

## 2020 Curly-leaf Pondweed Survey on the Turtle River and Pike Lake - White Water Associates

Pike Lake & Turtle River Curly-leaf Pondweed Locations Documented on June 1, 2 & 3, 2020 (source: White Water Associates)					
GPS Point	Latitude/Longitude	Rating	Location	Ribbon	Notes
3	46.179714; -90.079465	1	LB	No	one plant
4	46.179068; -90.077947	1	LB	Yes	one plant
5	46.179221; -90.077613	1	LB	No	one plant
6	46.17926; -90.07759	2	LB	No	5 or 6 plants
7	46.17935; -90.077452	1	LB	No	
8	46.179437; -90.077286	1	LB	No	one plant
9	46.179458; -90.077187	1	LB	No	two plants
10	46.179477; -90.077116	2	LB	No	
11	46.17972; -90.076806	3	LB	No	
12	46.179748; -90.076721	3	LB	No	
13	46.180273; -90.078927	1	RB	No	
14	46.182553; -90.079492	1	RB	No	3 plants about 25% of river width from River Right bank
15	46.183569; -90.081729	1	RB	No	About 33% stream width from River Right bank
16	46.184514; -90.08429	1	RB	Yes	Orange ribbon hung right over the plants
17	46.182761; -90.088671	1	LB	Yes	About 75 feet downstream of Rec Trail bridge. Orange tape in tree above
18	46.180979; -90.09442	1	LB	Yes	Ribbon tied to grass. This area has lots of <i>P. richardsonii</i> as well as CLP
19	46.180898; -90.094363	3	LB	Yes	Ribbon tied to grass. More CLP plants downstream heading to #20
20	46.18079; -90.094251	1	LB	Yes	Ribbon tied to grass.
21	46.181467; -90.096933	3	LB	No	At opening of little bay. No place to tie ribbon.
22	46.181395; -90.096331	3	RB	Yes	Ribbon in shrub at downstream end of this stand with numerous plants strung out upstream of the ribbon for about 40 feet.
23	46.181573; -90.108754	3	LB	Yes	This is a fairly large colony of CLP. Ribbon tied in tree. There is also a lot of <i>P. richardsonii</i> in vicinity.

Point	Latitude/Longitude	Notes			
No number	46.18461, -90.08596	We removed a single CLP. We did not tie a ribbon here, nor assign a GPS point number, but it could be checked at time of hand-pulling in case more CLP appear.			
PI-1	46.17906498; -90.07852734	Rake fullness rating 1. This point in close proximity to GPS Point #4			
PI-3	46.17906546; -90.0778277	Rake fullness rating 1. This point in close proximity to GPS Point #4			
PI-7	46.17930846; -90.07782804	Rake fullness rating 1			
PI-8	46.1793087; -90.07747822	Rake fullness rating 1. This point in close proximity to GPS Points #6 and #8			
PI-18	46.17955193; -90.07712874	Rake fullness rating 1			
PI-19	46.17955217; -90.07677891	Rake fullness rating 1			
PI-27	46.1797947; -90.0774789	A "visual" CLP recorded			
PI-29	46.17979517; -90.07677925	Rake fullness rating 1. This point in close proximity to GPS Points #11 and #12			
PI-34	46.18003674; -90.07887856	Rake fullness rating 1			
PI-39	46.18003794; -90.07712942	Rake fullness rating 1			
PI-45	46.18027974; -90.0788789	A "visual" CLP recorded. This point in close proximity to GPS Point #13			
PI-54	46.18052226; -90.07957891	Rake fullness rating 1			
PI-60	46.18075; -90.09427	CLP plant found on rake at PI Point 60 (Rake fullness rating 1). Corresponds to GPS Point #20			
PI-158	46.18319404; -90.08133201	CLP plant found on rake at PI Point 158 (Rake fullness rating 1)			
PI-175	46.18368; -90.08308	A "visual" CLP recorded from PI Point 175 during point-intercept survey.			
Pike Lake 1	46.16981; -90.11948	3	--	--	
Pike Lake 2	46.17077; -90.11548	2	--	--	

During the dedicated CLP survey, we logged twenty-one locations for CLP on the Turtle River (GPS Points 3 through 23) and two locations on Pike Lake (Pike Lake 1 and Pike Lake 2). For the 21 sites on the Turtle River, we flagged 8 sites with orange ribbon on which was written the GPS Point Number. Thirteen of the sites were not conducive to being flagged in this manner.

The Point-Intercept Aquatic Plant survey documented CLP at 15 PI sites. Nine of those sites were located at some distance from sites marked during the CLP survey. Six were closely associated with sites documented with the CLP survey.

For our CLP finds on the Turtle River (from the dedicated CLP survey):

- 13 sites had 1 to 4 rooted plants
- 2 sites had 5 to 10 rooted plants
- 6 sites had >11 rooted plants

On Pike Lake, one site (Pike Lake 1) had greater than 11 plants and one site (Pike Lake 2) had 5-10 plants.

On the upper part of the Turtle River (Arrowhead Resort upstream to end of our survey area), we found numerous CLP fragments (floating and un-rooted). We simply collected those without marking a location. Later, we appropriately disposed of these fragments. The fragments may have resulted from boat traffic in the area or in Rice Lake with fragments floating down the river.

Our judgment is that hand-pulling could be an effective way of managing the population of CLP in Pike Lake and the Turtle River. The population has reasonably low density and the number of colonies is also quite low. The most challenging area to treat in this way will be the upper Turtle River (the area to the east of the Arrowhead Resort) as it is a larger surface area and contains a thriving native plant community. The river between the “rock dam” rapids immediately north of Arrowhead Resort and Pike Lake will not be a difficult area to conduct hand-pulling efforts and could likely be accomplished by a team of 2-4 people working from canoe(s) in a single day. The Pike Lake population that we documented on the June 2 survey is small and would lend itself to hand-pulling in an hour or so. We recommend conducting the hand-pulling as soon as possible. The native vegetation is not advanced in growth at this time and as it develops, it will be more difficult to pull the CLP. As mentioned in the notes section of the above table, at some sites the CLP was mixed with *P. richardsonii* so care in identification is warranted. Since we are doing a follow-up CLP survey subsequent to the hand-pulling activity, we ask that the ribbon is left in place until that time (we will remove).