

Mosquito Control Permit Application - Madison Metropolitan Area
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4 March 2008

The Department of Public Health for Madison and Dane County (PHMDC) requests a permit to apply larvicide to select water sources in the Madison metropolitan area including the City of Madison, Town of Madison, Village of Maple Bluff, City of Middleton, City of Monona, Village of Shorewood Hills, and City of Sun Prairie. Water sources selected for treatment will be sources of water within the Madison Metropolitan Area, which are found to produce high numbers of *Culex spp.* and *Aedes vexans* larvae.

This request is part of a mosquito monitoring and control plan for West Nile virus (WNV) vectors that will follow Integrated Pest Management (IPM) methods. *Culex* mosquitoes are considered to be the primary vector of West Nile virus (WNV).^{*} In consultation with University of Wisconsin entomologist Phil Pellitteri, PHMDC has set three mosquito larvae per dip as the treatment threshold. This threshold is also consistent with thresholds set in mosquito control permits secured by other municipalities in Wisconsin. Maintenance or permanent source reduction methods will be considered in areas that exceed the established threshold. When IPM methods determine that treatment is necessary, mosquito larvae treatments will involve the application of a granular formulation of VectoLex to standing water. The active ingredient of this product is *Bacillus sphaericus* spores and toxins, which are specific to mosquito larvae and related insects. The product is non-toxic to humans, other mammals, fish and birds.

Since 2003, this Department has performed extensive mosquito larvae monitoring in the metropolitan area. In the first couple of years, we found approximately 25% of the sites produce high numbers of *Culex spp.* or *Aedes vexans* larvae. We have observed a slight decrease in proportion of water sources producing high numbers of target mosquito larvae from 10% in 2005 to 8% in 2007. We have found the breeding potential for any one water source varies throughout the season and from year to year. For these reasons, it is difficult to predict all of the locations that may need larvicide treatment to control the breeding of WNV competent mosquitoes. The following table provides a list of problem sites identified and treated

^{*} As more information becomes available on the ability of other mosquitoes to transmit WNV infections to humans, the mosquito species targeted in this plan may need to be changed.

in 2006. Those that were problem spots in previous years are marked with "***". We expect that similar types and numbers of sites will require treatment in 2008. None of the sites treated in 2007 support swimming, or hunting activities. Limited fishing and boating may occur in a small number of the areas identified in the table. Some of the sites also important in supporting fish populations. However, VectoLex treatments are not expected to impact or limit the use of these sites for boating, fishing, or fisheries productivity. Treatments in these areas are expected to be limited to ditches and storm water ponds. Natural aesthetic qualities and support of wildlife populations are important at several sites identified in the table. Again, mosquito control activities are not expected to negatively impact either of these qualities. The following maps provide the location of the problem areas listed in the table.

Figure 1. 2007 Mosquito larvae monitoring results - Middleton, WI

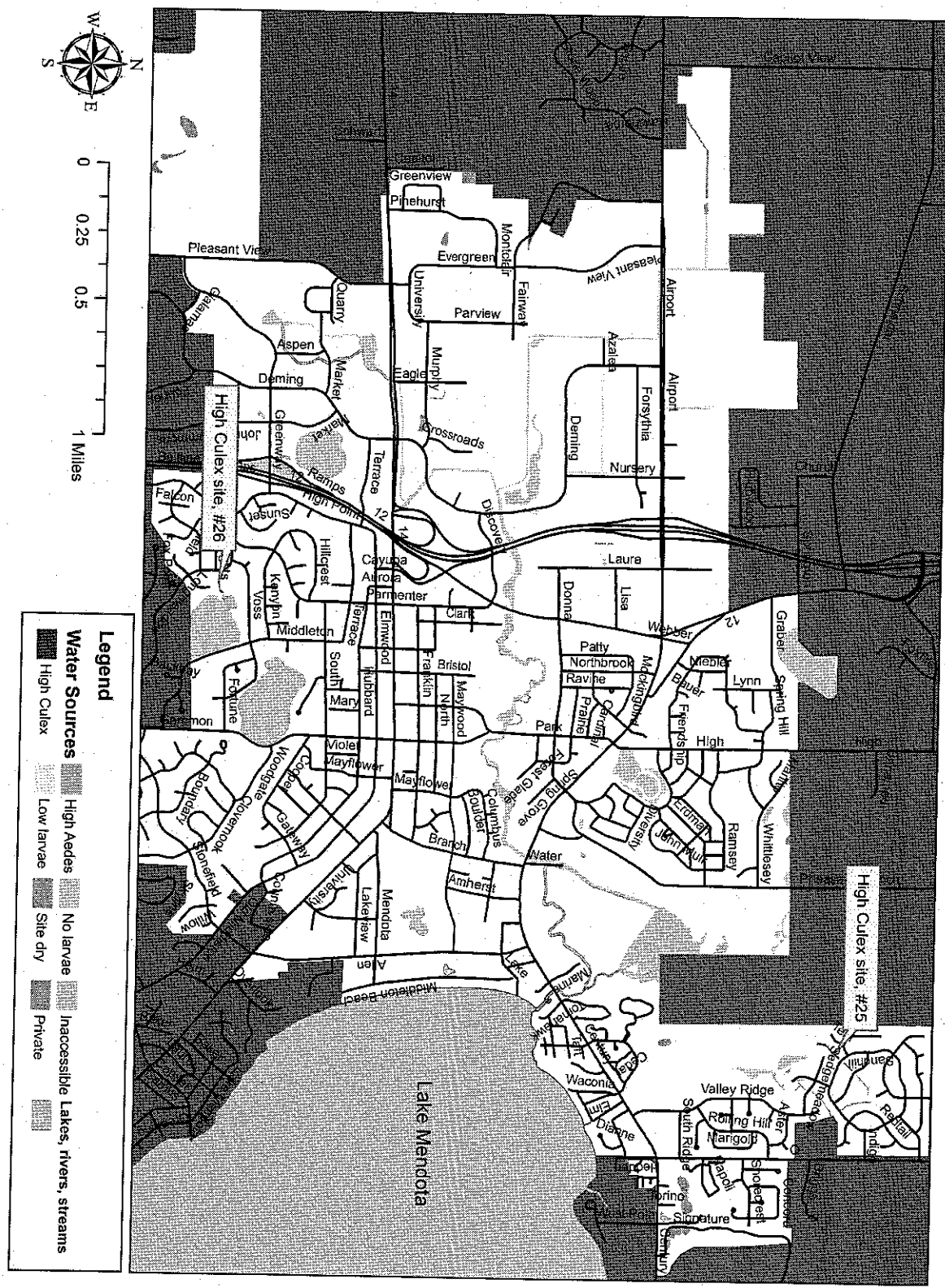


Figure 2. 2007 Mosquito larvae monitoring results - Madison, WI (northern west side)

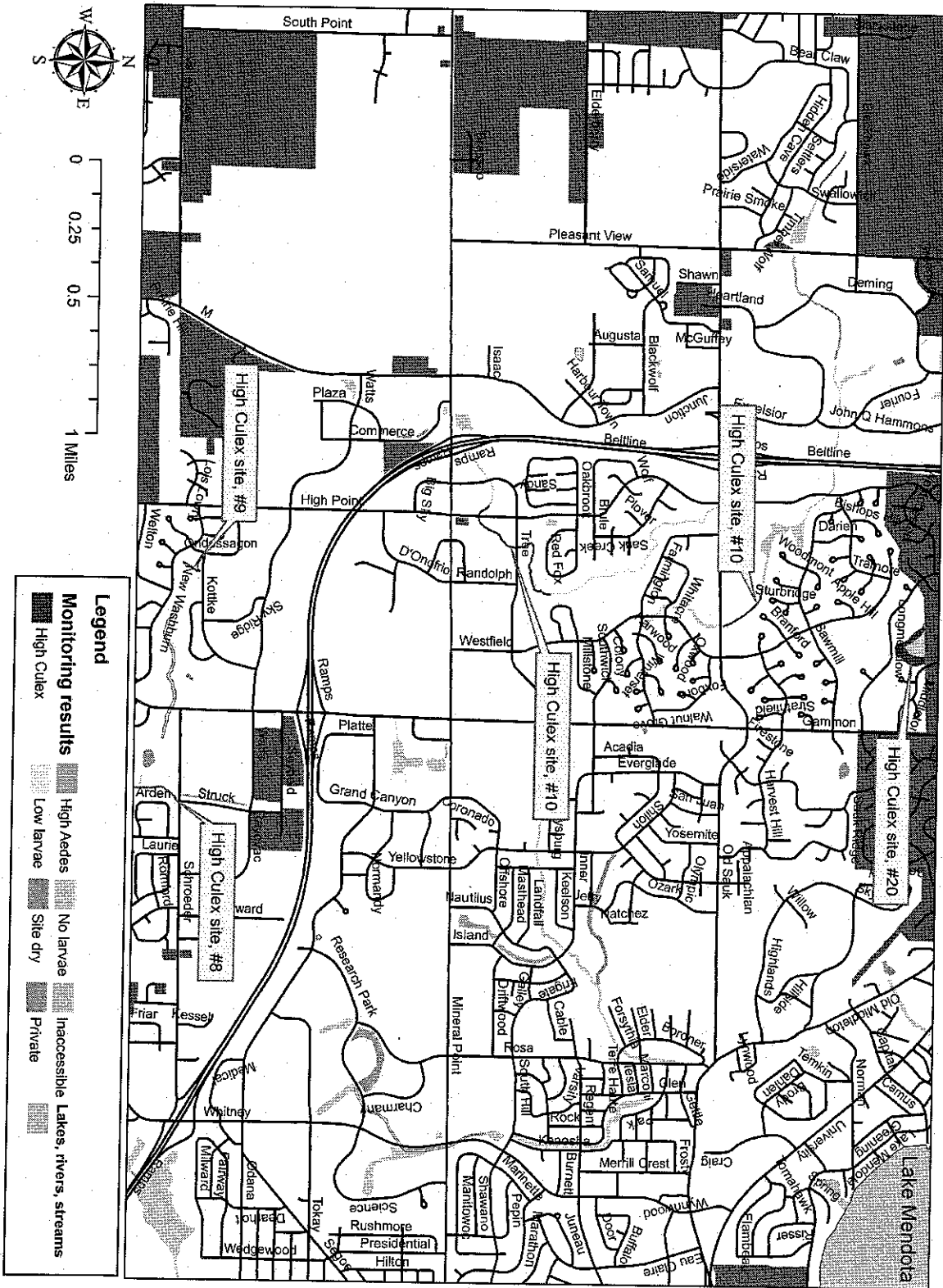


Figure 3. 2007 Mosquito larvae monitoring results - Madison, WI (southern west side)

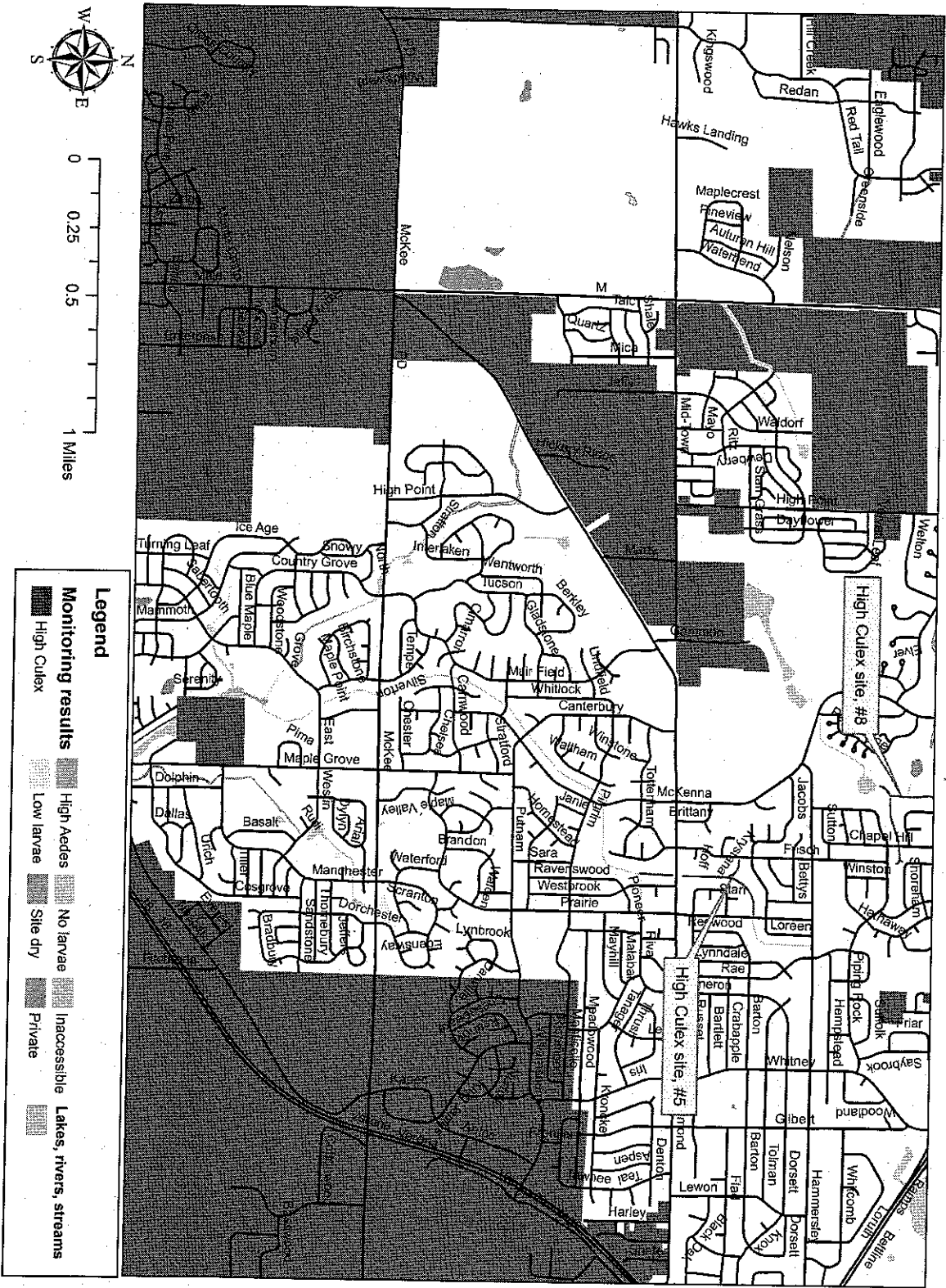


Figure 4. 2007 Mosquito larvae monitoring results - Madison (near west side), Village of Shorewood Hills, and Town of Madison, WI.

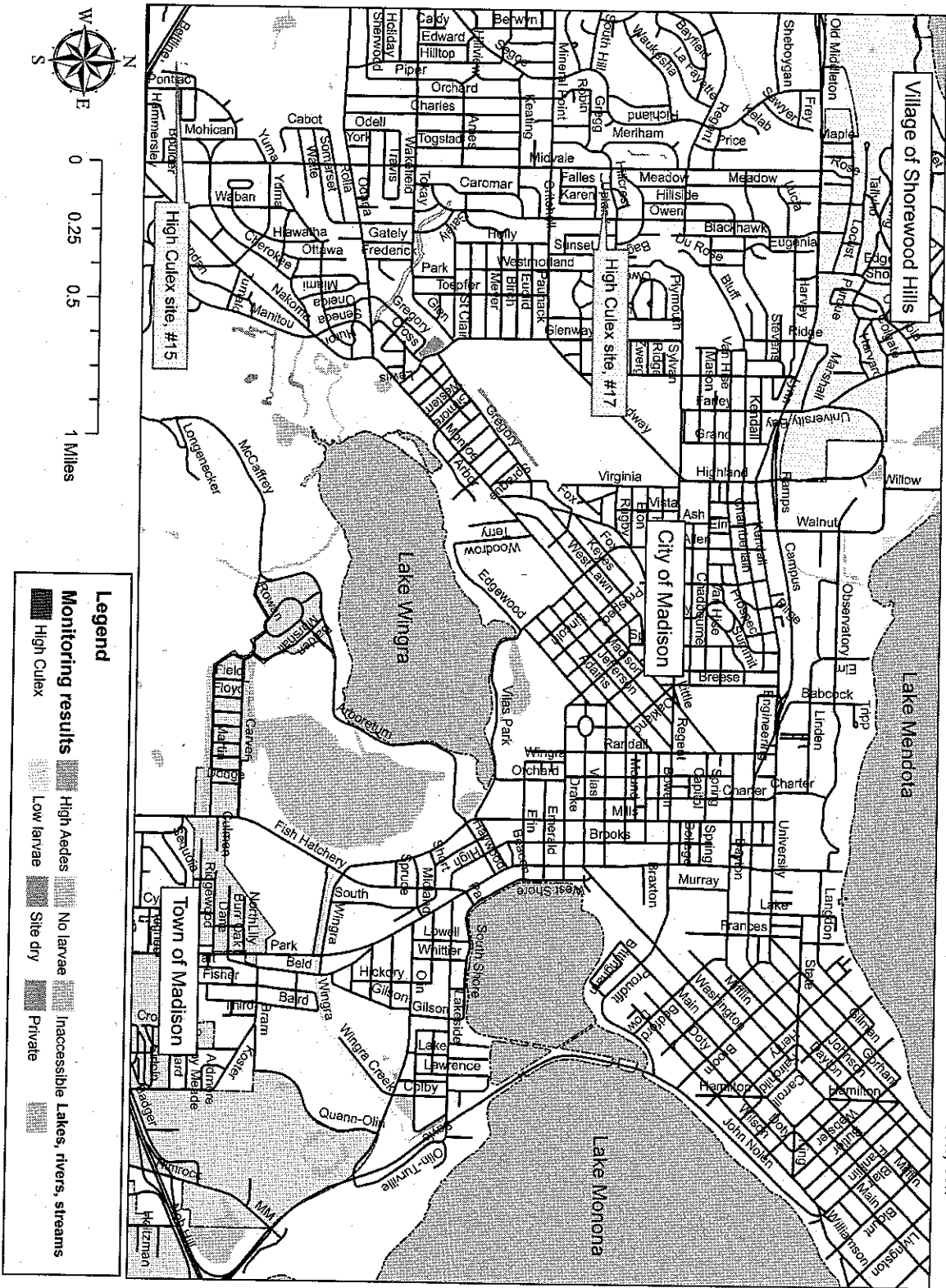


Figure 5. 2007 Mosquito larvae monitoring results - Madison (south side), City of Monona, and Town of Madison, WI.

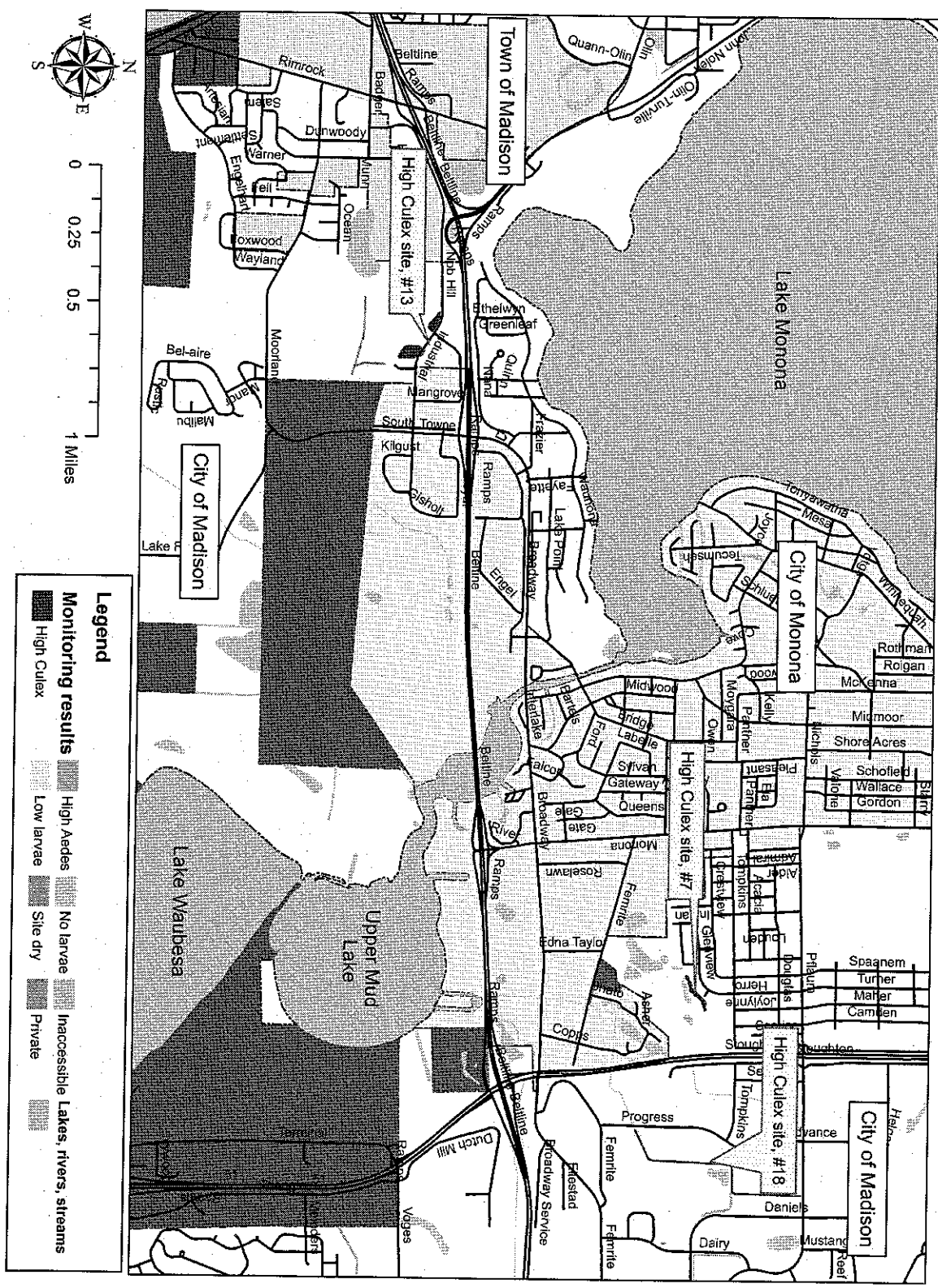


Figure 6. 2007 Mosquito larvae monitoring results - Madison (east side), and City of Monona, WI.

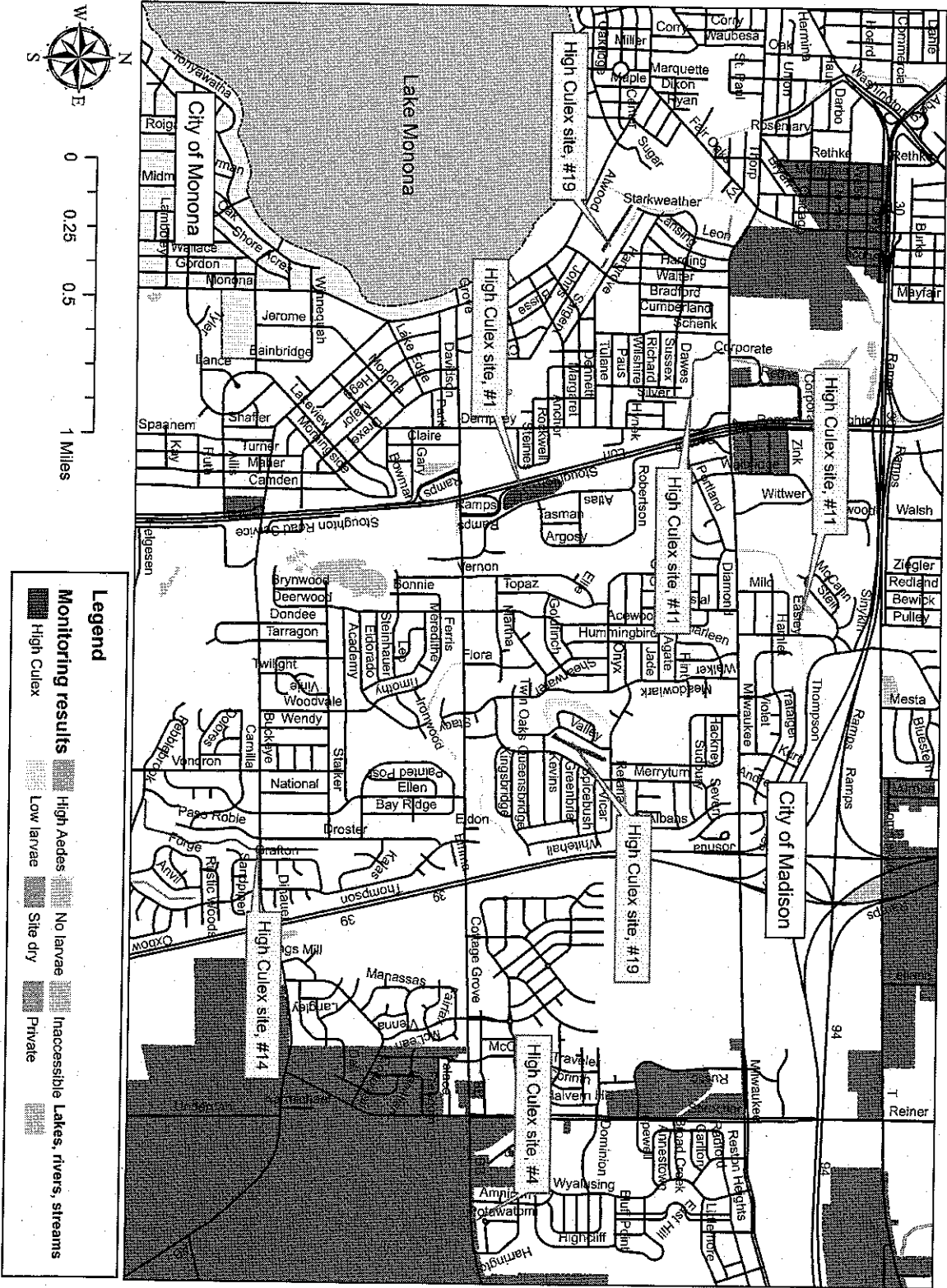


Figure 7. 2007 Mosquito larvae monitoring results - City of Madison (north side) and Village of Maple Bluff, WI.

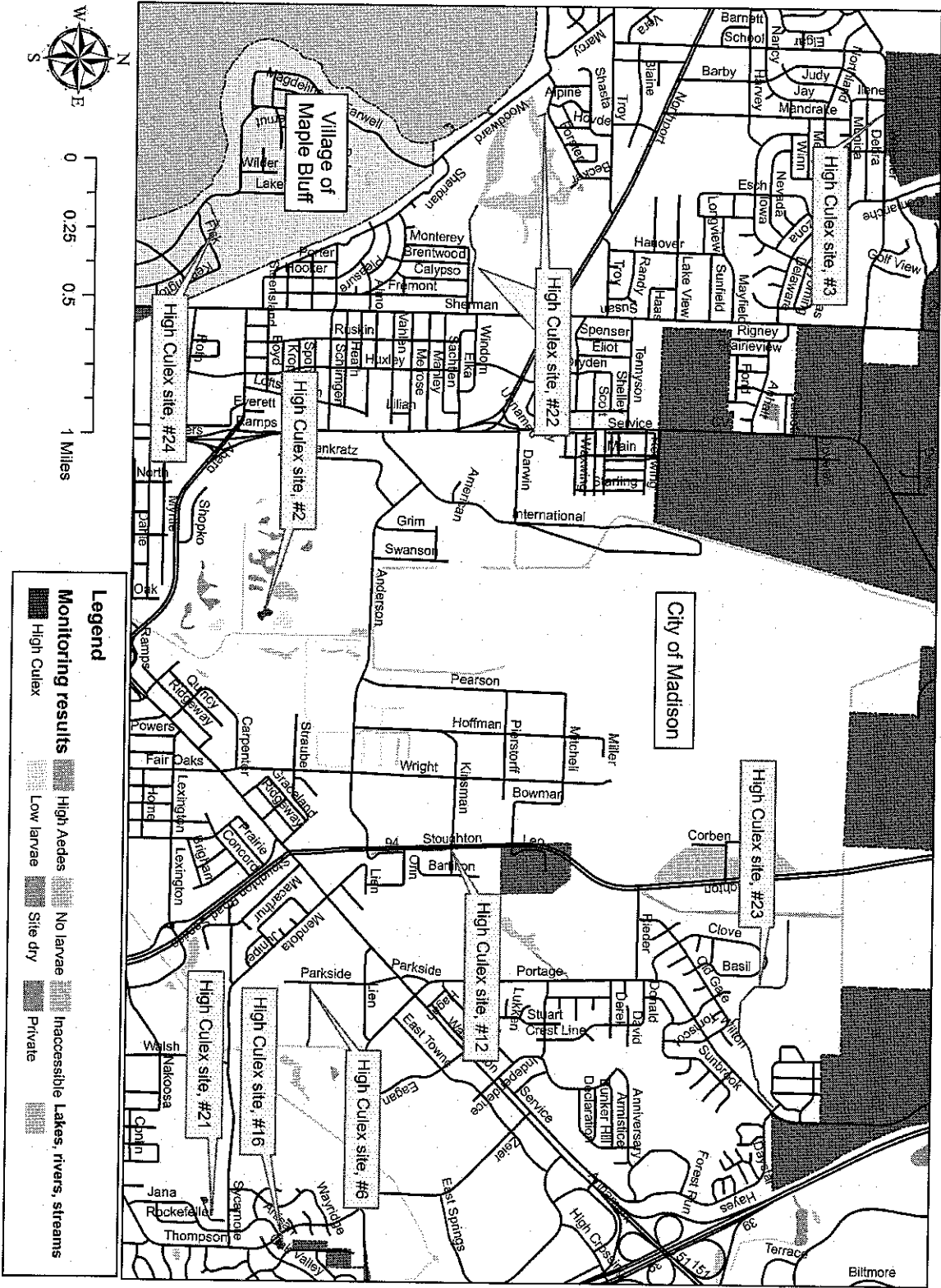
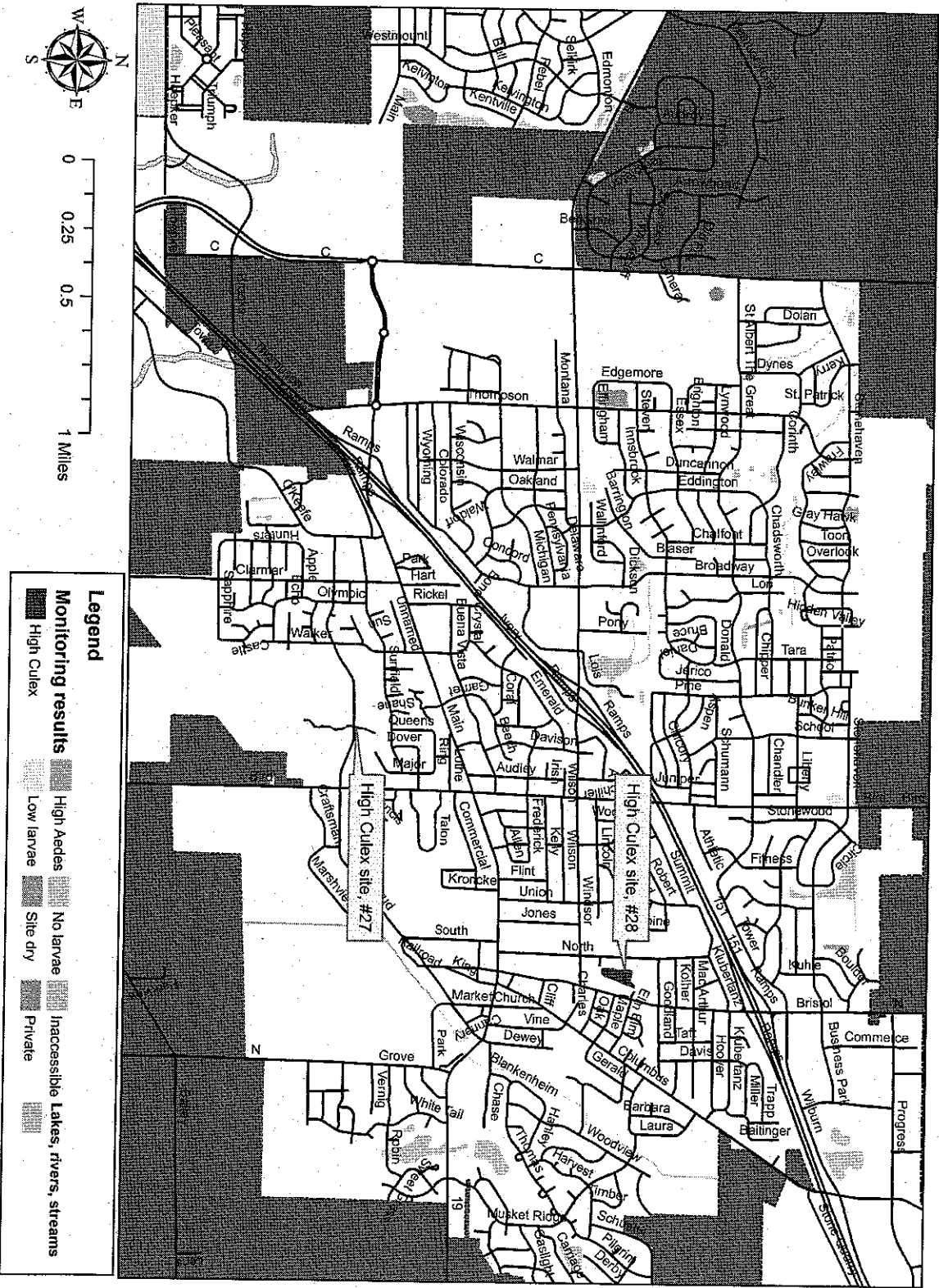


Figure 8 2007 Mosquito larvae monitoring results - City of Sun Prairie, WI.



Appendix. The following sites in the Madison metropolitan area produced high numbers of *Culex* larvae in 2007. Each site is identified in one or more of the Figures 1 – 8 with the site number given in the first column. Sites that were found to produce high numbers of mosquito larvae in multiple seasons starting in 2003 are marked with a double asterisk (**).

Problem Areas	Total			High <i>Culex</i>			High <i>Aedes</i>			Assessment	Treatment Results
	# Sites	# Inspections	Area (acres)	# Sites	Area (acres)	# Sites	Area (acres)				
City of Madison Sites											
1. **Atlas Ave Retention Pond (Fig. 6)	1	4	7.1	1	7.1	0	0	High numbers of <i>Culex</i> were found near the intersection of Argosy and Atlas in June and July.	Treatments at Atlas Ave retention pond in June and July were effective within three days.		
2. Bridges Golf Course (Fig. 7)	22	17	19.0	1	0.9	0	0	The golf course is private property and not normally monitored. Staff sampled ponds and ditches in 2007 to follow-up on human WNV cases in the area. Only one pond was found with high numbers of <i>Culex</i> . However, the species found (<i>Culex territans</i>) is unlikely to feed on birds and is not expected to be a WNV vector.	No treatment was performed.		
3. **Cherokee Greenway (Fig. 7)	2	7	1.5	2	1.5	0	0	High numbers of <i>Culex</i> were found at both Cherokee Greenway ditches in July.	Both treatments at Cherokee Greenway were effective within three days.		
4. **Cottage Grove Amnicon Ditch (Fig. 6)	1	4	0.2	1	0.2	0	0	A high number of <i>Culex</i> larvae were found at the west end of the ditch in June.	The treatment at the ditch was effective within three days.		
5. **East Badger Mill Creek Greenway (Fig. 3)	14	52	7.8	2	1.6	0	0	Two sections of the ditch between Hammersley and Raymond roads produced high numbers of <i>Culex</i> larvae in early June. The section east of Frisch Rd produced <i>Culex</i> larvae throughout the season.	Treatment at site 245 was successful in June. Treatments at site 247 in June needed to be repeated twice before all larvae were eliminated. Heavy rainfalls during the season were unable to flush <i>Culex</i> larvae from the area.		

Problem Areas	Total # Sites	Total # Inspections	Total Area (acres)	High Culex # Sites	High Culex Area (acres)	High Aedes # Sites	High Aedes Area (acres)	Assessment	Treatment Results
6. **East Starkweather Creek - East Towne Greenway (Fig. 7)	24	39	20.6	1	0.7	0	0	A ditch running east from Parkside Dr and draining to Starkweather Creek produced high numbers of <i>Culex</i> larvae multiple times from mid-July to early August. No larvae were found at other times.	Larvicide treatments did not control larvae populations effectively. Rain events in early August are expected to have washed both larvae and larvicide downstream.
7. **Edna Taylor Park (Fig. 5)	7	18	12.6	1	1.1	0	0	The pond immediately south of Glenview Dr produced high numbers of <i>Culex</i> in May but was not a problem the remainder of the season.	This site was treated and no larvae were found three days later; however, heavy rains after treatment may have washed larvae and larvicide out of the pond.
8. **Elver Park Greenway (Fig. 3)	12	44	17.3	2	1.5	3	2.0	Two ditches northeast of Elver Park produced high numbers of <i>Culex</i> larvae in mid-June. Larvae were found in pockets of stagnant water near the culverts.	Larvicide treatments were effective in the ditches.
9. **Kottke Dr Detention Area (Fig. 2)	1	3	0.2	1	0.2	0	0	This area produced high numbers of <i>Culex</i> in late June and was free of larvae later in the year.	Treatment was not performed at this site because rain events were found to have flushed out the existing larvae.
10. **Mendota - Pheasant Branch Greenway (Fig. 2)	24	79	21.5	3	2.2	2	1.3	Three ditches in the greenway produced high numbers of <i>Culex</i> in June and July. Larvae are found in stagnant water formed by debris near the culverts near Old Sauk Rd and Tree Ln.	Treatments in the Pheasant Branch Greenway were successful in reducing mosquito larvae within three days.
11. **Milwaukee St Greenway (Fig. 6)	8	41	6.8	3	1.6	1	1.4	Ditches at Swanton Rd and Stein Rd had high numbers of <i>Culex</i> larvae in mid July and early August. The third high <i>Culex</i> site was a ditch located behind Woodman's East that produced high <i>Culex</i> larvae throughout the season.	All seven treatments throughout the summer were successful within three days.
12. **N Stoughton Rd Ditch (Fig. 7)	1	4	<0.1	1	0.1	0	0	The N Stoughton Rd ditch near McDonald's produced a high number of <i>Culex</i> larvae in July.	Treatment at this site was successful in reducing mosquito larvae populations within three days.

Problem Areas	Total # Sites # Inspections Area (acres)	High <i>Culex</i> # Sites Area (acres)	High <i>Aedes</i> # Sites Area (acres)	Assessment	Treatment Results
13. **Nob Hill Ponds (Fig. 5)	8 18 16.7	3 2.9	1 1.8	The Nob hill ponds were found to have high numbers of <i>Culex</i> larvae in June, July, and August.	Rain events in June flushed out mosquito larvae while treatments in July and August were successful within three days
14. **North Penito Creek (Fig. 6)	5 21 9.7	1 2.2	1 2.2	North Penito Creek Greenway produced high numbers of <i>Culex</i> larvae along the Paso Roble Way ditch in June and July	Both treatments at this site were successful; follow-up investigations found no larvae after three to five days.
15. **Pontiac Trail Ditch (Fig. 4)	1 4 <0.1	1 <0.1	0 0	Pontiac Trail ditch produced a high number of <i>Culex</i> larvae in the beginning of August.	No larvae was found three days after treatment; however, rain events likely flushed existing larvae out of the site.
16. Ridgewood Ponds (Fig. 7)	3 9 1.2	1 0.5	1 0.5	The pond along N Thompson Dr produced high numbers of <i>Culex</i> larvae near the culvert at the north end of the pond in June and July.	Treatments were successful in eliminating <i>Culex</i> larvae.
17. Rodgers Park Greenway (Fig. 4)	1 3 0.3	1 0.3	0 0	Rodgers Park Ditch was found to have high numbers of <i>Culex</i> larvae in July.	Treatment was not conducted at this site because rain events flushed out existing mosquito larvae.
18. SE Madison Industrial Area (Fig. 5)	1 3 2.3	1 2.3	0 0	The SE Madison Industrial Area was found to harbor a high number of <i>Culex</i> larvae in mid July.	Treatment was not conducted at this site because rain events flushed out existing mosquito larvae.
19. **Starkweather Creek - Olbrich Greenway (Fig. 6)	10 31 11.3	3 7.5	0 0	Two sites in the greenway (ditches running through Heritage Heights Park) produced high numbers of <i>Culex</i> larvae in mid July. The third site (a ditch next to Olbrich park ball fields) produced high numbers of <i>Culex</i> larvae in mid June. All sites produced low numbers of <i>Culex</i> larvae throughout the season.	The Heritage Sanctuary ditch was treated successfully, reducing populations of mosquito larvae within three days. The ditch off Twin Oaks was found to be dry upon re-inspection and was not treated. The site near the Olbrich Park ball fields was not treated.
20. **Stricker's Pond (Fig. 2)	6 25 28.5	2 4.0	0 0	The southern tip of Stricker's Pond that crosses into Madison produced high numbers of <i>Culex</i> larvae in mid June but at no other time during the season.	Larvicide treatment was performed but the treatment check results were not recorded.

Problem Areas	Total			High Culex		High Aedes		Assessment	Treatment Results
	# Sites	# Inspections	Area (acres)	# Sites	Area (acres)	# Sites	Area (acres)		
21. **Sycamore Ave Detention Pond (fig. 7)	1	12	0.5	1	0.5	1	0.5	Sycamore Ave Detention Pond was found to have high numbers of <i>Culex</i> larvae three times in June and July. This pond has poor drainage at the culvert, resulting in stagnant water buildup throughout the season.	Rain events may have flushed out larvae and larvicide after the June treatment. Treatments in mid and late July were effective after three days but larvae were found again within a week of treatment suggesting the larvicide product was washed downstream.
22. **Warner Park Lagoon (Fig. 7)	10	51	33.7	3	1.3	1	0.2	Three sites at Warner Park Lagoon were found to have high numbers of <i>Culex</i> larvae throughout the season. Debris blocked flow in these areas and resulted in water stagnation.	Of the treatments performed at these sites, only one was not successful in reducing larvae populations; however, rain events in the days following the treatment likely flushed the larvicide out of the site. All other treatments at these sites were effective within three days and appeared to be effective for 15 to 30 days.
23. **Westchester Gardens Park (Fig. 7)	3	17	6.6	2	2.5	2	6.6	Westchester Gardens Park was found to have high numbers of <i>Culex</i> larvae throughout the season. Organic debris built up at the culvert and throughout the creek bed created pockets of stagnant water preferable for <i>Culex</i> breeding.	Treatments were conducted throughout the season and appeared to be effective in reducing mosquito larvae for 10 to 30 days. Rain events affect the length of larvicide efficacy. Most treatments resulted in larvae reduction within three days. One treatment in the beginning of August was not successful. Reapplication the following week was successful.
Village of Maple Bluff Sites									
24. **Maple Bluff Country Club (Fig. 7)	4	31	1.3	1	0.1	1	0.1	One site on the edge of Maple Bluff Country club, near the tennis courts, produced high number of <i>Culex</i> larvae in June and August. Stagnant water collects here as a result of poor drainage.	The treatment in June was successful within four days. Inspection after the August application resulted in a reduced number of larvae present at the site but did not eliminate all <i>Culex</i> larvae.

Problem Areas	# Sites	Total # Inspections	Area (acres)	High Culex # Sites Area (acres)	High Aedes # Sites Area (acres)	Assessment	Treatment Results
CITY OF MIDDLETON SITES							
25. **Orchard Heights Park (Fig. 1)	13	57	4.7	2 0.3	6 0.7	Two ditches in Orchard Heights Park were found to produce high numbers of <i>Culex</i> larvae in May and July. Poor drainage and pockets in the ditch bed allow stagnant water to build up.	Both sites dried before treatment could be performed.
26. **Stricker's Pond (Fig. 1)	6	25	28.5	2 4.0	0 0	The ditch at the south end of Stricker Park consistently produced <i>Culex</i> larvae at its west end throughout the season. Water commonly pooled at the culvert and became stagnant.	The ditch at Stricker Pond was treated four times throughout the season. The May treatment was likely flushed out by rain events. No larvae were found after the May treatment inspection. The first June treatment did not eliminate all mosquito larvae. Reapplication of larvicide the following week was effective within seven days. The September treatment was effective within two days.
CITY OF SUN PRAIRIE SITES							
27. **Sheehan Park (Fig. 8)	1	4	0.9	1 0.9	0 0	High numbers of <i>Culex</i> larvae were found at the ditch culvert near Linnerud Dr and Sheehan Park in early August. This area has lots of large rocks and some debris that allow pockets of water to develop and stagnate.	The Sheehan Park ditch was treated in early August. Reinspection three days after treatment resulted in no larvae found at the site. It is possible that rain events immediately following treatment flushed out existing larvae.
28. Wetmore Park (Fig. 8)	1	4	3.0	1 3.0	1 3.0	Wetmore park detention pond, off North St., was found to have a high number of <i>Culex</i> larvae after rain events in early June.	Treatment at this site reduced larvae to negligible numbers within three days.
** Site identified as a problem site in previous seasons							