

Illinois Route 131 from Russell Road to Sunset Avenue

Memorandum

To: Caron Kloser

From: Marc Woernle

Date: January 6, 2009

Subject: Tree Survey Technical Memo

Introduction:

An approximate 7-mile stretch of Illinois Route 131 was surveyed from October 13 through 17, 2008 utilizing the Critical Trends Assessment Program (CTAP) monitoring protocols. Wooded areas adjacent to IL Rte. 131 from Russell Road to Sunset Avenue were the focus of the biological survey. Transects were randomly chosen within the project area establishing baseline data in an effort to represent the type of trees, shrubs, and herbaceous plants living within the approximate 400-foot corridor study area. In addition, the percent cover of herbaceous plants, density of shrubs, and size of trees was also documented.

Each site contained one transect approximately 50m (164 feet) in length. A total of 10 $1/4\text{m}^2$ quadrats were set at 5m intervals along the transect. The percent cover of each species meeting the definition of groundcover in accordance to CTAP procedures within the $1/4\text{m}^2$ quadrats was recorded. All shrubs, as defined by CTAP, were counted within a 4m wide "belt" along the transect. The Diameter at Breast Height (DBH) of all trees, as defined by CTAP, were recorded within a 10m wide "belt" along the transect. Photo points were taken within the middle of each transect, in the four cardinal directions. General information about the site regarding disturbance factors, slope, general ecological health, photographic information, additional plant species observed within the area, but outside the transect and a sketch of the site were also documented on the field data sheets. Please refer to CTAP's Technical Report 2002-2, [CTAP Monitoring Protocols](#), for more detailed information regarding survey methodology.

In addition to this memo, documentation such as photos, field form data sheets, field maps with transect locations, and GPS data (in Excel format) have been temporarily placed in a public folder to be downloaded in the appropriate location on Chicago's server.

Results:

A total of 15 sites within the study area were established. All sites contained multiple shrubs and/or trees of common buckthorn (*Rhamnus cathartica*), which in combination with other invasive woody plants is preventing the proper germination and reproduction of groundcover flora along with native woody plants such as oaks and hickories within the area. The recorded data of the sampled sites has been analyzed and is summarized below for each site. In addition, several tables reflecting the results are attached to this memo.

In addition to the quantitative data collection efforts, 6 qualitative sites were also photographed and general notes regarding species composition and general tree size were documented. These qualitative sites were mapped by GPS and located on the field aerials at the time of survey.

S-1

Site 1 is located on the west side of SR 131, north of the intersection with Russel Rd. (see Field Aerial Map 1). It appears to be located in an area that was once a homestead evidenced by large horticultural trees such as Colorado blue spruce and weeping willow. An old foundation and stream were also located here. This is the only site where a stream was documented.

The average percent of aerial cover for groundcover species at this site was 15.9%. Dominant groundcover species consisted of common buckthorn, white avens (*Geum canadense*), and reed canary grass (*Phalaris arundinacea*). The total number of shrubs (stems) per acre within the site was 2,490. The dominant shrub within the 2meter (m) belt transect consisted of common buckthorn, and box elder (*Acer negundo*) as a subdominant species. Total number of trees per acre within the site was 332, while the average DBH for the trees was 5.8 inches (in). The dominant tree within this site was box elder, with an average DBH of 4.9 in. A large bur oak (*Quercus macrocarpa*) was observed outside the transect, but in the area, with a DBH greater than 24 in. One weeping willow (*Salix x sepulcralis*) with a 45 in DBH was recorded, while another adjacent to the transect measured approximately 65 in DBH.

S-2

Site 2 is located on the west side of SR 131, north of the intersection with Russel Rd. and south of S-1 (see Field Aerial Map 1). It is located in an area that appeared to be clear cut not too many years ago. It sloped toward a wetland dominated by cattails.

The average percent of aerial cover for groundcover species at this site was 24.0%. Dominant groundcover species consisted of common buckthorn with subdominant species of white avens and high-bush cranberry (*Viburnum trilobum*). The total number

of shrubs per acre within the site was 3,887. The dominant shrub within the 2m belt transect was common buckthorn with Morrow's honeysuckle (*Lonicera morrowii*) as a subdominant. Total number of trees per acre within the site was 356, while the average DBH for the trees was 5.2 in. The dominant tree species was box elder, with an average DBH of 4.0 in. No outstanding specimen tree species were observed in this area.

S-3

Site 3 is located on the west side of SR 131, south of the intersection with Russel Rd. (see Field Aerial Map 1). It is located in an area that was cleared of native understory, but where the dominant canopy species, bur oak, was left in tact. The site sloped toward the west and is adjacent to an agricultural area.

The average percent of aerial cover for groundcover species at this site was 84.5%. Dominant groundcover species consisted of meadow fescue (*Festuca pratensis*). The total number of shrubs per acre within the site was 1,275. The dominant shrub within the 2m belt transect consisted of common buckthorn. Total number of trees per acre within the site was 138, while the average DBH for the trees was 18.0 in. The dominant trees within this site were bur oak, with an average DBH of 24.1 in.

S-4

Site 4 is located on the east side of SR 131, south of the intersection with 9th Street (St.) (see Field Aerial Map 2). It is located in an area that is now a woodlot with agricultural surrounding it on all sides excluding the highway. Remnants of horticultural plantings, foundational outcrops, old fence posts and other signs indicate this woodlot was once clear-cut and utilized for residential and/or farming/livestock activities. Species physiognomy indicates ruderal growth with early successional species dominating the canopy. The site is generally flat.

The average percent of aerial cover for groundcover species at this site was 24.2%. Dominant groundcover species consisted of a horticultural lily (Liliacea) with subdominant species of white avens and common buckthorn. The total number of shrubs per acre within the site was 3,138. The dominant shrub within the 2m belt transect consisted of common buckthorn with green ash (*Fraxinus pennsylvanica*) as a subdominant. Total number of trees per acre within the site was 340, while the average DBH for the trees was 6.6 in. The dominant tree within this site was green ash, with an average DBH of 2.7 in.

S-5

Site 5 is located on the east side of SR 131, north of the intersection with SR 173 (see Field Aerial Map 3). It is located in a disturbed remnant woods adjacent to a power line easement. Some planted species such as eastern white pine (*Pinus strobus*), Morrow's honeysuckle and orange daylily (*Hemerocallis fulva*) have invaded the area. Cement

debris, excavated pockets, and ruderal canopy species are other indications of disturbance to this area. It gently slopes toward the west.

The average percent of aerial cover for groundcover species at this site was 55.2%. Dominant groundcover species consisted of orange daylily with violet (*viola* sp.) as a subdominant. The total number of shrubs per acre within the site was 1,964. The dominant shrub within the 2m belt transect consisted of common buckthorn, with subdominants consisting of green ash and Morrow's honeysuckle. Total number of trees per acre within the site was 227, while the average DBH for the trees was 5.5 in. The dominant tree within this site was box elder, with an average DBH of 4.4 in. One black locust (*Robinia pseudoacacia*) had the largest recorded DBH of 21.7 in.

S-6

Site 6 is located on the east side of SR 131, north of the intersection with Kenosha Rd. and immediately south of Beach Park Middle School (see Field Aerial Map 4). It is located in a remnant woods between the school and the cleared, but unpaved Right-of-way of 25th St. The site topography is generally flat.

The average percent of aerial cover for groundcover species at this site was 14.3%. Dominant groundcover species consisted of an unidentified aster (*Aster* sp.), while high-bush cranberry and bittersweet nightshade (*Solanum dulcamara*) were listed as subdominant. The total number of shrubs per acre within the site was 2,733. The dominant shrub species within the 2m belt transect consisted of common buckthorn with green ash as a subdominant. Total number of trees per acre within the site was 243, while the average DBH for the trees was 6.4 in. The dominant tree within this site was green ash with an average DBH of 7.8 in.

S-7

Site 7 is located on the east side of SR 131, north of the intersection with Kenosha Rd. (see Field Aerial Map 4). It is located in a remnant woods between Kenosha Rd. and SR 131. Many common buckthorn have invaded this bur oak/shagbark hickory remnant woodlot. The topography is generally flat.

The average percent of aerial cover for groundcover species at this site was 22.0%. Dominant groundcover species consisted of common buckthorn with chokecherry (*Prunus virginiana*) recorded as a subdominant. The total number of shrubs per acre within the site was 6,073. The dominant and subdominant shrubs within the 2m belt transect consisted of common buckthorn and chokecherry, respectively. Total number of trees per acre within the site was 413, while the average DBH for the trees was 6.1 in. The dominant tree species within this site was shagbark hickory (*Carya ovata*), having an average DBH of 5.2 in.

S-8

Site 8 is located on the east side of SR 131, south of the intersection with 29th St. (see Field Aerial Map 4). It is located in a remnant woods which has a depressional area which appeared to meet wooded wetland criteria.

The average percent of aerial cover for groundcover species at this site was 37.9%. Dominant and subdominant groundcover species consisted of greater straw sedge (*Carex normalis*) and common buckthorn, respectively. The total number of stems (shrubs and vines) per acre within the site was 790. The dominant vine and shrub species within the 2m belt transect consisted of riverbank grape (*Vitis riparia*) and American elm (*Ulmus americana*), respectively. Total number of trees per acre within the site was 607, while the average DBH for the trees was 7.1 in. The dominant tree within this site was cottonwood (*Populus deltoides*), with an average DBH of 2.0 in.

S-9

Site 9 is located on the east side of SR 131, north of the intersection with 33rd St. (see Field Aerial Map 5). It is located in a remnant woods between 33rd St and a golf course. Many common buckthorn have invaded and now dominate the woodlot. The topography gently slopes from east to west.

The average percent of aerial cover for groundcover species at this site was 19.6%. Dominant and subdominant groundcover species consisted of common buckthorn and white avens, respectively. The total number of shrubs per acre within the site was 5,871. The dominant shrub within the 2m belt transect consisted of common buckthorn, while green ash was listed as a subdominant. Total number of trees per acre within the site was 319, while the average DBH for the trees was 4.2 in. The dominant trees within this site were common buckthorn, with an average DBH 2.6 in.

S-10

Site 10 is located on the east side of SR 131, south of the intersection with Wadsworth Rd. (see Field Aerial Map 6). The topography slopes moderately from east to west.

The average percent of aerial cover for groundcover species at this site was 18.6%. Dominant and subdominant groundcover species consisted of garlic mustard (*Alliaria petiolata*) and silver maple, respectively. The total number of shrubs per acre within the site was 1,964. The dominant shrubs within the 2m belt transect consisted of common buckthorn with Morrow's honeysuckle recorded as subdominant. Total number of trees per acre within the site was 292, while the average DBH for the trees was 9.9 in. The dominant trees within this site were black locust, with an average DBH of 11.7 in.

S-11

Site 11 is located on the east side of SR 131, south of the intersection with Beach Rd. (see Field Aerial Map 6). This wooded area is immediately adjacent to the Waukegan Regional Airport. The topography slopes moderately from north to south.

The average percent of aerial cover for groundcover species at this site was 30.5%. Dominant groundcover species consisted of silver maple with white avens as a subdominant. The total number of shrubs per acre within the site was 2,207. The dominant and subdominant shrub species recorded within the 2m belt transect consisted of silver maple and Morrow's honeysuckle, respectively. Total number of trees per acre within the site was 389, while the average DBH for the trees was 5.0 in. The dominant trees within this site were silver maple, with an average DBH of 3.3 in.

S-12

Site 12 is located on the west side of SR 131, south of the intersection with Beach Rd. (see Field Aerial Map 6). This wooded area is immediately adjacent to an abandoned parking lot. This was the only site documenting the occurrence of the common American hazelnut (filbert) (*Corylus americana*). The topography slopes moderately from north to south.

The average percent of aerial cover for groundcover species at this site was 30.5%. Dominant groundcover species consisted of common buckthorn. The total number of shrubs per acre within the site was 2,004. The dominant and subdominant shrubs within the 2m belt transect consisted of common buckthorn and gray dogwood (*Cornus racemosa*), respectively. Total number of trees per acre within the site was 275, while the average DBH for the trees was 4.7 in. The dominant tree species within this site was common buckthorn, with the majority of them having an average DBH of 2.3 in.

S-13

Site 13 is located on the west side of SR 131, north of the intersection with Yorkhouse Rd. (see Field Aerial Map 6). This wooded area is quite extensive in size compared to the other sites. The topography slopes moderately from north to south.

The average percent of aerial cover for groundcover species at this site was 16.4%. Dominant and subdominant groundcover species consisted of common buckthorn and white avens, respectively. The total number of shrubs per acre within the site was 1,093. The dominant and subdominant shrubs within the 2m belt transect consisted of common buckthorn and Morrow's honeysuckle, respectively. Total number of trees per acre within the site was 373, while the average DBH for the trees was 5.9 in. The dominant trees within this site were common buckthorn, with an average DBH of 3.1 in. The largest tree documented was a bur oak with a DBH of 18.0 in.

S-14

Site 14 is located on the east side of SR 131 south of the intersection with Yorkhouse Rd. (see Field Aerial Map 7). This wooded area is immediately adjacent to a power line easement. The topography slopes moderately from south to north.

The average percent of aerial cover for groundcover species at this site was 21.5%. Dominant groundcover species consisted of common buckthorn with green ash documented as a subdominant. The total number of shrubs per acre within the site was 4,069. The dominant and subdominant shrubs within the 2m belt transect consisted of common buckthorn and green ash, respectively. Total number of trees per acre within the site was 364, while the average DBH for the trees was 3.9 in. The dominant trees within this site were American elm, with an average DBH of 4.9 in. The largest tree documented was a green ash with a DBH of 13.1 in.

S-15

Site 15 is located on the west side of SR 131, north of the intersection with Blanchard Rd. (see Field Aerial Map 7). This wooded area is immediately adjacent to a residential woodlot and contains disturbance by an extensive network of wooded structures apparently created by neighborhood children. The topography slopes moderately from north to south.

The average percent of aerial cover for groundcover species at this site was 8.7%. Dominant groundcover species consisted of common buckthorn with chokecherry listed as a subdominant. The total number of shrubs per acre within the site was 2,288. The dominant and subdominant shrubs within the 2m belt transect consisted of common buckthorn and Morrow's honeysuckle, respectively. Total number of trees per acre within the site was 186, while the average DBH for the trees was 9.2 in. The dominant trees within this site were common buckthorn, with an average DBH of 3.33 in. The largest tree documented was a silver maple with a DBH of 32.5 in.

CALCULATION RESULTS

Average Percent Cover for all Ground Cover species and Dominant Species Cover

Site	Average Percent Cover for All Species (Average for Site)	Dominant Species	Average % Cover of Dominant Species
1	15.9	Rhamnus cathartica	6.2
2	24.0	Rhamnus cathartica	7.0
3	84.5	Festuca pratensis	79.0
4	24.2	Liliaceae	8.0
5	55.2	Liliaceae	9.0
6	14.3	Aster sp.	4.0
7	22.0	Rhamnus cathartica	13.5
8	37.9	Carex normalis	13.2
9	19.6	Rhamnus cathartica	18.1
10	18.6	Alliaria petiolata	5.0
11	30.5	Acer saccharinum	12.5
12	30.5	Rhamnus cathartica	24.0
13	16.4	Rhamnus cathartica	7.7
14	21.5	Rhamnus cathartica	6.0
15	8.7	Rhamnus cathartica	7.2

Total Number of Stems per Acre of Small Trees/Shrubs/Vines and Dominant Species

Site	Stems Per Acre (All Species)	Dominant Species	Stems Per Acre (Dominant Species)
1	2490	Rhamnus cathartica	1620
2	3887	Rhamnus cathartica	2935
3	1275	Rhamnus cathartica	1174
4	3138	Rhamnus cathartica	2551
5	1964	Rhamnus cathartica	891
6	2733	Rhamnus cathartica	1923
7	6073	Rhamnus cathartica	5203
8	790	Vitis riparia	182
9	5871	Rhamnus cathartica	4697
10	1964	Rhamnus cathartica	1437
11	2207	Acer saccharinum	1518
12	2004	Rhamnus cathartica	891
13	1093	Rhamnus cathartica	850
14	4069	Rhamnus cathartica	2328
15	2288	Rhamnus cathartica	1883

CALCULATION RESULTS (Continued)

Number of Trees per Acre, Average DBH of Trees, Dominant Tree species and its Tree per Acre

Site	Trees per Acre (All Species)	Average DBH (All Species)	Dominant Species	Trees per Acre (Dominant Species)	Average DBH (Dominant Species)
1	332	5.8	Acer negundo	162	4.9
2	356	5.2	Acer negundo	227	4.0
3	138	18.0	Quercus macrocarpa	97	24.1
4	340	6.6	Fraxinus pennsylvanica	259	2.7
5	227	5.5	Fraxinus pennsylvanica	113	4.4
6	243	6.4	Fraxinus pennsylvanica	162	7.8
7	413	6.1	Carya ovata	194	5.2
8	607	7.1	Populus deltoides	599	2.0
9	319	4.2	Rhamnus cathartica	170	2.6
10	292	9.9	Robinia pseudoacacia	130	11.7
11	389	5.0	Acer saccharinum	243	3.3
12	275	4.7	Rhamnus cathartica	97	2.3
13	373	5.9	Rhamnus cathartica	178	3.7
14	364	3.9	Ulmus americana	121	4.2
15	186	9.2	Rhamnus cathartica	81	3.33

Smallest and Largest Species by DBH

Site	Smallest Species	DBH (in.)	Largest Species	DBH (in.)
1	Rhamnus cathartica	2.0	Salix x sepulcralis	45.0
	Acer negundo	2.0		
2	Rhamnus cathartica	2.0	Populus deltoides	17.1
	Acer negundo	2.0		
3	Prunus serotina	2.1	Quercus macrocarpa	31.6
4	Fraxinus pennsylvanica	2.0	Acer saccharinum	54.0
	Acer saccharum	2.0		
5	Fraxinus pennsylvanica	2.0	Robinia pseudoacacia	21.7
6	Rhamnus cathartica	2.0	Fraxinus pennsylvanica	17.6
7	Carya ovata	2.0	Carya ovata	19.8
8	Acer saccharinum	2.0	Populus deltoides	27.2
9	Fraxinus pennsylvanica	2.0	Fraxinus pennsylvanica	11.8
	Rhamnus cathartica	2.0		
10	Rhamnus cathartica	2.0	Acer saccharinum	27.4
11	Acer saccharinum	2.0	Acer saccharinum	23.5
12	Acer negundo	2.0	Acer saccharinum	12.3
	Rhamnus cathartica	2.0		
13	Lonicera morrowii	2.0	Quercus macrocarpa	18.0
14	Fraxinus pennsylvanica	2.0	Fraxinus pennsylvanica	13.1
15	Rhamnus cathartica	2.0	Acer saccharinum	32.5



Photo Point 1 –Community Type A



Photo Point 2 –Community Type B



Photo Point 3 –Community Type C



Photo Point 4 –Community Type D



Photo Point 5 –Community Type E



Photo Point 6 –Community Type F



Photo Point 7 –Community Type G



Photo Point 8 –Community Type H



Photo Point 9 –Community Type I



Photo Point 10 –Community Type J



Photo Point 11 –Community Type K



Photo Point 12 –Community Type L



Photo Point 13 –Community Type M



Photo Point 14 –Community Type N



Photo Point 15 –Community Type O



Photo Point 16 –Significant Tree ID #1



Photo Point 17 –Significant Tree ID #2



Photo Point 18 –Significant Tree ID #3



Photo Point 19 –Significant Tree ID #4



Photo Point 20 –Significant Tree ID #5



Photo Point 21 –Significant Tree ID #6



Photo Point 22 –Significant Tree ID #7



Photo Point 23 –Significant Tree ID #8



Photo Point 24 –Significant Tree ID #9



Photo Point 25 –Significant Tree ID #10



Photo Point 26 –Significant Tree ID #11



Photo Point 27 –Significant Tree ID #13



Photo Point 28 –Significant Tree ID #15