Appendix A – Lake Mendota Plant Statistics 2017

Table 1: 2017 Aquatic Plant Community Statistics, Lake Mendota, Dane County, WI

Total number of sites visited	756
Total number of sites with vegetation	435
Total number of sites shallower than maximum depth of plants	637
Frequency of occurrence at sites shallower than maximum depth of plants	68.29
Simpson Diversity Index	0.81
Maximum depth of plants (ft)**	15
Average number of all species per site (shallower than max depth)	1.31
Average number of all species per site (veg. sites only)	1.92
Average number of native species per site (shallower than max depth)	1.03
Average number of native species per site (veg. sites only)	1.64
Species Richness	17*
Species Richness (including visuals)	22*
*Filamentous algae is no longer included in species richness by WI DNR	

Table 2: Historical Aquatic Plant Community Statistics, Lake Mendota, Dane County, Wisconsin.

	1990	1991	2006	2011	2017
F.o.o. at sites shallower than maximum depth of plants	---	---	67.04	51.36	68.29
Most Dominant Species	Coontail	Eurasian Water-milfoil	Coontail	Wild Celery	Coontail
	Eurasian Water-milfoil	Coontail	Eurasian Water-milfoil	Eurasian Water-milfoil	Wild Celery
	Sago Pondweed	Sago Pondweed	Common Waterweed	Coontail	Eurasian Water-milfoil
	Wild Celery	Water Star-grass	Wild Celery	Horned Pondweed	Filamentous algae
	Water Star-grass	Common Waterweed	Water Star-grass	Flat-stem Pondweed	Sago pondweed
Maximum Depth of Plants	13	13	16	16	15
Species Richness	11	11	16	16	18
Community FQI	15	15	19.14	20.58	21.5
Average Coefficient of Conservatism	5	5	5.31	5.5	5.38

Table 3: 2017 Aquatic Plant Taxa-Specific Statistics, Lake Mendota, Dane County, WI

Species	Frequency of occurrence within vegetated areas (%)	Frequency of occurrence at sites shallower than maximum depth of plants	Relative Frequency (%)	Number of sites where species found	Average Rake Fullness
Eurasian water milfoil	40.69	27.79	21.20	177	1.07
Coontail	49.43	33.75	25.75	215	1.26
Muskgrasses	0.23	0.16	0.12	1	1.00
Elodea, Common waterweed	12.64	8.63	6.59	55	1.05
Water star-grass	2.07	1.41	1.08	9	1.00
Small duckweed	0.23	0.16	0.12	1	1.00
Northern water-milfoil	5.29	3.61	2.75	23	1.00
Slender naiad	1.61	1.10	0.84	7	1.00
American lotus	0.46	0.31	0.24	2	1.00
White water lily	0.23	0.16	0.12	1	1.00
Leafy pondweed	1.15	0.78	0.60	5	1.00
Long-leaf pondweed	0.23	0.16	0.12	1	1.00
Clasping-leaf pondweed	3.45	2.35	1.80	15	1.00
Flat-stem pondweed	13.33	9.11	6.95	58	1.00
Large duckweed	0.23	0.16	0.12	1	1.00
Sago pondweed	13.33	9.11	6.95	58	1.00
Wild celery	47.36	32.34	24.67	206	1.26
Filamentous algae	22.07	15.07	*	96	1.01
*Relative frequency of Filamentous algae is no longer calculated by WI DNR					

Table 4: Historical Floristic Quality Index, Lake Mendota, Dane County, WI

			Coefficient of Conservatism					
Genus	**Species**	**Common Name**	**1989**	**1990**	**1991**	**2006**	**2011**	**2017**
Ceratophyllum	*demersum*	Coontail	3	3	3	3	3	3
Chara	*sp.*	Muskgrass	---	---	---	7	7	7
Elodea	*canadensis*	Common waterweed	3	3	3	3	3	3
Heteranthera	*dubia*	Water star-grass	6	6	6	6	6	6
Lemna	*minor*	Small duckweed	---	---	---	4	4	4
Myriophyllum	*sibiricum*	Northern water-milfoil	---	---	---	---	---	6
Najas	*flexilis*	Bushy pondweed	---	---	---	---	6	6
Nelumbo	*lutea*	American lotus	7	7	7	7	7	7
Nymphaea	*odorata*	White water lily	6	6	6	6	6	6
Potamogeton	*foliosus*	Leafy pondweed	---	6	6	6	---	6
Potamogeton	*illinoensis*	Illinois pondweed	---	---	---	---	6	---
Potamogeton	*nodosus*	Long-leaf pondweed	---	---	---	---	---	7
Potamogeton	*richardsonii*	Clasping-leaf pondweed	5	5	5	5	5	5
Potamogeton	*zosteriformis*	Flat-stem pondweed	6	---	---	6	6	6
Spirodela	*polyrhiza*	Large duckweed	---	---	---	---	---	5
Stuckenia	*pectinata*	Sago pondweed	3	3	3	3	---	3
Vallisnera	*americana*	Wild celery	6	6	6	6	6	6
Wolffia	*columbiana*	Common watermeal	---	---	---	---	5	---
Zannichellia	*palustris*	Horned pondweed	---	---	---	7	7	---
		Total Species	9	9	9	13	14	16
		Mean C	5.00	5.00	5.00	5.31	5.50	5.38
		Floristic Quality Index (FQI)	15.00	15.00	15.00	19.14	20.58	21.5

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 5: Historical Aquatic Plant Occurrences, Lake Mendota, Dane County, Wisconsin

Genus	Species	Common Name	% Relative Frequency of Occurrence					
			1989	1990	1991	2006	2011	2017
Algae	*sp.*	Filamentous algae	--	---	---	14.9	2.4	**
Ceratophyllum	*demersum*	Coontail	42.5	42.4	40.9	19.6	14.1	25.7
Chara	*sp.*	Muskgrass	---	---	--	0.2	0.2	0.1
Elodea	*canadensis*	Common waterweed	3.6	3.3	7.0	9.7	3.2	6.6
Heteranthera	*dubia*	Water star-grass	5.8	5.5	7.7	6.2	1.4	1.1
Lemna	*minor*	Small duckweed	---	---	---	0.8	0.2	0.1
Lythrum	*salicaria*	Purple loosestrife	---	---	---	---	---	0*
Myriophyllum	*sibericum*		---	---	---	---	---	2.8
Myriophyllum	*spicatum*	Eurasian watermilfoil	34.1	32.0	40.9	19.6	28.2	21.2
Najas	*flexilis*	Slender Naiad	---	---	---	---	0.3	0.8
Nelumbo	*lutea*	American lotus	0.3	1.1	0.2	0.1	0.5	0.2
Nymphaea	*odorata*	White water lily	0.3	0.3	0.8	0.2	0.3	0.1
Nuphar	*Variegate*	Spatterdock	---	---	---	---	---	0*
Potamogeton	*crispus*	Curly-leaf pondweed	0.7	0.5	0.9	2.5	---	---
Potamogeton	*foliosus*	Leafy pondweed	---	0.1	1.5	3.7	---	0.1
Potamogeton	*illinoensis*	Illinois pondweed	---	---	---	---	0.2	---
Potamogeton	*nodosus*	Long-leaf pondweed	---	---	---	---	---	0.1
Potamogeton	*richardsonii*	Clasping-leaf pondweed	0.5	0.4	0.6	1.6	4.1	1.8
Potamogeton	*zosteriformis*	Flat-stem pondweed	0.1	---	---	0.4	4.3	6.9
Schoenoplectus	*tabemaemontani*	Softstem bulrush	---	---	---	---	---	0*
Spirodela	*polyrhiza*	Large duckweed	---	---	---	---	---	0.1
Stuckenina	*pectinata*	Sago pondweed	6.8	8.5	8.3	5.5	---	6.9
Typha	*sp.*	Cattail	---	---	---	---	---	0*
Vallisnera	*americana*	Wild celery	5.4	5.8	6.3	9.0	29.6	24.7
Wolffia	*columbiana*	Common watermeal	---	---	---	---	0.2	---
Zannichellia	*palustris*	Horned pondweed	---	---	--	1.3	10.9	---

0 - Species was sampled visually only, statistical data was not produced.*

*** F.O.O. no longer calculated by WI DNR*

Appendix B– Aquatic Invasive Species

Wisconsin Invasive Species Laws

Inspect your boat, trailer and equipment.
Remove any attached aquatic plants or animals (before launching, after loading & before transporting on a public highway)
Never Move live fish away from a waterbody.* Fish out of water are not considered live. Transport on ice is legal and recommended.
Buy minnows from a Wisconsin bait dealer and use leftover minnows only under certain conditions. *

*You may take leftover minnows purchased from a Wisconsin bait dealer away from any state water and use them again on that same water. You may use leftover minnows on other waters only if no lake or river water, or other fish were added to their container. See fishingwisconsin.org for more information.

Minnows

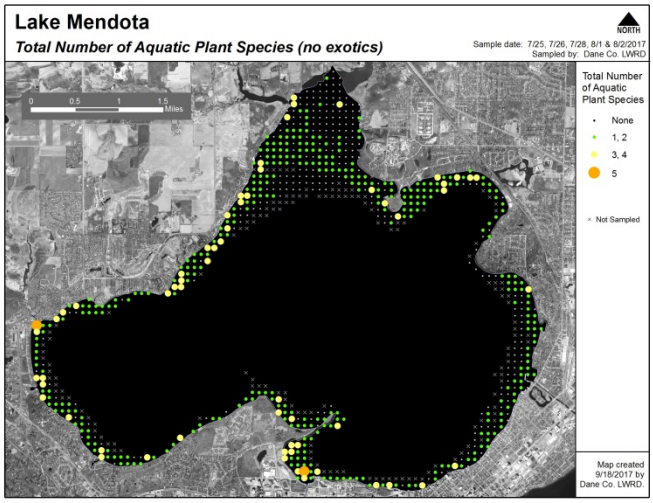
You may take live minnows purchased from a Wisconsin bait dealer (which includes Wisconsin registered fish farms) away from a waterbody if any of the following three conditions are met:

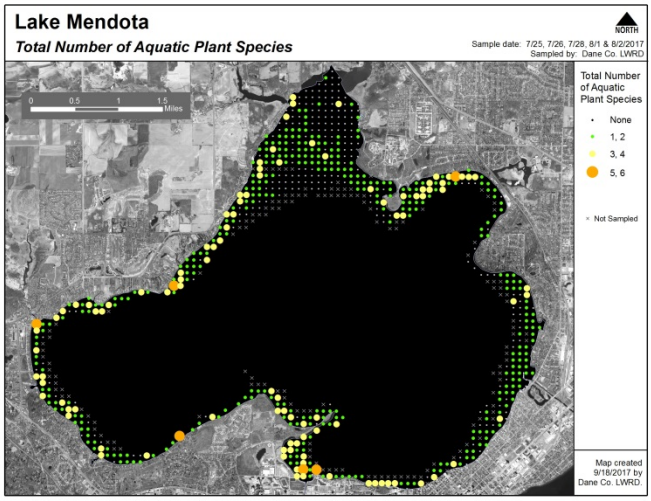
- Anglers can take purchased minnows away from a lake and use them again on that same waterbody.
- Anglers can also take purchased minnows away from a waterbody and use them elsewhere if no lake or river water or other fish were added to the bait container.
- Anglers can also take purchased minnows away from a waterbody for use elsewhere if they intend to preserve them as dead bait using approved methods.

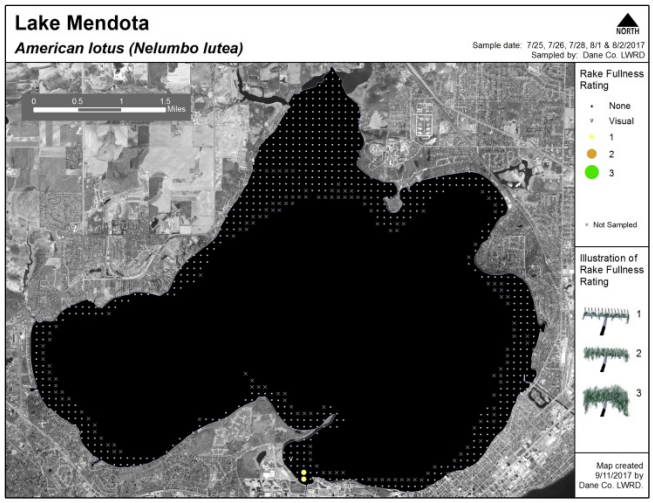
In each of these cases minnows may be transported in the amount of water needed to keep the minnows alive, up to 2 gallons. Additional Dane County Prevention Steps

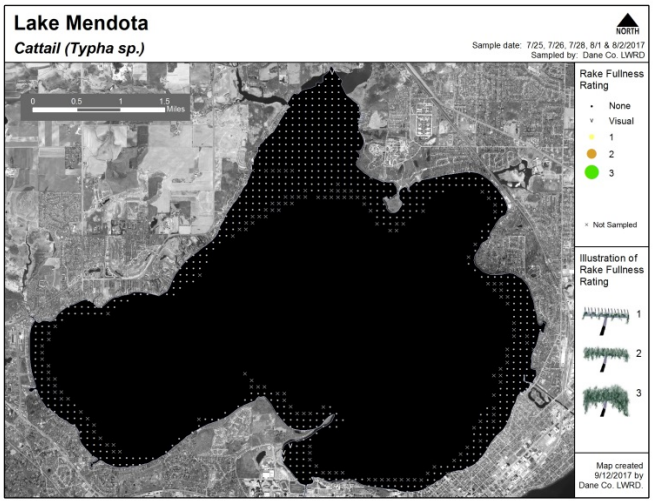
- Dane County staff will remove all vegetation, mud, and other debris that is accessible from the machines before moving them away from any waterbody. (Machines include boats, harvesters, barges, and elevators)
- Dane County staff will remove the machines from a waterbody for a minimum of five dry days before moving them to another waterbody.
- When it is not possible to wait for 5 days Dane County staff will use a 2% Virkon solution mixed no more than seven days prior to application and allowing 10 minutes of contact time before rinsing with hot water to disinfect the machines before moving to another waterbody.
- Dane County staff will try to plan to move only downstream when working in the Yahara river chain as an added layer of protection
- Per Wisconsin DNR protocol found here: http://dnr.wi.gov/topic/Invasives/disinfection.html

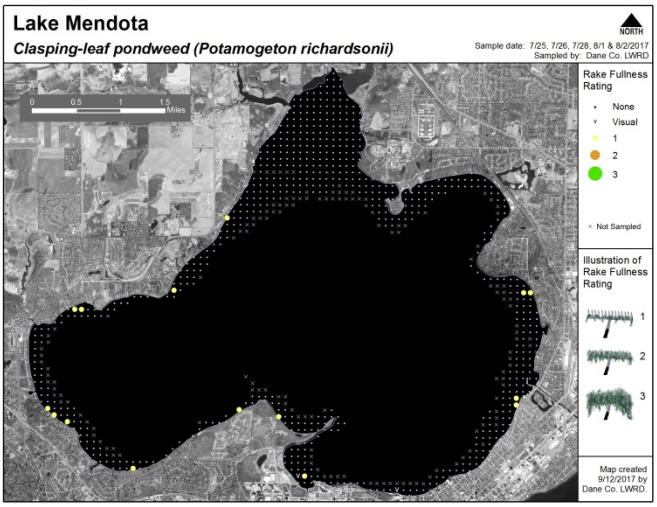
Appendix C – Mapped Plant Distributions for Lake Mendota

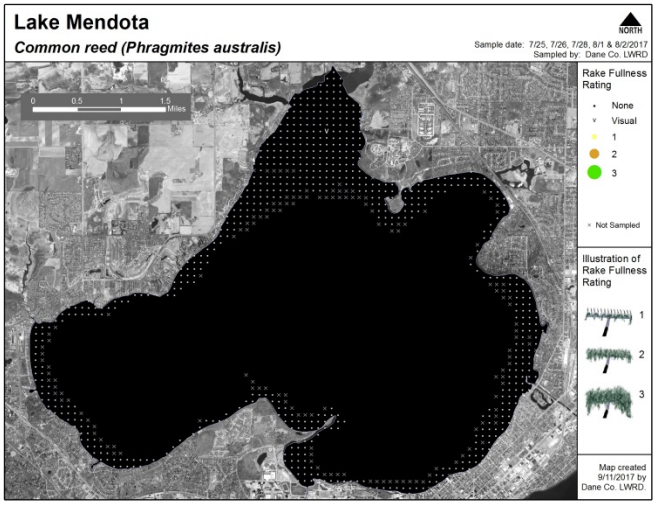


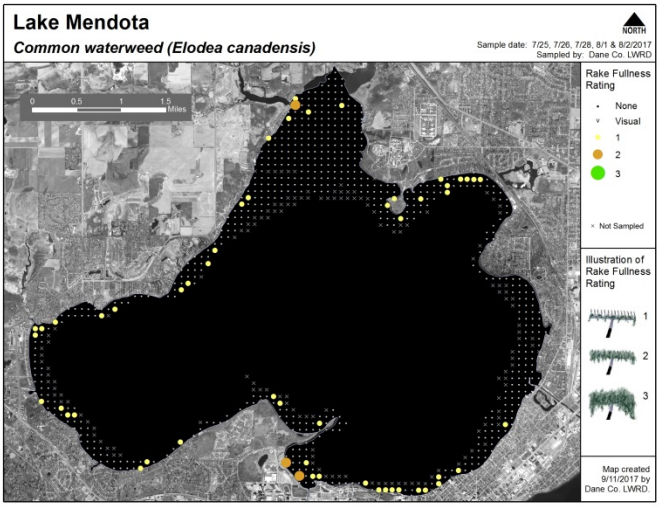


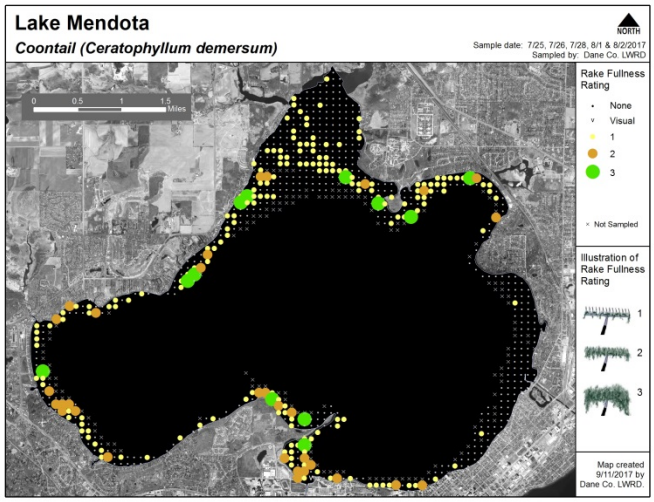









Lake Mendota
Common waterweed (Elodea canadensis)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
2
3
Map created 9/11/2017 by Dane Co. LWRD.


Lake Mendota
Coontail (Ceratophyllum demersum)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
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Not Sampled
Illustration of Rake Fullness Rating
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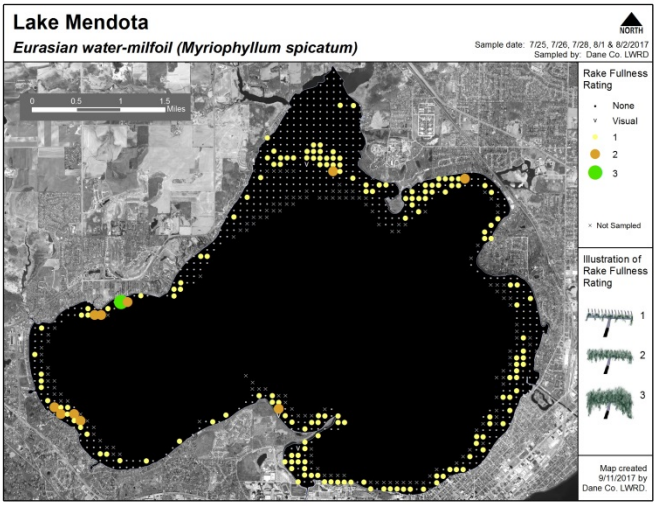
Map created 9/11/2017 by Dane Co. LWRD.


Lake Mendota
Eurasian water-milfoil (Myriophyllum spicatum)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
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Not Sampled
Illustration of Rake Fullness Rating
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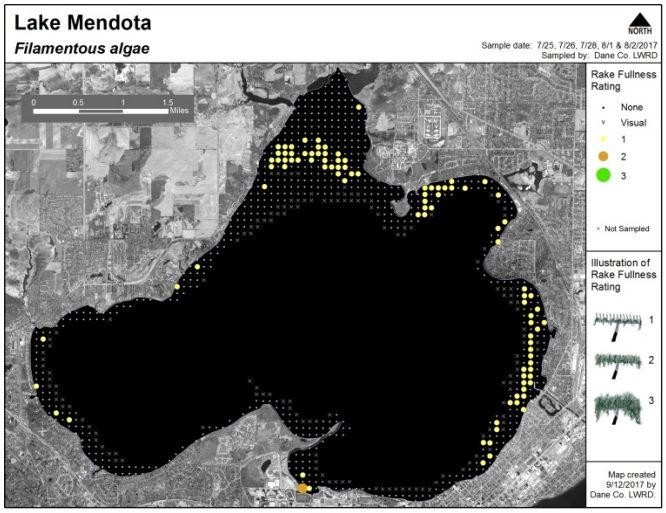
Map created 9/11/2017 by Dane Co. LWRD.


Lake Mendota
Filamentous algae
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
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Visual
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Not Sampled
Illustration of Rake Fullness Rating
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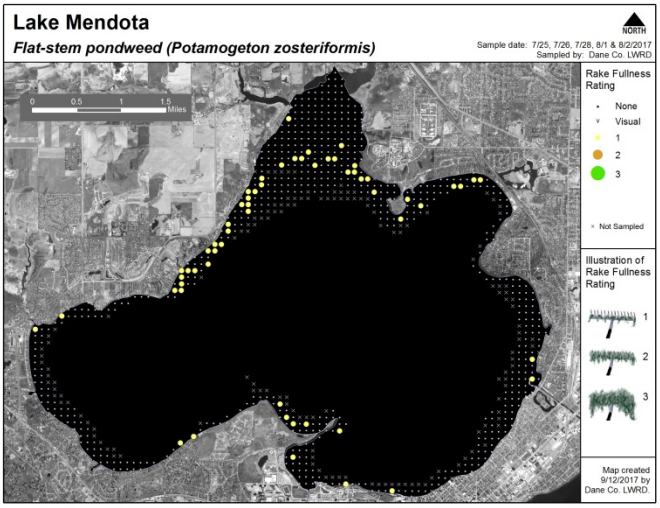
Map created 9/12/2017 by Dane Co. LWRD.


Lake Mendota
Flat-stem pondweed (Potamogeton zosteriformis)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
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Not Sampled
Illustration of Rake Fullness Rating
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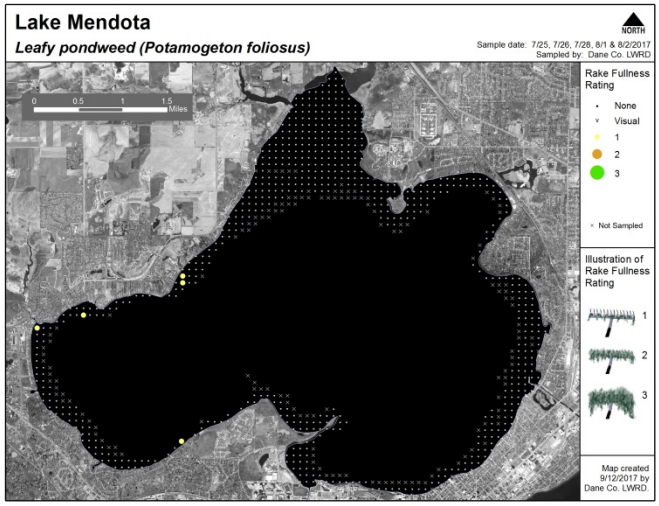
Map created 9/12/2017 by Dane Co. LWRD.


Lake Mendota
Leafy pondweed (Potamogeton foliosus)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
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Not Sampled
Illustration of Rake Fullness Rating
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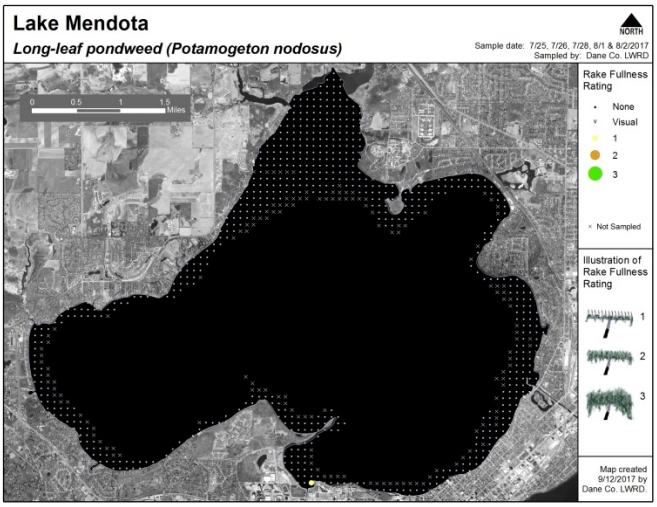
Map created 9/12/2017 by Dane Co. LWRD.


Lake Mendota
Long-leaf pondweed (Potamogeton nodosus)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
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Visual
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Not Sampled
Illustration of Rake Fullness Rating
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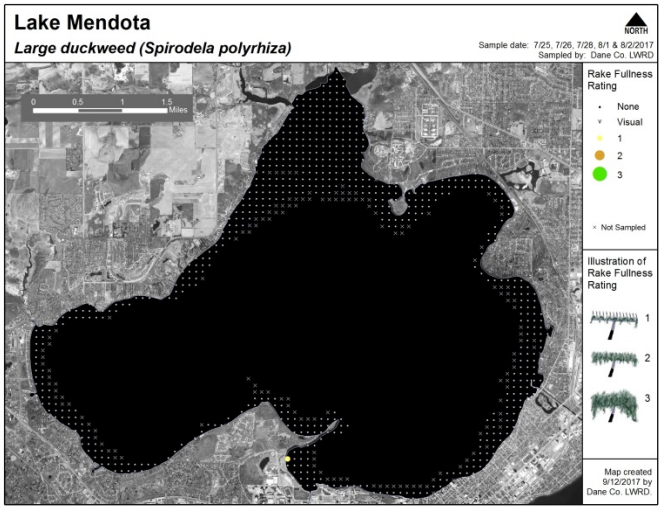
Map created 9/12/2017 by Dane Co. LWRD.


Lake Mendota
Large duckweed (Spirodela polyrhiza)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
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Not Sampled
Illustration of Rake Fullness Rating
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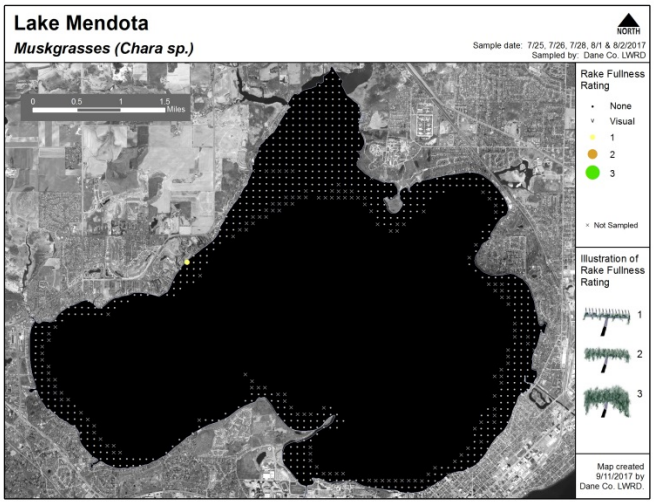
Map created 9/12/2017 by Dane Co. LWRD.


Lake Mendota
Muskgrasses (Chara sp.)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
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Visual
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Not Sampled
Illustration of Rake Fullness Rating
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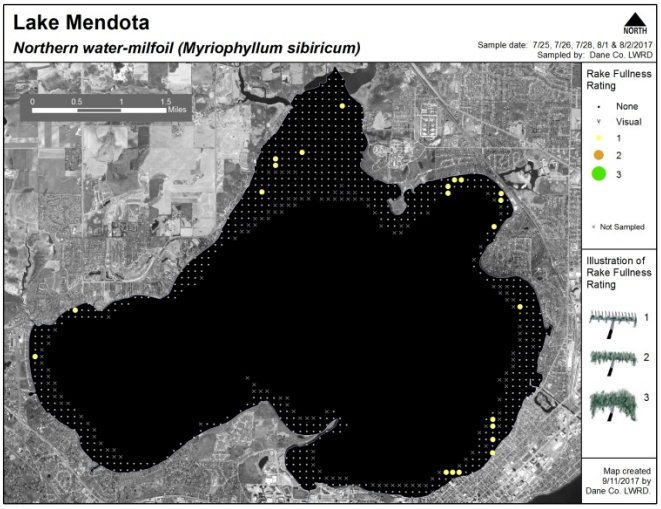
Map created 9/11/2017 by Dane Co. LWRD.


Lake Mendota
Northern water-milfoil (Myriophyllum sibiricum)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
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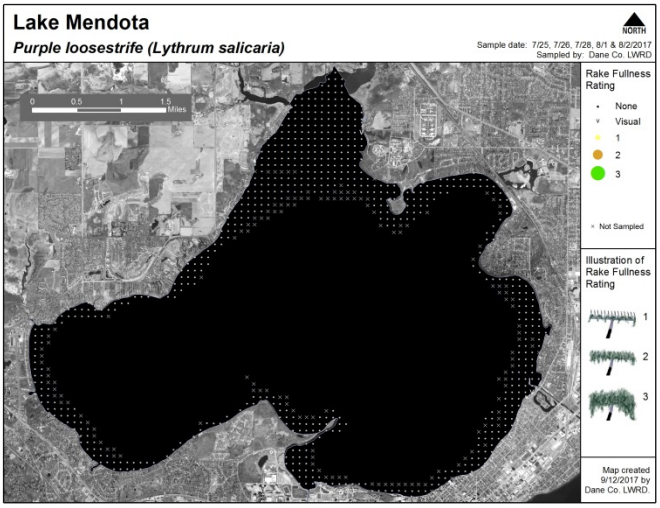
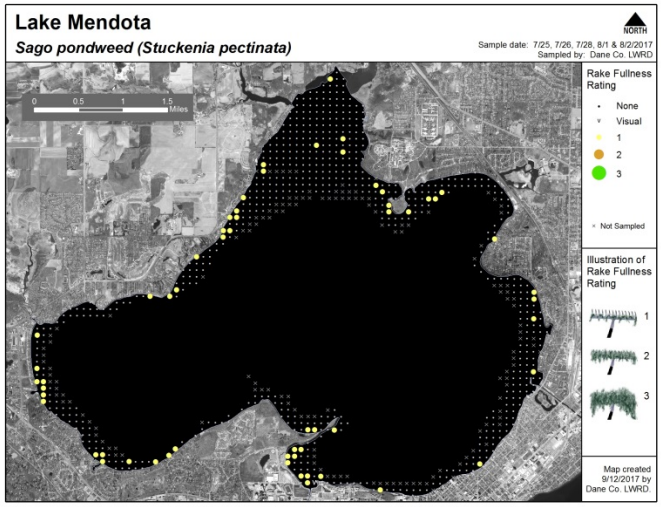
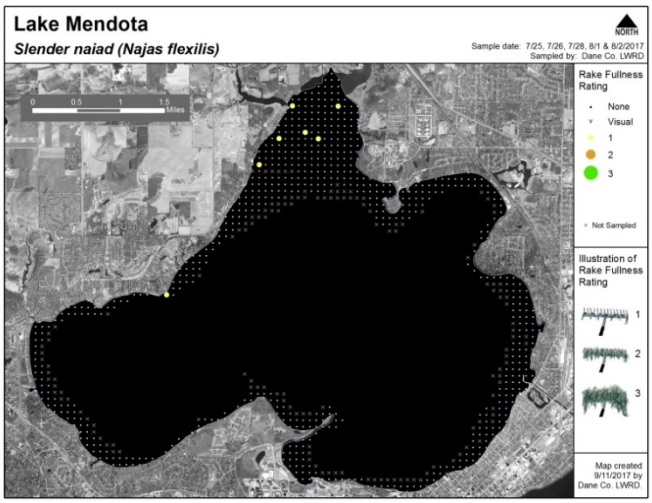
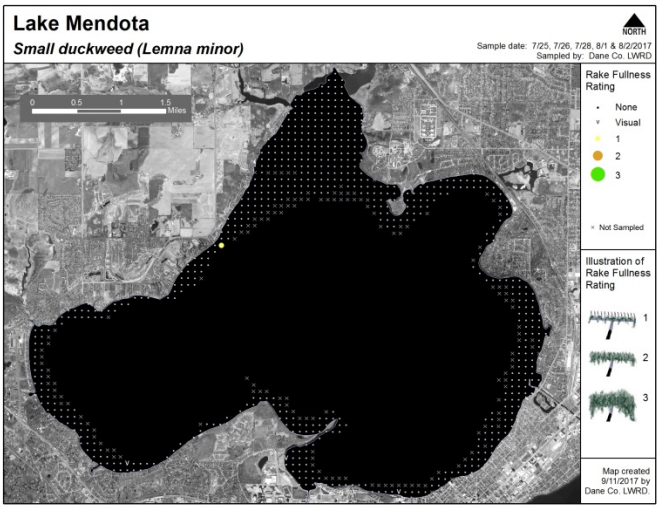
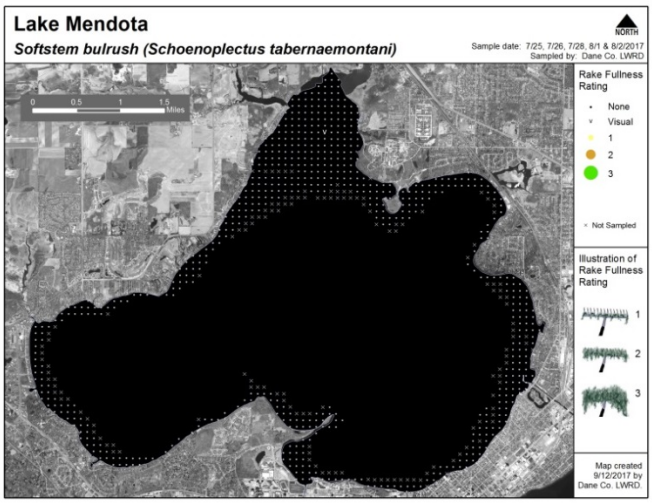
Map created 9/11/2017 by Dane Co. LWRD.

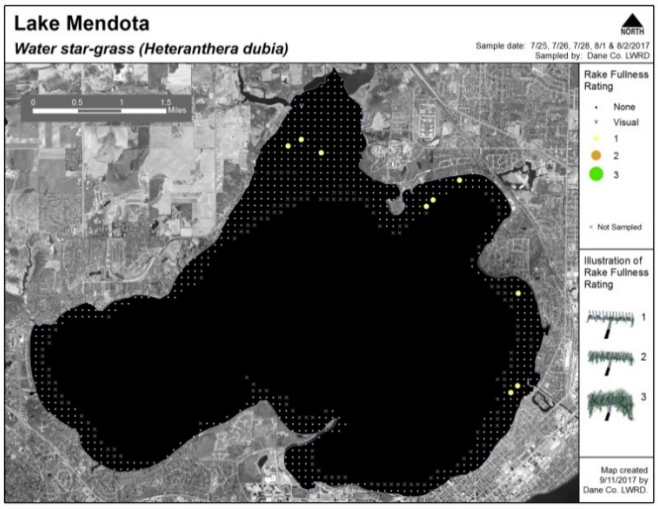

Lake Mendota
Purple loosestrife (Lythrum salicaria)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
2
3
Map created 9/12/2017 by Dane Co. LWRD.

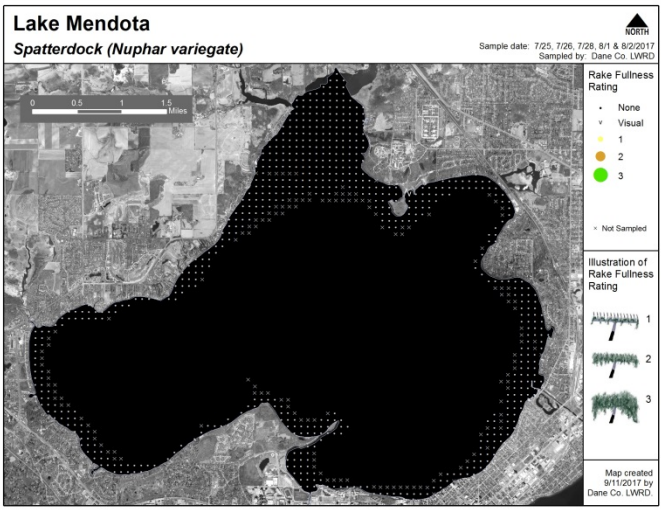

Lake Mendota
Sago pondweed (Stuckenia pectinata)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
2
3
Map created 9/12/2017 by Dane Co. LWRD.

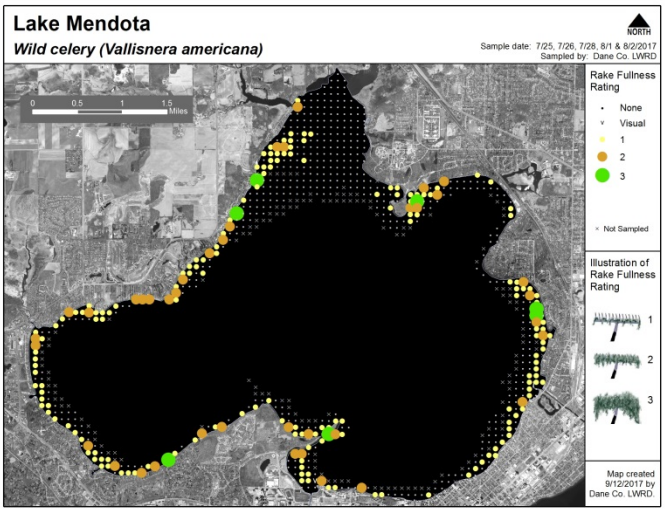

Lake Mendota
Slender naiad (Najas flexilis)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
2
3
Map created 9/11/2017 by Dane Co. LWRD.

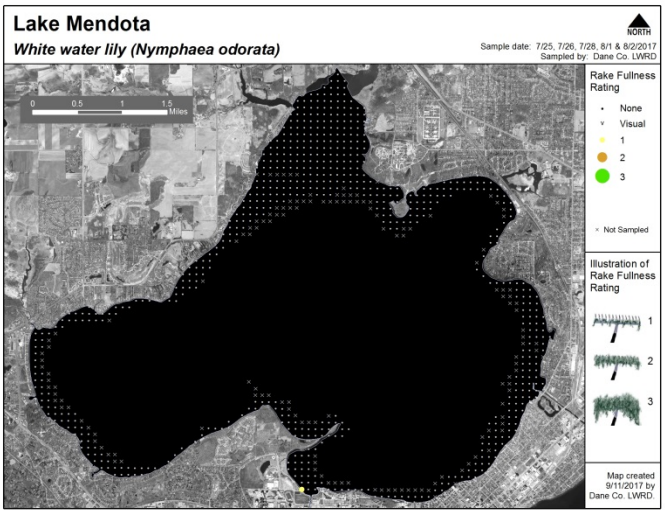

Lake Mendota
Small duckweed (Lemna minor)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
2
3
Map created 9/11/2017 by Dane Co. LWRD.


Lake Mendota
Softstem bulrush (Schoenoplectus tabernaemontani)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
2
3
Map created 9/12/2017 by Dane Co. LWRD.


Lake Mendota
Water star-grass (Heteranthera dubia)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
2
3
Map created 9/11/2017 by Dane Co. LWRD.


Lake Mendota
Spatterdock (Nuphar variegate)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
2
3
Map created 9/11/2017 by Dane Co. LWRD.


Lake Mendota
Wild celery (Vallisnera americana)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
2
3
Map created 9/12/2017 by Dane Co. LWRD.


Lake Mendota
White water lily (Nymphaea odorata)
Sample date: 7/25, 7/26, 7/28, 8/1 & 8/2/2017
Sampled by: Dane Co. LWRD
NORTH
0 0.5 1 1.5 Miles
Rake Fullness Rating
None
Visual
1
2
3
Not Sampled
Illustration of Rake Fullness Rating
1
2
3
Map created 9/11/2017 by Dane Co. LWRD