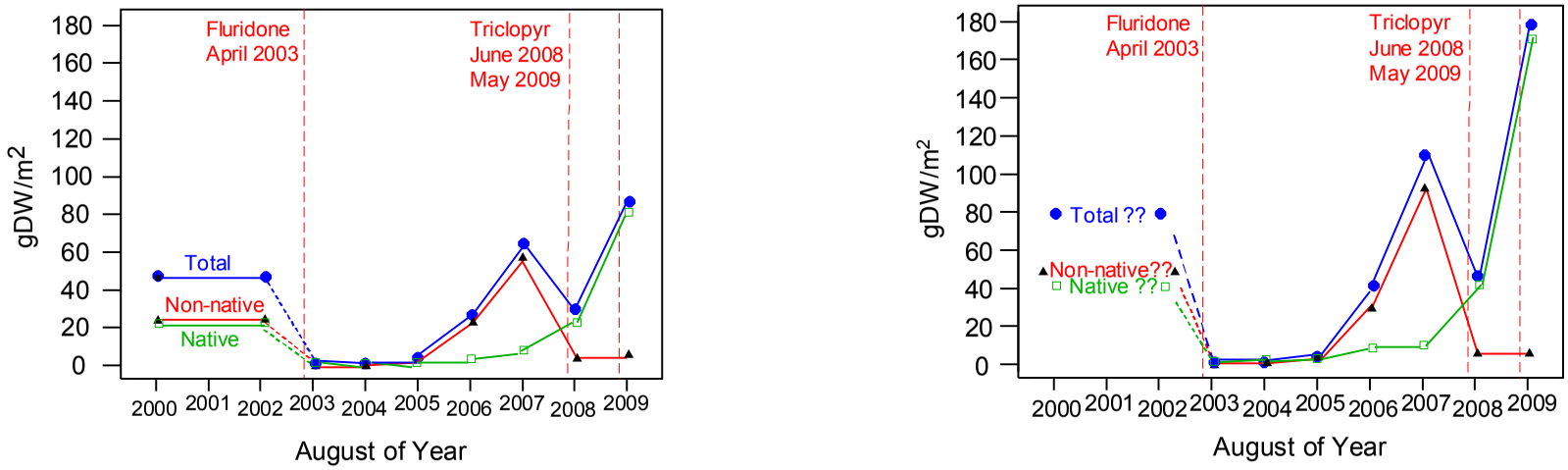

Figure 1. Biomass of aquatic plants (gDW/m^2) measured in Waneta Lake from 50 locations sampled first in 2000 and then annually 2003-2009. A second grouping of 50 locations, including 28 of the original locations, was sampled from 2003-2009.

Table 5. Summary of species occurrence and lake depth at 169 sample points (SPs) recorded in Lamoka Lake from August 2000 (Madsen *et al.* 2001), July 25 - August 1, 2006 (Johnson and Keith 2006), August 27 - September 15, 2008 (Johnson *et al.* 2008), and July 23 - July 30, 2009.

Scientific Name	Common Name	2000		2006		2008		2009	
		Littoral Zone (in 2000)		Littoral Zone (in 2000)		Littoral Zone (in 2000)		Littoral Zone (in 2000)	
		FREQ	%	FREQ	%	FREQ	%	FREQ	%
Azolla caroliniana	Carolina mosquito fern	0	0	0	0	4	2	0	0
Brasenia schreberi	water shield	0	0	2	1	2	1	0	0
Ceratophyllum demersum	coontail, hornwort	108	64	140	83	152	90	152	90
Chara vulgaris	chara, muskgrass	2	1	16	9	10	6	19	11
Elodea sp.	elodea	89	53	106	63	107	63	108	64
Lemna minor	small duckweed	0	0	77	46	20	12	90	53
Lemna trisulca	star duckweed	3	2	52	31	65	38	76	45
Megalodonta beckii	water marigold	0	0	8	5	6	4	1	1
Myriophyllum spicatum	**Eurasian watermilfoil**	**130**	**77**	**153**	**91**	**67**	**40**	**0**	**0**
Najas flexilis	bushy naiad	4	2	7	4	3	2	2	1
Najas guadalupensis	southern naiad	41	24	66	39	79	47	75	44
Nitella flexilis	nitella, stonewort	0	0	0	0	9	5	2	1
Nuphar advena	yellow water lily	24	14	23	14	31	18	16	9
Nymphaea odorata	white water lily	40	24	28	17	12	7	21	12
Pontederia cordata	Pickerel-weed	0	0	0	0	0	0	1	1
Potamogeton amplifolius	large-leaf pondweed	13	8	20	12	37	22	50	30
Potamogeton crispus	**curly-leaf pondweed**	**1**	**1**	**18**	**11**	**41**	**24**	**85**	**50**
Potamogeton foliosus	leafy pondweed	0	0	2	1	0	0	0	0
Potamogeton hillii	Hill's pondweed	0	0	3	2	0	0	0	0
Potamogeton sp.	hybrid*	0	0	0	0	1	1	5	3
Potamogeton nodosus	long-leaf pondweed	0	0	0	0	1	1	1	1
Potamogeton pusillus	small pondweed	0	0	1	1	3	2	5	3
Potamogeton praelongus	white-stem pondweed	8	5	0	0	0	0	0	0
Potamogeton robbinsii	Robbin's pondweed	36	21	81	48	107	63	118	70
Potamogeton zosteriformis	flat-stem pondweed	18	11	55	33	53	31	25	15
Polygonum amphibium	water smartweed	0	0	3	2	4	2	4	2
Ranunculus trichophyllus	water buttercup	4	2	50	30	48	28	44	26
Stuckenia pectinata	sago pondweed	0	0	1	1	1	1	0	0
Spirodela polyrhiza	great duckweed	0	0	48	28	22	13	81	48
Typha latifolia	broad-leaved cattail	3	2	4	2	1	1	3	2
Utricularia sp.	bladderwort	16	9	11	7	34	20	49	29
Vallisneria americana	eel grass, wild celery	27	16	52	31	51	30	47	28
Wolffia columbiana	common watermeal	0	0	33	20	10	6	75	44
Zanichellia palustris	horned pondweed	2	1	0	0	0	0	0	0
Zosterella dubia	water stargrass	33	20	50	30	32	19	7	4
Total species occurrence for all SPs		602		1110		1013		1162	
		mean		mean		mean		mean	
Plant Species Occurrence (# species per SP)		**3.56**		**6.57**		**5.99**		**6.88**	
Non-Native Species Occurrence (# species per SP)		**0.78**		**1.01**		**0.64**		**0.50**	
Native Plant Occurrence (# species per SP)		**2.79**		**5.56**		**5.36**		**6.37**	
		FREQ	%	FREQ	%	FREQ	%	FREQ	%
Native Plant Frequency (SPs with a native plant)		**142**	84	**153**	91	**161**	95	**165**	98
Plant Frequency (SPs with a plant species)		**163**	96	**166**	98	**161**	95	**165**	98
		mean	SE	mean	SE	mean	SE	mean	SE
Depth (ft)		5.02	0.20	5.48	0.23	5.09	0.20	4.94	0.21
Depth (m)		1.53	0.06	1.67	0.07	1.55	0.06	1.51	0.06
Number of Sampling Points		169		169		169		169	

*The Potamogeton sp. above may be a hybrid according to C. Barrie Hellquist, the Potamogeton plant taxonomist

Table 6. Aquatic plant species' presence in Lamoka Lake recorded by summarizing two rake tosses from July 23 - July 30, 2009. Entries of "1" indicate species identified at that sample point (SP). Points are on a UTM 100-meter grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 169 original SPs	■ 11 added SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Non-Native Species	Native Species	Presence of a Species	Presence of Native Species	filamentous algae
1	328500	4698000	◘		0.2	0.7				1	1				1			1		1	1				1			1	1	1	1	1	1		13	1	12	1	1	1
2	328400	4698000	◘		0.8	2.6	1								1			1											1				1		5	0	5	1	1	
3	328870	4697900	◘		1.1	3.6									1																			1	0	1	1	1	
4	328800	4697900	◘		2.3	7.4	1		1	1					1										1				1			1		7	0	7	1	1	1
5	328700	4697900	◘		1.9	6.2	1								1					1	1				1	1						1		7	1	6	1	1	
6	328600	4697900	◘		1.6	5.2	1								1					1					1							1		5	0	5	1	1	1
7	328500	4697900	◘		1.3	4.3	1	1							1					1					1									5	0	5	1	1	1
8	328400	4697900	◘		1.1	3.6									1																			1	0	1	1	1	1
9	329100	4697800	◘		2.3	7.5	1			1					1													1	1			1		6	0	6	1	1	
10A	328700	4697800		■	1.5	4.9				1																								1	0	1	1	1	
11	328900	4697800	◘		2.6	8.5									1										1									2	0	2	1	1	
14	328600	4697800	◘		2.3	7.5	1				1									1					1				1			1	1	7	0	7	1	1	1
15	328500	4697800	◘		1.3	4.1	1		1	1					1						1				1				1			1	1	9	1	8	1	1	1
16	328400	4697800	◘		1.0	3.3	1		1						1			1			1													5	1	4	1	1	
17	329200	4697700	◘		3.4	11.2	1																											1	0	1	1	1	
24	328500	4697700	◘		1.0	3.3	1		1						1			1			1				1				1						7	1	6	1	1	
25	328400	4697700	◘		1.0	3.3	1								1						1				1										4	1	3	1	1	
26	328300	4697700	◘		0.8	2.6																													0	0	0	0	0	
27A	329200	4697700		■	1.8	5.9	1								1																				2	0	2	1	1	
33	328600	4697600	◘		1.6	5.2		1	1	1					1			1		1								1	1			1	1		10	0	10	1	1	
34	328500	4697600	◘		1.0	3.3	1	1	1	1					1					1					1			1	1			1	1		11	0	11	1	1	
35	328400	4697600	◘		1.1	3.6	1								1					1					1										4	0	4	1	1	
36	328300	4697600	◘		0.8	2.6	1								1			1																	3	0	3	1	1	
37	329300	4697500	◘		0.6	2.0																													0	0	0	0	0	
43	328700	4697500	◘		1.7	5.6	1	1						1	1									1				1				1		1	8	0	8	1	1	
44	328570	4697500	◘		0.7	2.3	1	1	1						1			1		1								1				1			8	0	8	1	1	
45	328500	4697500	◘		1.2	3.9	1		1		1				1										1			1				1			7	0	7	1	1	
46	328400	4697500	◘		1.0	3.3	1		1						1		1				1				1										6	1	5	1	1	
47A	329500	4697400		■	1.5	4.9			1						1					1	1			1	1							1			7	1	6	1	1	
54	328700	4697400	◘		2.5	8.2	1																												1	0	1	1	1	

Table 6. (continued) Aquatic plant species' presence in Lamoka Lake recorded by summarizing two rake tosses from July 23 - July 30, 2009. Entries of "1" indicate species identified at that sample point (SP). Points are on a UTM 100-meter grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 169 original SPs	■ 11 added SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Non-Native Species	Native Species	Presence of a Species	Presence of Native Species	filamentous algae
55	328600	4697400	◘		1.7	5.6	1								1					1				1	1						1			6	0	6	1	1	
56	328500	4697400	◘		1.1	3.6			1		1				1					1	1				1			1				1			8	1	7	1	1	
57	328400	4697400	◘		1.1	3.6	1								1										1										3	0	3	1	1	
58A	329510	4697300		■	1.5	4.9	1	1	1					1	1					1				1	1	1		1				1			11	0	11	1	1	
66	328600	4697300	◘		2.0	6.6	1								1					1	1			1								1			6	1	5	1	1	
67	328500	4697300	◘		1.4	4.6	1								1					1					1			1				1			6	0	6	1	1	
68A	329510	4697200		■	1.9	6.2	1		1						1					1	1				1	1									7	1	6	1	1	
76	328600	4697200	◘		2.3	7.5	1								1					1	1				1	1						1			7	1	6	1	1	
77	328500	4697200	◘		1.7	5.6	1		1						1		1	1		1					1							1			8	0	8	1	1	
78	329500	4697100	◘		3.3	10.8				1																			1				1		3	0	3	1	1	
87	328600	4697100	◘		2.0	6.6	1								1					1	1				1			1							6	1	5	1	1	
88	329600	4697000	◘		2.3	7.5	1		1	1					1					1	1								1				1		8	1	7	1	1	
97	328700	4697000	◘		3.6	11.8																													0	0	0	0	0	
98	328600	4697000	◘		1.7	5.6	1		1						1					1	1				1	1		1				1			9	1	8	1	1	
99A	329620	4669000		■	1.5	4.9	1	1	1						1						1				1			1				1			8	1	7	1	1	
107	328700	4696900	◘		3.0	9.8	1	1	1						1						1				1			1				1			8	1	7	1	1	
107A	328700	4696900		■	1.4	4.6	1		1						1						1														4	1	3	1	1	
108A	329567	4697800		■	1.4	4.6		1	1	1	1				1						1								1			1	1		9	1	8	1	1	
116	328700	4696800	◘		2.5	8.2	1	1	1						1													1							5	0	5	1	1	
117	329500	4696700	◘		1.2	3.9	1	1		1					1														1			1	1		7	0	7	1	1	
125	329400	4696600	◘		2.4	7.9	1			1					1														1				1		5	0	5	1	1	1
132	329400	4696500	◘		1.8	5.7	1			1					1						1								1			1	1		7	1	6	1	1	
139	328700	4696500	◘		1.9	6.2	1		1						1					1						1						1			6	0	6	1	1	
140	329400	4696400	◘		0.8	2.6	1	1	1	1					1					1								1	1			1	1		10	0	10	1	1	
147	328700	4696400	◘		1.6	5.2	1		1						1					1	1					1		1				1			8	1	7	1	1	
148	329400	4696300	◘		0.9	3.0	1	1	1						1					1	1							1				1			8	1	7	1	1	
155	328700	4696300	◘		0.9	3.0	1	1	1						1													1				1			6	0	6	1	1	
156A	329490	4696200		■	1.5	4.9	1	1	1	1					1														1			1	1		8	0	8	1	1	
163	328700	4696200	◘		1.9	6.2	1		1						1						1				1	1		1				1			8	1	7	1	1	
164	329500	4696100	◘		2.0	6.6	1		1						1						1			1		1									6	1	5	1	1	

Table 6. (continued) Aquatic plant species' presence in Lamoka Lake recorded by summarizing two rake tosses from July 23 - July 30, 2009. Entries of "1" indicate species identified at that sample point (SP). Points are on a UTM 100-meter grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 169 original SPs	■ 11 added SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Non-Native Species	Native Species	Presence of a Species	Presence of Native Species	filamentous algae
167	329200	4696100	◘		3.0	9.8	1		1																									2	0	2	1	1	
168	329100	4696100	◘		3.0	9.8	1		1						1						1													4	1	3	1	1	1
172	328700	4696100	◘		2.9	9.5	1		1						1						1					1	1		1						7	1	6	1	1	
173	329600	4696000	◘		1.5	4.9	1		1						1					1						1						1			6	0	6	1	1	
174	329500	4696000	◘		2.3	7.5	1		1						1						1						1								5	1	4	1	1	
175	329400	4696000	◘		3.5	11.5	1		1	1																	1		1				1		6	0	6	1	1	
176	329300	4696000	◘		2.6	8.5	1			1					1					1	1								1			1			7	1	6	1	1	
177	329200	4696000	◘		2.6	8.5			1						1						1														3	1	2	1	1	
178	329100	4696000	◘		2.8	9.0			1												1														2	1	1	1	1	1
182	328700	4696000	◘		1.9	6.2	1	1	1						1						1					1	1								7	1	6	1	1	
183	329600	4695900	◘		1.4	4.6	1		1						1					1	1					1	1					1			8	1	7	1	1	
184	329500	4695900	◘		2.3	7.5	1			1	1				1						1					1			1						7	1	6	1	1	
185	329400	4695900	◘		3.3	10.8	1																												1	0	1	1	1	
186	329300	4695900	◘		2.6	8.5	1		1											1	1														4	1	3	1	1	
187	329200	4695900	◘		2.5	8.2	1		1												1						1							1	5	1	4	1	1	
188	329100	4695900	◘		2.2	7.2	1								1					1	1													1	5	1	4	1	1	
189	329000	4695900	◘		3.0	9.8	1								1						1														3	1	2	1	1	
192	328700	4695900	◘		1.6	5.2	1		1						1						1								1			1			6	1	5	1	1	
193	329500	4695800	◘		1.7	5.4	1		1						1					1						1						1		1	7	0	7	1	1	
194	329400	4695800	◘		2.0	6.6	1		1	1										1	1					1	1		1						8	1	7	1	1	
195	329300	4695800	◘		2.1	6.9	1		1											1	1					1	1								6	1	5	1	1	
196	329200	4695800	◘		1.5	4.9	1		1	1					1					1	1					1	1		1	1		1	1		12	1	11	1	1	
197	329000	4695800	◘		1.1	3.6	1	1	1						1											1						1		1	7	0	7	1	1	
200	328700	4695800	◘		4.0	13.1	1		1						1						1					1			1			1			7	1	6	1	1	
201	328600	4695800	◘		1.1	3.6	1		1	1					1					1							1		1			1			8	0	8	1	1	
202	329500	4695700	◘		1.2	3.8				1								1		1						1				1		1	1		7	0	7	1	1	
203	329400	4695700	◘		1.5	4.9				1										1						1				1			1		5	0	5	1	1	
204	329300	4695700	◘		1.4	4.6	1		1						1					1						1									5	0	5	1	1	
205	329000	4695700	◘		1.5	4.9	1	1	1			1			1					1						1						1			8	0	8	1	1	
209	328600	4695700	◘		1.3	4.1	1	1	1						1											1			1			1			7	0	7	1	1	
210	329000	4695600	◘		2.0	6.6	1		1						1						1						1					1			6	1	5	1	1	

Table 6. (continued) Aquatic plant species' presence in Lamoka Lake recorded by summarizing two rake tosses from July 23 - July 30, 2009. Entries of "1" indicate species identified at that sample point (SP). Points are on a UTM 100-meter grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 169 original SPs	■ 11 added SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Non-Native Species	Native Species	Presence of a Species	Presence of Native Species	filamentous algae
214	328600	4695600	◘		1.3	4.1	1	1	1	1					1			1		1					1	1		1			1	1		13	0	13	1	1	
215	328500	4695600	◘		0.9	3.0	1	1	1	1					1		1	1								1		1	1		1	1	1		13	0	13	1	1	
216	329000	4695500	◘		1.4	4.6	1		1						1					1					1	1		1				1			8	0	8	1	1	
217A	328895	4695441		■	1.5	4.9	1		1						1										1	1		1				1			7	0	7	1	1	
218	328800	4695500	◘		3.5	11.5																													0	0	0	0	0	
218A	328806	4695442		■	1.7	5.6	1	1	1					1	1											1						1			7	0	7	1	1	
219	328700	4695500	◘		2.3	7.5	1		1		1				1										1										5	0	5	1	1	
220	328600	4695500	◘		1.5	4.9	1		1	1	1				1					1	1				1	1		1	1				1		12	1	11	1	1	
221	328500	4695500	◘		0.7	2.3	1	1	1	1	1			1	1	1	1	1						1				1	1		1	1	1		16	0	16	1	1	1
222	329100	4695400	◘		1.0	3.3	1		1								1																		3	0	3	1	1	1
223	329000	4695400	◘		1.1	3.6	1		1	1	1				1		1			1					1	1		1			1		1		12	0	12	1	1	1
224	328600	4695400	◘		1.0	3.3	1	1	1	1	1				1		1			1					1	1		1	1		1	1	1	16	0	16	1	1	
225	328500	4695400	◘		0.9	3.0	1		1	1	1				1			1		1					1			1	1			1	1		12	0	12	1	1	
226	328400	4695400	◘		0.7	2.3	1		1	1	1				1	1	1	1		1	1				1			1	1		1		1		15	1	14	1	1	1
227	328400	4695300	◘		1.7	5.6	1		1	1											1				1				1				1		7	1	6	1	1	1
228	328400	4695200	◘		0.7	2.1	1		1	1	1							1					1		1				1		1	1	1		11	0	11	1	1	1
229	328300	4695200	◘		0.7	2.3	1		1	1	1						1	1		1	1				1			1	1		1	1	1		14	1	13	1	1	1
230	328300	4695100	◘		1.5	4.9	1		1	1	1										1				1				1		1		1		9	1	8	1	1	1
231	328400	4695000	◘		1.2	3.9	1			1	1									1					1				1		1		1		8	0	8	1	1	1
232	328300	4695000	◘		1.1	3.6	1		1	1	1									1					1				1		1		1		9	0	9	1	1	1
233	328300	4694900	◘		1.1	3.6	1		1		1										1				1						1				6	1	5	1	1	1
234	328200	4694900	◘		1.1	3.6	1			1	1										1				1				1				1		7	1	6	1	1	1
237	328300	4694900	◘		1.2	3.9	1			1	1														1				1		1		1		7	0	7	1	1	
238	328200	4694800	◘		1.4	4.6	1		1	1	1									1	1				1				1		1		1		10	1	9	1	1	
241	328200	4694700	◘		1.1	3.6				1	1										1				1				1		1		1		7	1	6	1	1	1
242	328100	4694700	◘		1.3	4.3	1			1	1										1				1				1		1		1		8	1	7	1	1	
243	328100	4694600	◘		1.7	5.6	1		1	1											1				1				1		1		1		8	1	7	1	1	1
244	328100	4694500	◘		0.8	2.6	1			1	1										1				1				1		1		1		8	1	7	1	1	1
245	328000	4694500	◘		1.0	3.3	1			1	1														1				1		1		1		7	0	7	1	1	1
246	328000	4694400	◘		1.5	4.9	1		1												1				1						1				5	1	4	1	1	
247	328000	4694300	◘		0.8	2.6	1		1	1	1														1				1		1		1		8	0	8	1	1	1

Table 6. (continued) Aquatic plant species' presence in Lamoka Lake recorded by summarizing two rake tosses from July 23 - July 30, 2009. Entries of "1" indicate species identified at that sample point (SP). Points are on a UTM 100-meter grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 169 original SPs	■ 11 added SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Non-Native Species	Native Species	Presence of a Species	Presence of Native Species	filamentous algae
248	327900	4694300	◘		2.0	6.6	1		1	1	1													1				1				1		7	0	7	1	1	1
249	327900	4694200	◘		1.1	3.6				1											1			1				1		1		1		6	1	5	1	1	1
250	327800	4694100	◘		1.4	4.6	1			1														1				1		1		1		6	0	6	1	1	1
251	327800	4694000	◘		1.2	3.9	1		1	1	1							1						1				1		1		1		9	0	9	1	1	1
252	327700	4694000	◘		1.2	3.9	1		1	1	1									1				1				1		1		1		9	0	9	1	1	1
253	327760	4693900	◘		0.6	2.0	1		1	1	1							1		1	1			1				1		1		1		11	1	10	1	1	1
254	327700	4693900	◘		1.5	4.9	1		1		1										1			1						1				6	1	5	1	1	1
256	327800	4693800	◘		0.7	2.3	1		1	1	1										1	1		1			1	1				1		10	1	9	1	1	1
257	327700	4693800	◘		1.4	4.6	1		1	1	1										1	1		1				1		1		1		10	1	9	1	1	
258	327600	4693800	◘		0.7	2.3	1		1	1	1													1				1				1		7	0	7	1	1	1
260	327800	4693700	◘		1.0	3.3	1			1														1				1		1		1		6	0	6	1	1	1
261	327700	4693700	◘		1.4	4.6	1		1		1										1			1								1		6	1	5	1	1	1
262	327600	4693700	◘		1.4	4.6	1		1	1	1										1			1				1				1		8	1	7	1	1	1
263	327500	4693700	◘		1.0	3.3	1		1	1											1							1				1		6	1	5	1	1	1
264	327400	4693700	◘		0.8	2.6	1		1	1	1								1		1	1		1			1	1		1		1		12	1	11	1	1	1
265	327300	4693700	◘		0.8	2.6	1			1	1										1	1		1				1				1		8	1	7	1	1	1
266	327200	4693700	◘		0.5	1.6	1														1			1			1							4	1	3	1	1	1
269	327800	4693600	◘		0.8	2.6	1		1	1	1										1			1						1				7	1	6	1	1	1
270	327700	4693600	◘		1.2	3.9	1		1	1	1										1			1				1		1				8	1	7	1	1	1
271	327600	4693600	◘		1.4	4.6	1		1	1											1			1										5	1	4	1	1	1
272	327500	4693600	◘		1.3	4.1	1		1	1	1										1			1				1				1		8	1	7	1	1	1
273	327400	4693600	◘		1.3	4.3	1		1	1	1										1			1				1				1		8	1	7	1	1	1
274	327300	4693600	◘		1.4	4.6	1		1		1										1			1						1				6	1	5	1	1	1
275	327200	4693600	◘		1.2	3.9	1			1	1						1	1						1			1	1	1		1		1		11	0	11	1	1	1
276	327100	4693600	◘		1.4	4.6	1		1	1	1													1			1	1	1		1		1		10	0	10	1	1	
280	327500	4693500	◘		1.4	4.6	1		1	1	1										1			1				1		1		1		9	1	8	1	1	1
281	327400	4693500	◘		1.5	4.9	1			1	1										1			1				1						6	1	5	1	1	1
282	327300	4693500	◘		1.3	4.3	1		1	1	1										1			1				1				1		8	1	7	1	1	1
283	327200	4693500	◘		1.1	3.6	1		1	1	1										1			1				1				1	1	9	1	8	1	1	1
284	327100	4693500	◘		1.1	3.6	1			1	1													1				1				1		6	0	6	1	1	1
286	327500	4693400	◘		1.3	4.3	1		1	1	1										1			1				1				1		8	1	7	1	1	1

Table 6. (continued) Aquatic plant species' presence in Lamoka Lake recorded by summarizing two rake tosses from July 23 - July 30, 2009. Entries of "1" indicate species identified at that sample point (SP). Points are on a UTM 100-meter grid. Each sampled point is theoretically at the center of a 100m X 100m square or 1 hectare.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	◘ 169 original SPs	■ 11 added SPs	Depth (m) on date	Depth (ft) on date	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia	Total	Non-Native Species	Native Species	Presence of a Species	Presence of Native Species	filamentous algae
287	327400	4693400	◘		1.4	4.6	1			1	1										1				1				1				1		7	1	6	1	1	1
288	327300	4693400	◘		1.5	4.9	1		1	1	1														1				1				1		7	0	7	1	1	1
289	327200	4693400	◘		1.5	4.9	1			1	1										1				1				1		1		1		8	1	7	1	1	1
290	327100	4693400	◘		1.2	3.9	1		1		1										1				1						1				6	1	5	1	1	1
291	327000	4693400	◘		1.1	3.6	1		1	1	1										1				1				1						7	1	6	1	1	
292	327500	4693300	◘		1.0	3.3	1		1	1	1						1								1				1		1		1		9	0	9	1	1	
293	327400	4693300	◘		1.7	5.6	1			1																			1						3	0	3	1	1	1
294	327300	4693300	◘		1.6	5.2	1		1	1	1										1	1			1						1				8	1	7	1	1	1
295	327200	4693300	◘		1.8	5.9	1		1	1	1										1				1			1	1						8	1	7	1	1	1
296	327100	4693300	◘		1.4	4.6	1		1		1									1					1						1				6	0	6	1	1	1
297	327000	4693300	◘		1.2	3.9	1		1	1	1										1				1										6	1	5	1	1	1
298	326900	4693300	◘		1.2	3.9	1		1	1	1										1				1										6	1	5	1	1	1
299	327500	4693200	◘		0.7	2.3	1			1	1														1										4	0	4	1	1	1
300	327400	4693200	◘		0.9	3.0	1		1	1	1														1		1		1				1		8	0	8	1	1	1
301	327300	4693200	◘		1.4	4.6	1			1	1						1								1				1		1				7	0	7	1	1	1
302	327200	4693200	◘		1.0	3.3	1			1											1				1				1		1				6	1	5	1	1	1
303	327100	4693200	◘		1.1	3.6	1				1														1										3	0	3	1	1	1
304	327000	4693200	◘		1.1	3.6	1		1	1	1										1				1										6	1	5	1	1	1
305	326900	4693200	◘		1.4	4.6	1		1		1										1				1										5	1	4	1	1	1
306	326800	4693200	◘		1.2	3.9	1				1														1										3	0	3	1	1	1
307	327000	4693100	◘		0.8	2.6	1		1	1	1														1			1	1		1		1		9	0	9	1	1	1
308	326900	4693100	◘		1.3	4.3	1		1		1						1				1				1										6	1	5	1	1	1
309	326800	4693100	◘		1.1	3.6	1		1	1	1														1	1		1			1		1		9	0	9	1	1	1
310	327000	4693000	◘		0.6	2.0	1		1	1	1						1												1	1	1		1		9	0	9	1	1	1
311	326900	4693000	◘		1.2	3.9	1		1	1	1						1	1							1			1		1	1		1		11	0	11	1	1	
312	326800	4693000	◘		0.8	2.6	1		1		1																	1			1				5	0	5	1	1	
313	326900	4692900	◘		0.6	2.0	1			1	1						1	1											1		1		1		8	0	8	1	1	
Totals for 180 sampling points							160	24	117	93	77	1	0	4	85	2	16	21	1	53	90	5	1	7	123	29	4	47	83	3	49	54	77	7	1233	90	1143	176	176	78
Totals for 169 original points							**152**	**19**	**108**	**90**	**76**	**1**	**0**	**2**	**75**	**2**	**16**	**21**	**1**	**50**	**85**	**5**	**1**	**5**	**118**	**25**	**4**	**44**	**81**	**3**	**49**	**47**	**75**	**7**	**1162**	**85**	**1077**	**165**	**165**	78
Totals for 11 new sampling points							8	5	9	3	1	0	0	2	10	0	0	0	0	3	5	0	0	2	5	4	0	3	2	0	0	7	2	0	71	5	66	11	11	0

Table 7. Recorded biomass (gDW/0.1m^2) for Lamoka Lake sampled on August 6, 2009 at 46 of the 50 sample points (SPs) where biomass was collected in 2000 (Madsen *et al.* 2001). Four new SPs were substituted in 2006 within the littoral zone for four deep SPs measured in 2000 (see Methods, Johnson and Keith 2006), resulting in 50 revised biomass SPs measured in 2009.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date 2009	Depth (ft) on date 2009	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna trisulca	Myriophyllum spicatum	Najas guadalupensis	Nitella flexilis	Nitellopsis obtusa	Nymphaea odorata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Spirodela polyrhiza	Utricularia sp.	Vallisneria americana	Total Biomass (gDW/0.1m^2)	Non-Native (gDW/0.1m^2)	Native Species (gDW/0.1m^2)
2	328400	4698000	0.8	2.6	1.26		0.0504			0.0113				0.1365								1.46	0	1.46
7	328500	4697900	1.3	4.3										1.41		8.78						10.19	0	10.19
11	328900	4697800	2.6	8.5	no plants																	0	0	0
14	328600	4697800	2.3	7.5						0.0032												0.003	0	0.003
25	328400	4697700	1.0	3.3	0.0911					0.0533					0.0056	0.4488						0.599	0.006	0.593
45	328500	4697500	1.2	3.9	0.2131		0.0254			11.62					0.0258			0.2337			1.02	13.14	0.026	13.11
76	328600	4697500	2.3	7.5	0.0221					0.0400				1.30	0.0341							1.40	0.034	1.36
86	328700	4697100	4.1	13.5						0.0101												0.010	0	0.010
89	329500	4697000	8.4	27.6	0.6046																	0.605	0	0.605
116	328700	4696800	2.5	8.2	0.0329					0.0130												0.046	0	0.046
117	329500	4696700	1.2	3.9	0.0184	0.3122				0.4170									0.0174		1.26	2.03	0	2.03
125	329400	4696600	2.4	7.9	0.3291		0.0304			0.9444					2.88							4.18	2.880	1.30
139	328700	4696500	1.9	6.2	1.7		20.97			1.53					0.0709						2.03	26.30	0.071	26.23
148	329400	4696300	0.9	3.0	no plants																	0	0	0
163	328700	4696200	1.9	6.2	0.1432		0.0546			0.0142						40.41						40.62	0	40.62
175	329400	4696000	3.5	11.5	no plants																	0	0	0
177	329200	4696000	2.6	8.5	1.2795										1.63							2.91	1.630	1.28
183	329600	4695900	1.4	4.6	0.4249		0.4921			0.0928						5.17					1.00	7.18	0	7.18
187	329200	4695900	2.5	8.2	0.1499										0.8710	0.0225						1.04	0.871	0.172
192	328700	4695900	1.6	5.2	0.4284		28.50			0.8940								0.0681				29.89	0	29.89
195	329300	4695800	2.1	6.9				0.0015						2.36								2.36	0	2.36
196	329200	4695800	1.5	4.9	1.44					5.52					0.1638	0.5056					0.4805	8.11	0.164	7.95
204	329300	4695700	1.4	4.6	0.0299					0.0203						5.73						5.78	0	5.78
209	328600	4695700	1.3	4.3			28.87															28.87	0	28.87
216	329000	4695500	1.4	4.6			1.73			0.0792				13.48							9.16	24.45	0	24.45
218	328800	4695500	3.5	11.5			0.2714								0.1190						0.0028	0.393	0.119	0.274
219	328700	4695500	2.3	7.5	3.45		0.5919			0.3135					0.1907							4.55	0.191	4.36
224	328600	4695400	1.0	3.3	0.9506		2.71	0.0655		0.9050	0.0028	0.0329		0.0148	0.0090	0.4300		0.3659	0.0127		0.9642	6.46	0.042	6.42
226	328400	4695400	0.7	2.3	no plants																	0	0	0

Table 7. (continued) Recorded biomass (gDW/0.1m^2) for Lamoka Lake sampled on August 6, 2009 at 46 of the 50 sample points (SPs) where biomass was collected in 2000 (Madsen *et al.* 2001). Four new SPs were substituted in 2006 within the littoral zone for four deep SPs measured in 2000 (see Methods, Johnson and Keith 2006), resulting in 50 revised biomass SPs measured in 2009.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date 2009	Depth (ft) on date 2009	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna trisulca	Myriophyllum spicatum	Najas guadalupensis	Nitella flexilis	Nitellopsis obtusa	Nymphaea odorata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Spirodela polyrhiza	Utricularia sp.	Vallisneria americana	Total Biomass (gDW/0.1m^2)	Non-Native (gDW/0.1m^2)	Native Species (gDW/0.1m^2)
232	328300	4695000	1.1	3.6	0.0171		0.0183	0.0168							0.0865	0.4061				0.2259		0.771	0.087	0.684
239	328200	4694700	0.7	2.3	0.1531			0.0407						0.3543		0.1840	0.0153	0.0172				0.765	0	0.765
240	328300	4694700	0.5	1.6	0.0080		0.0906	0.0029							0.0108	2.12		1.68				3.91	0.011	3.90
247	328000	4694300	0.8	2.6	no plants																	0	0	0
248	327900	4694300	2	6.6												0.6195						0.620	0	0.620
254	327700	4693900	1.5	4.9											0.0331	0.0377						0.071	0.033	0.038
258	327600	4693800	0.7	2.3	no plants																	0	0	0
259	327900	4693700	0.5	1.6	no plants																	0	0	0
271	327600	4693600	1.4	4.6	0.0021										0.1499	0.5586						0.711	0.150	0.561
274	327300	4693600	1.4	4.6	0.0373											1.03						1.07	0	1.07
281	327400	4693500	1.5	4.9											0.2815	0.2797						0.561	0.282	0.280
287	327400	4693400	1.4	4.6	0.0231			0.0157								7.49						7.53	0	7.53
288	327300	4693400	1.5	4.9											0.0357	0.0262						0.062	0.036	0.026
290	327100	4693400	1.2	3.9				0.0019								0.4067						0.409	0	0.409
301	327300	4693200	1.4	4.6	no plants																	0	0	0
303	327100	4693200	1.1	3.6												0.1721						0.172	0	0.172
305	326900	4693200	1.4	4.6	0.1308		0.0519	0.0194								0.5963				0.0188		0.817	0	0.817
306	326800	4693200	1.2	3.9												0.0470						0.047	0	0.047
308	326900	4693100	1.3	4.3	0.6873		0.0155									0.3261						1.03	0	1.03
312	326800	4693000	0.8	2.6	5.80			0.0030											0.0001			5.80	0	5.80
313	326900	4692900	0.6	2.0	6.31			0.0172					2.66						0.0019			8.99	0	8.99
Total Lake		Total (gDW)			25.74	0.31	84.47	0.18	0	22.48	0.00	0.03	2.66	19.06	6.60	75.80	0.02	2.36	0.03	0.24	15.92	255.91	6.630	249.28
Total Lake		g/0.1m^2			0.515	0.006	1.689	0.004	0	0.450	0.000	0.001	0.053	0.381	0.132	1.516	0.000	0.047	0.001	0.005	0.318	5.118	0.133	4.986
Total Lake		**gDW/m^2**			**5.15**	**0**	**16.89**	**0.037**	**0**	**4**	**0**	**0.007**	**0.53**	**3.811**	**1.319**	**15.16**	**0.003**	**0.473**	**0.006**	**0.049**	**3.184**	**51.18**	**1.326**	**49.86**
Total Lake		**% of total**			**10.06**	**0.12**	**33.01**	**0.07**	**0**	**8.78**	**0.00**	**0.01**	**1.04**	**7.45**	**2.58**	**29.62**	**0.01**	**0.92**	**0.01**	**0.10**	**6.22**	**100**	**2.59**	**97.41**

Table 8. Recorded biomass (gDW/0.1m^2) for Lamoka Lake's 50 historical predetermined SPs sampled on August 6, 2009 divided between Lamoka Lake "proper," which includes the 29 SPs in the main lake, from the 21 SPs in Mud Channel and Mill Pond.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date 2009	Depth (ft) on date 2009	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna trisulca	Myriophyllum spicatum	Najas guadalupensis	Nitella flexilis	Nitellopsis obtusa	Nymphaea odorata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Spirodela polyrhiza	Utricularia sp.	Vallisneria americana	Total Biomass (gDW/0.1m^2)	Non-Native (gDW/0.1m^2)	Native (gDW/0.1m^2)
2	328400	4698000	0.8	2.6	1.26		0.0504			0.0113				0.1365								1.46	0	1.46
7	328500	4697900	1.3	4.3										1.41		8.78						10.19	0	10.19
11	328900	4697800	2.6	8.5	no plants																	0	0	0
14	328600	4697800	2.3	7.5						0.0032												0.003	0	0.003
25	328400	4697700	1.0	3.3	0.0911					0.0533					0.0056	0.4488						0.599	0.006	0.593
45	328500	4697500	1.2	3.9	0.2131		0.0254			11.62					0.0258			0.2337			1.02	13.14	0.026	13.11
76	328600	4697500	2.3	7.5	0.0221					0.0400				1.30	0.0341							1.40	0.034	1.36
86	328700	4697100	4.1	13.5						0.0101												0.010	0	0.010
89	329500	4697000	8.4	27.6	0.6046																	0.605	0	0.605
116	328700	4696800	2.5	8.2	0.0329					0.0130												0.046	0	0.046
117	329500	4696700	1.2	3.9	0.0184	0.3122				0.4170									0.0174		1.26	2.03	0	2.03
125	329400	4696600	2.4	7.9	0.3291		0.0304			0.9444					2.88							4.18	2.880	1.30
139	328700	4696500	1.9	6.2	1.7		20.97			1.53					0.0709						2.03	26.30	0.071	26.23
148	329400	4696300	0.9	3.0	no plants																	0	0	0
163	328700	4696200	1.9	6.2	0.1432		0.0546			0.0142						40.41						40.62	0	40.62
175	329400	4696000	3.5	11.5	no plants																	0	0	0
177	329200	4696000	2.6	8.5	1.2795										1.63							2.91	1.630	1.28
183	329600	4695900	1.4	4.6	0.4249		0.4921			0.0928						5.17					1.00	7.18	0	7.18
187	329200	4695900	2.5	8.2	0.1499										0.8710	0.0225						1.04	0.871	0.172
192	328700	4695900	1.6	5.2	0.4284		28.50			0.8940								0.0681				29.89	0	29.89
195	329300	4695800	2.1	6.9				0.0015						2.36								2.36	0	2.36
196	329200	4695800	1.5	4.9	1.44					5.52					0.1638	0.5056					0.4805	8.11	0.164	7.95
204	329300	4695700	1.4	4.6	0.0299					0.0203						5.73						5.78	0	5.78
209	328600	4695700	1.3	4.3			28.87															28.87	0	28.87
216	329000	4695500	1.4	4.6			1.73			0.0792				13.48							9.16	24.45	0	24.45
218	328800	4695500	3.5	11.5			0.2714								0.1190						0.0028	0.393	0.119	0.274
219	328700	4695500	2.3	7.5	3.45		0.5919			0.3135					0.1907							4.55	0.191	4.36
224	328600	4695400	1.0	3.3	0.9506		2.71	0.0655		0.9050	0.0028	0.0329		0.0148	0.0090	0.4300		0.3659	0.0127		0.9642	6.46	0.042	6.42
226	328400	4695400	0.7	2.3	no plants																	0	0	0
Main Lamoka		Total (gDW)			12.57	0.312	84.30	0.067	0	22.48	0.003	0.033	0	18.70	6.00	61.50	0	0.668	0.030	0	15.92	222.58	6.07	216.50
Main Lamoka		g/0.1m^2			0.433	0.011	2.91	0.002	0	0.775	0.000	0.001	0	0.645	0.207	2.12	0	0.023	0.001	0	0.549	7.68	0.209	7.47
Main Lamoka		**gDW/m^2**			**4.33**	**0.108**	**29.07**	**0.023**	**0**	**7.75**	**0.001**	**0.011**	**0**	**6.45**	**2.07**	**21.21**	**0**	**0.230**	**0.010**	**0**	**5.49**	**76.75**	**2.09**	**74.66**
Main Lamoka		**% of total**			**5.65**	**0.14**	**37.87**	**0.03**	**0.00**	**10.10**	**0.00**	**0.01**	**0.00**	**8.40**	**2.70**	**27.63**	**0.00**	**0.30**	**0.01**	**0.00**	**7.15**	**100**	**2.73**	**97.27**

Table 8. (continued) Recorded biomass (gDW/0.1m^2) for Lamoka Lake's 50 historical predetermined SPs sampled on August 6, 2009 divided between Lamoka Lake "proper," which includes the 29 SPs in the main lake, from the 21 SPs in Mud Channel and Mill Pond.

Sample Point (SP)	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date 2009	Depth (ft) on date 2009	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna trisulca	Myriophyllum spicatum	Najas guadalupensis	Nitella flexilis	Nitellopsis obtusa	Nymphaea odorata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton robbinsii	Potamogeton zosteriformis	Ranunculus trichophyllus	Spirodela polyrhiza	Utricularia sp.	Vallisneria americana	Total Biomass (gDW/0.1m^2)	Non-Native (gDW/0.1m^2)	Native (gDW/0.1m^2)
232	328300	4695000	1.1	3.6	0.0171		0.0183	0.0168							0.0865	0.4061				0.2259		0.771	0.087	0.684
239	328200	4694700	0.7	2.3	0.1531			0.0407						0.3543		0.1840	0.0153	0.0172				0.765	0	0.765
240	328300	4694700	0.5	1.6	0.0080		0.0906	0.0029							0.0108	2.12		1.68				3.91	0.011	3.90
247	328000	4694300	0.8	2.6	no plants																	0	0	0
248	327900	4694300	2	6.6												0.6195						0.620	0	0.620
254	327700	4693900	1.5	4.9											0.0331	0.0377						0.071	0.033	0.038
258	327600	4693800	0.7	2.3	no plants																	0	0	0
259	327900	4693700	0.5	1.6	no plants																	0	0	0
271	327600	4693600	1.4	4.6	0.0021										0.1499	0.5586						0.711	0.150	0.561
274	327300	4693600	1.4	4.6	0.0373											1.03						1.07	0	1.07
281	327400	4693500	1.5	4.9											0.2815	0.2797						0.561	0.282	0.280
287	327400	4693400	1.4	4.6	0.0231			0.0157								7.49						7.53	0	7.53
288	327300	4693400	1.5	4.9											0.0357	0.0262						0.062	0.036	0.026
290	327100	4693400	1.2	3.9				0.0019								0.4067						0.409	0	0.409
301	327300	4693200	1.4	4.6	no plants																	0	0	0
303	327100	4693200	1.1	3.6												0.1721						0.172	0	0.172
305	326900	4693200	1.4	4.6	0.1308		0.0519	0.0194								0.5963				0.0188		0.817	0	0.817
306	326800	4693200	1.2	3.9												0.0470						0.047	0	0.047
308	326900	4693100	1.3	4.3	0.6873		0.0155									0.3261						1.03	0	1.03
312	326800	4693000	0.8	2.6	5.80			0.0030											0.0001			5.80	0	5.80
313	326900	4692900	0.6	2.0	6.31			0.0172					2.66						0.0019			8.99	0	8.99
Mill Pond		Total (gDW)			13.17	0	0.176	0.118	0	0	0	0	2.66	0.354	0.598	14.30	0.015	1.70	0.002	0.245	0.000	33.33	0.598	32.74
Mill Pond		g/0.1m^2			0.627	0	0.008	0.006	0	0	0	0	0.127	0.017	0.028	0.681	0.001	0.081	0.000	0.012	0.000	1.59	0.028	1.56
Mill Pond		**gDW/m^2**			**6.27**	**0**	**0.084**	**0.056**	**0**	**0**	**0**	**0**	**1.27**	**0.169**	**0.285**	**6.81**	**0.007**	**0.808**	**0.001**	**0.117**	**0.000**	**15.87**	**0.285**	**15.59**
Mill Pond		**% of total**			**39.51**	**0.00**	**0.53**	**0.35**	**0**	**0.00**	**0.00**	**0**	**7.98**	**1.06**	**1.79**	**42.90**	**0.05**	**5.09**	**0.01**	**0.73**	**0.00**	**100**	**1.79**	**98.21**

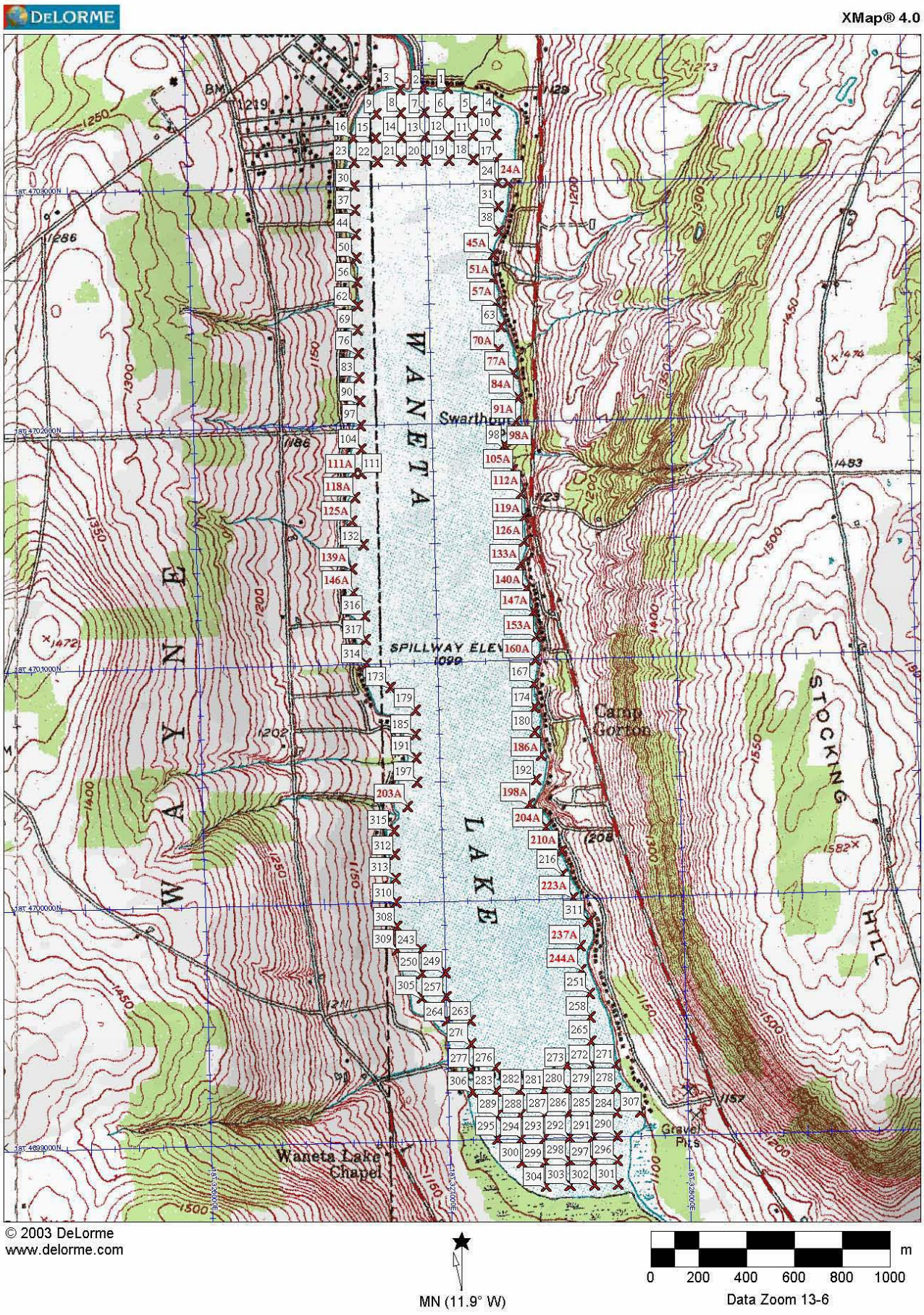

Figure 2. Sample Point (SP) Locations in Waneta Lake where rake-toss measurements were taken from August 4 - 5, 2009. The red type SPs are locations added in 2008 to the revised 2006 SPs in black type (See Methods, Johnson and Keith 2006).

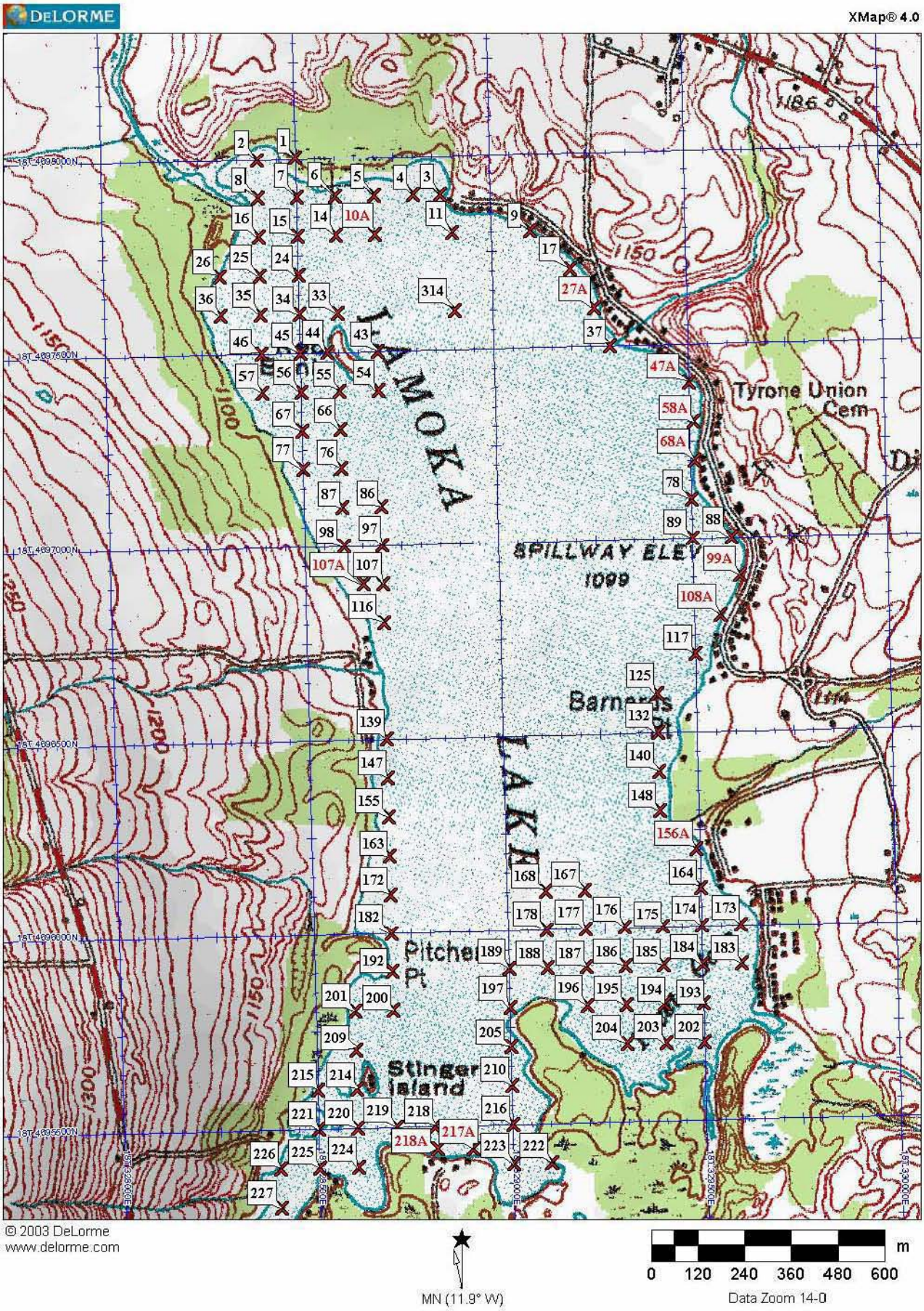

Figure 3. Sample Point (SP) Locations in Lamoka Lake where rake-toss measurements were taken from July 23 - 30, 2009. The red type SPs are locations added in 2008 to the 2006 SPs in black type.

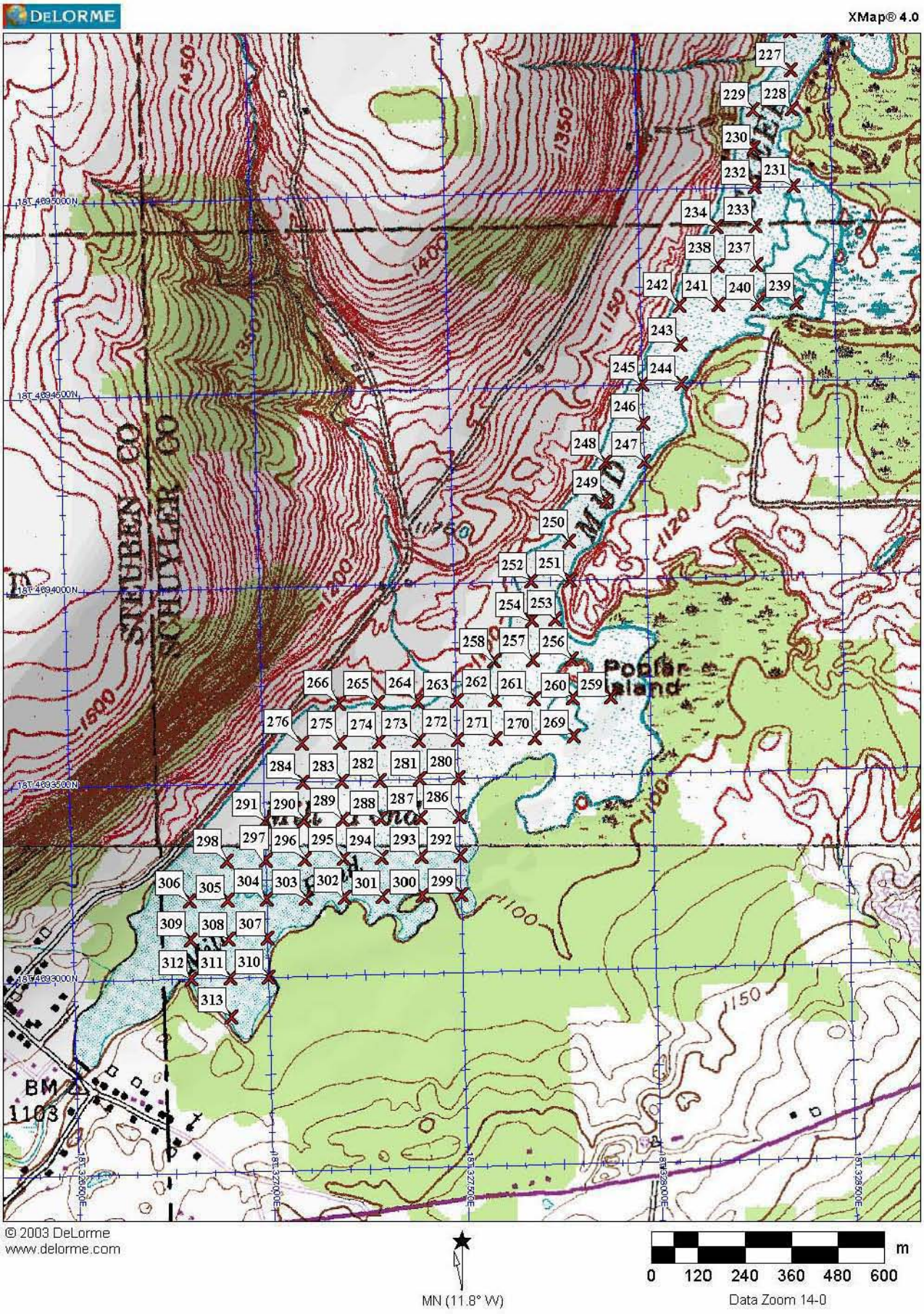

Figure 4. Sample Point (SP) Locations in Mud Channel and Mill Pond where rake-toss measurements were taken from July 23 - 30, 2009.

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Appendix

Table A. Rake-toss data for Waneta Lake sampled on August 4 - 5, 2009 at 138 sample points (SPs)

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Table B. Rake-toss data for Lamoka Lake sampled from July 23 - 30, 2009 at 180 sample points (SPs)

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Table A. Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
1	1	327100	4703400	◘				0.6	S			50					30										20		
	2								S	10		35					50				1		1				3		
2	1	327000	4703400	◘				0.8	S	15		70					15												
	2								S	2	2	30					60				1		4				1		
3	1	326900	4703400	◘				0.5	S	30		20					50												
	2								S		15	4				25	25	3					18				10		
4	1	327300	4703300	◘				1.2	D	5							95												
	2								M			1					99												
5	1	327200	4703300	◘				1.3	S	50		15					30								5				
	2								M	15		5					80												
6	1	327100	4703300	◘				1.0	M	50		45					5												
	2								D	85		10					5												
7	1	327000	4703300	◘				2.0	D	30		30					40										0.01		
	2								D	30		20					50												
8	1	326900	4703300	◘				2.0	D	30		20					50												
	2								D	50		40					10												
9	1	326800	4703300	◘				1.9	D	20		20					60												
	2								M	18		2					80												
10	1	327300	4703200	◘				2.1	D	10		30					60												
	2								D	20		20					60												
11	1	327200	4703200	◘				2.7	M	4		46					50												
	2								D	20		45					35												
12	1	327100	4703200	◘				2.8	D	5		25					70				0.01								
	2								D			49					50						1						

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
13	1	327000	4703200	◘				3.0	M			10					80				10		0.01						
	2								M	10		2					80				8								
14	1	326900	4703200		■			3.2	M	30							70						0.01						
	2								M	30		10					40				10		10						
15	1	326800	4703200	◘				2.7	M	2		1					97												
	2								M			2					98												
16	1	326700	4703200	◘				0.6	S	30	10					12	40						0.01				8		
	2								S		20					20	50						0.01						10
17	1	327300	4703100	◘				2.8	M			1					99				0.01								
	2								D			20					70						10						
18	1	327200	4703100			•		3.2	T	60		19					20						1						
	2								T	50		40					10												
19	1	327100	4703100			•		4.0	T			40					60												
	2								O																				
20	1	327000	4703100			•		4.5	O																				
	2								O																				
21	1	326900	4703100			•		4.5	O																				
	2								O																				
22	1	326800	4703100			•		4.0	S								99						1						
	2								S			10					90												
23	1	326700	4703100	◘				1.0	S								100												
	2								S			1					99												
24	1	327300	4703000		■			3.0	D	15		0.01					85				0.01		0.01						
	2								D	10							90												

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
24A	1	327343	4703000				○	1.4	M	5		70					25												
	2								D	10		25					60										5		
30	1	326700	4703000	◘				1.7	M			0.01					100												
	2								D			15					85												
31	1	327300	4702900	◘				2.2	D	2		49					49												
	2								D	1		9					90												
37	1	326700	4702900	◘				1.5	D			2					96										2		
	2								D			2					95										3		
38	1	327300	4702800	◘				0.7	D	0.01		50					50												
	2								M			20					40						40						
44	1	326700	4702800	◘				1.1	M								100												
	2								M		15	5				5	70										5		
45A	1	327274	4702700				○	1.4	M			30					69										1		
	2								M			30					70												
50	1	326700	4702700	◘				0.8	M		20	10				20	50										0.01		
	2								M		30	3				60	0.01					2					5		
51A	1	327269	4702600				○	1.5	S			3					90				2		5						
	2								M			5					95												
56	1	326700	4702600	◘				0.6	S							20	60										20		
	2								S			65				8	12										15		
57A	1	327283	4702500				○	1.4	M	2		3					95												
	2								M			1					59										40		
62	1	326700	4702500	◘				0.9	D			10					90												
	2								D			13					85										2		

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
63	1	327300	4702400	◘				2.2	M	5		25					70												
	2								M			10					90												
69	1	326700	4702400	◘				1.4	D			10					90												
	2								D			15					85												
70A	1	327286	4702300				○	1.5	M	0.01		5					95												
	2								M			4					95				1								
76	1	326700	4702300	◘				1.8	M			2					98												
	2								D			15					85												
77A	1	327346	4702200				○	1.5	M			50					50						0.01						
	2								M			3					97						0.01						
83	1	326700	4702200	◘				1.4	D			10					90												
	2								D			2					98												
84A	1	327364	4702100				○	1.5	D			90					10				0.01								
	2								D			10					90												
90	1	326700	4702100	◘				1.4	D	0.01		5					95												
	2								D			2					98						0.01						
91A	1	327352	4702000				○	1.5	D			10					90												
	2								D	0.01		10					90												
97	1	326700	4702000	◘				1.8	D			5				0.01	90	5											
	2								D			0.01					100												
98	1	327300	4701900		■			3.1	T			25					75												
	2								T								100												
98A	1	327304	4701900				○	1.5	M	10		70					20												
	2								M			20					70				0.01		10						

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
104	1	326700	4701900	◘				2.7	S								100												
	2								M	4		6					90												
105A	1	327334	4701800				○	1.5	S							25	60					15							
	2								S	30		0.01				0.01	30					40							
111	1	326700	4701800	◘				3.9	S								100												
	2								M			10					90												
111A	1	326670	4701800				○	1.5	M			20					80												
	2								D			5					95												
112A	1	327368	4701700				○	1.5	M			1					99												
	2								S			5				15	40					40							
118A	1	326670	4701700				○	1.6	M			1					99												
	2								D			5					95												
119A	1	327375	4701600				○	1.5	M			5					94				1								
	2								M			20					80												
125A	1	326655	4701600				○	1.5	D			2					98												
	2								S								100												
126A	1	327373	4701500				○	1.5	D			5					95						0.01						
	2								D	2		10					85										3		
132	1	326700	4701500	◘				1.9	S			60					40												
	2								S			20					80												
133A	1	327356	4701400				○	1.5	S			30					70					0.01							
	2								M	10		40					40	0.01			5	5							
139A	1	326650	4701400				○	1.5	D			10					90												
	2								D	4		16					80												

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
140A	1	327378	4701300				○	1.5	T			100																	
	2								S			10					90												
146A	1	326654	4701300				○	1.4	D			5					95												
	2								D			25					75												
147A	1	327405	4701200				○	1.5	M	5		5					90												
	2								S			10					90												
153A	1	327416	4701100				○	1.5	S			50					50						0.01						
	2								D			8					90						2						
160A	1	327408	4701000				○	1.5	T								100												
	2								M			10					90				0.01								
167	1	327400	4700900	◘				1.9	M			20					80												
	2								S			5					95												
173	1	326800	4700900	◘				1.9	D			10					90												
	2								M			15					85												
174	1	327400	4700800	◘				1.8	S			5					95				0.01								
	2								S			100																	
179	1	326900	4700800	◘				1.1	S		5	40				5	50												
	2								S		10	5				25	50		10										
180	1	327400	4700700	◘				1.8	D			20					80												
	2								M			1					49										50		
185	1	326900	4700700	◘				1.1	D		2	18					80												
	2								M			20					80												
186A	1	327422	4700600				○	1.5	D	5		60					35												
	2								D	0.01		50					50												

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
191	1	326900	4700600	◘				1.8	M	8	2	40					50												
	2								M	2		18					80												
192	1	327400	4700500	◘				1.5	D	0.01		30					70												
	2								D	5		35					60												
197	1	326900	4700500	◘				2.7	M	1		20					78				1								
	2								S			20					80				0.01								
198A	1	327371	4700400				○	2.0	T													100						
	2								S	T	T	5				20	30	5					10				30		
203A	1	326860	4700400				○	1.5	M	8		2					90												
	2								M	0.01		20					80								0.01				
204A	1	327437	4700300				○	1.5	D	50		40					10												
	2								M	1		69					30												
210A	1	327500	4700200				○	1.5	M			30					70												
	2								M	6		47					47												
216	1	327500	4700100	◘				1.8	M	65		30					5												
	2								D	5		60					35												
223A	1	327539	4700000				○	1.7	M	5		55					40												
	2								D	5		75					20				0.01								
237A	1	327566	4699800				○	1.5	M	1		49					50												
	2								D	4		76					20												
243	1	326900	4699800	◘				2.7	M			15					85				0.01								
	2								D	40		30					30												
244A	1	327567	4699700				○	1.5	D	2	0.01	58					40												
	2								D	10		60					30												

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
249	1	327000	4699700		■			4.5	T								100												
	2								T	90							10												
250	1	326900	4699700	◘				2.1	D			80					19						1						
	2								D	10		43					42				**0.01**		5						
251	1	327600	4699600	◘				1.5	D	2		48					50												
	2								D	10		50					40												
257	1	327000	4699600		■			3.2	T								100												
	2								O																				
258	1	327600	4699500	◘				2.6	M	20		39					39				**2**								
	2								M	10		40					50												
263	1	327100	4699500		■			3.7	O																				
	2								T								100												
264	1	327000	4699500	◘				1.9	D	5		50					45												
	2								D	5		30					65				**0.01**								
265	1	327600	4699400		■			3.2	T			20					80												
	2								S	10		40					40				**10**								
270	1	327100	4699400		■			2.9	S	90		2					8												
	2								T	50		25					25												
271	1	327700	4699300	◘				0.9	S		1	49					48						1				1		
	2								S			7				3	85										5		
272	1	327600	4699300	◘				3.1	M	1		60					37				**2**								
	2								S			50					45				**5**								
273	1	327500	4699300		■			3.4	O																				
	2								S			60					40												

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
276	1	327200	4699300		■			3.4	T								100												
	2								O																				
277	1	327100	4699300	◘				1.8	M	3		48	0.01				48						1			0.01		0.01	
	2								D	13		60	0.01				25				2					0.01		0.01	
278	1	327700	4699200	◘				1.3	D	0.01		50					50				0.01						0.01		
	2								D	10		40					40										10		
279	1	327600	4699200	◘				2.7	M	10		45					45												
	2								D	15		70					15						0.01						
280	1	327500	4699200	◘				2.7	S	25		48					25				2								
	2								S	10		50					40												
281	1	327400	4699200		■			3.1	S			50					30								20				
	2								S			40					50				10								
282	1	327300	4699200	◘				3.0	O																				
	2								S	10		3					75				10						2		
283	1	327200	4699200	◘				2.5	D			85					13								2				
	2								D	0.01		100					0.01				0.01								
284	1	327700	4699100	◘				1.5	M	5		10		0.01			85												
	2								M	20		40					40										0.01		
285	1	327600	4699100	◘				2.3	D	5		75					20												
	2								D	35		40					25												
286	1	327500	4699100	◘				2.3	D	20		20					60												
	2								D	4		48					48				0.01								
287	1	327400	4699100	◘				2.5	D			10					90				0.01								
	2								D	2		23					75												

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
288	1	327300	4699100	◘				2.6	M	0.01		50					50												
	2								D			50					50												
289	1	327200	4699100	◘				2.0	D	0.01		50					50												
	2								D	0.01		50					50				**0.01**								
290	1	327700	4699000	◘				1.4	D	4		48		0.01			48				**0.01**								
	2								D	5		5					90												
291	1	327600	4699000	◘				1.9	D	10		45					45												
	2								D	25		25					50				**0.01**						0.01		
292	1	327500	4699000	◘				1.9	M	50		23					27				**0.01**								
	2								D	15		50					35				**0.01**								
293	1	327400	4699000	◘				2.0	M	90		5					5										0.01		
	2								M	9		40					50				**1**								
294	1	327300	4699000	◘				2.0	D	8		45					45				**2**								
	2								D	15		15					70				**0.01**								
295	1	327200	4699000	◘				1.5	M	10		40					40										10		
	2								M	3		45					50				**2**								
296	1	327700	4698900	◘				1.3	S	25		15					25										35		
	2								S	50		10					10				**3**				2		25		
297	1	327600	4698900	◘				1.5	M	10		20					60								2		8		
	2								M	15		15					50				**0.01**						20		
298	1	327500	4698900	◘				1.5	D	5		43					50				**2**								
	2								M	1		39					60				**0.01**						0.01		
299	1	327400	4698900	◘				1.6	M	10		44					44				**2**								
	2								M	30		15					5				**0.01**						50		

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
300	1	327300	4698900	◘				1.5	M	2		55					40								3				
	2								M	2		46					46				2				2		2		
301	1	327700	4698800	◘				1.0	M	10		69					20				0.01				1				
	2								M	10		20					50			10						0.01	10		
302	1	327600	4698800	◘				1.1	M	10		35					50				0.01				5				
	2								M	8		10					80				2								
303	1	327500	4698800	◘				1.1	M	1		49					49				1								
	2								M	5	5	5					65							5	15				
304	1	327400	4698800	◘				1.3	S	20		10					50							20					
	2								M	2		15					80			1				1	1				
305	1	326900	4699600	◘				1.6	D			50					50												
	2								D			90					10										0.01		
306	1	327100	4699200	◘				1.1	M	0.01		35					60								5				
	2								M	3		46				3	46	1			0.01						1		
307	1	327800	4699100	◘				0.5	D	10		65	0.01				15								0.01	0.01	10	0.01	
	2								D	10		70	0.01				8								2	0.01	10	0.01	
308	1	326800	4699900	◘				1.3	S	10		10					70				10		0.01						
	2								S			60					40				0.01								
309	1	326800	4699800	◘				0.8	D	2	10	44					44												
	2								M	5	0.01	35					60												
310	1	326800	4700000	◘				1.3	M	10		85					5												
	2								D			70					30												
311	1	327600	4699900	◘				1.3	D	2		53					45												
	2								D	10		60					30												

Table A. (continued) Results of the two rake-toss sampling of Waneta Lake on August 4 - 5, 2009 at 138 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North	◘ 91 original vegetated SPs	■ 11 original nonvegetated SPs	• 5 remaining DEC SPs	○ 31 added 2008 SPs	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Najas minor	Nitella sp.	Nymphaea odorata	Potamogeton crispus	Potamogeton foliosus	Potamogeton pusillus	Potamogeton robbinsii	Ranunculus trichophyllus	Spirodela polyrhiza	Vallisneria americana	Wolffia columbiana	Zosterella dubia
312	1	326800	4700200	◘				1.8	D	7		90					3												
	2								D	5		80					15												
313	1	326800	4700100	◘				1.7	D	50		48					2												
	2								D	70		25					5				0.01								
314	1	326700	4701000	◘				1.3	D			20					80												
	2								D			10				0.01	70						0.01				20		
315	1	326800	4700300	◘				1.9	M			10					90												
	2								D	80		15					5												
316	1	326700	4701200	◘				2.0	M			30					70				0.01								
	2								D			10					90												
317	1	326700	4701100	◘				1.8	D			30					70												
	2								D			30					70												

Table B. Results of the two rake-toss sampling of Lamoka Lake from July 23 – 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
1	1	328500	4698000	0.2	M				0.01	0.01				10					30	2							2	0.01	0.01	41	15	0.01	
	2				M				0.01					10			1		20					1			3	0.01	10	5	50	0.01	
2	1	328400	4698000	0.8	S									1			99											0.01				0.01	
	2				S	98								2																	0.01	
3	1	328870	4697900	1.1	T									100																		
	2				O																											
4	1	328800	4697900	2.3	S	92		1	0.01					2										5				0.01			0.01	
	2				S	90								3										7								
5	1	328700	4697900	1.9	S																			90	8					2		
	2				S	4								2					40	15				30						9		
6	1	328600	4697900	1.6	M	33								2					15					35						15		
	2				M	40													20					35						5		
7	1	328500	4697900	1.3	M									2					8					90								
	2				M	10	0.01												10					80								
8	1	328400	4697900	1.1	T									100																		
	2				T									100																		
9	1	329100	4697800	2.3	T	50								50																		
	2				T				0.01																		100	0.01				0.01	
10A	1	328700	4697800	1.5	O																											
	2				T				100																							
11	1	328900	4697800	2.6	O																											
	2				T									30										70								
14	1	328600	4697800	.2 3.	T					0.01									100									0.01				0.01	
	2				T	30																		65						5		

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
15	1	328500	4697800	1.3	T				0.01					10										80				0.01			10	0.01	
	2				S	10		5	0.01					5						5				75				0.01				0.01	
16	1	328400	4697800	1.0	T	50								10			10			30													
	2				S	45		2						50						3													
17	1	329200	4697700	3.4	O																												
	2				T	100																											
24	1	328500	4697700	1.0	S	11		6						4			3			6				70									
	2				S	39								10						10				40			1						
25	1	328400	4697700	1.0	S	35								30						5				30									
	2				S	10								20						30				40									
26	1	328300	4697700	0.8	O																												
	2				O																												
27A	1	329200	4697700	1.8	T	100																											
	2				T	95								5																			
33	1	328600	4697600	1.6	M		2	2	0.01					16			25		5								25	0.01			25	0.01	
	2				M			1	0.01					70			8		1								10	0.01			10	0.01	
34	1	328500	4697600	1.0	M	10	1	9	0.01					70										2			1	0.01			7	0.01	
	2				M	35		5	0.01					50					0.01					3			2	0.01			5	0.01	
35	1	328400	4697600	1.1	S	20								9					1					70									
	2				M	9								30					1					60									
36	1	328300	4697600	0.8	T												100																
	2				T	80								20																			
37	1	329300	4697500	0.6	O																												
	2				O																												

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zostrella dubia
43	1	328700	4697500	1.7	S	95																									5		4
	2				S	25	15						15	15									2				9				15		
44	1	328570	4697500	0.7	S		2	5						5			80										3				5		
	2				S	15	10	3						45			5		7												15		
45	1	328500	4697500	1.2	D	4		0.01		0.01				80									5				8				3		
	2				M	3		2						50									13				25				7		
46	1	328400	4697500	1.0	S	35		4						55						2			4										
	2				S	40		2						40		4				10			4										
47A	1	329500	4697400	1.5	T			50						30					20														
	2				S			30						4									3	30							3		
54	1	328700	4697400	2.5	T	100																											
	2				T	100																											
55	1	328600	4697400	1.7	M	50								1					35												14		
	2				D	45													45				2.0	3							5		
56	1	328500	4697400	1.1	M			3		2				25						15				40			5				10		
	2				M					0.01				20					0.01					57			20				3		
57	1	328400	4697400	1.1	T									70										30									
	2				S	45								45										10									
58A	1	329510	4697300	1.5	S	7	7	2					60	15					6						1		2						
	2				S		19	5					40	20					5				1	5							5		
66	1	328600	4697300	2.0	M	75								5					20														
	2				S	50								1					24	1			23								1		
67	1	328500	4697300	1.4	M	3								90										3			4						
	2				M	3								80					2					5							10		

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
68A	1	329510	4697200	1.9	O																												
	2				T	50		6						12					12	**12**				4	4								
76	1	328600	4697200	2.3	T	35								1					60	**4**													
	2				S	7								5					70	**7**				6	2						3		
77	1	328500	4697200	1.7	D	2								94										3							1		
	2				D	14		3						50		0.01	10		0.01					3							20		
78	1	329500	4697100	3.3	T				33																			33				34	
	2				O																												
87	1	328600	4697100	2.0	M	5								5					50	**3**				35			2						
	2				M	45													45	**10**													
88	1	329600	4697000	2.3	T			5						15						**80**													
	2				T	5			0.01					5					5	**85**								0.01				0.01	
97	1	328700	4697000	3.6	O																												
	2				O																												
98	1	328600	4697000	1.7	M	10		0.01						28						**0.01**				30			2				30		
	2				M	5		3						15					20	**5**				25	2						25		
99A	1	329620	4669000	1.5	S	35		1						30						**0.01**				33							1		
	2				S	50	3	3						10										1			3				30		
107	1	328700	4696900	3.0	D	4		4						90										1							1		
	2				M	70	1							5						**1**				20			2				1		
107A	1	328700	4696900	1.4	T	30		20						30						**20**													
	2				T	40		20						40																			
108A	1	329567	4697800	1.4	T			2	2	1				2														2			89	2	
	2				S		10	15	0.01					50						**15**								0.01			10	0.01	

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
116	1	328700	4696800	2.5	T									100																			
	2				S	30	5	5						35													25						
117	1	329500	4696700	1.2	T	10	30		0.01					60														0.01				0.01	
	2				S	3	2							80																	15		
125	1	329400	4696600	2.4	T				0.01					100														0.01				0.01	
	2				S	95								5																			
132	1	329400	4696500	1.8	M	60			0.01					20						10								0.01			10	0.01	
	2				M	60								24						1											15		
139	1	328700	4696500	1.9	M	30		15						30																	25		
	2				M	50		20						15					0.01						5						10		
140	1	329400	4696400	0.8	S		30		0.01					40					0.01									0.01			30	0.01	
	2				S	4	10	2						80													2				2		
147	1	328700	4696400	1.6	D	3		30						3					55												9		
	2				D	8		60						20					3	1					3		2				3		
148	1	329400	4696300	0.9	M	48	15	15						15					2	1							2				2		
	2				M	60		13						10													2				15		
155	1	328700	4696300	0.9	S	2	18	33						35																	12		
	2				M		40	40						18													1				1		
156A	1	329490	4696200	1.5	M	20			0.01					10														0.01			70	0.01	
	2				M	60	3	2						25																	10		
163	1	328700	4696200	1.9	M	40		5						5						40						5					5		
	2				D	30		6						5						7					40	6		2			4		
164	1	329500	4696100	2.0	S	76		2						2						12				2		6							
	2				S	75								5						20						0.01							

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
167	1	329200	4696100	3.0	T			100																									
	2				T	100																											
168	1	329100	4696100	3.0	T	70		10						10						**10**													
	2				T									40						**60**													
172	1	328700	4696100	2.9	S	7		20						3						**70**													
	2				S			20						10						**40**					20	2		8					
173	1	329600	4696000	1.5	M	4								4					85												7		
	2				M	5		1						40					25					25								4		
174	1	329500	4696000	2.3	S	25														**15**					60								
	2				T	15		15						60						**10**													
175	1	329400	4696000	3.5	T			100	0.01																			0.01				0.01	
	2				T	75		5	0.01																20			0.01				0.01	
176	1	329300	4696000	2.6	S	24								5					1	**70**											0.01		
	2				M	75			0.01										0.01	**25**								0.01			0.01		
177	1	329200	4696000	2.6	S			5												**95**													
	2				S			3						3						**94**													
178	1	329100	4696000	2.8	T															**100**													
	2				T			5												**95**													
182	1	328700	4696000	1.9	S	30		30						20											20								
	2				S	35	1	20						40						**2**						2							
183	1	329600	4695900	1.4	M	1								50					25	**0.01**					15	3					6		
	2				M	12		2						3					55						15							13		
184	1	329500	4695900	2.3	T	50			0.01											**50**									0.01				
	2				T	40				1				1						**18**					40								

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
185	1	329400	4695900	3.3	O																												
	2				T	100																											
186	1	329300	4695900	2.6	S	75														25														
	2				S			3											90	7													
187	1	329200	4695900	2.5	S	20		2												70					8								
	2				S	4		3												80					3								10
188	1	329100	4695900	2.2	M	11								1					85	3													
	2				M	46														47													7
189	1	329000	4695900	3.0	T	35								5						60													
	2				M	97														3													
192	1	328700	4695900	1.6	M	18		50						30						1												1		
	2				D	5		50						40														5						
193	1	329500	4695800	1.7	M	3								1											96									
	2				D	2		2						50					2						33							10		1
194	1	329400	4695800	2.0	M	30		1	0.01											4					65				0.01				
	2				S	36		1											1	1				31	30								
195	1	329300	4695800	2.1	M														90					6	4								
	2				S	30		10												0.01					60								
196	1	329200	4695800	1.5	M	10		5	0.01					40					25					7	3			0.01			10	0.01	
	2				M	40		1	0.01					7					35	0.01							2	0.01			15	0.01	
197	1	329000	4695800	1.1	O																												
	2				S	15	7	5						60										3							3		7
200	1	328700	4695800	4.0	S	20		25						10										10			10				25		
	2				S			3						15						2				40							40		

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
201	1	328600	4695800	1.1	M	2		90											1						0.01		2				5		
	2				D	10		40	0.01					10											5		5				30		
202	1	329500	4695700	1.2	M																		100									
	2				M				0.01								5		18				75				0.01			2	0.01	
203	1	329400	4695700	1.5	D																		100									
	2				D				0.01										5				95				0.01				0.01	
204	1	329300	4695700	1.4	M									2					18				80									
	2				M	1		0.01											29				70									
205	1	329000	4695700	1.5	D	8		70						15					1				3							3		
	2				D	1	0.01	99			0.01			0.01									0.01							0.01		
209	1	328600	4695700	1.3	M	1		90						2									2			5						
	2				D	2	2	85						1									2							8		
210	1	329000	4695600	2.0	T	85		4						7						1				3								
	2				M																									100		
214	1	328600	4695600	1.3	M	7	1	80	0.01					0.01			1		0.01					1		9	0.01			1	0.01	
	2				M	15		20	0.01								3						2			60	0.01				0.01	
215	1	328500	4695600	0.9	M	10	20	6	0.01					4		18								1		1	0.01		30	10	0.01	
	2				M	40		7	0.01							5	2										0.01		40	6	0.01	
216	1	329000	4695500	1.4	D	4		60						5					20				2			1				8		
	2				D	19		50						1					19				10	1								
217A	1	328895	4695441	1.5	D	75		10						6									2	1		2				4		
	2				M	25		25						25										0.01						25		
218	1	328800	4695500	3.5	O																											
	2				O																											

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
218A	1	328806	4695442	1.7	M	20	6	6					8	40																	20		
	2				M	42		6						42											4						6		
219	1	328700	4695500	2.3	T	50								20										30									
	2				T	12		80		0.01				8																			
220	1	328600	4695500	1.5	D	12		80	0.01	0.01									0.01	**0.01**				8				0.01				0.01	
	2				M	5		60						0.01					0.01	**2**				15	15		3						
221	1	328500	4695500	0.7	M		3	2	0.01				15	2		5	55						2				4	0.01		10	2	0.01	
	2				M	25		15	0.01	0.01			3		20		15										2	0.01		15	5	0.01	
222	1	329100	4695400	1.0	T	100																											
	2				M	92		4								4																	
223	1	329000	4695400	1.1	M	10		10						5		1			8					65						1			
	2				D	30		40	0.01	0.01				0.01					3					16	8		1			2		0.01	
224	1	328600	4695400	1.0	M	25	4	50	0.01	0.01				4					2						1		4	0.01			9	0.01	1
	2				D	25		21	0.01	0.01				2		7			4					5	2		25	0.01		2	7	0.01	
225	1	328500	4695400	0.9	D	10		50	1	1				2					4					16			4	1			10	1	
	2				M	20		20	0.01	0.01							25							5			10	0.01			20	0.01	
226	1	328400	4695400	0.7	M	30		20	0.01	0.01				1	1		16		10					2			10	0.01		10		0.01	
	2				S	1		20	0.01							20	10			**4**				4			39	0.01		2		0.01	
227	1	328400	4695300	1.7	T			50	0.01															50				0.01				0.01	
	2				M	25		15	0.01											**5**				55									
228	1	328400	4695200	0.7	S	40		6	0.01	1														40				0.01		13		0.01	
	2				M	30		5	0.01	0.01							20					2		3				0.01		30	10	0.01	
229	1	328300	4695200	0.7	S	40		12	0.01	0.01							2			**2**				40				0.01		4		0.01	
	2				M	25		15	0.01	0.01						5			5	**0.01**				25			5	0.01		20	0.01	0.01	

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
230	1	328300	4695100	1.5	S	10		5												5					70						10			
	2				S	60		19	0.01	0.01										1					20				0.01				0.01	
231	1	328400	4695000	1.2	M	12			0.01	0.01									3					20				0.01		65		0.01	
	2				M	10			0.01	0.01														30				0.01		60		0.01	
232	1	328300	4695000	1.1	S	40		10	0.01										10					40				0.01				0.01	
	2				S	50		10		0.01									0.01					30						10			
233	1	328300	4694900	1.1	M	6		2		0.01										1				70						21			
	2				M	4				0.01										1				50						45			
234	1	328200	4694900	1.1	T	20			0.01	0.01										10				70				0.01				0.01	
	2				T	30														35				35									
237	1	328300	4694900	1.2	S	3			0.01	1														96				0.01				0.01	
	2				M	23				0.01														65						12			
238	1	328200	4694800	1.4	S	19		1	0.01	0.01									3	0.01				70				0.01		7		0.01	
	2				M	35		0.01		0.01									0.01	0.01				40						25			
241	1	328200	4694700	1.1	S				0.01	0.01														60				0.01		40		0.01	
	2				M					0.01										2				70						28			
242	1	328100	4694700	1.3	D	3			0.01															90				0.01		7		0.01	
	2				D	2				0.01										1				69						28			
243	1	328100	4694600	1.7	S	45		2	0.01															8				0.01		45		0.01	
	2				S	68			0.01											2				30									
244	1	328100	4694500	0.8	T	50			0.01	0.01														50				0.01				0.01	
	2				S				0.01	0.01										4				48				0.01		48		0.01	
245	1	328000	4694500	1.0	T	40																		60									
	2				S	25			0.01	0.01														25				0.01		50		0.01	

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zostrella dubia
246	1	328000	4694400	1.5	T	20		40													**20**				20									
	2				S	80														**0.01**				20						0.01			
247	1	328000	4694300	0.8	T	50			0.01	0.01														50				0.01			0.01		
	2				S			5	0.01	0.01														60				0.01		35	0.01		
248	1	327900	4694300	2.0	T	97			0.01	0.01														3				0.01			0.01		
	2				S	70		2	0.01	1														27				0.01			0.01		
249	1	327900	4694200	1.1	T				0.01											**20**				80				0.01			0.01		
	2				S				0.01															45				0.01		55	0.01		
250	1	327800	4694100	1.4	T	40			0.01															10				0.01		50	0.01		
	2				T	100																											
251	1	327800	4694000	1.2	T	33			0.01	0.01														33				0.01		34	0.01		
	2				S	80		2	0.01	0.01							4							10				0.01		4	0.01		
252	1	327700	4694000	1.2	S	12			0.01	0.01									12					16				0.01		60	0.01		
	2				S	40		1		0.01														50				0.01		9			
253	1	327760	4693900	0.6	S	6		2	0.01	0.01							30		20	**2**				30				0.01		10	0.01		
	2				S	97		3	0.01																						0.01		
254	1	327700	4693900	1.5	T					5														95									
	2				S	60		5		0.01										**5**				12						18			
256	1	327800	4693800	0.7	T				25															25				25			25		
	2				M	20		5	3	2										**5**	2			60			2	1					
257	1	327700	4693800	1.4	S	80		7	0.01	0.01										**2**				7				0.01		5	0.01		
	2				S	85		5		0.01										**T**	0.01			8						2			
258	1	327600	4693800	0.7	S	40		10		0.01														50				0.01			0.01		
	2				T	5			0.01															95									

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
260	1	327800	4693700	1.0	T	50			0.01															50				0.01		50		0.01	
	2				T				0.01																								
261	1	327700	4693700	1.4	S	80		20												0.01				0.01									
	2				S	80		7		1										6				6								0.01	
262	1	327600	4693700	1.4	S	80		5	0.01	0.01										5				10				0.01				0.01	
	2				T	90		4	0.01											6				0.01									
263	1	327500	4693700	1.0	T	98		1	0.01											1								0.01				0.01	
	2				T	100			0.01																								
264	1	327400	4693700	0.8	M	15		3	0.01	0.01								50		2	10			15			2	0.01		3		0.01	
	2				T	60		5	0.01															35				0.01				0.01	
265	1	327300	4693700	0.8	T	70															0.01			30				0.01				0.01	
	2				S	59			0.01	0.01										1				40									
266	1	327200	4693700	0.5	T	55														15				30									
	2				S	15														5				30		50							
269	1	327800	4693600	0.8	S	2		3												5				50				0.01		40			
	2				S	19			0.01	1														60						20			
270	1	327700	4693600	1.2	S			5	0.01															95				0.01				0.01	
	2				S	3		1	0.01	0.01										1				95				0.01		0.01			
271	1	327600	4693600	1.4	T	40		20	0.01											30				10				0.01				0.01	
	2				T	50		10												10				30									
272	1	327500	4693600	1.3	S	80		16	0.01	2														2				0.01				0.01	
	2				M	80		10	0.01	0.01										T				10				0.01				0.01	
273	1	327400	4693600	1.3	S	70		1		0.01										9				20								0.01	
	2				S	70			0.01	1														29				0.01					

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
274	1	327300	4693600	1.4	M	60		8		0.01										2				30									
	2				S	15		15		1										4				55						10			
275	1	327200	4693600	1.2	M	2			0.01	0.01						4								30		60	2	0.01		2		0.01	
	2				S	5			0.01								10							15		70		0.01				0.01	
276	1	327100	4693600	1.4	D	3		1	0.01	0.01														5		89	0.01	0.01		2		0.01	
	2				M	100																		0.01								
280	1	327500	4693500	1.4	S	20		2	0.01	1										10				58				0.01		9		0.01	
	2				S	70			0.01											10				20									
281	1	327400	4693500	1.5	T	70			0.01											10				20				0.01					
	2				S	25				5														70									
282	1	327300	4693500	1.3	S	20			0.01	5										5				70				0.01				0.01	
	2				S	15		30		5														50									
283	1	327200	4693500	1.1	S				0.01	0.01														100				0.01				0.01	
	2				M	0.01		0.01		1										1				98									0.01
284	1	327100	4693500	1.1	S	0.01			0.01	0.01														100				0.01				0.01	
	2				S				0.01															100				0.01				0.01	
286	1	327500	4693400	1.3	M	40		3	0.01	0.01										2				55				0.01					
	2				M	10		4	0.01	5										1				80				0.01				0.01	
287	1	327400	4693400	1.4	T					0.01														100									
	2				M	3			0.01	2.00										2				93				0.01				0.01	
288	1	327300	4693400	1.5	S	10				5.00														85									
	2				M			9	0.01	1.00														90				0.01				0.01	
289	1	327200	4693400	1.5	T	50			0.01	5										15				30				0.01				0.01	
	2				T	50			0.01	7										5				30				0.01		8		0.01	

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
290	1	327100	4693400	1.2	S	9		1		0.01										0.01				90									
	2				S	9		9		0.01										2				70						10			
291	1	327000	4693400	1.1	S	2			0.01	0.01														98				0.01					
	2				M	0.01		0.01		0.01										0.01				100									
292	1	327500	4693300	1.0	M	99			0.01	0.01																		0.01		1		0.01	
	2				S	40		2	5							10								3				5		35			
293	1	327400	4693300	1.7	T	100			0.01																			0.01					
	2				S	100			0.01																			0.01					
294	1	327300	4693300	1.6	S	70			0.01	0.01										5	20			5									
	2				S	45		1		1										1				50						2			
295	1	327200	4693300	1.8	S	55		5		0.01														40									
	2				S	49		5	0.01	1										10				30			5	0.01					
296	1	327100	4693300	1.4	M	53		5		0.01									7					15						20			
	2				S	70		3		2														25									
297	1	327000	4693300	1.2	S	70		1												9				20									
	2				S	90		3	0.01	0.01										3				4									
298	1	326900	4693300	1.2	S	18		2	0.01	0.01														80									
	2				S	65		7		0.01										8				20									
299	1	327500	4693200	0.7	S	50			0.01	0.01														50									
	2				S	40			0.01	0.01														60									
300	1	327400	4693200	0.9	M	6		12	0.01	0.01														70		12		0.01				0.01	
	2				S	46		2	0.01															52									
301	1	327300	4693200	1.4	T	2			0.01	0.01														95				0.01		3			
	2				S											99								1									

Table B. (continued) Results of the two rake-toss sampling of Lamoka Lake from July 23 - 30, 2009 at 180 sample points (SPs).

Sample Point (SP)	Rake toss #	NAD27 X coord East 18T	NAD27 Y coord North 18T	Depth (m) on date	Rake Abundance	Ceratophyllum demersum	Chara vulgaris	Elodea sp.	Lemna minor	Lemna trisulca	Megalodonta beckii	Myriophyllum spicatum	Najas flexilis	Najas guadalupensis	Nitella flexilis	Nuphar advena	Nymphaea odorata	Pontederia cordata	Potamogeton amplifolius	Potamogeton crispus	Potamogeton sp.	Potamogeton nodosus	Potamogeton pusillus	Potamogeton robbinsii	Potamogeton zosteriformis	Polygonum amphibium	Ranunculus trichophyllus	Spirodela polyrhiza	Typha latifolia	Utricularia sp.	Vallisneria americana	Wolffia columbiana	Zosterella dubia
302	1	327200	4693200	1.0	S	45																		30						25			
	2				T	94			0.01											1				5				0.01					
303	1	327100	4693200	1.1	T	80				0.01														20									
	2				S	40				0.01														60									
304	1	327000	4693200	1.1	S	50		25	0.01	0.01										5				20									
	2				S	50		2		2														46									
305	1	326900	4693200	1.4	S	20		75		2										1				2									
	2				S	41		29		0.01										1				29									
306	1	326800	4693200	1.2	S	1																		99									
	2				S	2				0.01														98									
307	1	327000	4693100	0.8	S	15		1		0.01																		0.01		84			
	2				S	31		2	0.01	1														5			1			60		0.01	
308	1	326900	4693100	1.3	S	35		20								5				5				35									
	2				S	49		1		0.01														50									
309	1	326800	4693100	1.1	S	70		10	0.01	0.01														8			2			10		0.01	
	2				S	55		40		0.01															2					3			
310	1	327000	4693000	0.6	M	40		1	1	1						16												0.01	0.01	41		0.01	
	2				D	45			0.01	0.01						2												0.01	50	3		0.01	
311	1	326900	4693000	1.2	D	43		1	0.01	0.01						2								3			1		0.01	50		0.01	
	2				S	60		5	1	1							2							20						11			
312	1	326800	4693000	0.8	S	38		12		0.01																				50			
	2				S	35		10		0.01																	5			50			
313	1	326900	4692900	0.6	T				0.01	0.01						30												0.01		70		0.01	
	2				M	60			1	1							19													19		0.01	