

Mosquito Monitoring and Surveillance, 2017 – UW Campus

Prepared by: Jeffery S. Lafferty, Environmental Epidemiologist

22 November 2017

Background:

In 2017, the University of Wisconsin – Madison Campus, along with other community partners authorized Public Health for Madison and Dane County (PHMDC) to monitor and control the breeding activity of targeted mosquito species on public property. Targeted mosquito species include those in the *Culex* genera because they are the most likely to spread West Nile Virus infection. Mosquito larvae sampling was performed by PHMDC staff from late May into September to locate water sources producing large numbers of mosquito larvae. Larvicide applications were made as needed in water sources found to produce high levels of target mosquito larvae.

This report summarizes the results of mosquito monitoring and treatment in the UW Campus during the season. The following map provides locations of the sites sampled and results of mosquito larvae sampling at these sites. Some water sources in the campus area were not monitored or treated because the sites were inaccessible to PHMDC staff. Accessibility is determined based on several factors including land ownership, safety, and physical barriers.

Table 1. Types of water sources on the UW Campus

Water Source	Count	Percentage
Creek	1	6%
Ditch	5	29%
Marsh	4	24%
Retention pond	7	41%
Total	17	100%

Site Descriptions:

The UW Campus has a total of 17 water sources; specific sites were monitored throughout the summer by field technicians. Table 1 gives a count and percent of the water sources identified. The UW Campus drainage system is comprised of retention ponds, ditches, marshes, and a creek.

Investigation Results:

Table 2 and the attached map give the results of PHMDC's water source investigations for the UW Campus in 2017 and in the previous 2016 mosquito monitoring season to allow comparison of findings. Table 3 provides definitions for each of the categories.

Table 2. Results of UW Campus mosquito larvae investigations

Area Number	2016 Results	2017 Results	Investigations in 2017	Area Number	2016 Results	2017 Results	Investigations in 2017
272	No larvae	Inaccessible	0	621	Low larvae	No larvae	3
273	No larvae	Low larvae	3	622	No larvae	No larvae	3
320	Low larvae	Low larvae	3	702	No larvae	No larvae	3
589	No larvae	Low larvae	3	703	No larvae	Low larvae	3
592	No larvae	Low larvae	3	704	No larvae	Low larvae	3
593	No larvae	Low larvae	3	801	No larvae	No larvae	3
594	Low larvae	Low larvae	3	8511	No larvae	Inaccessible	2
595	No larvae	High Aedes	3	8899	High Culex	High Culex	4
596	No larvae	Low larvae	3				

Findings and Recommendations:

Low levels of *Culex* and *Aedes* larvae were identified in multiple water sources on the UW-Madison campus. One site (site no. 8899) reported high levels of *Culex* during the past several surveillance seasons. In the current season, this site demonstrated high levels of *Culex* in only 1 of 4 total inspections; treatment of site 8899 with larvicide was conducted in August with subsequent treatment inspection reported no larvae. This site is near Lake Mendota and collects storm water as it drains from higher ground to the lake. We continue to look for options for long term control of mosquito breeding at this location but the proximity to the lake and the terrain make it difficult to get the site to drain completely dry in a short period of time or expand the water source so it can support a more developed ecosystem including mosquito larvae predators.

Site 595 had demonstrated high level of *Culex* larvae in 2014 but was inaccessible during both the 2015 and 2016 monitoring seasons. In the current season, this site high levels of *Aedes* larvae in only one of three total inspections of the site. No treatment was deemed necessary.

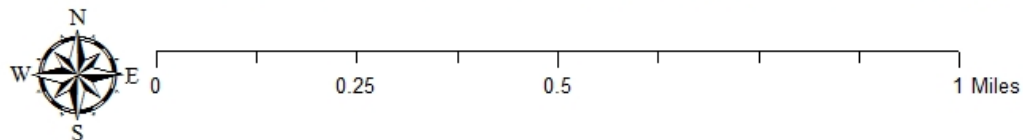
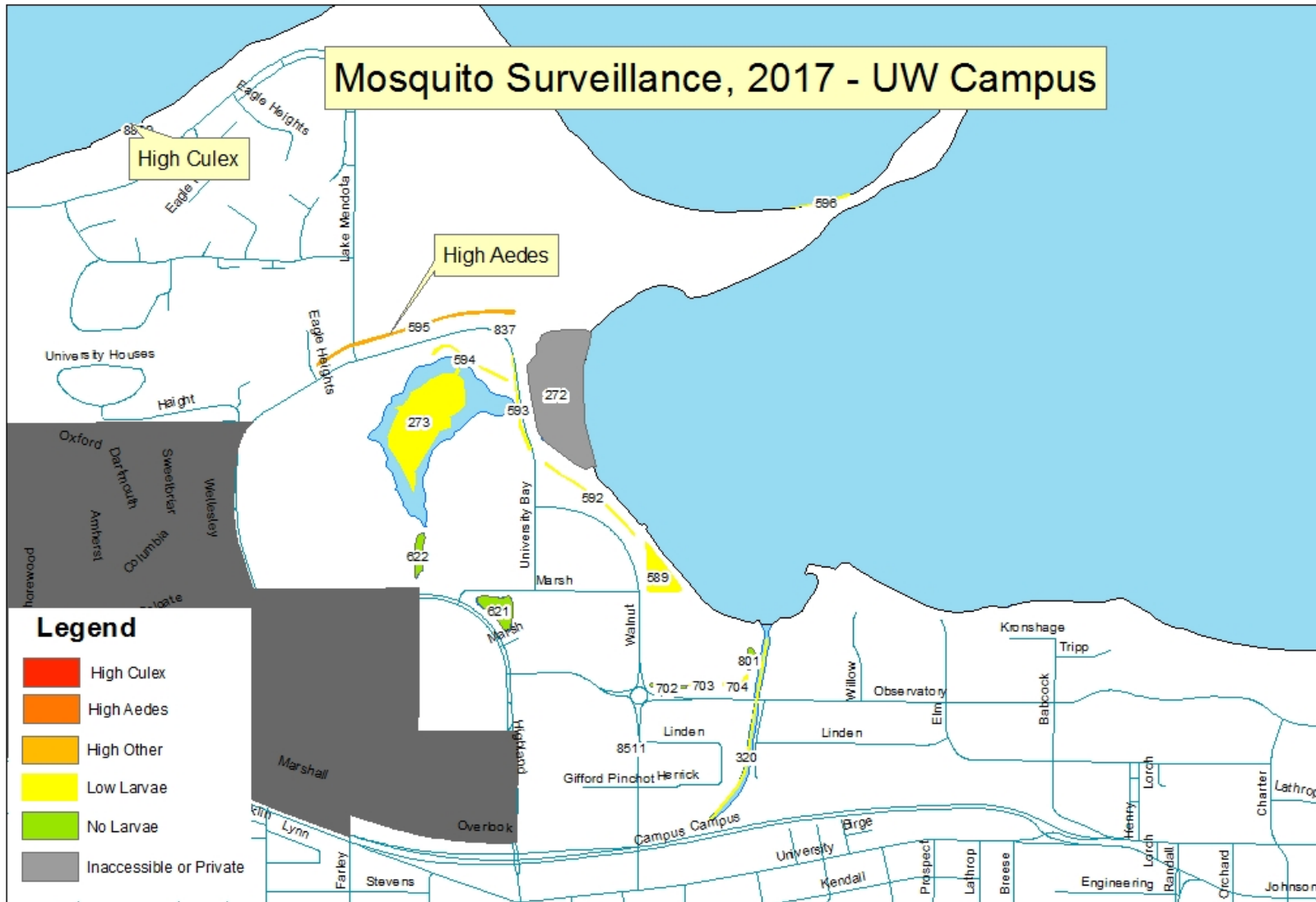
Although the level of mosquito activity continued to be limited during the current monitoring season, weather conditions in subsequent years may better support suitable environments for

higher levels of activity of the targeted species. For this reason, continued monitoring is recommended to detect any emerging mosquito activity.

Table 3. Definition of investigation result categories

High <i>Culex</i>	One or more investigations during the season found 3 <i>Culex</i> larvae / dip or more.
High <i>Aedes</i>	One or more investigations during the season found 3 <i>Aedes</i> larvae / dip or more. Other mosquito larvae species may have been present at lower numbers.
High Other	One or more investigations found 3 larvae / dip of a mosquito other than <i>Culex</i> or <i>Aedes</i> .
Low larvae	One or more investigations found fewer than 3 larvae / dip of any mosquito species.
No larvae	Staff did not find mosquito larvae during any of the investigations or visually determined that the site was unsuitable for mosquito breeding.
Site dry	Site was dry on all investigations during the season.
Inaccessible	Staff is unable to access due to physical barrier or safety concern.
Private	Source located on private property.

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 15 November 2017

Mosquito Monitoring and Surveillance, 2017 – UW Arboretum

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15 November 2017

Background:

In 2017, the University of Wisconsin – Madison Arboretum, along with other community partners authorized Public Health for Madison and Dane County (PHMDC) to monitor and control the breeding activity of targeted mosquito species on public property. Targeted mosquito species include those in the *Culex* genera because they are the most likely to spread West Nile Virus infection. Mosquito larvae sampling was performed by PHMDC staff from late May into September to locate water sources producing large numbers of mosquito larvae. Larvicide applications were made as needed in water sources found to produce high levels of target mosquito larvae.

This report summarizes the results of mosquito monitoring and treatment in the UW Arboretum during the current season. Some water sources in the metropolitan area were not monitored or treated because they were inaccessible to PHMDC staff. Accessibility is determined based on several factors including land ownership, safety, and physical barriers.

Table 1. Types of Water Sources in the UW Arboretum

Water Source	Count	Percentage
Creek	7	32%
Detention pond	1	5%
Marsh	2	10%
Retention pond	10	48%
River	1	5%
Total	21	100%

Site Descriptions:

The UW Arboretum has a total of 21 water sources. Eight sites were inaccessible to PHMDC staff and were not evaluated during the 2017 season. The remaining 13 were monitored throughout the summer. Table 1 gives a count and percentage of the water sources identified. The UW Arboretum is comprised primarily of retention ponds and creeks, but also includes two marshes, a detention pond, and a river.

Table 2. Results of the Arboretum mosquito larvae investigations

Area Number	2016 Results	2017 Results	Investigations in 2017	Area Number	2016 Results	2017 Results	Investigations in 2017
138	No larvae	High Culex	3	150	Low larvae	Low larvae	3
139	Low larvae	Low larvae	3	151	No larvae	High Aedes	3
142	No larvae	Low larvae	3	154	No larvae	No larvae	1
144	No larvae	No larvae	1	280	No larvae	Low larvae	3
146	No larvae	Low larvae	3	1551	No larvae	Low larvae	3
147	No larvae	No larvae	3	1552	No larvae	Low larvae	3
149	No larvae	Low larvae	3				

Investigation Results:

Table 2 gives the results of PHMDC’s water source investigations for the UW Arboretum in 2017. For comparison, the table also provides the results from investigations in 2016. Table 3 provides definitions for each of the result categories. Sites that were not accessible during both 2016 and 2017 are not included in the Table 2.

Findings and Recommendations:

In 2017, field technicians found high levels of *Culex* larvae at Site 138; a retention pond located in the UW Arboretum. This site was treated with larvicide for mosquito control in early June. Subsequent inspection following treatment demonstrated a significant decrease in the population and only limited larvae remained.

High levels of *Aedes* larvae were identified during one inspection of Site 151. Previous and subsequent inspections of

the site reported no larvae. However, low numbers of mosquito larvae were reported in multiple retention ponds and creeks during at least one or more inspections (sites 139, 146, 149, 150, and 1551 and sites 142, 280, and 1552, respectively).

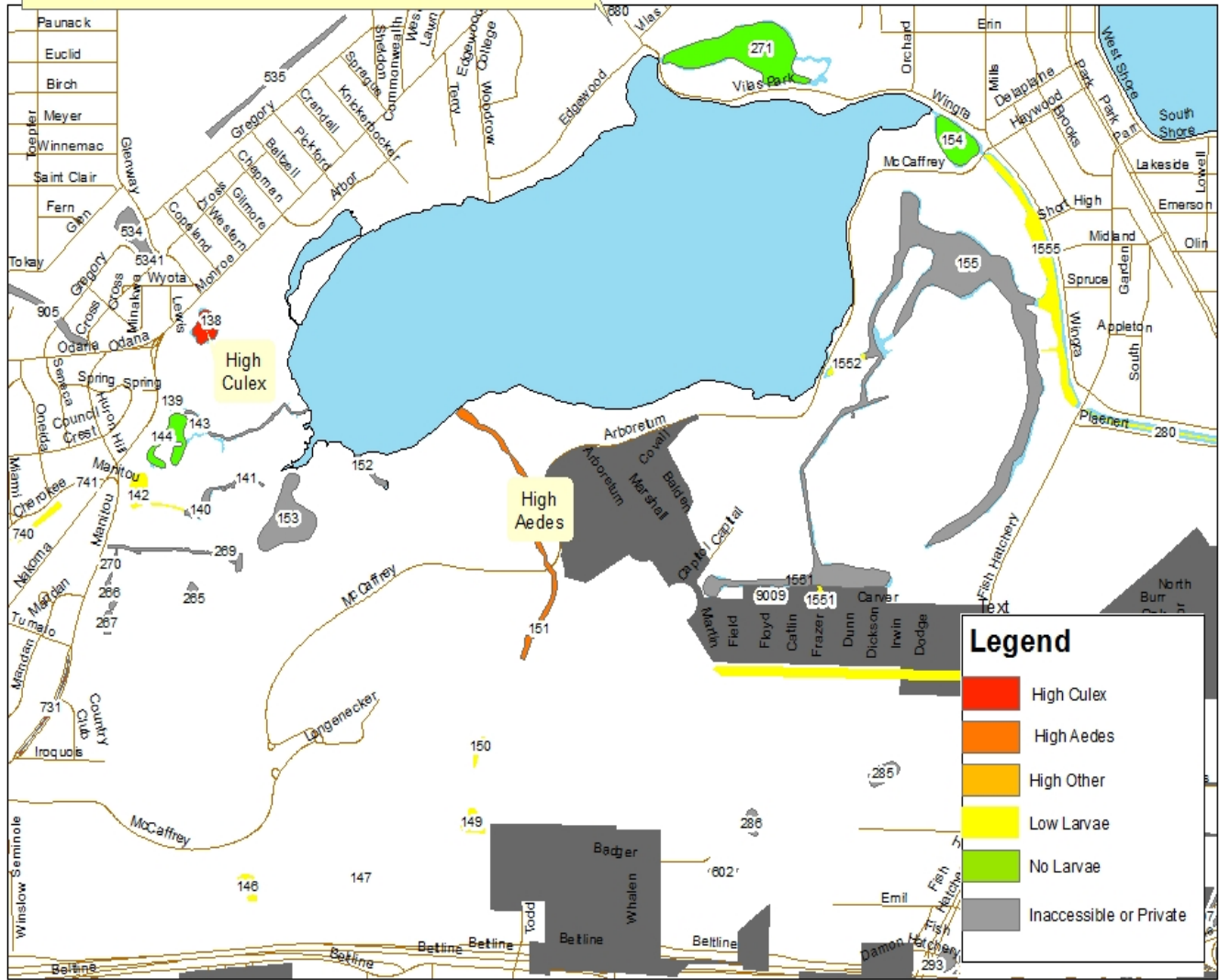
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Low larvae	One or more investigations found fewer than 3 larvae / dip of any mosquito species.
No larvae	Staff did not find mosquito larvae during any of the investigations or visually determined that the site was unsuitable for mosquito breeding.
Site dry	Site was dry on all investigations during the season.
Inaccessible	Staff is unable to access due to physical barrier or safety concern.
Private	Source located on private property.

Although the level of mosquito activity continued to be limited during the 2017 monitoring season it was increased compared to the previous season. From past years we know that mosquito breeding activity will vary from season to season and within a season; continued

surveillance is recommended in order to evaluate if this increased activity will continue in subsequent seasons.

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