

Lake Ellwood Rusty Crayfish (*Orconectes rusticus*) Sample Densities Report, 2013

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Background:

Rusty crayfish (*Orconectes rusticus*) are known to inhabit Lake Ellwood, but at unknown densities. Previous observations by Greg Matzke the Florence and Forest Counties Fisheries Biologist indicated the population was very small. *O. rusticus* is known to affect macrophyte biomass and composition. Concerns were voiced that the decrease in macrophyte abundance may have been caused by *O. rusticus* and sample densities were requested. Additionally, the lake association purchased 10 minnow traps and distributed them to local residents interested in trapping *O. rusticus*.

Methods:

Five minnow traps were placed in two locations. (Map 1.) The traps were spaced approximately five meters from each other in a line parallel to the shoreline. The traps were monitored at dusk each day for a total of four days at Site 1 and moved to Site 2 for the observation period to be replicated. Capelli (1975) states that each trap being effective for 12.5 square meters; at that assumption the surveyed area for each site was 21.65 meters squared. The first site was monitored by a teenage resident of Lake Ellwood, Kyle Person, and the second site was monitored by Haley Winchell, the Aquatic Invasive Species Program Assistant for Florence County and Lake Ellwood resident. The *O. rusticus* were collected and weighed from Site 2 only.

Results:

Three to four *O. rusticus* were observed at Site 1 on the third night, but were not collected by the resident. The findings were consistent with Site 2 so the average was marked.(Table 1.) At Site 2, three *O. rusticus* were discovered on the second day and one on the third day. The total *O. rusticus* weight was .000085 grams, which means .0000039 grams/meter².

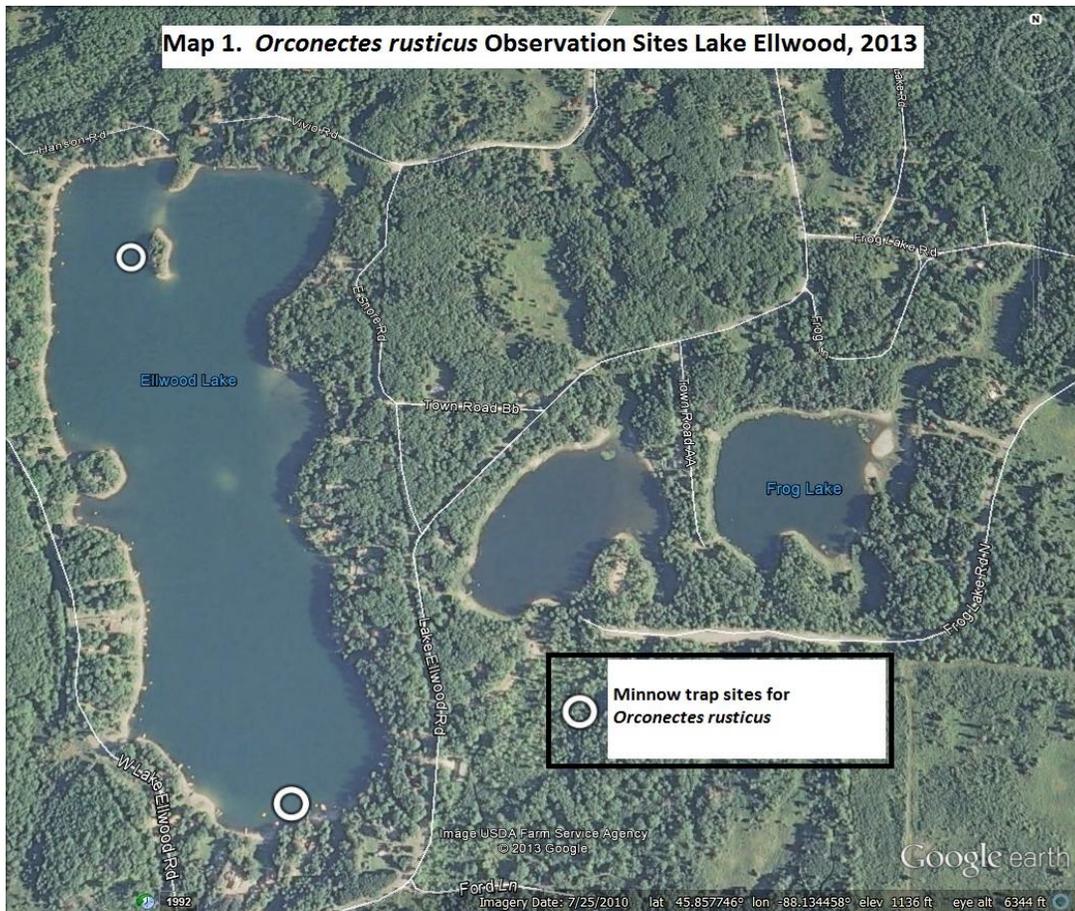
Discussion:

Lake Ellwood showed an average *O. rusticus* sample density of .17/m². Lodge and Lorman (1986) showed a reduction of mixed macrophyte biomass in the presence of *O. rusticus*; a 64% biomass reduction rate at 19 grams/ m², and vegetation elimination at >140g/m². The sample density observed on Lake Ellwood is very low, which means *O. rusticus* are unlikely to have a dramatic effect on the macrophyte populations. Additionally, the density data cannot be applied lake wide as the locations surveyed were two of the most suitable locations. However, there is a large rocky area in the middle of that lake that was not surveyed. Theoretically, this

area could contain higher densities, but the local resident informed us that based off of previous trapping attempts it was not a suitable location.

Conclusion:

There is no indication that the *O. rusticus* is responsible for major macrophyte impacts on Lake Ellwood at the observed densities. The CLMN contact has been notified of the situation, and it has been requested that they report future *O. rusticus* trapping data.



Map 1. Minnow traps were placed at two locations on Lake Ellwood to sample *Orconectes rusticus* population densities.

Table 1. Lake Ellwood *Orconectes rusticus* Data 2013

Day	Site 1		Site 2			
	<i>O. rusticus</i> Found	Sample/m ²	<i>O. rusticus</i> Found	Sample/m ²	<i>O. rusticus</i> (g)	<i>O. rusticus</i> (g/m ²)
1	0	0	0	0	-	-
2	0	0	3	0.14	-	-
3	3.5	0.16	1	0.05	-	-
4	0	0	0	0	-	-
Total	3.5	0.16	4	0.18	0.000085	0.0000039

Table 1. *Orconectes rusticus* sample density data collected from Lake Ellwood.

References:

Capelli, G.M. 1975. Distribution, life history, and ecology of crayfish in northern Wisconsin, with emphasis on *Orconectes propinquus* (Girard). Ph.D. Thesis, University of Wisconsin, Madison, Wis.

Lodge, D.M., and Lorman, J.G. 1987 Reductions in submersed macrophyte biomass and species richness by the crayfish *Orconectes rusticus*. Can. J. Fish. Aquatic Sci. 44(3):591-597.