

**APPENDIX A - LAKE MONONA PLANT STATISTICS**

**Table 1: 2011 Aquatic Plant Community Statistics, Lake Monona, Dane County, WI**

<b>Aquatic Plant Community Statistics</b>	<b>2011</b>
Number of sites sampled	1418
Number of sites with vegetation	262
Number of sites shallower than maximum depth of plants	354
Frequency of occurrence at sites shallower than maximum depth of plants	74.01%
Simpson Diversity Index	0.86
Maximum Depth of Plants (Feet)	11
Taxonomic Richness (Number Taxa)	14
Average Number of Species per Site (less than max depth of plant growth)	1.34
Average Number of Species per Site (sites with vegetation)	1.81
Average Number of Native Species per Site (less than max depth of plant growth)	0.81
Average Number of Native Species per Site (sites with vegetation)	1.47

**Table 2: 2011 Aquatic Plant Taxa-Specific Statistics, Lake Monona, Dane County, WI**

<b>Species</b>	<b>Frequency of Occurrence within vegetated areas</b>	<b>Frequency of Occurrence at Site Shallower Than Max Depth of Plants</b>	<b>Percent Relative Frequency of Occurrence</b>	<b>Number of Intercept Points Where Detected</b>	<b>Average Density</b>
Filamentous algae	14.50	10.73	8.03	38	1.00
Coontail	62.98	46.61	34.88	165	1.36
Muskgrass	0.38	0.28	0.21	1	1.00
Common waterweed	1.91	1.41	1.06	5	1.00
Water star-grass	1.53	1.13	0.85	4	1.00
Small duckweed	0.38	0.28	0.21	1	1.00
Eurasian watermilfoil	54.96	40.68	30.44	144	1.12
American lotus	0.38	0.28	0.21	1	1.00
Curly-leaf pondweed	1.53	1.13	0.85	4	1.00
Clasping-leaf pondweed	9.54	7.06	5.29	25	1.00
Flat-stem pondweed	2.67	1.98	1.48	7	1.00
Stiff water crowfoot	0.38	0.28	0.21	1	1.00
Wild celery	16.41	12.15	9.09	43	1.00
Horned pondweed	12.98	9.60	7.19	34	1.00

**Table 3: Historical and 2011 Floristic Quality Index, Lake Monona, Dane County, WI**

Genus	Species	Common Name	Coefficient of Conservatism	
			2008	2011
<i>Ceratophyllum</i>	<i>demersum</i>	Coontail	3	3
<i>Chara</i>	<i>sp.</i>	Muskgrass	---	7
<i>Elodea</i>	<i>canadensis</i>	Common waterweed	3	3
<i>Heteranthera</i>	<i>dubia</i>	Water star-grass	6	6
<i>Lemna</i>	<i>minor</i>	Small duckweed	4	4
<i>Nelumbo</i>	<i>lutea</i>	American lotus	7	7
<i>Potamogeton</i>	<i>foliosus</i>	Leafy pondweed	6	---
<i>Potamogeton</i>	<i>richardsonii</i>	Clasping-leaf pondweed	5	5
<i>Potamogeton</i>	<i>zosteriformis</i>	Flat-stem pondweed	---	6
<i>Ranunculus</i>	<i>aquatillis</i>	Stiff water crowfoot	8	8
<i>Spirodela</i>	<i>polyrhiza</i>	Large duckweed	5	---
<i>Stuckenia</i>	<i>pectinata</i>	Sago pondweed	3	---
<i>Vallisneria</i>	<i>americana</i>	Wild celery	6	6
<i>Zannichellia</i>	<i>palustris</i>	Horned pondweed	---	7
Total Species			11	11
Mean C			5.09	5.64
<b>Floristic Quality Index (FQI)</b>			<b>16.88</b>	<b>18.69</b>

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.
- 9-10 taxa restricted to a narrow range of synecological conditions, with low tolerance of disturbance.

**Table 4: Historical Aquatic Plant Community Statistics, Lake Monona, Dane County, Wisconsin.**

	2008	2011
<b>F.o.o. at sites shallower than maximum depth of plants</b>	80.53	74.01
<b>Most Dominant Species *</b>	Eurasian Water-milfoil Filamentous Algae Coontail Sago Pondweed Small Duckweed	Coontail Eurasian Water-milfoil Wild Celery Filamentous Algae Small Duckweed
<b>Maximum Depth of Plants</b>	14	11
<b>Species Richness</b>	14	14
<b>Community FQI</b>	16.88	18.69
<b>Average Coefficient of Conservatism</b>	5.09	5.64
* - Based on number of sample points collected at. Visual observations are included.		

**Table 5: Historical Aquatic Plant Occurrences, Lake Monona, Dane County, Wisconsin.**

Genus	Species	Common Name	% Relative F.o.O.	
			2008	2011
<i>Algae</i>	<i>sp.</i>	Filamentous algae	35.8	8.0
<i>Ceratophyllum</i>	<i>demersum</i>	Coontail	19.8	34.9
<i>Chara</i>	<i>sp.</i>	Muskgrass	---	0.2
<i>Elodea</i>	<i>canadensis</i>	Common waterweed	0.2	1.1
<i>Heteranthera</i>	<i>dubia</i>	Water star-grass	0.3	0.8
<i>Lemna</i>	<i>minor</i>	Small duckweed	0*	0.2
<i>Myriophyllum</i>	<i>spicatum</i>	Eurasian watermilfoil	35.3	30.4
<i>Nelumbo</i>	<i>lutea</i>	American lotus	0.2	0.2
<i>Potamogeton</i>	<i>crispus</i>	Curly-leaf pondweed	0.6	0.8
<i>Potamogeton</i>	<i>foliosus</i>	Leafy pondweed	1.1	---
<i>Potamogeton</i>	<i>richardsonii</i>	Clasping-leaf pondweed	1.9	5.3
<i>Potamogeton</i>	<i>zosteriformis</i>	Flat-stem pondweed	---	1.5
<i>Ranunculus</i>	<i>aquatillis</i>	Stiff water crowfoot	0.2	0.2
<i>Spirodela</i>	<i>polyrhiza</i>	Large duckweed	0*	---
<i>Stuckenia</i>	<i>pectinata</i>	Sago pondweed	2.7	---
<i>Vallisneria</i>	<i>americana</i>	Wild celery	1.8	9.1
<i>Zannichellia</i>	<i>palustris</i>	Horned pondweed	---	7.2
0* - Species was sampled visually only, statistical data was not produced.				

**APPENDIX B – MONONA BAY PLANT STATISTICS**

**Table 1: 2011 Aquatic Plant Community Statistics, Monona Bay, Dane County, WI**

<b>Aquatic Plant Community Statistics</b>	<b>Main Bay</b>	<b>North Bay</b>	<b>South Bay</b>
Number of sites sampled	247	45	40
Number of sites with vegetation	29	18	8
Number of sites shallower than maximum depth of plants	228	37	19
Frequency of occurrence at sites shallower than maximum depth of plants	12.72%	48.65%	42.11%
Simpson Diversity Index	0.83	0.65	0.46
Maximum Depth of Plants (Feet)	7	8	7
Taxonomic Richness (Number Taxa)	5	5	3
Average Number of Species per Site (less than max depth of plant growth)	0.19	0.73	0.58
Average Number of Species per Site (sites with vegetation)	1.48	1.50	1.38
Average Number of Native Species per Site (less than max depth of plant growth)	0.14	0.57	0.41
Average Number of Native Species per Site (sites with vegetation)	1.19	1.31	1.13

**Table 2: 2011 Aquatic Plant Taxa-Specific Statistics, Monona Bays, Dane County, WI**

<b>LOCATION</b>	<b>Species</b>	<b>Frequency of Occurrence within vegetated areas</b>	<b>Frequency of Occurrence at Site Shallower Than Max Depth of Plants</b>	<b>Percent Relative Frequency of Occurrence</b>	<b>Number of Intercept Points Where Detected</b>	<b>Average Density</b>
<b>Main Bay</b>	<b>Coontail</b>	<b>48.28</b>	<b>6.14</b>	<b>32.56</b>	<b>14</b>	<b>1.79</b>
	<b>Eurasian watermilfoil</b>	<b>41.38</b>	<b>5.26</b>	<b>27.91</b>	<b>12</b>	<b>1.17</b>
	<b>Small pondweed</b>	<b>10.34</b>	<b>1.32</b>	<b>6.98</b>	<b>3</b>	<b>1.00</b>
	<b>Sago pondweed</b>	<b>34.48</b>	<b>4.39</b>	<b>23.26</b>	<b>10</b>	<b>1.00</b>
	<b>Horned pondweed</b>	<b>13.79</b>	<b>1.75</b>	<b>9.30</b>	<b>4</b>	<b>1.00</b>
<b>North Bay</b>	<b>Coontail</b>	<b>83.33</b>	<b>40.54</b>	<b>55.56</b>	<b>15</b>	<b>1.53</b>
	<b>Common waterweed</b>	<b>27.78</b>	<b>13.51</b>	<b>18.52</b>	<b>5</b>	<b>1.00</b>
	<b>Eurasian watermilfoil</b>	<b>22.22</b>	<b>10.81</b>	<b>14.81</b>	<b>4</b>	<b>1.00</b>
	<b>Curly-leaf pondweed</b>	<b>11.11</b>	<b>5.41</b>	<b>7.41</b>	<b>2</b>	<b>1.00</b>
	<b>Horned pondweed</b>	<b>5.56</b>	<b>2.70</b>	<b>3.70</b>	<b>1</b>	<b>1.00</b>
<b>South Bay</b>	<b>Coontail</b>	<b>100.00</b>	<b>42.11</b>	<b>72.73</b>	<b>8</b>	<b>1.75</b>
	<b>Common waterweed</b>	<b>12.50</b>	<b>5.26</b>	<b>9.09</b>	<b>1</b>	<b>1.00</b>
	<b>Eurasian watermilfoil</b>	<b>25.00</b>	<b>10.53</b>	<b>18.18</b>	<b>2</b>	<b>1.00</b>

**Table 3: Historical and 2011 Floristic Quality Index, Monona Bays, Dane County, WI**

Coefficient of Conservatism						
Genus	Species	Common Name	N. Bay - 2011	S. Bay - 2011	Main Bay - 2008	Main Bay - 2011
<i>Ceratophyllum</i>	<i>demersum</i>	Coontail	3	3	3	3
<i>Elodea</i>	<i>canadensis</i>	Common waterweed	3	3	---	---
<i>Potamogeton</i>	<i>foliosus</i>	Leafy pondweed	---	---	6	---
<i>Potamogeton</i>	<i>pusillus</i>	Small pondweed	---	---	---	7
<i>Stuckenia</i>	<i>pectinata</i>	Sago pondweed	---	---	3	3
<i>Zannichellia</i>	<i>palustris</i>	Horned pondweed	7	---	---	7
Total Species			3	2	3	4
Mean C			4.33	3.00	4.00	5.00
<b>Floristic Quality Index (FQI)</b>			<b>7.51</b>	<b>4.24</b>	<b>6.93</b>	<b>10.00</b>

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.

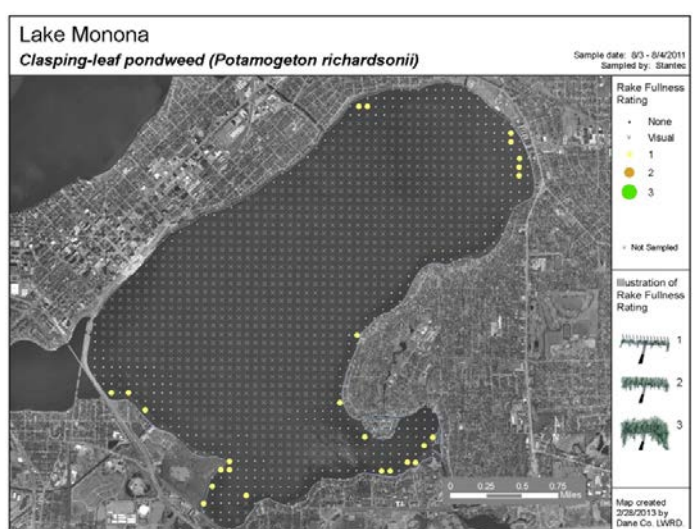
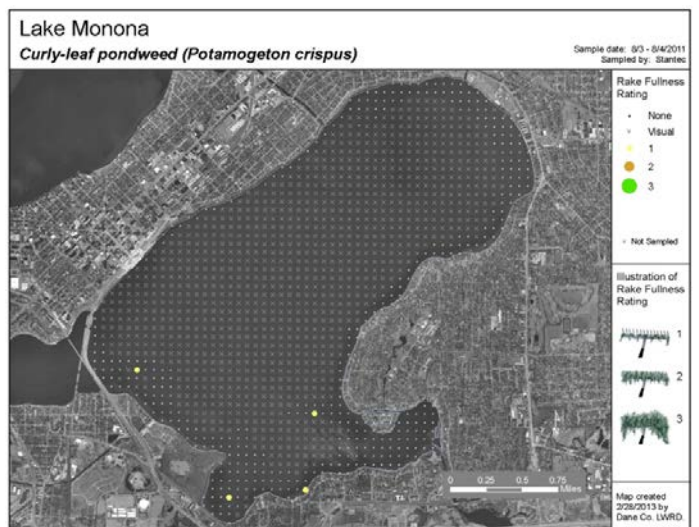
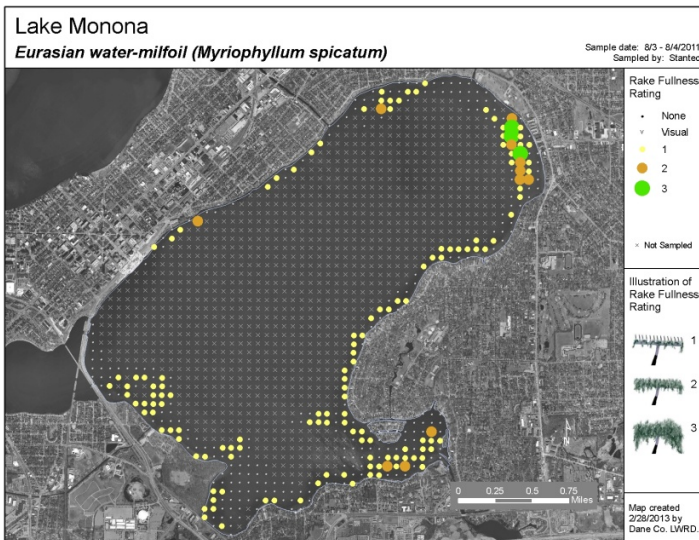
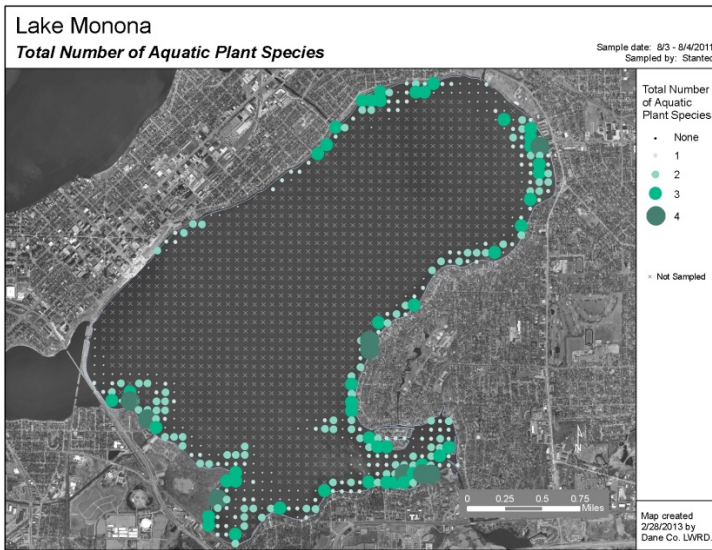
9-10 taxa restricted to a narrow range of synecological conditions, with low tolerance of disturbance.

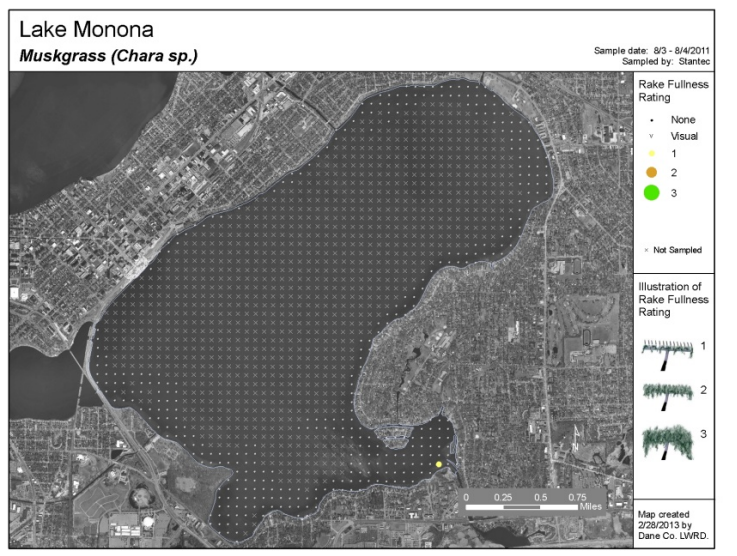
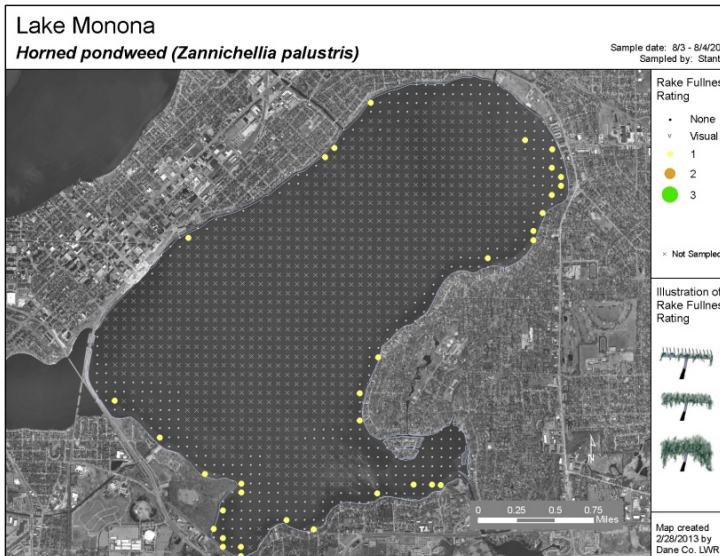
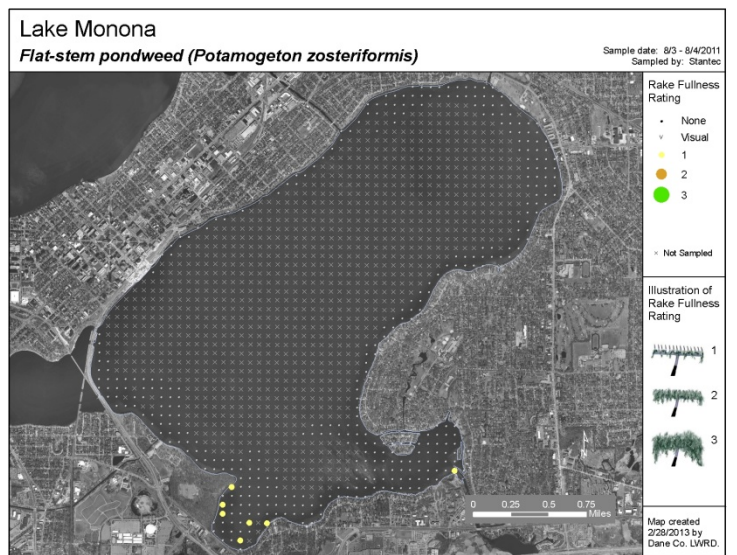
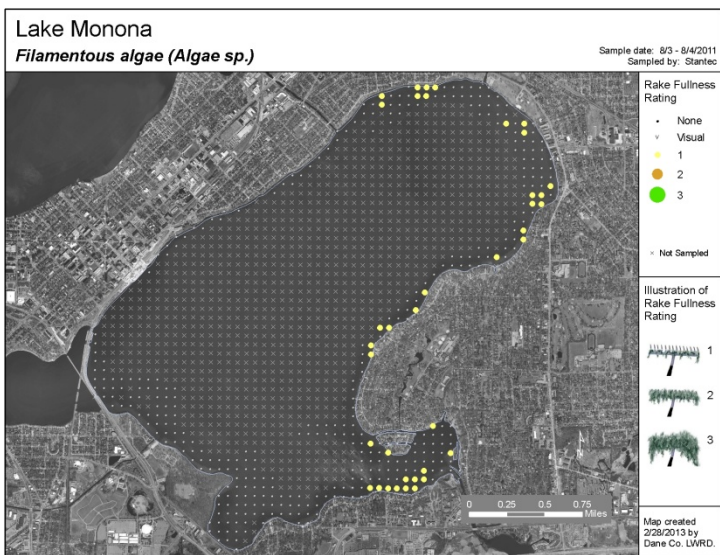
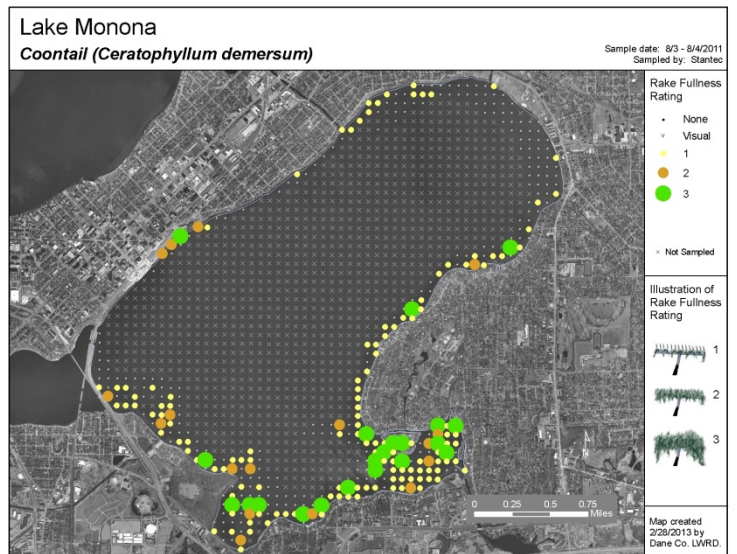
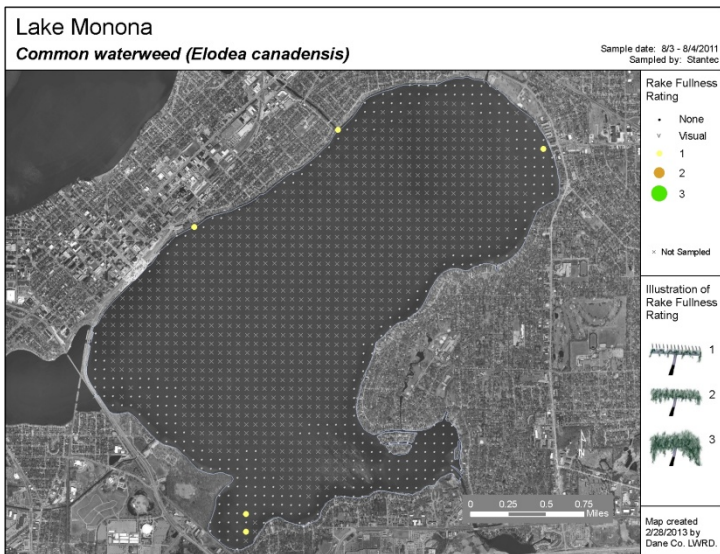
<b>Table 4: Historical Aquatic Plant Community Statistics, Monona Bays, Dane County, Wisconsin.</b>				
	N. Bay - 2011	S. Bay - 2011	Main Bay - 2008	Main Bay - 2011
<b>F.o.o. at sites shallower than maximum depth of plants</b>	<b>48.65</b>	<b>42.11</b>	<b>35.69</b>	<b>12.72</b>
<b>Most Dominant Species</b>	Coontail	Coontail	Coontail	Coontail
	Common Waterweed	Eurasian Watermilfoil	Eurasian Water-milfoil	Eurasian Watermilfoil
	Eurasian Watermilfoil	Common Waterweed	Filamentous Algae	Sago Pondweed
	Curly-leaf Pondweed	---	Sago Pondweed	Horned Pondweed
	Horned Pondweed	---	Leafy Pondweed	Small Pondweed
<b>Maximum Depth of Plants</b>	<b>8</b>	<b>7</b>	<b>12</b>	<b>7</b>
<b>Species Richness</b>	<b>5</b>	<b>3</b>	<b>5</b>	<b>5</b>
<b>Community FQI</b>	<b>7.51</b>	<b>4.24</b>	<b>6.93</b>	<b>10.00</b>
<b>Average Coefficient of Conservatism</b>	<b>4.33</b>	<b>3.00</b>	<b>4.00</b>	<b>5.00</b>

Table 5: Historical Aquatic Plant Occurrences, Monona Bays, Wisconsin.						
Genus	Species	Common Name	% Relative Frequency of Occurrence			
			N. Bay - 2011	S. Bay - 2011	Main Bay - 2008	Main Bay - 2011
<i>Algae</i>	<i>sp.</i>	Filamentous Algae	---	---	9.4	---
<i>Ceratophyllum</i>	<i>demersum</i>	Coontail	55.6	72.7	60.4	32.6
<i>Elodea</i>	<i>canadensis</i>	Common waterweed	18.5	9.1	---	---
<i>Myriophyllum</i>	<i>spicatum</i>	Eurasian watermilfoil	14.8	18.2	27.3	27.9
<i>Potamogeton</i>	<i>crispus</i>	Curly-leaf pondweed	7.4	---	--	---
<i>Potamogeton</i>	<i>foliosus</i>	Leafy pondweed	---	---	1.4	---
<i>Potamogeton</i>	<i>pusillus</i>	Small pondweed	---	---	---	7.0
<i>Stuckenia</i>	<i>pectinata</i>	Sago pondweed	---	---	1.4	23.3
<i>Zannichellia</i>	<i>palustris</i>	Horned pondweed	3.7	---	---	9.3

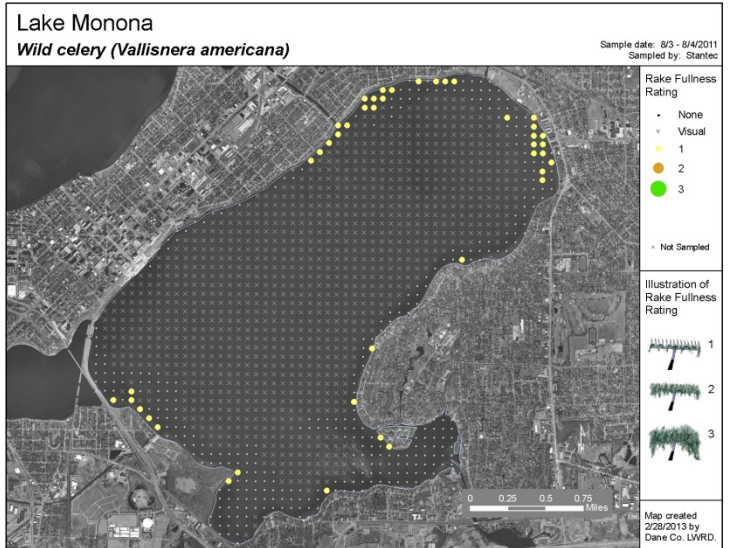
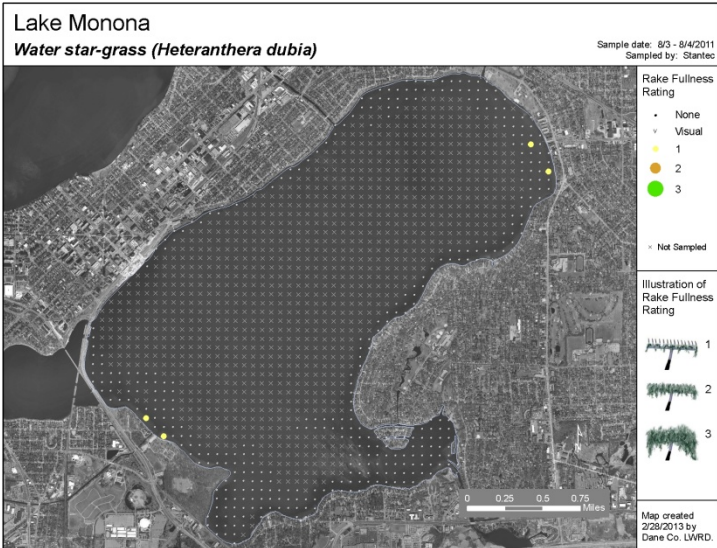
APPENDIX C – AQUATIC PLANT DISTRIBUTIONS LAKE MONONA AND MONONA BAY (2011)

Lake Monona

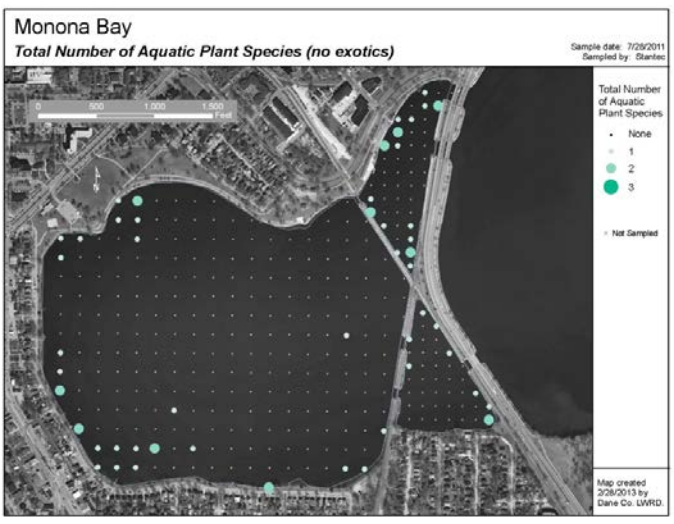
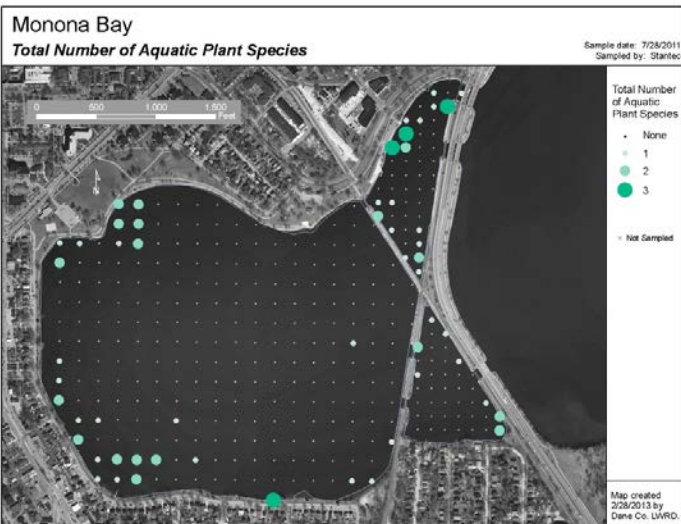


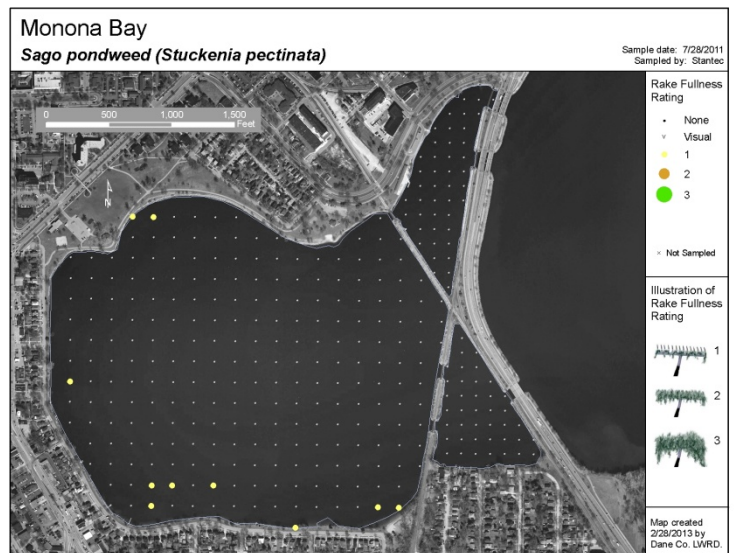
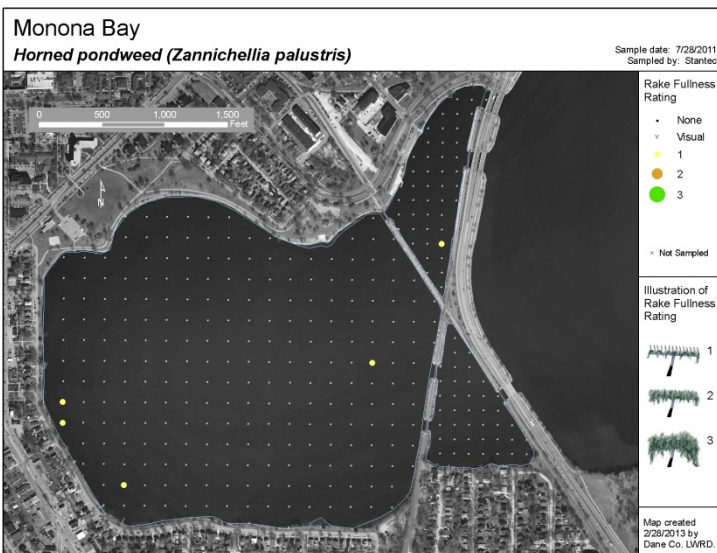
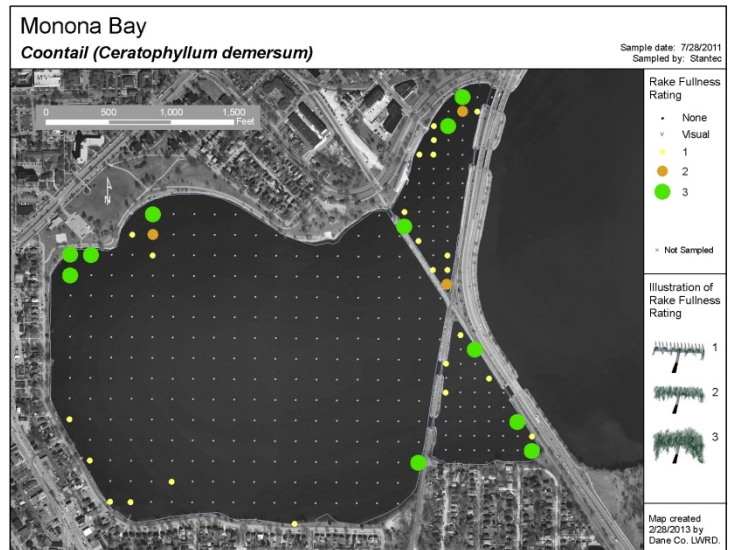
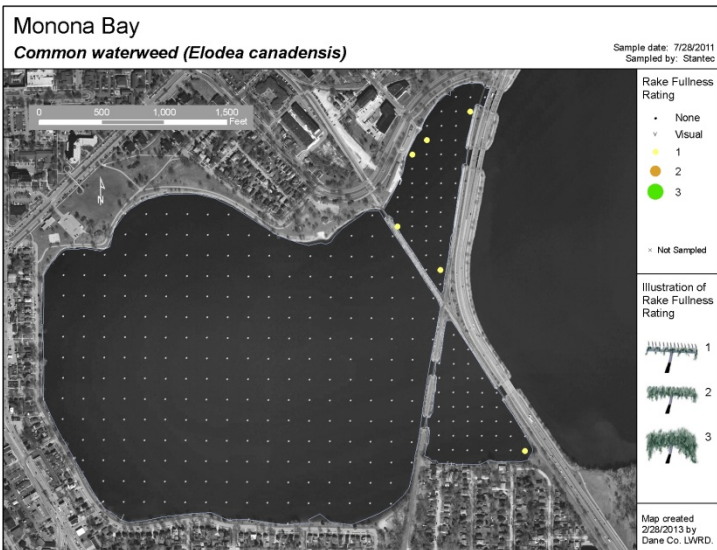
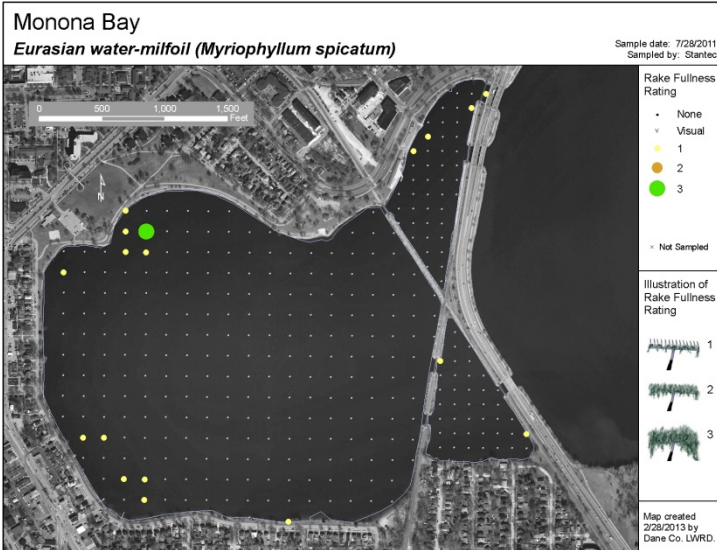






**Monona Bay**





Monona Bay

Small pondweed (*Potamogeton pusillus*)

Sample date: 7/28/2011  
Sampled by: Stantec

