Site Report: Minnesota Boulevard – Arcon Development

prepared by

Stephen G. Saupe
Biology Department
College of St. Benedict/St. John's University
Collegeville, MN 56321
(320) 363 – 2782; ssaupe@csbsju.edu

Fred Bengtson
Division of Wildlife
Minnesota Department of Natural Resources
Sauk Rapids, MN 56379
(320) 255-4279; fred.bengtson@dnr.state.mn.us

Site Visits:

We visited the Minnesota Boulevard/Arcon Development Site on June 16th. During this visit we randomly walked through the entire property noting the natural communities and other features. We revisited the site on June 29 with the entire EDT committee and one of us (SGS) returned on July 1. All visits lasted approximately one hour.

Site Description:

This site, which includes 'Site121' identified by the St Cloud Natural Areas Inventory, is located on the NW corner of the intersection of Minnesota Boulevard and 15th Ave SE (Sherburne County; T35N R31W Sec 12). The site is relatively flat with the most significant slope or low area occurring in the northwest corner of the property.

The SE quarter of the property is mostly disturbed site vegetation (Fig's 4, 5, & 6). Approximately half of this area (adjacent to 15th Ave SE) was cropped until relatively recently (Bengtson, personal observation) and is now an open field dominated by weedy vegetation (Table 1). The old crop furrows can be seen in the aerial photograph. Along the western edge of the former crop field is a row of trees and shrubs including smooth sumac (*Rhus glabra*) that separates this field from another relatively open area that at one time must have included a home site. Vegetative signs of human occupation in this area include lilac (*Syringa vulgaris*), iris (*Iris* sp.) lily-of-the-valley (*Convallaria majalis*), red pine (*Pinus resinosa*) and white spruce (*Picea glauca*). As a result of the significant disturbances in this area, it was excluded from Site 121 when it was mapped by the St. Cloud Natural Areas Inventory (see aerial photograph).

The remaining portion of the property, which is essentially all of Site 121, is an oak woodland-brushland (Minnesota DNR, 1993; St Cloud Natural Areas Inventory). The largest and most common trees on the site are bur oaks (*Quercus macrocarpa*; Fig 1 & 2). These trees cover approximately 80% or more of the site. Other trees that occupy the site include green ash (*Fraxinus pensylvanica*), black walnut (*Juglans nigra*), and northern red oak (*Quercus rubra*). In addition, scattered throughout the property there are a few black cherry (*Prunus serotina*), eastern red cedar (*Juniperus virginiana*), paper birch (*Betula papyrifera*) and willow (*Salix* sp.). Quaking aspen (*Populus tremuloides*) occurs primarily along the western edge of the property where the canopy is a little more open and there are a few large cottonwood (*Populus deltoides*; Fig 7) in the west-central area.

Herbaceous plants growing on the forest floor include woodbine (*Parthenocissus inserta*), bedstraw (*Galium* sp.), river grape (*Vitis riparia*), wood sedge (*Carex pensylvanica*), tall buttercup (*Ranunculus acris*), white snakeroot (*Eupatorium rugosum*), stinging nettle (*Urtica dioica*), enchanter's nightshade (*Circaea* sp.), hog peanut (*Amphicarpaea bracteata*), Canada moonseed (*Menispermum canadense*), and Jack-in-the-pulpit (*Arisaema triphyllum*).

A few native shrubs were observed including willow (*Salix*) and high-bush cranberry (*Viburnum trilobum*). No native prairie grasses or forbs were observed at the site.

The bur oaks on the site occupy one of two major cohorts or groups. These trees are either large (>16 inch diameter) or relatively small (diameter less than about 6 inches). In fact, the next largest tree is a northern red oak about 6.5 inches in diameter. There are no trees intermediate in size. This suggests that the area was grazed for many years and that the young trees and seedlings were eaten. The large trees on the site were too large to be eaten and have persisted. Once the grazing stopped it allowed the development of another generation. If these smaller trees were aged by taking core samples it would provide a reasonably precise estimate of when grazing ended. Similarly, all of the other trees, with the exception of a small group of cottonwood trees, on the site are less than about 6 inch in diameter, too, which supports this conclusion. Once grazing on the site ended, the site developed into an oak woodland-brushland.

When this site was visited in September 1995 for the St. Cloud Inventory, the area was described as an "old savanna & still quite open" with approximately 80% cover. The Inventory also reported the presence of ironwood and hawthorn and good oak seedling development. Although we were unable to locate any prairie species, we agree that this site is almost certainly an old savanna. As with the trees, the lack of prairie species is likely the result of heavy grazing and lack of light reaching the forest floor. The amount of cover seems to have increased since the original survey while the oak seedling numbers have apparently declined.

Except in a few open areas in the NE section of the site, we observed few oak (or other tree) seedlings. There seems to have been a decrease in tree seedling number since the 1995 Inventory reported that there was "good oak seedling development." One likely reason for the declining number of oak seedlings is because the site is heavy infested by European buckthorn (*Rhamnus cathartica*; Fig 8). The impact of buckthorn has presumably gotten worse since the original Inventory. In 1995 when the survey was completed the site was described as having "some shrub invasion." Today, this would be an understatement. In many areas, European buckthorn is the dominant plant and some places the forest floor is carpeted with young European buckthorn seedlings (Fig 10).

The impact of the colonization by buckthorn is particularly apparent in one area in the south-central section of the site – approximately near the region on the map labeled block 3, lots 4 – 7. In this area there is very little buckthorn, and as a consequence the forest floor has a relatively rich diversity of woodland herbs including woodbine and

others listed above (Fig 9). In contrast, just a few yards away in areas where European buckthorn prevails (Fig 10), few other species occur. European buckthorn has clearly been a detriment to the ecological health of this site.

We observed several areas in the southeast quarter of the park where the grass had been matted down. This suggests that deer have been using the site for habitat.

The Inventory gave this site (#121) a rank of "B – good" and reported that it would have received a higher grade if the stand was not "isolated" and if there was less "shrub invasion." Since the original survey, the shrub invasion has apparently gotten worse and as a consequence the EO rank should probably be dropped to "C – Marginal." However, we agree with the conclusion of the Inventory that the "grade can improve with management."

Potential Options: The following are some possible options for development on the site and their potential implications:

1. Approve, as is, the Concept Plan submitted by Arcon Development/Westwood. This plan locates home sites more or less uniformly throughout the site. If approved, even if the developer tries to save as many trees as possible, the site will become another "suburban savanna" with a few large bur oak trees surrounded by a sea of Kentucky bluegrass, asphalt and concrete. The current native plant community will be destroyed and wildlife will need to move to other areas or go locally extinct.

2. Save the entire area as a city park. Although it would take a major effort to eradicate the European buckthorn, with management the area would provide nice walking trails and provide habitat for deer, squirrels, assorted birds and other wildlife. The large bur oaks are, by themselves, a good reason to preserve this area. Considering the relatively rarity of oak savanna, this would be a fabulous addition to the natural communities preserved within City limits.

3. Approve a modified Concept Plan that saves a more contiguous area of trees. The current development as it is proposed will fragment the site resulting in a few scattered bur oaks in a matrix of homes/lawns. Since the site is relatively uniform (except the SE corner), there isn't any one area that might take priority over another for preservation. One possibility is to create a "Green Corridor" through the property that would preserve some of the beautiful old bur oaks while providing walking trails for residents of the development and the public-at-large. These trails would serve to ultimately connect Riverside/Talahi Park to the west with the hiking/ski trails to the east. By maintaining a corridor it would allow for deer and other wildlife while still allowing development.

Recommendations:

According the St. Cloud Environmentally Sensitive Areas Ordinance (ESAO, p 30, #1), sites "should be considered for forest preserves (reserves), [if they are] examples of high quality forest ecosystems or rare forest communities." Although we would prefer to see this area left intact (option 2), since this ecosystem is, at best average, there are no scientifically-compelling reasons to do so. However, the loss of the beautiful and significant bur oak community on this site that would result under option 1 would be a sad, indeed.

In summary, we recommend a modified development plan (option 3) that provides for a "green corridor." We recommend leaving a 60 ft wide winding corridor trail located to maximize the occurrence of the 16 inch plus hardwood trees, especially the bur oaks.

Any development on the site, whether it is option 1, 2, 3 or other plan, should proceed carefully and cautiously to preserve as much of the forest character and ecological integrity of this area as possible. The developers should follow the guidelines specified in the "Forests and Woodlands" section of the St. Cloud Environmentally Sensitive Areas Ordinance (p 30 - 31). We are encouraged that the developers said that they have developed wooded sites before and that "tree preservation is something that they can deal with." We support their plans to minimize tree removal by "custom grading/developing each lot and by minimizing street width and rights of way."

If the site is developed we specifically recommend that:

1. a "green corridor" is provided through the property (as described above)

2. construction should be prohibited during April, May and June to prevent the spread of oak wilt disease (ESAO, p 31, e)

3. before construction, trees to be saved should be fenced or otherwise marked for preservation (ESAO, p 31, d)

4. the developer/construction company be required to demonstrate that the they are skilled in construction techniques that minimize tree damage. This could take several potential forms including attendance at a seminar or other similar workshop or evidence of previously successful wooded developments. The City Forester should be able to provide the developers/construction company with acceptable options.

5. avoid removing excessive trees (ESAO, p31, c). We estimate that under option 1 there will be a loss of more than 50% of the mature trees that currently grow on the site. Some will need to be removed during construction of roads and right-of-way access areas while others will need to be removed for safety (snags), etc. And, as the developers stated at our first meeting, the trees in the front yard,

unlike those in the back, often don't get saved.

6. educate homeowners about the importance of removing European buckthorn and honeysuckle on their property and in any communal woodland spaces (ESAO, p 31, h).

References:

Minnesota Natural Heritage Program (1993) *Minnesota's Native Vegetation. A Key to Natural Communities*. Version 1.5

St. Cloud Natural Areas Inventory and Planning Framework. Short Elliot Hendrickson, Inc.

Wovcha, DS, BC Delaney, and GE Nordquist (1995) *Minnesota's St. Croix River Valley and Anoka Sandplain. A Guide to Native Habitats.* University of Minnesota Press, Minneapolis.

Table 1. Some common plants growing in disturbed areas on the Arcon Development Site. These plants were observed during site visits in June and July 2004.

Family	Scientific Name	Common name
Asteraceae	*Chrysanthemum leucanthemum*	Common Ox-eye
Asteraceae	*Conyza canadensis*	Horseweed
Asteraceae	*Cirsium canadensis*	Canada thistle
Asteraceae	*Sonchus sp.*	Sow thistle
Brassicaceae	*Brassica sp.*	mustard
Brassicaceae	*Berteroa incana*	Hoary alyssum
Caryophyllaceae	*Silene antirhina*	Sleepy catchfly
Caryophyllaceae	*Silene cucubalus*	Bladder campion
Fabaceae	*Melilotus alba*	White sweet clover
Fabaceae	*Lotus corniculatus*	Bird-foot trefoil
Fabaceae	*Trifolium arvense*	White clover
Oxalidaceae	*Oxalis sp.*	Wood sorrel, oxalis
Poaceae	*Bromus inermis*	Smooth brome
Poaceae	*Setaria sp.*	foxtail
Polygonaceae	*Rumex sp.*	Dock
Rosaceae	*Potentilla argenta*	Silvery potentilla
Scrophulariaceae	*Verbascum thapsus*	Common mullein