

APPENDIX A – UPPER MUD LAKE PLANT STATISTICS

Table 1: 2012 Aquatic Plant Community Statistics, Upper Mud Lake, Dane County, WI

Aquatic Plant Community Statistics	2012
Number of sites sampled	321
Number of sites with vegetation	261
Number of sites shallower than maximum depth of plants	294
Frequency of occurrence at sites shallower than maximum depth of plants	88.78%
Simpson Diversity Index	0.86
Maximum Depth of Plants (Feet)	18
Taxonomic Richness (Number Taxa)	16
Average Number of Species per Site (less than max depth of plant growth)	2.83
Average Number of Species per Site (sites with vegetation)	3.19
Average Number of Native Species per Site (less than max depth of plant growth)	1.76
Average Number of Native Species per Site (sites with vegetation)	2.62

Table 2: 2012 Aquatic Plant Taxa-Specific Statistics, Upper Mud Lake, Dane County, WI

Species	Frequency of Occurrence within vegetated areas	Frequency of Occurrence at Site Shallower Than Max Depth of Plants	Percent Relative Frequency of Occurrence	Number of Intercept Points Where Detected	Average Density
Filamentous algae	58.24	51.70	18.3	152	1.00
Coontail	96.17	85.37	30.2	251	1.00
Common waterweed	16.48	14.63	5.2	43	1.00
Slender waterweed	0.38	0.34	0.1	1	1.00
Water star-grass	7.66	6.80	2.4	20	1.00
Small duckweed	26.05	23.13	8.2	68	1.00
Forked duckweed	9.96	8.84	3.1	26	1.00
Eurasian watermilfoil	58.24	51.70	18.3	152	1.00
White water lily	4.21	3.74	1.3	11	1.00
Curly-leaf pondweed	0.38	0.34	0.1	1	1.00
Clasping-leaf pondweed	2.68	2.38	0.8	7	1.00
Flat-stem pondweed	8.05	7.14	2.5	21	1.00
Sago pondweed	1.92	1.70	0.6	5	1.00
Wild celery	6.13	5.44	1.9	16	1.00
Common watermeal	14.18	12.59	4.4	37	1.00
Horned pondweed	8.05	7.14	2.5	21	1.00

Table 3: Historical and 2012 Floristic Quality Index, Upper Mud Lake, Dane County, WI

Genus	Species	Common Name	2012
<i>Ceratophyllum</i>	<i>demersum</i>	Coontail	3
<i>Elodea</i>	<i>canadensis</i>	Common waterweed	3
<i>Elodea</i>	<i>nuttallii</i>	Slender waterweed	7
<i>Heteranthera</i>	<i>dubia</i>	Water star-grass	6
<i>Lemna</i>	<i>minor</i>	Small duckweed	4
<i>Lemna</i>	<i>trisulca</i>	Forked duckweed	6
<i>Nymphaea</i>	<i>odorata</i>	White water-lily	6
<i>Potamogeton</i>	<i>richardsonii</i>	Clasping-leaf pondweed	5
<i>Potamogeton</i>	<i>zosteriformis</i>	Flat-stem pondweed	6
<i>Stuckenia</i>	<i>pectinata</i>	Sago pondweed	3
<i>Vallisneria</i>	<i>americana</i>	Wild celery	6
<i>Wolffia</i>	<i>columbiana</i>	Common watermeal	5
<i>Zannichellia</i>	<i>palustris</i>	Horned pondweed	7
Total Species			13
Mean C			5.15
Floristic Quality Index (FQI)			18.58

Please note: There is no Coefficient of Conservatism for exotic species such as Eurasian Watermilfoil or for species not identified to the species level (*Sagittaria* sp.).

Coefficient of Conservatism C

- 0-3 taxa found in wide variety of plant communities and very tolerant of disturbance.
- 4-6 taxa typically associated with specific plant communities and tolerate moderate disturbance.
- 7-8 taxa found in narrow range of plant communities and tolerate minor disturbance.

APPENDIX B - YAHARA RIVER PLANT STATISTICS

Table 1: 2012 Aquatic Plant Community Statistics, Yahara River, Dane County, WI			
Aquatic Plant Community Statistics	2012 - By Section		
	Monona to Upper Mud	Waubesa to Lower Mud	Lower Mud to Kegonsa
Number of sites sampled	137	115	199
Number of sites with vegetation	134	115	199
Number of sites shallower than maximum depth of plants	137	115	199
Frequency of occurrence at sites shallower than maximum depth of plants	97.81%	100.00%	100.00%
Simpson Diversity Index	0.88	0.79	0.82
Maximum Depth of Plants (Feet)	4	3	5
Taxonomic Richness (Number Taxa)	16	11	13
Average Number of Species per Site (less than max depth of plant growth)	2.96	2.62	3.30
Average Number of Species per Site (sites with vegetation)	3.02	2.62	3.30
Average Number of Native Species per Site (less than max depth of plant growth)	2.26	2.14	2.86
Average Number of Native Species per Site (sites with vegetation)	2.67	2.61	3.23

Table 2: 2012 Aquatic Plant Taxa-Specific Statistics, Yahara River, Dane County, WI						
Species	River Section	Frequency of Occurrence within vegetated areas	Frequency of Occurrence at Site Shallower Than Max Depth of Plants	Percent Relative Frequency of Occurrence	No. of Intercept Points Where Detected	Average Density
Filamentous algae	Monona to Upper Mud	36.57	35.77	12.1	49	1.00
	Waubesa to Lower Mud	46.96	46.96	17.9	54	1.00
	Lower Mud to Kegonsa	37.19	37.19	11.3	74	1.00
Coontail	Monona to Upper Mud	84.33	82.48	27.9	113	1.00
	Waubesa to Lower Mud	24.35	24.35	9.3	28	1.00
	Lower Mud to Kegonsa	43.72	43.72	13.2	87	1.00
Muskgrass	Monona to Upper Mud	2.24	2.19	0.7	3	1.00
	Waubesa to Lower Mud	---	---	---	---	---
	Lower Mud to Kegonsa	10.55	10.55	3.2	21	1.00
Common waterweed	Monona to Upper Mud	3.73	3.65	1.2	5	1.00
	Waubesa to Lower Mud	3.48	3.48	1.3	4	1.00
	Lower Mud to Kegonsa	1.51	1.51	0.5	3	1.00
Water star-grass	Monona to Upper Mud	20.15	19.71	6.7	27	1.00
	Waubesa to Lower Mud	51.30	51.30	19.6	59	1.00
	Lower Mud to Kegonsa	80.40	80.40	24.4	160	1.00
Small duckweed	Monona to Upper Mud	17.91	17.52	5.9	24	1.00
	Waubesa to Lower Mud	50.43	40.43	19.3	58	1.00
	Lower Mud to Kegonsa	32.16	32.16	9.7	64	1.00
Eurasian watermilfoil	Monona to Upper Mud	33.58	32.85	11.1	45	1.00
	Waubesa to Lower Mud	0.87	0.87	0.3	1	1.00
	Lower Mud to Kegonsa	7.04	7.04	2.1	14	1.00
Slender naiad	Monona to Upper Mud	2.24	2.19	0.7	3	1.00
	Waubesa to Lower Mud	---	---	---	---	---
	Lower Mud to Kegonsa	---	---	---	---	---
White water lily	Monona to Upper Mud	12.69	12.41	4.2	17	1.00
	Waubesa to Lower Mud	0.87	0.87	0.3	1	1.00
	Lower Mud to Kegonsa	1.51	1.51	0.5	3	1.00
Curly-leaf pondweed	Monona to Upper Mud	1.49	1.46	0.5	2	1.00
	Waubesa to Lower Mud	---	---	---	---	---
	Lower Mud to Kegonsa	---	---	---	---	---
Clasping-leaf pondweed	Monona to Upper Mud	4.48	4.38	1.50	6	1.00
	Waubesa to Lower Mud	0.87	0.87	0.30	1	1.00
	Lower Mud to Kegonsa	1.51	1.51	0.50	3	1.00
Flat-stem pondweed	Monona to Upper Mud	17.16	16.79	5.70	23	1.00
	Waubesa to Lower Mud	1.74	1.74	0.70	2	1.00
	Lower Mud to Kegonsa	1.01	1.01	0.30	2	1.00
Sago pondweed	Monona to Upper Mud	4.48	4.38	1.50	6	1.00
	Waubesa to Lower Mud	---	---	---	---	---
	Lower Mud to Kegonsa	---	---	---	---	---
Wild celery	Monona to Upper Mud	36.57	35.77	12.10	49	1.00
	Waubesa to Lower Mud	80	80	30.60	92	1.00

	Lower Mud to Kegonsa	91.46	91.46	27.70	182	2.00
Common watermeal	Monona to Upper Mud	11.19	10.95	3.70	15	1.00
	Waubesa to Lower Mud	---	---	---	---	---
	Lower Mud to Kegonsa	18.59	18.59	5.60	37	1.00
Horned pondweed	Monona to Upper Mud	13.43	13.14	4.40	18	1.00
	Waubesa to Lower Mud	0.87	0.87	0.30	1	1.00
	Lower Mud to Kegonsa	3.52	3.52	1.10	7	1.00

Table 3: Historical and 2012 Floristic Quality Index, Yahara River, Dane County, WI

Genus	Species	Common Name	Coefficient of Conservatism		
			Monona to Upper Mud	Waubesa to Lower Mud	Lower Mud to Kegonsa
<i>Ceratophyllum</i>	<i>demersum</i>	Coontail	3	3	3
<i>Chara</i>	<i>sp.</i>	Muskgrass	7	---	7
<i>Elodea</i>	<i>canadensis</i>	Common waterweed	3	3	3
<i>Heteranthera</i>	<i>dubia</i>	Water star-grass	6	6	6
<i>Lemna</i>	<i>minor</i>	Small duckweed	4	4	4
<i>Najas</i>	<i>flexilis</i>	Slender naiad	6	---	---
<i>Nymphaea</i>	<i>odorata</i>	White water lily	6	6	6
<i>Potamogeton</i>	<i>richardsonii</i>	Clapsing-leaf pondweed	5	5	5
<i>Potamogeton</i>	<i>zosteriformis</i>	Flat-stem pondweed	6	6	6
<i>Stuckenia</i>	<i>pectinata</i>	Sago pondweed	3	---	---
<i>Vallisneria</i>	<i>americana</i>	Wild celery	6	6	6
<i>Wolffia</i>	<i>columbiana</i>	Common watermeal	5	---	5
<i>Zanichellia</i>	<i>palustris</i>	Horned pondweed	7	7	7
		Total Species	13	9	11
		Mean C	5.15	5.11	5.27
		Floristic Quality Index (FQI)	18.58	15.33	17.49

Please note: There is no Coefficient of Conservatism for exotic species such as Eurasian Water-Milfoil or for species not identified to the species level (*Sagittaria sp.*).

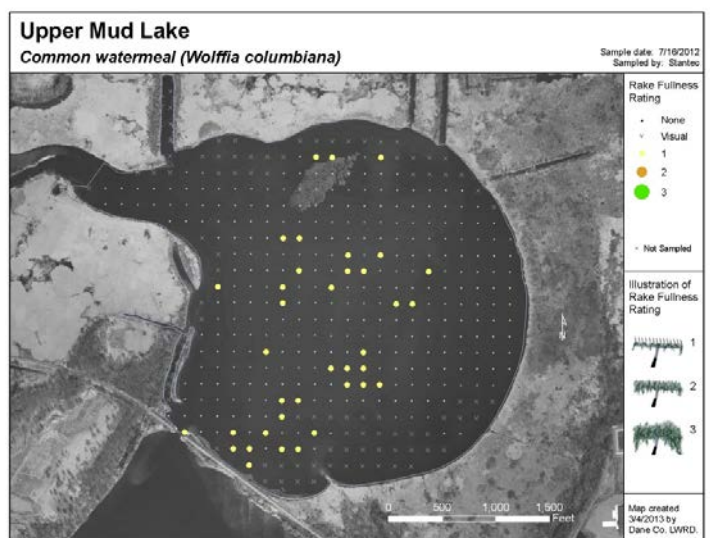
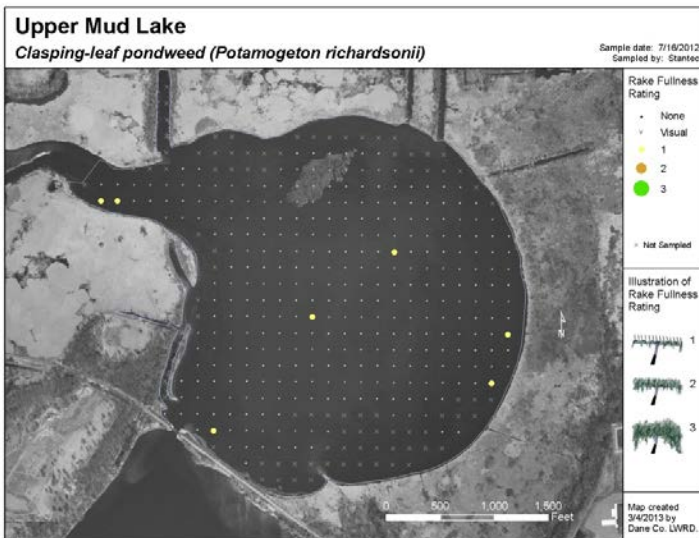
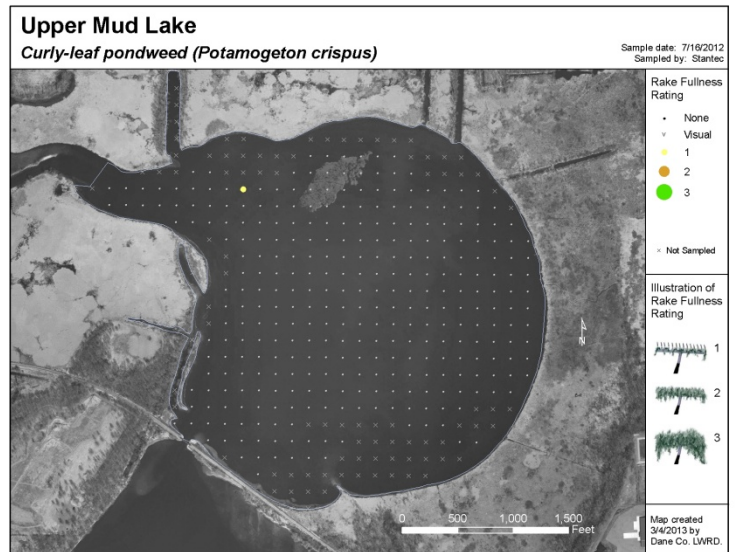
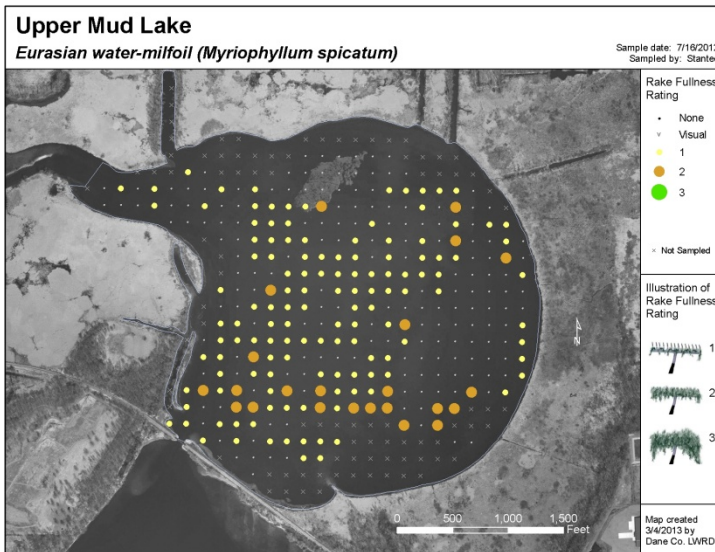
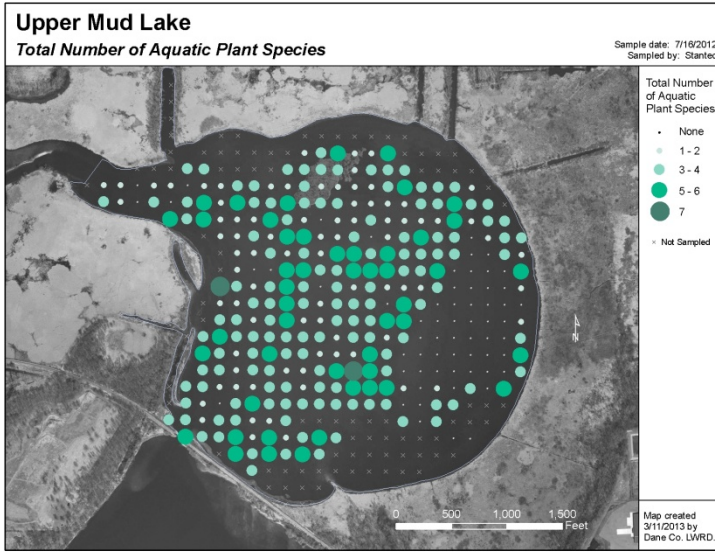
Coefficient of Conservatism C

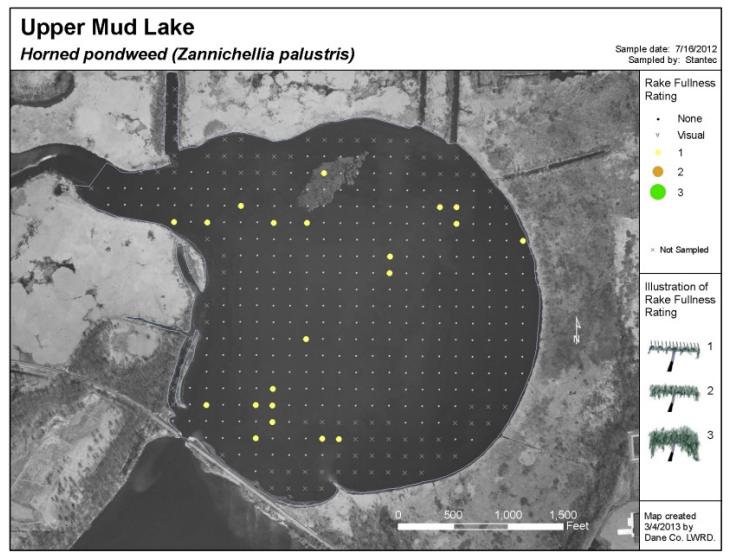
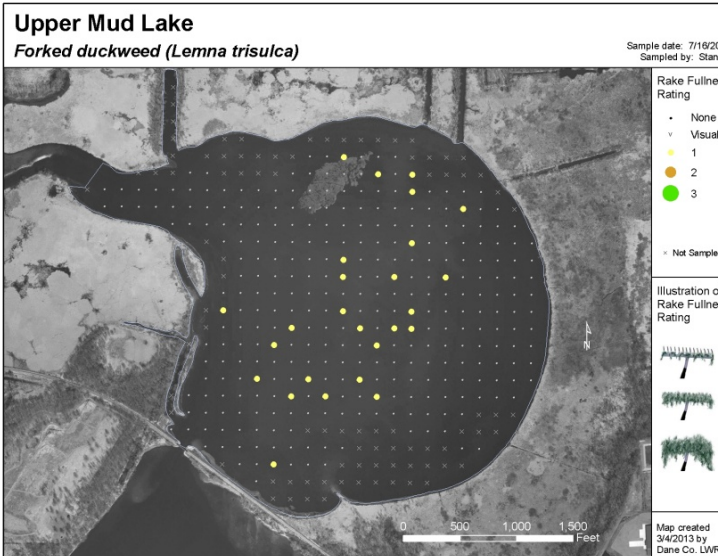
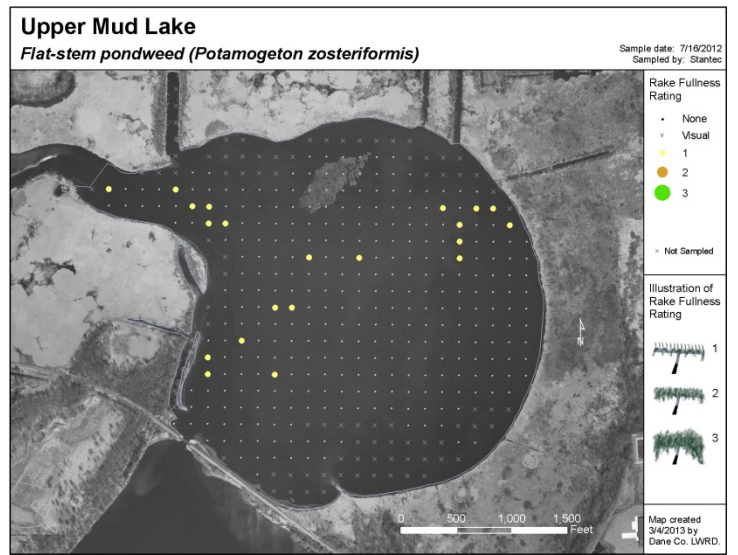
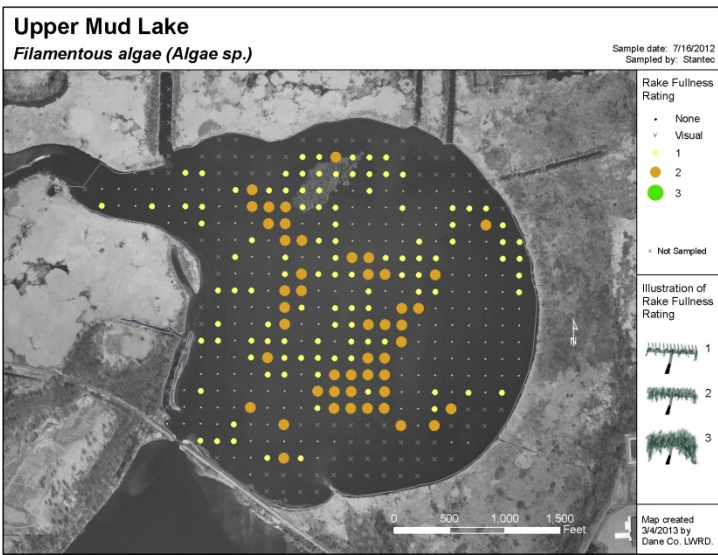
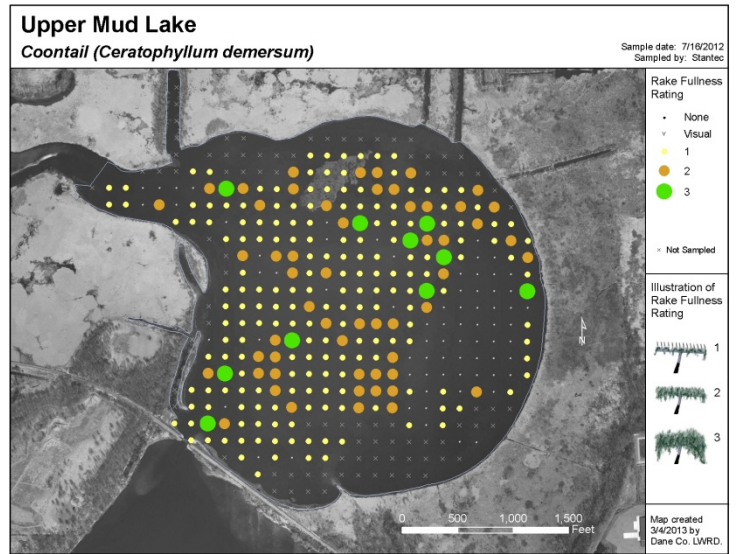
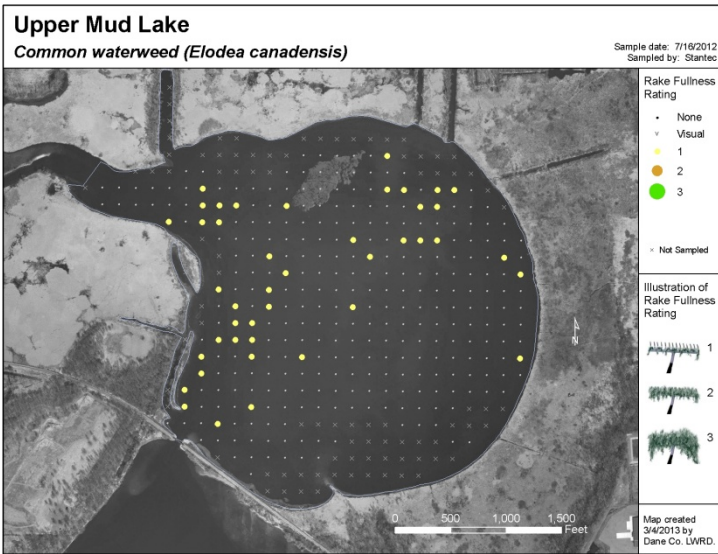
- 0-3 taxa found in wide variety of plant communities and very tolerant of disturbance.
- 4-6 taxa typically associated with specific plant communities and tolerate moderate disturbance.
- 7-8 taxa found in narrow range of plant communities and tolerate minor disturbance.
- 9-10 taxa restricted to a narrow range of synecological conditions, with low tolerance of disturbance.

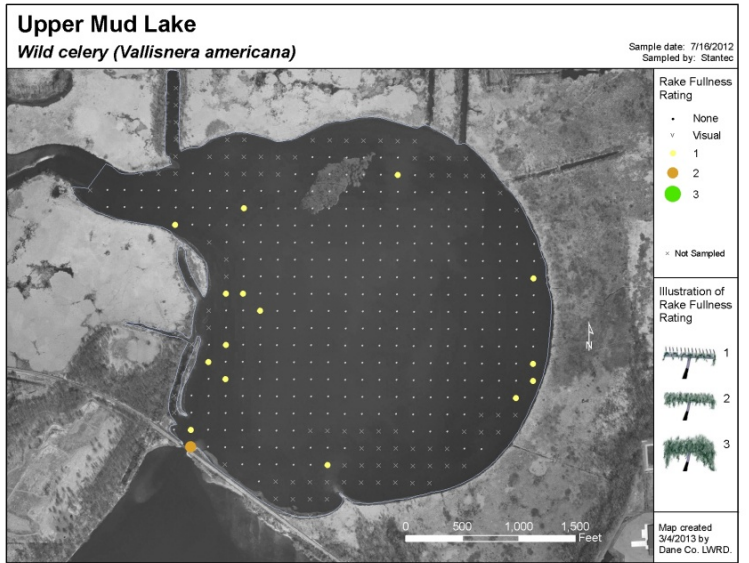
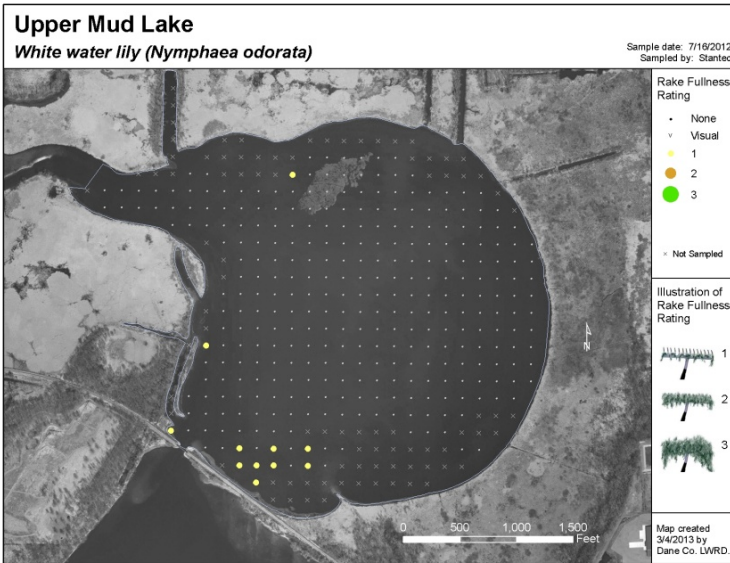
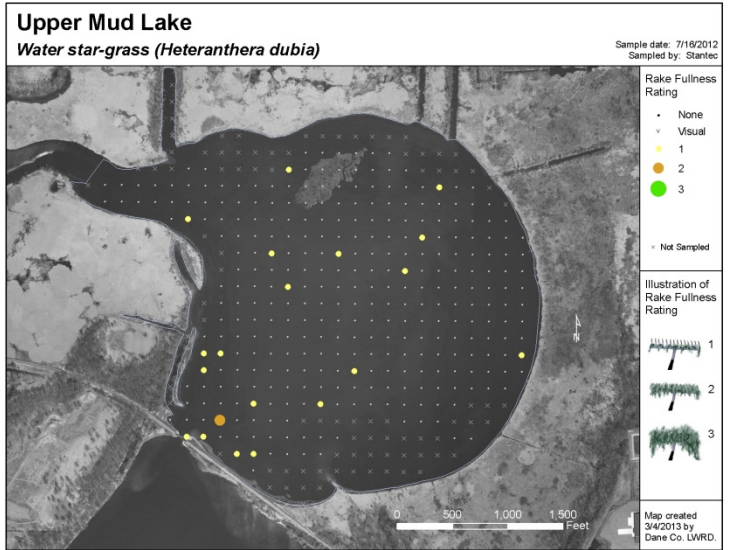
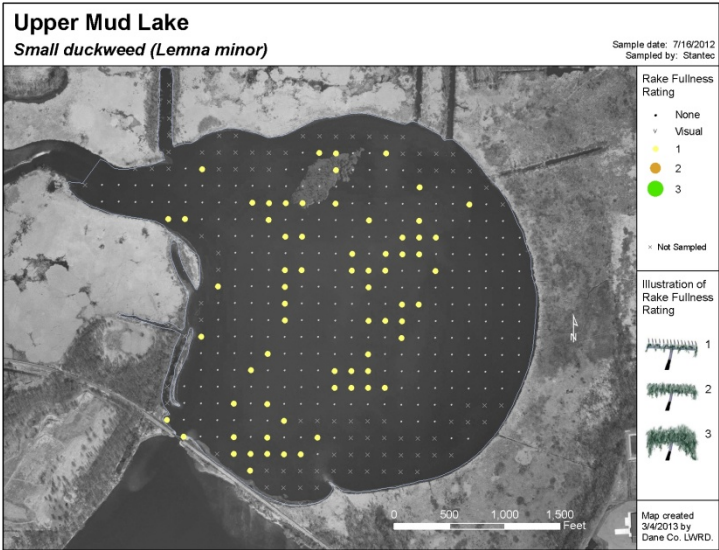
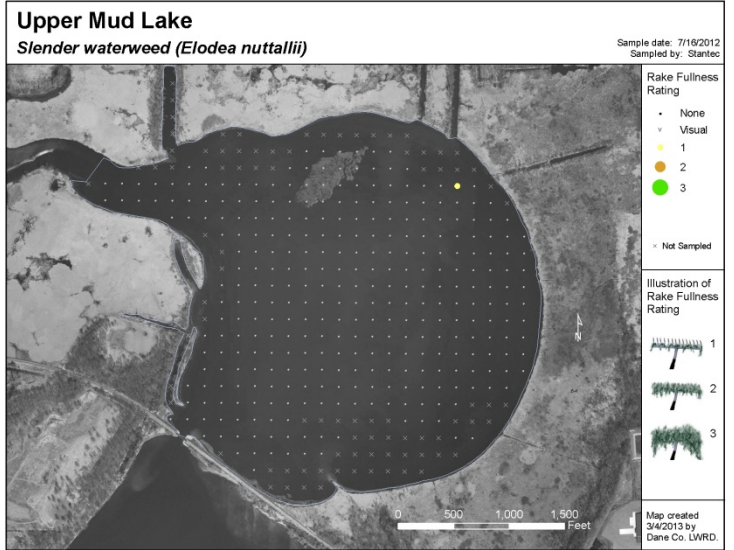
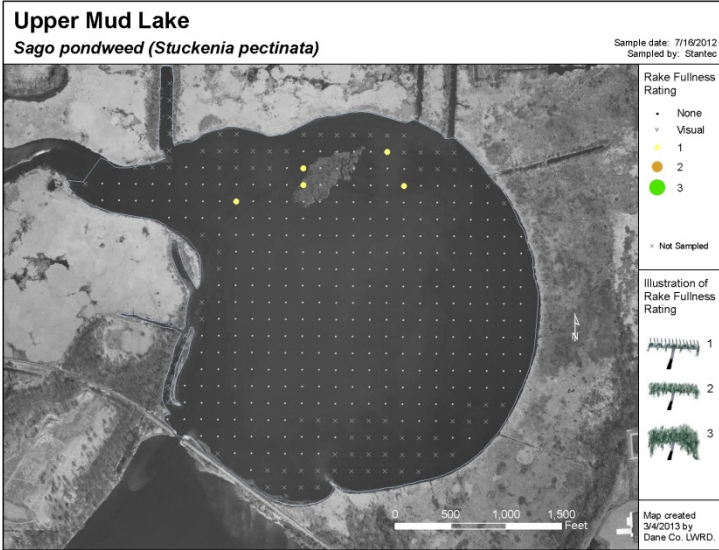
Table 5: Historical Aquatic Plant Community Statistics, Yahara River, Dane County, Wisconsin.

	Monona to Upper Mud	Waubesa to Lower Mud	Lower Mud to Kegonsa
F.o.o. at sites shallower than maximum depth of plants	97.81	100	100
Most Dominant Species	Coontail	Wild celery	Wild celery
	Wild celery	Water star-grass	Water star-grass
	Filamentous algae	Small duckweed	Coontail
	Eurasian watermilfoil	Filamentous algae	Filamentous algae
	Water star-grass	Coontail	Small duckweed
Maximum Depth of Plants	4	3	5
Species Richness	16	11	13
Community FQI	18.58	15.33	17.49
Average Coefficient of Conservatism	5.15	5.11	5.27

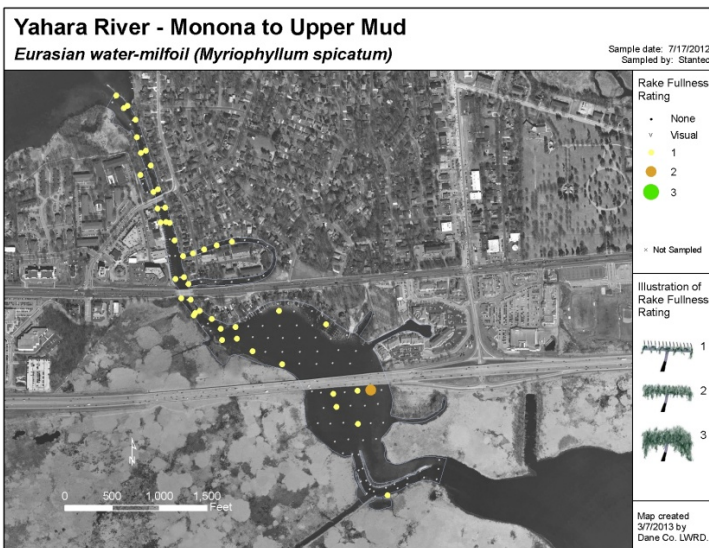
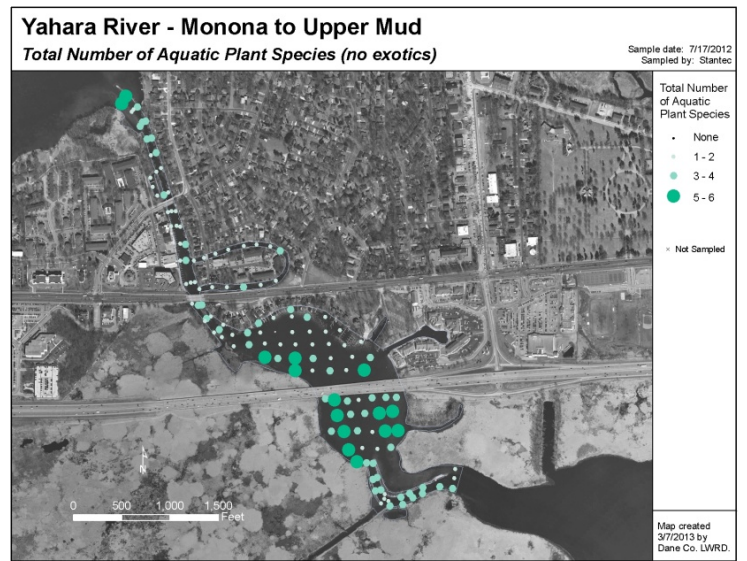
APPENDIX C – AQUATIC PLANT DISTRIBUTIONS UPPER MUD LAKE AND YAHARA RIVER (2012)

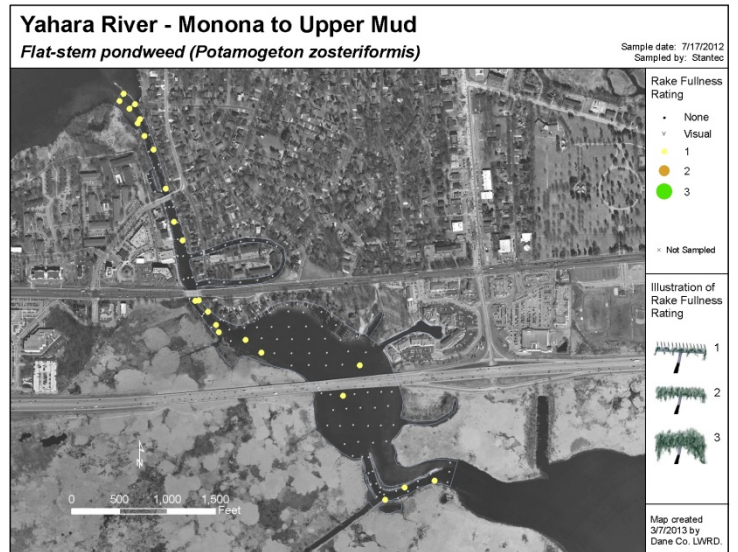
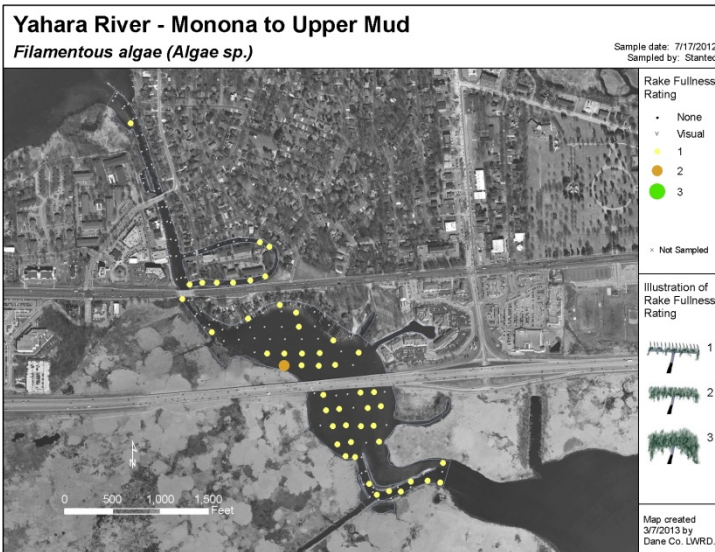
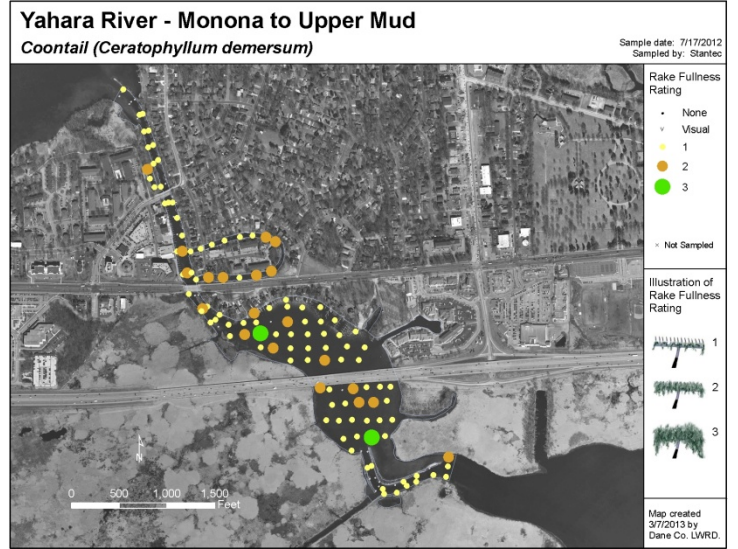






Yahara River – Monona to Upper Mud





Yahara River - Monona to Upper Mud
Sago pondweed (*Stuckenia pectinata*)

Sample date: 7/17/2012
 Sampled by: Stantec



Yahara River - Monona to Upper Mud
Slender naiad (*Najas flexilis*)

Sample date: 7/17/2012
 Sampled by: Stantec



Yahara River - Monona to Upper Mud
Small duckweed (*Lemna minor*)

Sample date: 7/17/2012
 Sampled by: Stantec



Yahara River - Monona to Upper Mud
Water star-grass (*Heteranthera dubia*)

Sample date: 7/17/2012
 Sampled by: Stantec



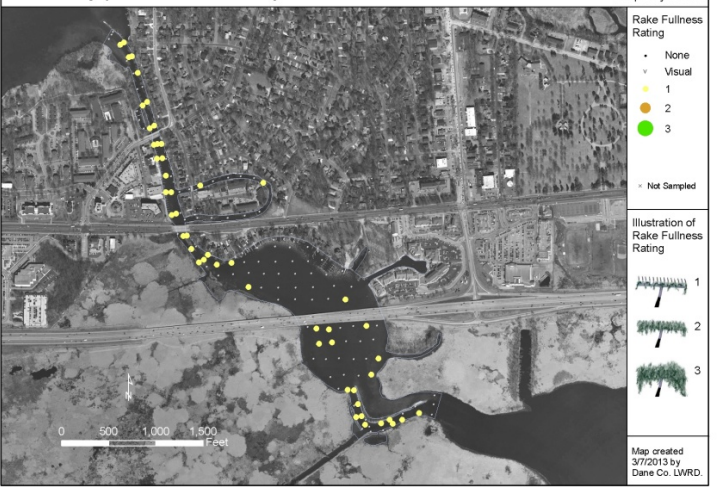
Yahara River - Monona to Upper Mud
White water lily (*Nymphaea odorata*)

Sample date: 7/17/2012
 Sampled by: Stantec

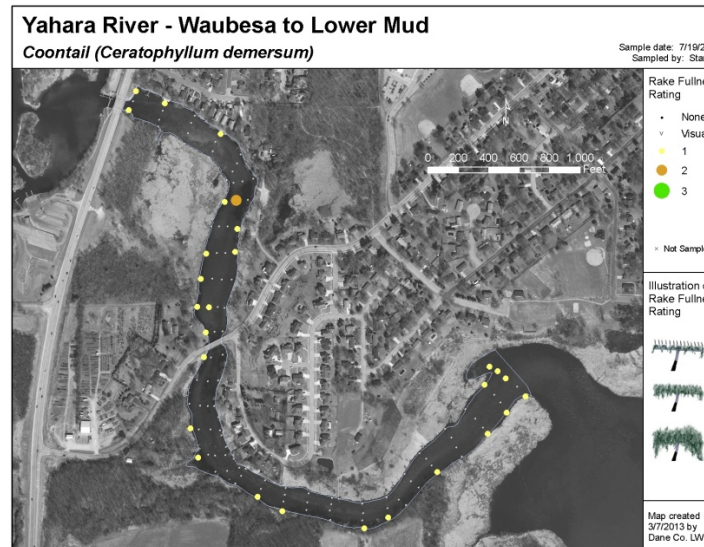
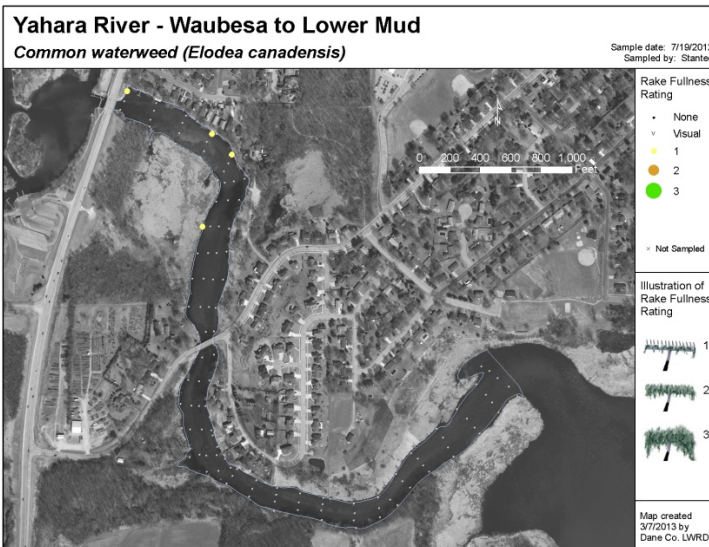
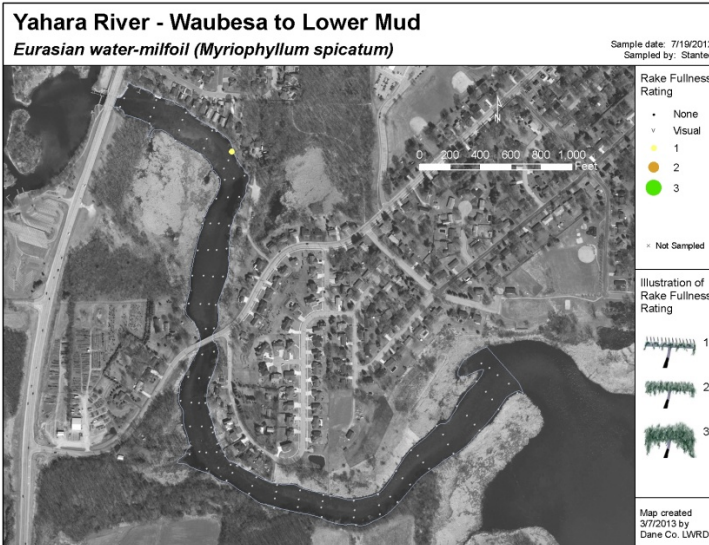
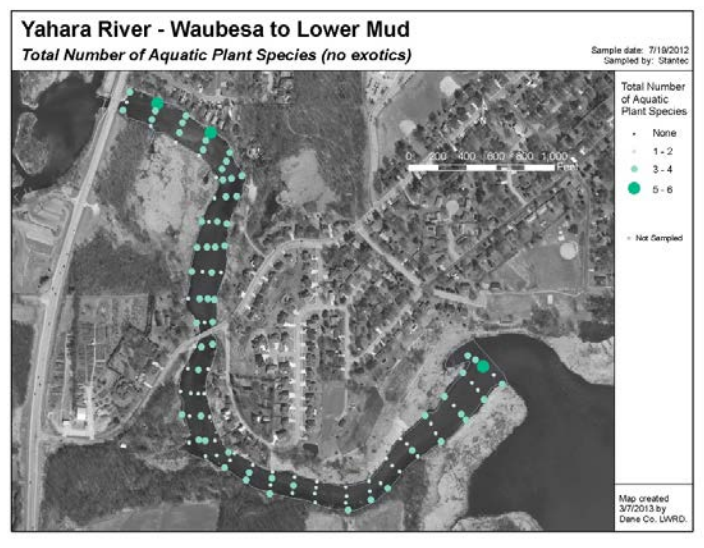
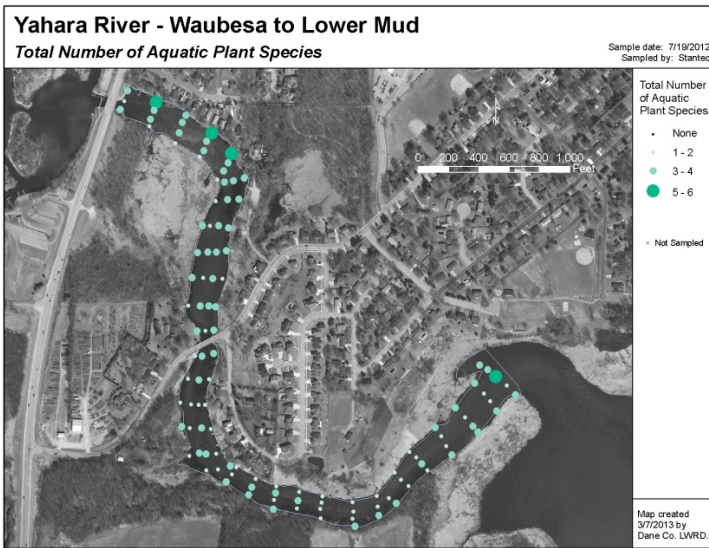


Yahara River - Monona to Upper Mud
Wild celery (*Vallisneria americana*)

Sample date: 7/17/2012
 Sampled by: Stantec



Yahara River – Waubesa to Lower Mud



Yahara River - Waubesa to Lower Mud
Filamentous algae (Algae sp.)

Sample date: 7/19/2012
 Sampled by: Stantec



Yahara River - Waubesa to Lower Mud
Flat-stem pondweed (Potamogeton zosteriformis)

Sample date: 7/19/2012
 Sampled by: Stantec



Yahara River - Waubesa to Lower Mud
Horned pondweed (Zannichellia palustris)

Sample date: 7/19/2012
 Sampled by: Stantec



Yahara River - Waubesa to Lower Mud
Small duckweed (Lemna minor)

Sample date: 7/19/2012
 Sampled by: Stantec



Yahara River - Waubesa to Lower Mud
Water star-grass (Heteranthera dubia)

Sample date: 7/19/2012
 Sampled by: Stantec



Yahara River - Waubesa to Lower Mud
White water lily (Nymphaea odorata)

Sample date: 7/19/2012
 Sampled by: Stantec





Yahara River - Lower Mud to Kegonsa

