

Hwy 43 - Winona Bridge Mussel Survey 2013

Level one surveys for mussels within previously defined impact areas were completed the week of August 5, 2013 using standard MN DNR protocols. Thirty five sites were surveyed for 20 minutes each by SCUBA divers. A total of 306 live mussels were recovered representing 14 live species and 4 additional species by empty shells (Table 1). Species abundance is also depicted in Figure 1. One MN Threatened species, *Pleurobema sintoxia*, was collected live as shown in Figure 2; no other listed species were found. No federally listed mussel species were found alive or represented by empty shells, indicating that their presence in this area is highly unlikely. Mussel abundance at each site is shown in Figure 3 and ranged from 0 mussels collected at several sites to 4 live mussels per minute of search time at the site of greatest mussel abundance. This is rather low density for the Mississippi River and no live mussels were found in proximity to the navigation channel area where moving sand bed-load creates unfavorable conditions for mussels.

Sites	35	<i>Amblema plicata</i>	205
Mussels under 5 yrs old	75	<i>Fusconaia flava</i>	30
Mussels over 5 yrs old	231	<i>Obliquaria reflexa</i>	21
Total Mussels	306	<i>Quadrula pustulosa</i>	16
Live Species	14	<i>Lampsilis cardium</i>	8
Total Species	18	<i>Leptodea fragilis</i>	6
		<i>Lampsilis siliquoidea</i>	4
		<i>Obovaria olivaria</i>	4
		<i>Lasmigona complanata</i>	3
		<i>Pleurobema sintoxia</i> MN Threatened	3
		<i>Ligumia recta</i>	2
		<i>Toxolasma parvus</i>	2
		<i>Potamilus alatus</i>	1
		<i>Truncilla truncata</i>	1
		<i>Fusconaia ebena</i>	0
		<i>Pyganodon grandis</i>	0
		<i>Strophitus undulatus</i>	0
		<i>Truncilla donaciformis</i>	0

Table 1. Summary of sites surveyed and mussels collected during timed search surveys within the expected impact areas for the Winona Bridge project.

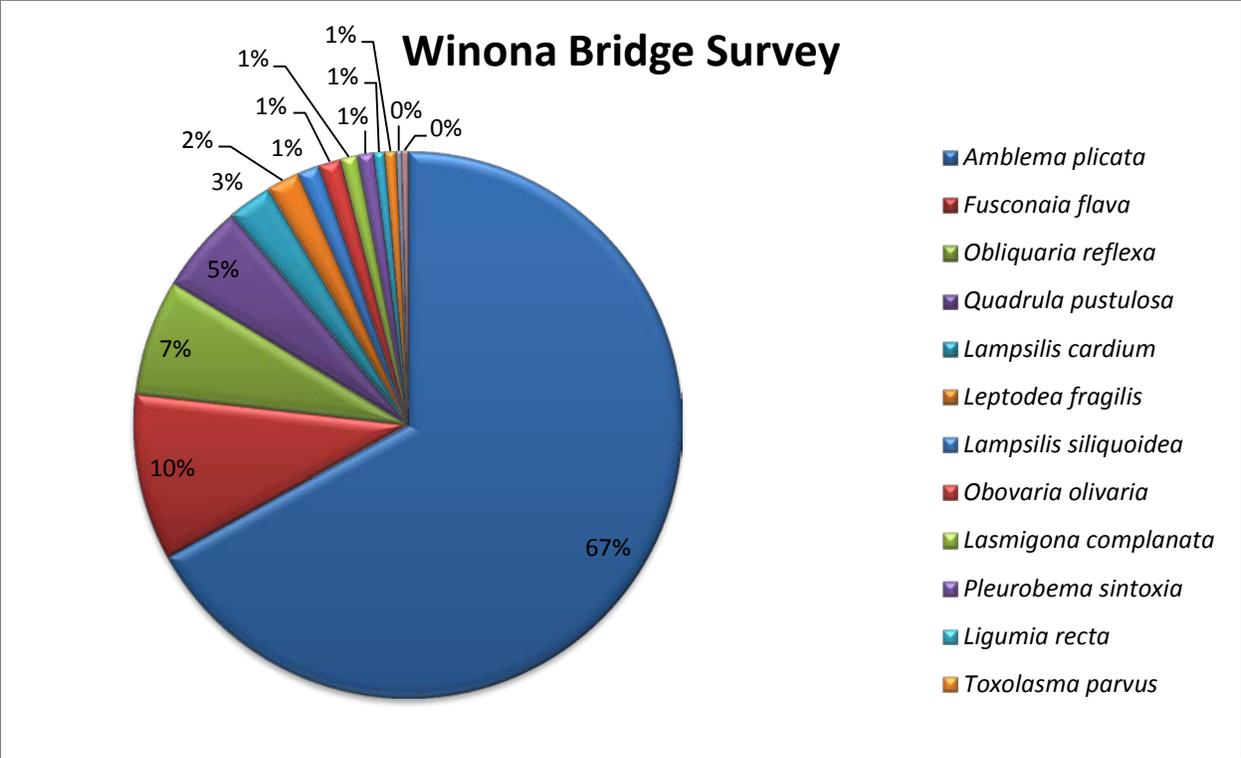


Figure 1. Relative abundance of mussel species collected during the Winona Bridge survey.

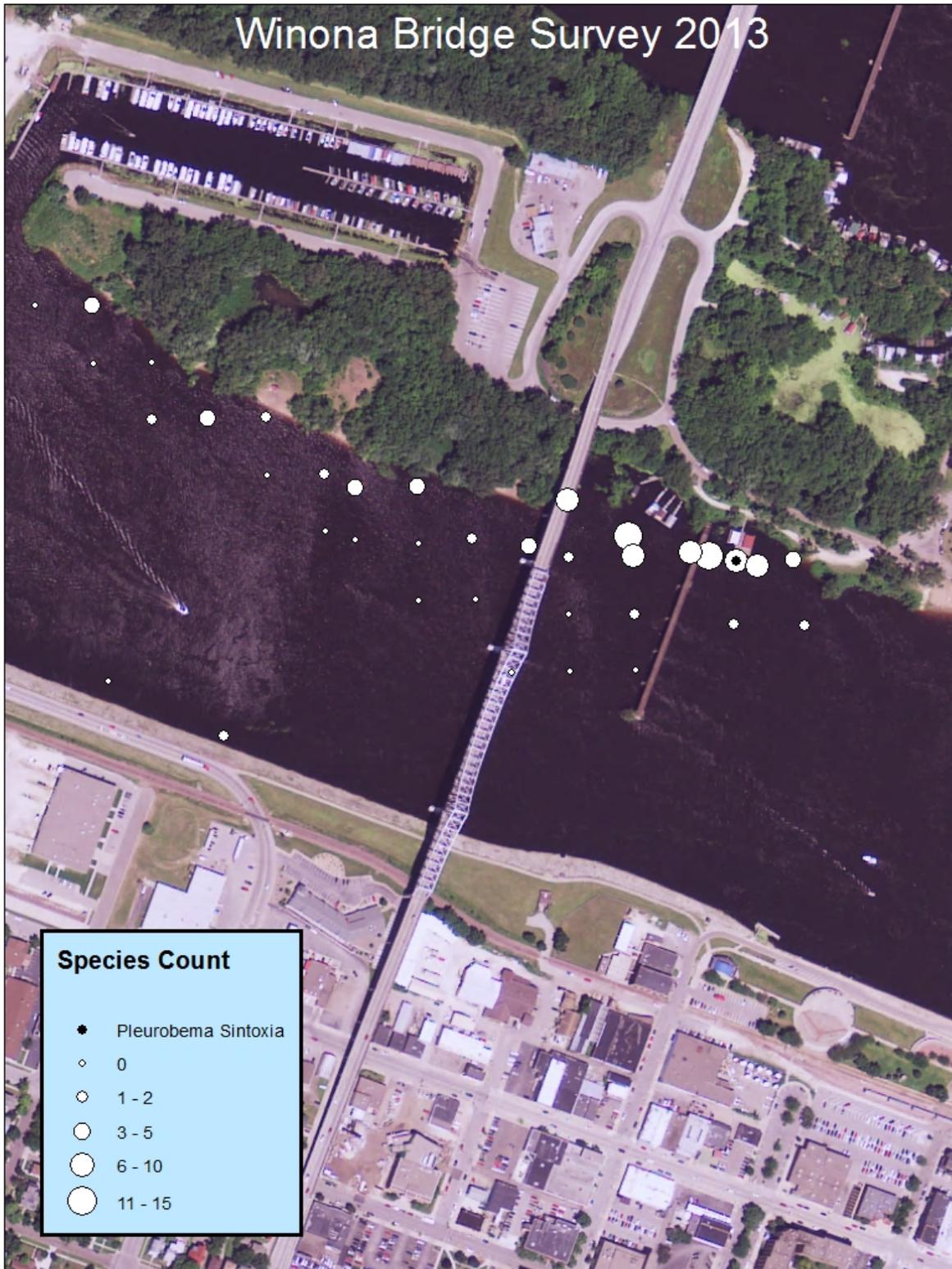


Figure 2. Number of mussel species collected at each of the sites surveyed and the site with *Pleurobema sintoxia* present.

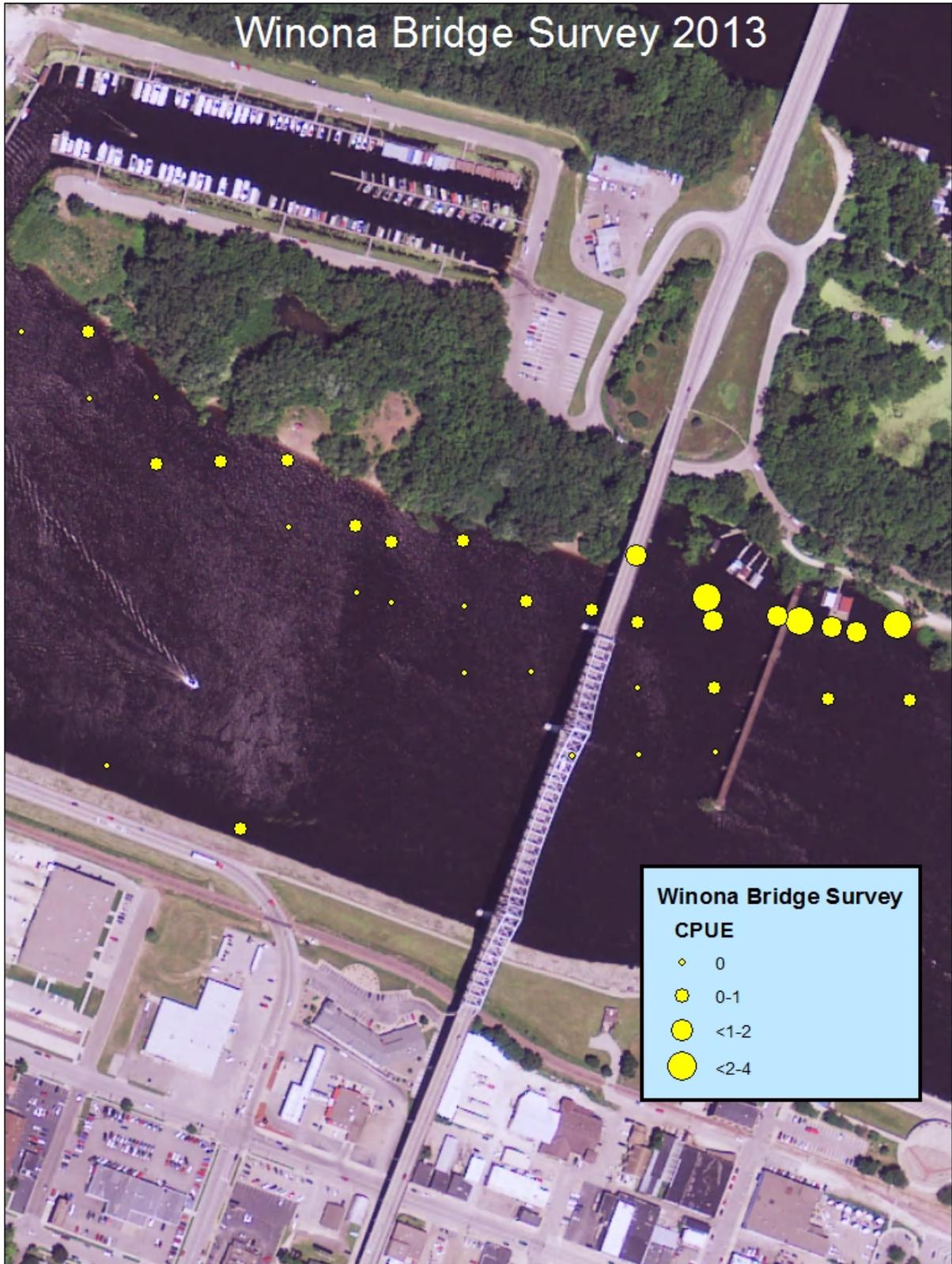


Figure 3. CPUE (Catch Per Unit Effort) in number of live mussels collected per minute of search time.