



1. The river beach community along River Road is an important area for fish and wildlife habitat. Depending on water levels and time of year, the river beach may serve as important fish spawning habitat or provide critical feeding areas for shorebirds. Although constantly changing, the river beach encompasses the zone between the waterward extents of tree growth (usually silver maple or eastern cottonwood), out to, and including the shallow water within the river itself. Landowners are encouraged to allow native grasses and forbs to colonize this zone. Additionally, woody debris (trees and driftwood) provides a critical habitat for a variety of fish, invertebrates, birds, reptiles and amphibians. Landowners are encouraged to leave woody debris.
2. Community 26282007 contains Japanese barberry and buckthorn, both invasive shrub species. Control of these species, could potentially be coordinated with Afton State Park, which has removed extensive areas of buckthorn in an effort to restore oak forest, woodland and savanna. Community 26282007 contains several areas of erosion due to stormwater runoff. The City should work with the Valley Branch Watershed and SWCD to identify stormwater sources and appropriate corrective measures.
3. Community 27282001 contains considerable erosion resulting from invasion of buckthorn and eastern red cedar, which provide poor protection against soil erosion. Much of the runoff appears to be from residential homes along the bluff top. Encourage landowners to establish vegetated buffers between the bluff top and residential areas.

## **Community Description**

### **Community 26-28-20-01**

Community 26-28-20-01 is a moderate quality oak woodland-brushland dominated by a scattered upper canopy of large open grown red oak and white oak, with a smaller and younger subcanopy of basswood and trembling aspen. Native species dominate the shrub layer, including choke-cherry, gray dogwood, prickly gooseberry, black cherry saplings and oak seedlings. A low to moderate level of more invasive shrub species occur in the shrub layer with such species as wild raspberry, buckthorn, Tartarian honeysuckle, prickly ash, and Japanese barberry present. The ground cover is dominated by Pennsylvania sedge, herbaceous species such as pointed-leaved tick-trefoil and gray goldenrod, mixed with Virginia creeper vine and buckthorn seedlings. Other ground layer herbaceous species include maidenhair fern, white snake root, heal-all, interrupted fern, wild columbine, wild ginger, and zig-zag goldenrod. The MNDNR Natural Heritage Program mapped this community as part of MCBS Site #57, but collected no data.

*Disturbance Indicators:* The western border of this community runs along River Road, with open fields to its north and south. This area appears to have grazing history, and disturbance indicators include invasive species such as buckthorn, Japanese barberry, and prickly ash. The shrub and ground layers include a nice diversity of native species with invasives generally not dominant. This oak woodland is assigned a quality ranking of C.

### **Community 26-28-20-03**

Community 26-28-20-03 is a floodplain forest of variable quality located between the St. Croix River and River Road. This community is dominated by large, 30 inch-plus diameter eastern cottonwood, along with smaller boxelder, basswood, black willow, red oak and American elm. The shrub layer is fairly diverse with both native and introduced species. Common shrubs include: American hazelnut, riverbank grape, Tartarian honeysuckle, poison ivy, buckthorn, high-bush cranberry, red osier dogwood, Virginia creeper, bindweed, and virgin's bower. Ground cover species include scouring rush, zig-zag goldenrod, false Solomon's seal and zig-zag

goldenrod. This community includes scattered areas of dry/moist cliff composed of ten to fifteen foot sandstone outcrops. Species present on the rock outcrops include: harebell, rattlesnake root and *Solidago speciosa*. In shady, moist areas, nonvascular liverworts are dominant.

*Disturbance Indicators:* This floodplain forest is essentially a narrow transition between river beach and upland, mesic forest. Because this community lacks interior areas and is subject to frequent cutting (to maintain river views and dock access), shrub species are dominant. The primary invasive species are buckthorn and Tartarian honeysuckle, which in places, are dominant. This community is assigned a quality ranking of CD.

#### **Community 26-28-20-04**

Community 26-28-20-04 is a river beach community bordering the St. Croix River adjacent to River Road. The river beach community is located between the St. Croix River and the approximate waterward extent of the adjacent floodplain forest community (26-28-20-03). River beach communities are transitional communities that are subject to changing water levels of the river. This community contains a fairly diverse suite of grasses and forbs including *Carex stricta*, *Carex stipata*, Virginia wild rye, Cardinal Flower, *Impatiens capensis*, *Impatiens pallida*, evening primrose, pale touch-me-not, sneezeweed, Indian tobacco, spreading dogbane, *Aster sp.* bindweed, white snake root, wild bean, zig-zag goldenrod, stinging nettle, bittersweet nightshade, common yellow wood-sorrel, and yellow avens. Scattered trees occur along the upland edges of this community, including paper birch, cottonwood, basswood, and younger individuals of boxelder and amur maple.

*Disturbance Indicators:* The major disturbance in this area are docking facilities from adjacent residential land use. Woody debris, either from fallen trees or driftwood, is generally lacking throughout this section of river beach. Woody debris increases substrate diversity and provides habitat for a variety of reptiles, amphibians, fish and macroinvertebrates. This river beach community is assigned a CD quality ranking.

#### **Community 26-28-20-05**

Community 26-28-20-05 is an old field dominated by introduced grasses.

#### **Community 26-28-20-06**

Community 26-28-20-06 is a lowland hardwood forest/disturbed deciduous woodland located along an old flood control dike. This community includes several residential lots along the St. Croix River. Canopy species include cottonwood, American elm, green ash, and boxelder. The shrub layer is dominated by mostly invasive species including buckthorn and Tartarian honeysuckle, black berry, and wild grape. The ground layer consists of white snake root, common motherwort, common burdock, yellow avens, aster, and false rue anemone. Some patches of this community include conifer plantings and residential yards of non-native, mowed grasses. This community provides excellent opportunities for a riverfront restoration project.

#### **Community 26-28-20-07**

Community 26-28-20-07 is a lowland hardwood forest within a wooded ravine. The canopy is dominated by red oak, bur oak, paper birch, and cottonwood with a subcanopy of smaller red elm and butternut. The shrub layer is dominated by buckthorn, Japanese barberry and wild raspberry. Within the bottom of the ravine, large, moss covered rocks litter the forest floor. Common groundcover species include: Pennsylvania sedge, white snake root, common yellow wood-sorrel, lady fern, maidenhair fern, anemone, wood fern and sweet scented bedstraw. The lower-most portion of the ravine is the most disturbed where a flood levee is constructed. This area contains many of the same ground layer species mentioned previously, but in addition, contains

weedy species such as Virginia stickseed and creeping charlie. This community is mapped within MCBS Site #26 as an oak forest.

*Disturbance Indicators:* Much of this ravine appears to have been used for grazing based on the presence of fences and invasive, exotic shrubs such as buckthorn and Japanese barberry. The incidence of these two shrubs as well as weedy herbaceous species increases near the St. Croix River, where significant disturbance has occurred near a flood levee. The lower portion of the ravine also has significant erosion with some large areas of bank slumping. This community is assigned a CD quality ranking.

#### **Community 26-28-20-08**

Community 26-28-20-08 is a moderate quality mesic oak forest dominated by 18 to 20 inch diameter red oak. Other tree species present include: paper birch, basswood, butternut, red elm, bur oak, black cherry, big-toothed aspen and green ash. Although buckthorn and invasive species such as Tartarian honeysuckle generally dominate the shrub layer, there is a good diversity of native species such as choke-cherry, bush honeysuckle, pagoda dogwood, and prickly gooseberry and wild raspberry.

The groundcover consists of Pennsylvania sedge strawberry, round-lobed hepatica, zig-zag goldenrod, white snake root, yellow avens, early meadow rue, interrupted fern, lady fern, maidenhair fern, Virginia stickseed, wood nettle, and violets. This community is mapped within MCBS Site #26 as a mesic oak forest.

*Disturbance Indicators:* There is some gully erosion on hill slopes within this ravine. The primary invasive species include buckthorn and Japanese barberry. This community is assigned C quality ranking. The south portion of this community, located to the southeast of the ravine, is generally of higher quality, although some trails and tree cutting have occurred.

#### **Community 26-28-20-09**

Community 26-28-20-09 is a low quality floodplain forest area surrounding a small seep outletting the St. Croix River. This community is dominated by large eastern cottonwood and silver maple averaging 15 to 20 inches in diameter. The shrub layer is patchy with buckthorn and black willow along with occasional river bank grape. The groundcover near the seeps includes *Carex stricta*, *Carex stipata* and jewelweed. In other areas, the groundcover is sparse with such species as violets, beggar-ticks, sneezeweed, smartweed, wood nettle, and common mint.

*Disturbance Indicators:* The eastern portion of this community borders the St. Croix River, and the entire area is located within a residential area. There is some trash littering the shoreline, but good-sized cottonwood trees in the upper canopy provide a nice shoreline setting. We assigned a D quality ranking to this community.

#### **Community 26-28-20-10**

Community 26-28-20-10 is an old field.

#### **Community 27-28-20-01**

Community 27-28-20-01 is a mesic oak forest dominated by younger red oak, white oak, bur oak, basswood, paper birch, and sugar maple with an average of 10 to 12 inches in diameter, with occasional, larger trees. Sugar maple regeneration dominates the shrub layer along with buckthorn, river bank grape and young butternut trees. The ground layer includes Pennsylvania sedge, maidenhair fern, lady fern, and early meadow rue. The northern portion of this community contains a north-facing slope with limestone/sandstone escarpments of up to fifty feet. Although

these cliffs were not surveyed, they would likely contain species common to dry cliff habitats such as wild columbine, rattlesnake root and polypody fern.

*Disturbance Indicators:* There is some considerable erosion on the upper slopes of this community, much of it originating from residential areas on the bluff top. This community contains some scattered patches of buckthorn; otherwise, young sugar maple is probably the dominant woody species present in the shrub layer. We have assigned this community a C quality ranking.

#### **Community 27-28-20-02**

Community 27-28-20-02 is one of the better quality mesic oak forests within the City of Afton. This community is located on a steep hillside above River Road. The top of this hillside offers some of the most spectacular vistas in the City of Afton, with panoramic views to the north up the St. Croix River. This community also includes several large ravines with rock outcrop that drain to the St. Croix River.

This mesic oak forest is dominated by large-diameter red oak, basswood, and white oak. One 16-inch red oak had 171 growth rings, indicating that the larger oak trees exceed 175 years. Underneath the tall canopy of red oak, a dense subcanopy of mostly shade-tolerant species is present. Common subcanopy species include: ironwood, sugar maple, basswood, black ash, paper birch, American elm, and black cherry.

The shrub layer is dominated by native shrub species, with round-leaved dogwood and beaked hazel the most common species. Other shrub layer species include poison ivy, black cherry, wild raspberry, gooseberry and scattered buckthorn. A rich diversity of ground layer species is present. Some of the common species noted during our survey include: maidenhair fern, early meadow rue, wood anemone, bracken fern, interrupted fern, round-lobed hepatica, hog peanut, bloodroot, lady fern, early meadow rue, largeflower bellwort, zig-zag goldenrod, Canada mayflower, and pointed-leaved tick-trefoil.

*Disturbance Indicators:* This community shows very few indications of disturbance besides occasional barbed wire fences near the top of the hillslope and some scattered buckthorn. A factor contributing to this high quality is probably the steepness and inaccessibility of this area. This community is bisected by a large ravine with some minor erosion. A quality ranking of B is assigned.

#### **Community 27-28-20-05**

Community 27-28-20-05 is an old field dominated by introduced grasses.

#### **Community 27-28-20-06**

Community 27-28-20-06 is a young red pine plantation with a moderate stocking of three to five inch diameter red pine.

#### **Community 27-28-20-07**

Community 27-28-20-07 is a conifer plantation dominated by red pine.

#### **Community 27-28-20-08**

Community 27-28-20-08 is a conifer plantation.

**Community 35-28-20-03**  
**Community 35-28-20-03 is an aspen woodland.**

**Community 35-28-20-04**  
**Community 35-28-20-04 is a Norway pine plantation.**

**Community 35-28-20-05**  
**Community 35-28-20-05 is an old field / conifer plantation.**

## Landscape Unit #25

Summary Table for Landscape Unit #25

Site ID	Community ID	Community Type	Quality Ranking
270	27282003	Mesic Oak Forest	C
253	27282004	Oak Woodland	D
275	27282009	Conifer Plantation	NA
276	28282001	Lowland Hardwood Forest	C
277	28282002	Mesic Oak Forest	C
287	28282013	Oak Woodland	CD
321	33282012	Mesic Oak Forest	C

### Landscape Unit Rankings

*Ecological Ranking:* Landscape unit #25 contains significant tracts of moderate quality oak forest and woodland. A moderate ecological ranking is assigned.

*Wildlife Habitat Ranking:* The oak forests and woodland in this landscape unit contain numerous, large-diameter, dead and down oak trees. These snags provide good quality habitat for a variety of cavity nesting birds and mammals associated with mesic oak forest. Because a substantial portion of these forests are fragmented from residential homes and driveways, interior habitat is generally lacking. The wildlife habitat ranking is moderate.

*Rare Features Ranking:* There are no documented rare features within this landscape unit. There are; however, records of rare features in adjacent landscape units. The rare features ranking is moderate.

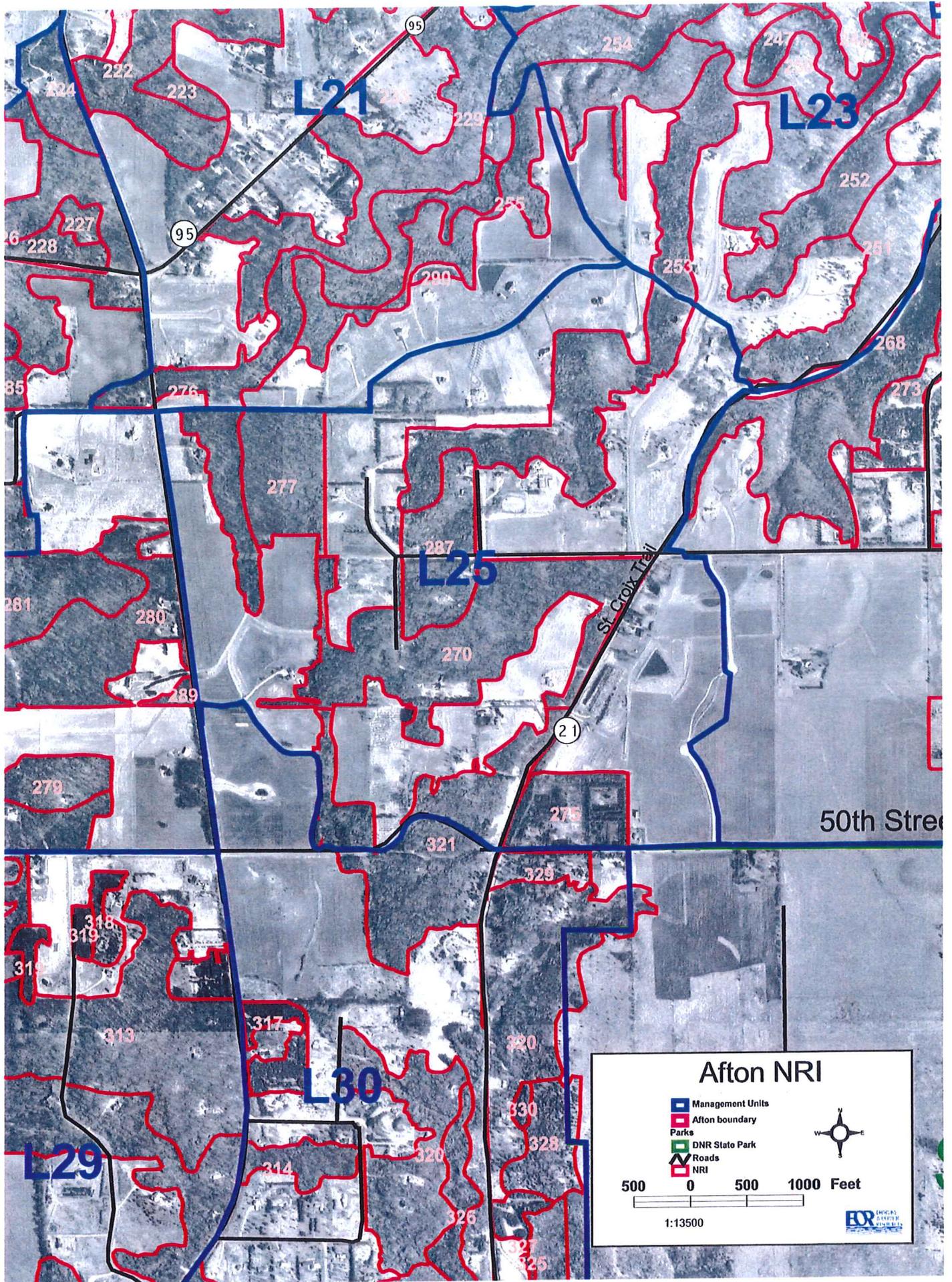
### Stewardship Recommendations

1. Although buckthorn and other invasive species are present throughout this landscape unit, many of the oak forests still contain a good diversity of native, trees, shrubs and ground cover flora. This area offers good opportunities for residents to control invasive woody species. Particular attention should be given to areas with blowdown, where previously shaded areas are now exposed to sunlight. Once buckthorn is controlled, tree, shrub and groundcover grasses and forbs should be reestablished through planting and/or seeding. Areas where invasive shrubs have been cut and treated with herbicide will likely require periodic inspections for new seedlings. Any regrowth of invasive species will require mechanical or chemical control.
2. Landowners are encouraged to leave standing and down snags, especially those with cavities. Snags provide important habitat for a variety of wildlife species.
3. Community 28282013 potentially contains a high diversity of groundcover flora. A spring survey of mesic forests should be conducted to evaluate spring ephemerals.

### Community Description

#### Community 27-28-20-03

Community 27-28-20-03 is a moderate quality mesic oak forest. This oak forest is unique in that it has very large red and bur oak, averaging 20-inches in diameter. The east portion of this oak





forest, within Section 27, is set aside in a conservation easement through the Minnesota Land Trust.

The main canopy of oaks in this community is tall and quite broken. There is considerable blowdown and evidence throughout of logging and firewood cutting. In spite of this, the community retains large numbers of standing and down snags that provide excellent wildlife habitat. The diverse subcanopy consists of younger, 6 to 12 inch diameter shade tolerant trees such as sugar maple, black cherry, American elm, hackberry and basswood. Based on the species composition of understory species, this community will probably succeed to maple-basswood forest. Buckthorn generally dominates the patchy shrub layer, along with young hackberry trees. At the time of the survey, (October 24<sup>th</sup>), only a few ground cover species were visible such as yellow avens and white snake root. This site likely contains a good diversity of spring ephemerals and other ground cover flora.

*Disturbance Indicators:* Logging trails along with residential home sites and driveways have greatly fragmented this oak forest. Although buckthorn dominates some areas of the patchy shrub layer, a significant component of shade tolerant hardwood species exists in the subcanopy. This community is assigned a C quality ranking.

#### **Community 27-28-20-04**

Community 27-28-20-04 is an oak woodland dominated by older, open grown bur oak with patches of eastern red cedar thickets. Average diameter of bur oaks is 20 inches. One large bur oak was cored and estimated to be approximately 150 years old. Other common tree species include bigtooth aspen, eastern red cedar, pin oak, green ash and trembling aspen.

The shrub layer is dominated by buckthorn along with prickly ash, choke-cherry, wild grape and black cherry/red maple regeneration. The sparse ground layer consists of Pennsylvania sedge and feather moss.

*Disturbance Indicators:* This community was likely grazed extensively until about 40 years ago. Since grazing was ceased, armed shrubs and shade-tolerant hardwood trees have become established. A quality ranking of D is assigned to this community.

#### **Community 27-28-20-09**

Community 27-28-20-08 is a conifer plantation.

#### **Community 28-28-20-01**

Community 28-28-20-01 is a moderate quality, lowland hardwood forest dominated by 12-inch diameter red elm. This community is part of a wooded ravine. Other canopy and subcanopy trees include boxelder, American elm, black willow, silver maple, hackberry, and bur oak. A fairly diverse shrub layer includes common elder, sweet viburnum, red-berried elder, buckthorn, and wild grape. A high diversity of herbaceous species exist in the ground layer, including false Solomon's seal, common burdock, wood nettle, white snakeroot, Virginia waterleaf, sweet cicely, stinging nettle, swamp buttercup, common motherwort, yellow avens, violets, lady fern, jack in the pulpit, and hog peanut. Associate graminoids in the ground layer include Pennsylvania sedge, rice cut grass, and Virginia wild rye.

*Disturbance Indicators:* Dutch Elm disease appears to have killed off most elm trees over 10 to 12 inches in diameter. Buckthorn, while present, does not dominate the shrub layer, but rather, the shrub layer has retained much of its native diversity. Likewise, while the ground layer

contains some weedy species such as *Laportea* and stinging nettle, this community, overall, contains a rich mix of herbaceous species. A quality ranking of C is assigned to this community.

**Community 28-28-20-02**

Community 28-28-20-03 is a moderate quality mesic oak forest dominated by red oak, black ash, white oak, red maple, silver maple, hackberry and American elm. The shrub layer is dominated by prickly ash, buckthorn, prickly gooseberry, chokecherry and black cherry/red maple regeneration. The ground cover is generally sparse with scattered yellow avens, tick trefoil, wood anemone, lady fern and Pennsylvania sedge.

*Disturbance Indicators:* Based on a good diversity of tree and shrub species and presumably, fair diversity of groundcover flora, this community is assigned a quality ranking of C.

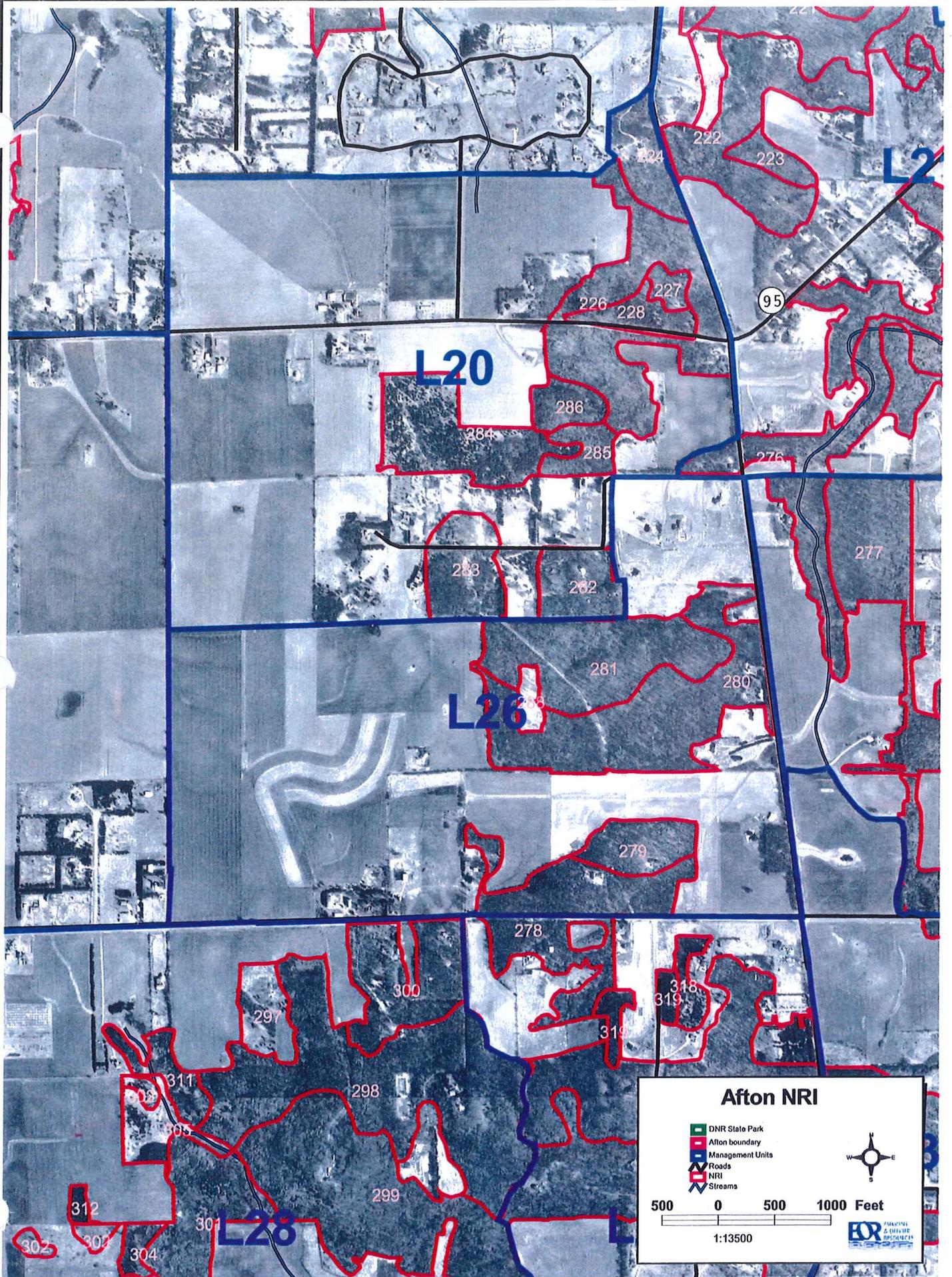
**Community 28-28-20-13**

Community 28-28-20-13 is an oak woodland.

**Community 33-28-20-12**

Community 33-28-20-12 is a mesic oak forest dominated by red, bur, and pin oaks. Trees are generally larger than 10 inches in diameter, with many over 20 inches. This community has a woodland structure, but the subcanopy is now filled in with younger classes of oak, with some big-toothed and quaking aspens. Buckthorn and black cherry regeneration dominates the shrub layer. The ground layer appears depauperate, although more species would likely be noted during a summer survey.

*Disturbance Indicators:* Like other nearby oak forests, this community contains many large-diameter oak trees. The shrub layer; however, is mostly dominated by buckthorn, leaving little opportunity for other shrubs or ground cover species to exist. A resurvey of groundcover flora may be warranted for this community. The quality ranking for this community is C.



**Afton NRI**

- DNR State Park
- Afton boundary
- Management Units
- Roads
- NRI
- Streams

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## Landscape Unit #26

Summary Table for Landscape Unit #26

Site ID	Community ID	Community Type	Quality Ranking
278	28282003	Mesic Oak Forest	CD
279	28282004	Maple Basswood Forest	C
280	28282005	Mesic Oak Forest	C
281	28282006	Maple Basswood Forest	C
288	28282014	Old Field	NA

### Landscape Unit Rankings

*Ecological Ranking:* Landscape unit #26 is assigned a moderate ranking based on quality of the natural communities.

*Wildlife Habitat Ranking:* Like landscape unit #25, the oak forests and woodland in this landscape unit contain numerous, large-diameter, dead and down oak trees. These snags provide good quality habitat for a variety of cavity nesting birds and mammals associated with mesic oak forest. Because a substantial portion of these forests are fragmented from residential homes and driveways, interior habitat is generally lacking. The wildlife habitat ranking is moderate.

*Rare Features Ranking:* No rare features are documented for this landscape unit. The potential for rare features exist, but is not high. This landscape unit is assigned a rare features ranking of low to moderate.

### Stewardship Recommendations

1. Oak wilt is present within this landscape unit. Refer to oak wilt management guidelines in the Appendices.
2. Dutch elm disease is present in this landscape unit. Salvage diseased elms, but where healthy, leave red elm trees, which tend to be more resistant to infection than American elm.
3. New home construction should, where possible, avoid further fragmenting forest and woodland areas. Use existing clearings, or build on forest edges, rather than clearing out new areas. New openings provide pathways for further invasion by buckthorn and other invasive species.

### Community Description

#### Community 28-28-20-03

Community 28-28-20-03 is a mesic oak forest dominated by large white and red oaks, averaging over 12 inches in diameter. This community is situated on a west-facing slope. On the upper portions of the slope, the canopy is dominated by oak species, while near the bottom of the slope, it grades into a more open lowland hardwood forest as described for community 28-28-20-01.

In addition to the oaks, the canopy contains black ash, red maple, sugar maple, hackberry, box elder, basswood, trembling aspen, pin oak and American elm. The shrub layer is dominated by buckthorn, prickly ash, prickly gooseberry, choke-cherry, red elm and black cherry/red maple

regeneration. The ground cover, which was surveyed during October contained lady fern and Virginia waterleaf.

*Disturbance Indicators:* The shrub layer in this community is generally dominated by buckthorn and other “armed shrubs”, suggesting a history of grazing. The quality ranking for this community is CD.

#### **Community 28-28-20-04**

Community 28-28-20-04 is a maple basswood forest dominated by 10 to 14 inch average diameter sugar maple, big-toothed aspen, and red oak. Subcanopy species include American elm, paper birch, and an abundance of sugar maple regeneration. The patchy shrub layer consists of American hazel, common elder, buckthorn, and young sugar maple regeneration. Lady fern and jack in the pulpit dominate the herbaceous ground layer.

*Disturbance Indicators:* This community encompasses several residential home sites and associated driveways and trails. Near these openings, buckthorn has become well established. It also appears that Dutch Elm Disease has invaded the small elms in this community. Oak wilt is causing mortality to red oak along the west side of this community. This community is assigned a quality ranking of C.

#### **Community 28-28-20-05**

Community 28-28-20-05 is a moderate quality oak forest dominated by red oak, pin oak, and red maple, with occasional patches of basswood and big-toothed aspen. This forest appears to have a number of different age classes with some old trees approaching 200 years, while smaller trees probably average closer to fifty years. Like most of the other nearby oak forests, the invasive shrub buckthorn is present, along with prickly ash, wild raspberry, black cherry, and Tartarian honeysuckle. Some of the species present in the sparse ground layer include sessileleaf bellwort, pointed-leaved tick-trefoil, and Pennsylvania sedge. Within a recently cleared gas line right-of-way, a variety of grasses and forbs were noted including: bottle-brush grass, agrimony, horse-gentian, Canada goldenrod, common St. John's-wort, and showy goldenrod. The presence of these species, if not seeded in following installation of the gas line, suggest that oak woodland and savanna grasses and forbs originally occupied this site when it was a more open oak savanna and woodland community.

*Disturbance Indicators:* As with many nearby oak forests, buckthorn and other thorny shrubs dominate the shrub layer. This community is assigned a quality ranking of C.

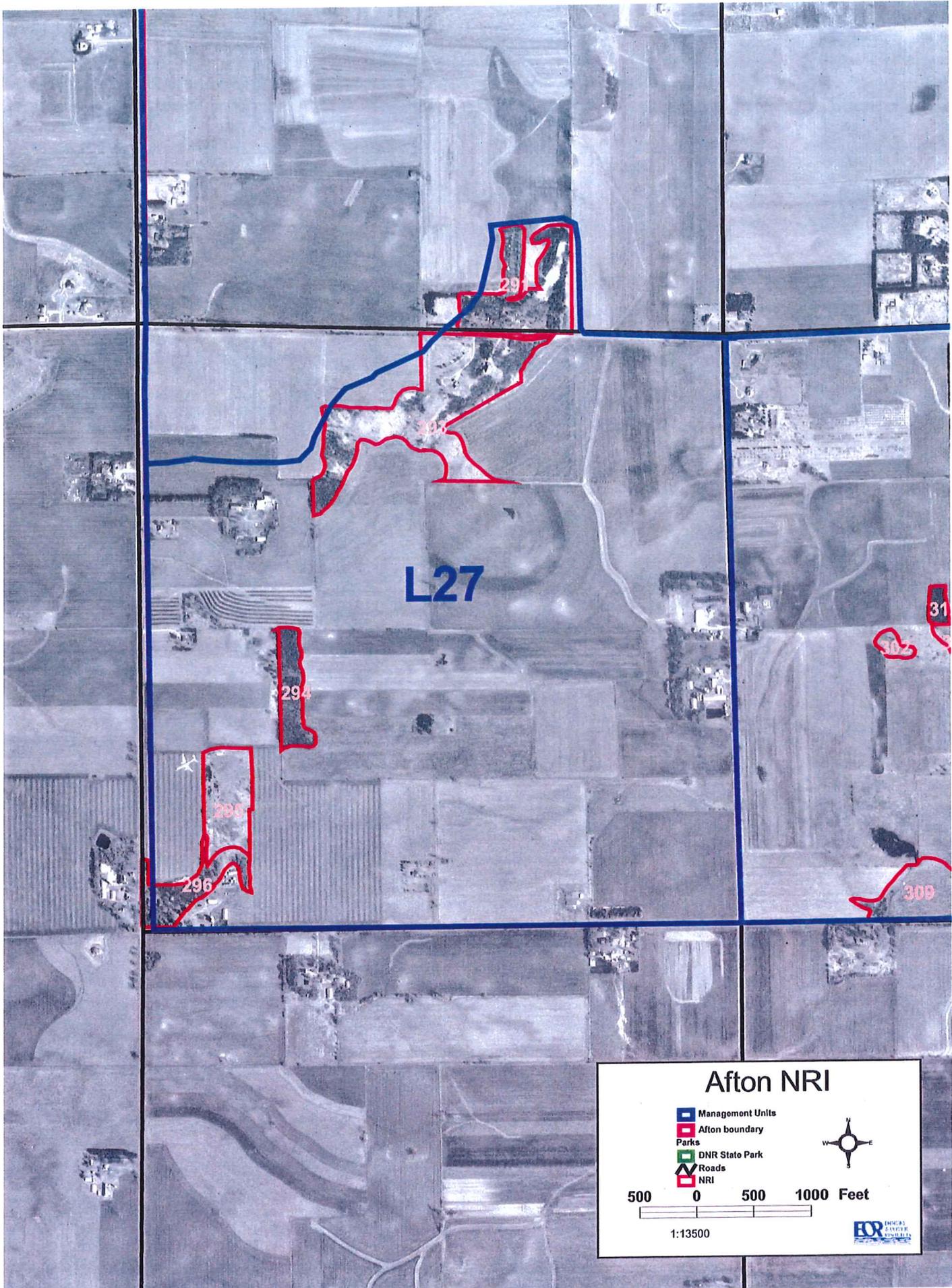
#### **Community 28-28-20-06**

Community 28-28-20-06 is a maple basswood forest dominated by sugar maple, basswood, big-toothed aspen, and bur oak. Other canopy species include black cherry, green ash, and American elm. The tall shrub layer consists of buckthorn, blue beech, sugar maple seedlings, prickly gooseberry, and choke-cherry. The sparse ground cover, which would likely be more diverse if surveyed while spring ephemerals are emerging, includes wild geranium and lady fern.

*Disturbance Indicators:* This community appears to have been grazed based on the presence of “grazing increasers”, such as buckthorn and ironwood. Because of soil compaction and resultant shading from the tall shrub understory, the groundcover is depauperate. This community is assigned a quality ranking of C.

#### **Community 28-28-20-14**

Community 28-28-20-14 is an old field.



L27

### Afton NRI

- Management Units
- Afton boundary
- Parks
- DNR State Park
- Roads
- NRI



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## Landscape Unit #27

Summary Table for Landscape Unit #27

Site ID	Community ID	Community Type	Quality Ranking
291	30282001	Deciduous/Coniferous Plantation	NA
293	31282001	Old Field/Dry Prairie	NA
294	31282002	Conifer Plantation	NA
295	31282003	Old Field	NA
296	31282004	Oak Woodland/Farmstead	NA

### Landscape Unit Rankings

*Ecological Ranking:* Landscape unit #27 is generally dominated by agricultural land and conifer plantations. There are two small forest and woodland areas of moderate quality. The ecological ranking is low.

*Wildlife Habitat Ranking:* The wildlife habitat ranking for this area is low.

*Rare Features Ranking:* There are no rare feature records, nor are they likely to be present. The rare features ranking for this landscape unit is low.

### Stewardship Recommendations

There are no stewardship recommendations for this landscape unit

### Community Description

#### Community 30-28-20-01

Community 30-28-20-01 is a conifer plantation.

#### Community 31-28-20-01

Community 31-28-20-01 is an old field/dry prairie.

#### Community 31-28-20-02

Community 31-28-20-02 is a conifer plantation.

#### Community 31-28-20-03

Community 31-28-20-03 is an old field.

#### Community 31-28-20-04

Community 31-28-20-04 is an oak woodland/farmstead.

## Landscape Unit #28

Summary Table for Landscape Unit #28

Site ID	Community ID	Community Type	Quality Ranking
297	32282001	Old Field	NA
298	32282002	Northern Hardwood Forest	C
299	32282003	Oak Woodland	CD
300	32282004	Northern Hardwood Forest	CD
301	32282005	Aspen Woodland	D
302	32282006	Dry Prairie (Bedrock Bluff Subtype)	C
303	32282007	Conifer Plantation	NA
304	32282008	Brushland	NA
305	32282009	Old Field/Brushland	NA
306	32282010	Oak Savanna/Pasture	NA
307	32282011	Sedge Meadow (Seepage Subtype)	CD
308	32282012	Dry Prairie (Bedrock Bluff Subtype)	C
309	32282013	Old Field/Brushland	NA
310	32282014	Wet Meadow	CD
311	32282015	Deciduous Woodland	NA
322	33282013	Oak Savanna	CD
323	33282014	Wet Meadow	CD

### Landscape Unit Rankings

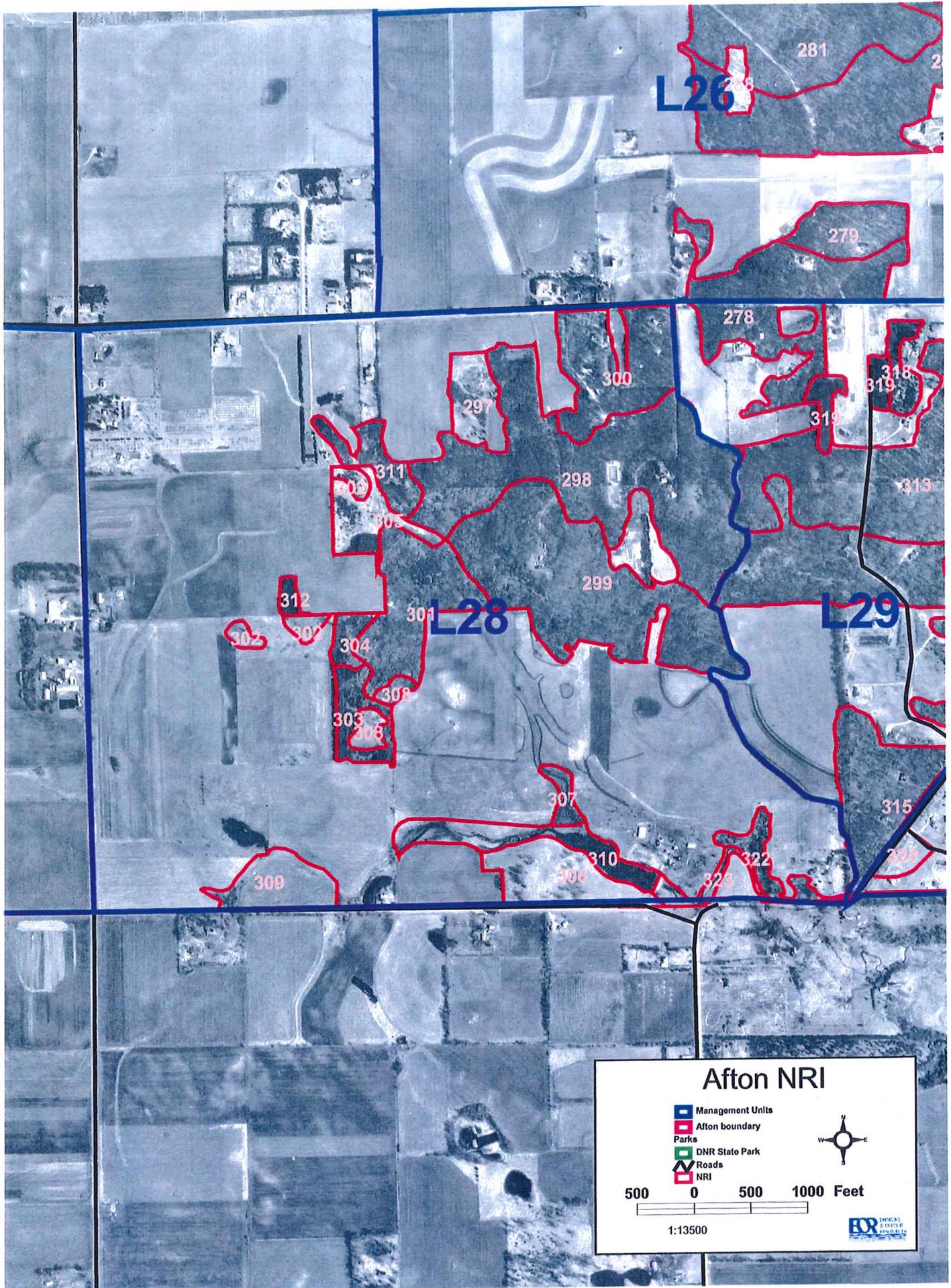
*Ecological Ranking:* Landscape unit #28 includes a large area of contiguous forest and woodland along the headwaters area of Trout Brook. This landscape unit is assigned a moderate ecological ranking.

*Wildlife Habitat Ranking:* This landscape unit includes some areas of interior forest as well as riparian habitat along Trout Brook. This landscape unit is assigned a moderate wildlife habitat ranking.

*Rare Features Ranking:* The DNR Natural Heritage Program has mapped community 32282006 as MCBS Sites #115 and #116, respectively. These sites are mapped as dry oak (bedrock bluff subtype). There is also a record for long-bearded hawkweed (*Hieracium longipilum*), a species that is thought to be threatened in Minnesota.

### Stewardship Recommendations

1. Several prairie remnants exist along the western edge of the large woodland/forest area. These prairies (community 32282006) provide an excellent opportunity for restoration. Trees and shrubs should be removed and burned or disposed of off site. Prescribed burns should be conducted to favor warm season grasses and forbs over introduced cool season species such as Kentucky blue grass.
2. The headwaters of Trout Brook contain some scattered areas of moderate quality wetland. Currently, grazing is conducted within the stream, resulting in degradation of riparian wetland communities as well as water quality within the stream itself. Restoring this riparian area and erecting fencing would serve to improve the quality of this stream.





3. Trout Brook, which receives most of its baseflow from groundwater discharge is negatively impacted by the flood control structure and ponding area. It appears that the flood control pond is generally full from spring water discharge, resulting in minimal flood storage capacity. An evaluation of this structure and how effective it is in reducing peak flow rates should therefore be made. Removing this structure may also provide an opportunity to restore wetland communities.
4. In the northern portion of this landscape unit, numerous residential homes are constructed within oak forest and woodland. The resulting disturbance has provided opportunities for invasive species such as buckthorn to dominate. Where possible, landowners should control buckthorn and encourage reestablishment of native trees, shrubs and groundcover species.

## **Community Description**

### **Community 32-28-20-01**

Community 32-28-20-01 is an old field dominated by introduced grasses. This old field is gradually succeeding to shrubs such as prickly ash and smooth sumac.

### **Community 32-28-20-02**

Community 32-28-20-02 is a northern hardwood forest dominated by 50-year-old red oak, with quaking and big-toothed aspen clones distributed throughout the stand. Although oak species are present, this community contains a significant component of quaking and big-tooth aspen along with other hardwood species; therefore, this community is described here as a northern hardwood community. Other trees mixed in the subcanopy include bur oak, hackberry, and black cherry with an average diameter of 14 inches. The patchy shrub layer includes buckthorn, common elder, prickly gooseberry, choke-cherry, wild grape, Virginia creeper along with hackberry, black cherry, and ironwood regeneration. The ground layer is rich with such species as blue cohosh, sweet cicely, yellow avens, interrupted fern, white snake root, pointed-leaved tick-trefoil, Virginia stickseed, and sedges.

*Disturbance Indicators:* There is evidence of past grazing and logging in this community; however, average tree size is good as is overall diversity. This community contains many down and standing snag trees. A quality ranking of C is assigned.

### **Community 32-28-20-03**

Community 32-28-20-03 is an oak woodland dominated by medium to large sized red oak (up to 30 inches in diameter). The sparse subcanopy consists of elm, hackberry, quaking aspen, white oak, and ironwood having an average diameter of 10 to 15 inches. Buckthorn dominates the patchy shrub layer and is accompanied by prickly ash, black cherry, wild raspberry, and prickly gooseberry. Pennsylvania sedge dominates the sparse ground layer along with white snake root, sweet cicely, yellow avens, common pyrola, agrimony, and carrion flower. This community occurs along a west-facing hillslope above the headwaters of Trout Brook.

*Disturbance Indicators:* This community has some grazing and logging history. As with most oak woodlands, buckthorn dominates the shrub layer. There are nice red oaks in the upper canopy however, and there is a moderate diversity of ground cover species. For these reasons, a CD quality ranking is assigned.

### **Community 32-28-20-04**

Community 32-28-20-04 is a northern hardwood forest dominated by 50-year-old red oak, quaking aspen and big-toothed aspen. Other tree species present include 14-inch average diameter bur oak, hackberry, and black cherry. The patchy shrub layer includes much buckthorn, as well as common elder, prickly gooseberry, choke-cherry, wild grape, Virginia creeper along with hackberry, black cherry, and ironwood regeneration. The rich ground layer includes blue cohosh, sweet cicely, yellow avens, interrupted fern, white snake root, pointed-leaved tick-trefoil, Virginia stickseed, and sedges.

*Disturbance Indicators:* This community is essentially the same as community 32-28-20-02 but is more impacted by residential development and other land uses and therefore, is given a slightly lower quality ranking. Residential homes, driveways and trails have resulted in more fragmentation and less undisturbed interior areas than found in 32-28-20-02. Buckthorn is the primary invasive species. The ground layer is fairly rich. A quality ranking of CD is assigned.

#### **Community 32-28-20-05**

Community 32-28-20-05 is an aspen woodland-brushland with a patchy canopy of quaking and big-toothed aspen averaging 10-inches in diameter. Other tree species present include boxelder, American elm, and black cherry. The shrub layer is generally dense and dominated by buckthorn, Tartarian honeysuckle, wild raspberry, and prickly ash. The sparse groundcover consists of carrion flower, yellow avens, sessileleaf bellwort, and sweet scented bedstraw.

*Disturbance Indicators:* It is possible that at one time this community was plowed and cropped. In more recent times, grazing likely occurred and when discontinued, woody species grew in. This community is assigned a D quality ranking.

#### **Community 32-28-20-06**

Community 32-28-20-06 is an unusual dry, bedrock bluff prairie. This community encompasses two humps of a bluffline within areas of disintegrating sandstone bedrock. Downslope from the bedrock outcroppings, the hill slopes are exposed sand with numerous ant hills and pocket gopher mounds. Although, overall, Canada blue grass comprises about 75% of the ground layer, a good diversity of native graminoids is present including triple-awned grass, tumble grass, bent grass, side-oats gramma grass, little bluestem, Indian grass, porcupine grass, prairie dropseed and big bluestem. A fair diversity of herbaceous species is present including common ragweed, pearly everlasting, dotted blazing star, yarrow, aromatic aster, gray goldenrod, spreading dogbane, showy goldenrod, false indigo, common St. John's-wort, and harebell. The shrub layer is sparse and includes some invasive species such as smooth sumac and poison ivy, as well as prairie rose and sand-cherry.

The MNDNR Natural Heritage Program mapped this community as part of MCBS Site #23. Although somewhat degraded, the rock outcrop areas of this oak are unique geologic features and provide interesting landscape features.

*Disturbance Indicators:* During the 1987 DNR MCBS survey, this oak was assigned a quality ranking of C. The description given by DNR ecologists still seems to match the current condition of this oak; therefore, a quality ranking of C is given for this community. This community should be protected and managed to prevent further encroachment by invasive species. Further survey work should be conducted in the spring/summer to better determine species composition and management needs.

#### **Community 32-28-20-07**

Community 32-28-20-07 is a conifer plantation with numerous, small oak openings. The MNDNR Natural Heritage Program mapped this plantation as part of MCBS Site #23, which includes scattered bedrock bluff prairie openings. This plantation appears to be an old pasture that was planted to jack pine and red pine some 30 to 40 years ago. Trees in this plantation average 8 to 10 inches in diameter and vary in density from a semi-open canopy to a closed canopy. Scattered pockets of shrub thickets are present throughout this plantation as are small oak openings.

Other species of trees present in this plantation include red oak, quaking aspen, white pine, and red cedar. Shrub species include choke-cherry, prickly ash, buckthorn, smooth sumac, red oak seedlings, wild rose, Tartarian honeysuckle, and false indigo. Within oak patches, Canada blue grass, Indian grass, little bluestem, and dotted blazing star. The western portion of this plantation is more of a semi-open stand of Jack pine on very dry, sandy soil with a feather moss ground cover and a wild raspberry dominated shrub layer.

*Disturbance Indicators:* This community is not ranked since it is classified here as a conifer plantation. However, this site would make an excellent restoration area for dry, sand-gravel oak.

#### **Community 32-28-20-08**

Community 32-28-20-08 is a brushland dominated by smooth sumac, black berry, wild raspberry, buckthorn, and red cedar. There are very few, small, scattered trees in the canopy, including quaking aspen, black cherry, and red oak. The MNDNR Natural Heritage mapped this site as part of MCBS site 23

#### **Community 32-28-20-09**

Community 32-28-20-09 is a brushland/old field. This area encompasses an old grassed waterway and retention pond/check dam structure that was probably constructed during the 1950's to correct severe erosion. Downstream of the checkdam, what appears to be a constructed grassed waterway drains to the headwaters of Trout Brook to the South. Today, the retention pond/check dam structure is almost completely covered by sediment and vegetation. The groundcover in this area is dominated by smooth brome, sweet cicely, yellow avens, sweet scented bedstraw, wood nettle, and giant goldenrod. The shrub layer includes black berry, buckthorn, wild raspberry, and smooth sumac. A few scattered butternut trees exist throughout the area.

#### **Community 32-28-20-10**

Community 32-28-20-10 is a pastured oak savanna. This pastured area is adjacent to the upper part of Trout Brook and includes widely scattered, large open grown bur oak with an average 15-inch diameter along with several black willows. A widely scattered shrub layer consists of small cottonwood, wild raspberry, quaking aspen, elm, buckthorn, and red cedar. The ground layer consists of diverse mix pasture grasses, weeds and pockets of mesic-wet oak species including chickweed, water dock, showy goldenrod, saw toothed sunflower, giant goldenrod, *Aster sp.*, common mullein, thistle, white clover, dandelion, common burdock, green bulrush, little bluestem, switchgrass, narrow-leaved cattail, Kentucky bluegrass, timothy, and reed canary grass.

#### **Community 32-28-20-11**

Community 32-28-20-11 is a sedge meadow seepage wetland along the headwaters of Trout Brook. This wetland, which occurs at the margins of a flood control impoundment, probably represents a small remnant of the original groundwater-fed wetland that fed Trout Brook. Based on the presence of only perennial flows upstream of this point, it would appear that this wetland provides the primary source of baseflow to Trout Brook. It is unclear whether the flood control

pond downstream provides flood storage to upstream areas of the watershed, since the groundwater feeding into this pond may keep it near capacity most of the time. This would result in most storm flow moving quickly through the pond rather than filling it up as was probably intended.

Common grass and forbs species within the sedge meadow include: *Care bobbin*, saw-beak sedge, tussock sedge, rice cut grass, green bulrush, timothy, switch grass, aster, wood nettle, blue overlain, water dock, duckweed, and purple-leaved willow-herb.

*Disturbance Indicators:* The primary disturbance to this wetland is hydrologic alterations. The flood control structure downstream has raised water levels, inundating portions of this wetland. Grazing is currently taking place in this wetland. This community is assigned a quality ranking of CD.

#### **Community 32-28-20-12**

Community 32-28-20-12 is moderate quality dry, bedrock bluff prairie on dolomite hilltops. According to surveys conducted by the DNR MCBS in 1971, this oak, which was referred to as the "Nelson Oak", was considered one of the better prairies in Washington County. During subsequent surveys by the DNR in 1987, the oak was found to still be intact, but woody encroachment was noted as being severe. At this time, a quality ranking of C was assigned.

During our survey, this oak was confirmed to be of moderate quality with severe woody encroachment. Much of the oak was overgrown with smooth sumac and introduced grasses. Dominant grasses include Kentucky bluegrass, Canada bluegrass, June grass, big and little bluestem and side-oats gramma grass. Common herbs include gray goldenrod, dotted blazing star, oak violet, showy goldenrod, heath aster, sky-blue aster, stiff coreopsis, three-toothed cinquefoil and thimbleweed. Shrub species present included sand-cherry, wild raspberry, and buckthorn and smooth sumac.

*Disturbance Indicators:* This oak should be resurveyed to better determine current condition. The C quality ranking is retained.

#### **Community 32-28-20-13**

Community 32-28-20-13 is an old field succeeding to brushland.

#### **Community 32-28-20-14**

Community 32-28-20-14 is a wet meadow along Trout Brook. This riparian corridor appears to be a restored buffer zone. The creek channel itself is mostly dominated by reed canary grass and narrow-leaved cattail. However, a high diversity of ground layer species exists in this meadow, including chickweed, water dock, showy goldenrod, saw toothed sunflower, giant goldenrod, aster, common mullein, thistle, white clover, dandelion, common burdock, green bulrush, little bluestem, and switchgrass. Scattered woody species include some black willows, and some shrubby patches of young cottonwood, wild raspberry, and quaking aspen. Above the farm driveway, a weir/control structure has been constructed, created an open water pond.

*Disturbance Indicators:* This community exists just north of 60<sup>th</sup> Street and south of pasture land. Although invasive species such as reed canary grass and narrow-leaved cattail choke the creek channel, the surrounding wet meadow may maintain its herbaceous diversity if grazing continues to be restricted by the fencing. It appears that a flood control structure was placed within this wetland sometime ago. Although this structure probably provides for rate control to downstream reaches of Trout Brook, the pond that has formed behind the structure has inundated what was

once a wet meadow/sedge meadow wetland. In addition, the water discharged out of this pond is warmed, resulting in thermal impacts to downstream reaches of Trout Brook. For these reasons a CD quality ranking is assigned. This area should be managed to keep grazing out of the wet meadow.

#### **Community 33-28-20-15**

Community 33-28-20-15 is an old farmstead dominated by boxelder and old field vegetation succeeding to shrubs.

#### **Community 33-28-20-13**

This community is located just north of 60<sup>th</sup> Street along a steep, Southwest-facing hillside along upper Trout Brook. The section of Trout Brook bordering this oak savanna appears to have been realigned and stabilized. Following this work, the area bordering Trout Brook appears to have been seeded to a roadside seed mix.

The portion of community 33-28-20-13 along the slope above Trout Brook consists of an oak savanna dominated by widely scattered, open grown bur oak having an average diameter of 20 inches. The bur oaks comprise a canopy cover of approximately 30%. The sparse shrub layer includes American elm, buckthorn, red cedar, and black willow. The ground layer includes Kentucky bluegrass, giant goldenrod, common mullein, white clover, *Aster sp.*, chickweed, showy goldenrod, giant ragweed, and timothy. This community includes several south facing rock outcrops along the hillside facing Trout Brook.

*Disturbance Indicators:* Although the shrub and groundcover is dominated by mostly invasive species, the large open grown bur oaks and rock outcrops create an aesthetically pleasing landscape. This community probably has a long history of grazing and as a result, contains few native species. In spite of the lack of diversity, the proximity of this small savanna to Trout Brook and to 60<sup>th</sup> Street, would make an interesting restoration site. A quality ranking of CD is assigned.

#### **Community 33-28-20-14**

Community 33-28-20-14 is a wet meadow bordering Trout Brook between the flood control structure and 60<sup>th</sup> Street. This riparian corridor appears to have been restored recently and is fenced off from the adjacent pasture. The creek channel itself is mostly dominated by reed canary grass and narrow-leaved cattail. However, a high diversity of native and introduced grasses and forbs is present in the ground cover including: chickweed, water dock, showy goldenrod, saw toothed sunflower, giant goldenrod, *Aster sp.*, common mullein, Canada thistle, white clover, dandelion, common burdock, green bulrush, little bluestem and switchgrass. Scattered woody species include some black willows, and some shrubby patches of young cottonwood, wild raspberry, and quaking aspen.

*Disturbance Indicators:* As with portions of the oak savanna described in community 33-28-20-13, many of the species present suggest that this area was seeded following restoration work. Regular mowing and/or burning could encourage some of the native species while discouraging exotics. This community is assigned a quality ranking of CD.

## Landscape Unit #29

Summary Table for Landscape Unit #29

Site ID	Community ID	Community Type	Quality Ranking
278	28282003	Mesic Oak Forest	CD
313	33282001	Mesic Oak Forest	C
314	33282002	Mesic Oak Forest	C
315	33282003	Mesic Oak Forest	D
318	33282006	Deciduous Forest	NA
319	33282007	Conifer Plantation	NA

### Landscape Unit Rankings

*Ecological Ranking:* Like landscape unit #28 to the west, landscape unit 29 contains a large, contiguous tract of forest and woodland. The moderate quality of this large forest area gives this landscape unit a moderate ecological ranking.

*Wildlife Habitat Ranking:* This landscape unit provides good quality habitat for species associated with mature, mesic oak forest. Trees within this mesic oak forest are on average, large and contain numerous cavities for cavity-nesting wildlife. During our survey, deer and turkey were plentiful in this area. A moderate wildlife habitat ranking is assigned.

*Rare Features Ranking:* There are no rare features documented in this landscape unit. The potential is good; however, for rare species to exist. A moderate rare features ranking is assigned.

### Stewardship Recommendations

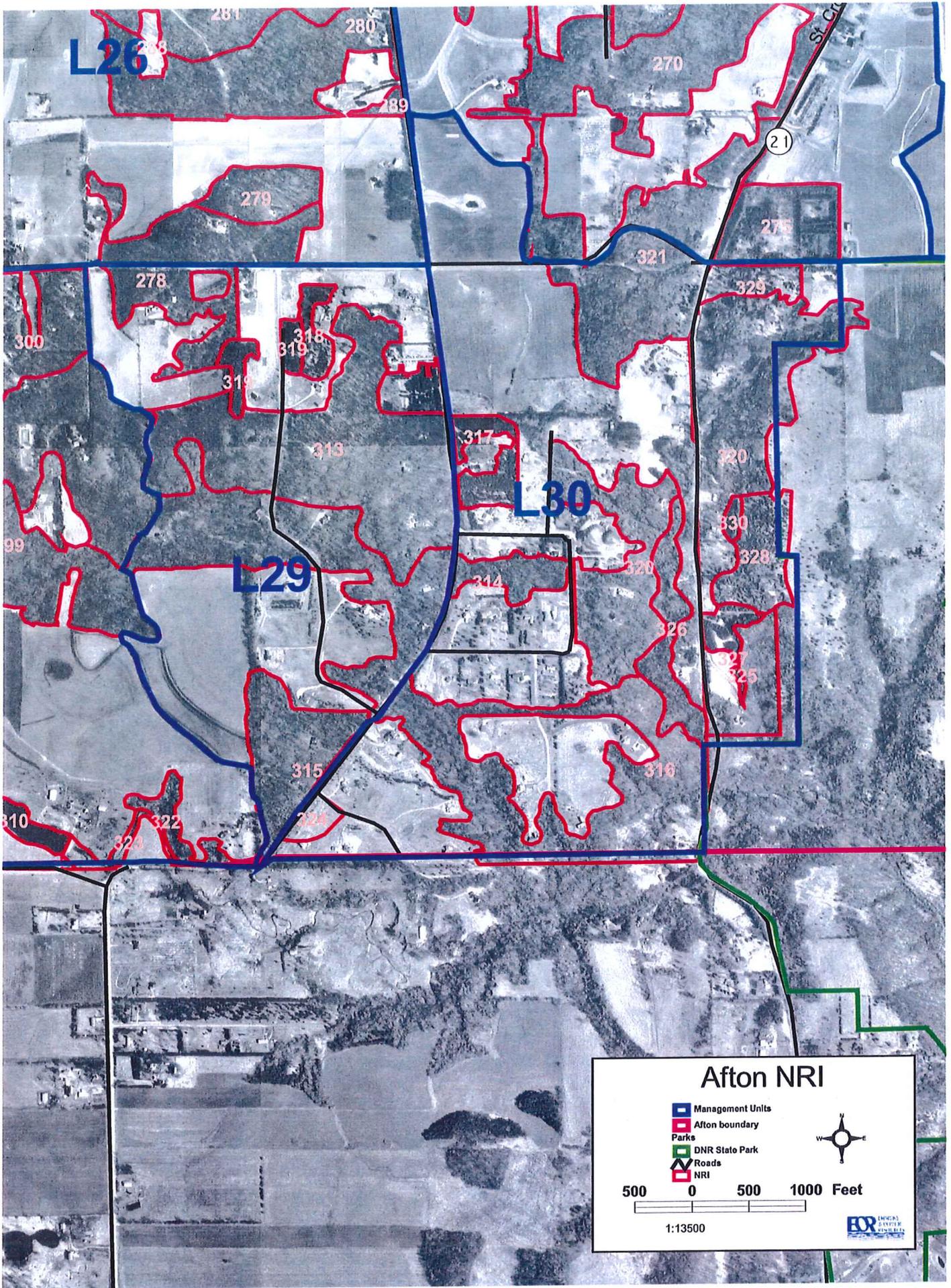
1. Several areas within this landscape area contain good quality mesic oak forest, worthy of protection and on-going management efforts. This area would be well suited to bringing together a group of landowners to discuss common natural resource management issues and strategies. Several options exist including Forest Stewardship Plans and Neighborhood Wilds, both programs currently administered by the MN DNR.

### Community Description

#### Community 28-28-20-03

Community 28-28-20-03 is a mesic oak forest dominated by large white and red oaks, averaging over 12 inches in diameter. This community is situated on a west-facing slope. On the upper portions of the slope, the canopy is dominated by oak species, while near the bottom of the slope, it grades into a more open lowland hardwood forest as described for community 28-28-20-01.

In addition to the oaks, the canopy contains black ash, red maple, sugar maple, hackberry, box elder, basswood, trembling aspen, pin oak and American elm. The shrub layer is dominated by buckthorn, prickly ash, prickly gooseberry, choke-cherry, red elm and black cherry/red maple regeneration. The ground cover, which was surveyed during October contained lady fern and Virginia waterleaf. Although additional groundcover flora is likely present, the density of shrubs would probably limit species diversity.



### Afton NRI

- Management Units
- Afton boundary
- Parks
- DNR State Park
- Roads
- NRI



500 0 500 1000 Feet

1:13500





*Disturbance Indicators:* This shrub layer in this community is generally dominated by buckthorn and other “armed shrubs”, suggesting a history of grazing. The quality ranking for this community is CD.

#### **Community 33-28-20-01**

Community 33-28-20-01 is a mesic oak forest dominated by red oak, white oak big-toothed aspen. A 15-inch red oak was estimated to be over 80 years old, based on a tree ring count of 78. Other tree species present include: butternut, red maple and American elm. Species noted in the shrub layer include: gray dogwood, buckthorn, raspberry, blackberry, smooth sumac and black cherry and red oak regeneration. The generally sparse ground layer includes rich, mesic forest species such as Jack in the pulpit, sweet cicely, false Solomon's seal, wild geranium, white snakeroot, purple-leaved willow-herb, lady fern, and yellow avens. This community provides high quality wildlife habitat due to its nice mix of oak and aspen.

*Disturbance Indicators:* The MNDNR Natural Heritage Program surveyed and mapped this oak forest as part of MCBS Site #22 in 1987. This community was eliminated from the Natural Heritage database due to grazing history. This oak forest has fairly large diameter oak trees and no recent disturbance. While the shrub layer does contain buckthorn, it is not dominant throughout. A quality ranking of C is assigned.

#### **Community 33-28-20-02**

Community 33-28-20-02 is a mesic oak forest dominated by very large, old red oak, red maple, and basswood. This community encompasses one of the more mature oak forests in the city, with many of the trees approaching old growth status. One red oak with a 30-inch diameter was estimated to have 161 growth rings, indicating an age of approximately 166 years. Other tree species present include boxelder, black cherry, white oak, big-toothed aspen, and American elm. The shrub layer is dominated by buckthorn, prickly gooseberry and Virginia creeper. The ground cover is very rich and includes such species as maidenhair fern, sweet cicely, lady fern, yellow avens, greenbrier, black snakeroot, white snakeroot, sweet scented bedstraw, spikenard, largeflower bellwort, and wild geranium. This community contains numerous dead and down snags providing excellent wildlife habitat. Where trees have recently fallen down, canopy gaps help to create a diverse range of microhabitats favorable to a diverse mix of forest herbs. The "old growth" status of this community, along with its floristic diversity and presence of dead and downed snags creates a high quality wildlife habitat. The MNDNR Natural Heritage Program has this area mapped as oak forest, and once mapped as being MCBS Site #22 but eliminated it due to grazing history.

*Disturbance Indicators:* This community contains pockets of wind throw and old wilt damage as well as areas of fragmentation from roads and home sites. The quality of this oak forest is somewhat variable with some areas west of Trading Post Road approaching a B to BC quality. Most of this community; however is of somewhat lower quality due to invasive shrubs and fragmentation. The quality ranking for this community is C.

#### **Community 33-28-20-03**

Community 33-28-20-03 a mesic oak forest dominated by red oak, pin oak, red maple, and quaking aspen. Other species in the subcanopy include American elm and bur oak. Buckthorn and hardwood seedlings dominate the moderate to dense shrub layer, along with young aspen and poison ivy. The sparse ground layer is dominated by buckthorn seedlings, and includes some pointed-leaved tick-trefoil, greenbrier, and Canada mayflower.

*Disturbance Indicators:* This site is surrounded on most sides by residential areas and agricultural fields, and appears very compacted with little topsoil, suggesting a grazing history. The aspen are heavily infested with conks, and many are snapped off at 15 to 20 feet in height. Overall diversity in all strata is not high and in general, buckthorn is the dominant shrub and groundcover species. This community is assigned a quality ranking of D.

**Community 33-28-20-06**

Community 33-28-20-06 is a deciduous forest dominated by boxelder. This area appears to be a fallow field now grown over with woody species. Thorny shrubs such as buckthorn, bramble, smooth sumac, Tartarian honeysuckle, boxelder, northern swamp-dogwood, pin cherry, and red cedar are common.

**Community 33-28-20-07**

Community 33-28-20-01 is a conifer plantation dominated by red pine and jack pine that are approximately 40 years old with an average diameter of 8 to 10 inches. A moderate dense shrub layer of Tartarian honeysuckle, buckthorn, black cherry, prickly ash, red-berried elder, and young red oak is also present. The groundcover is mostly needle duff with an occasional wild sarsaparilla.

## Landscape Unit #30

Summary Table for Landscape Unit #30

Site ID	Community ID	Community Type	Quality Ranking
314	33282002	Mesic Oak Forest	C
316	33282004	Mesic Oak Forest	C
317	33282005	Conifer Plantation	NA
320	33282010	Lowland Hardwood Forest	D
321	33282012	Mesic Oak Forest	C
324	33282015	Deciduous Woodland	NA
325	34282001	Oak Woodland	CD
326	34282002	Deciduous Woodland	NA
327	34282003	Conifer Plantation	NA
328	34282004	Juniper/Oak Woodland	NA
329	34282005	Conifer Plantation	NA
330	34282006	Conifer Plantation	NA

### Landscape Unit Rankings

*Ecological Ranking:* Landscape unit #30 generally contains moderate to low quality natural communities that have been subject to considerable fragmentation from roads and residential home construction. This landscape unit is given an ecological ranking of low/moderate.

*Wildlife Habitat Ranking:* This landscape unit provides good habitat for "habitat generalist" species such as white-tail deer and raccoons. This landscape unit is assigned a ranking of moderate.

*Rare Features Ranking:* There are no rare features noted in this landscape unit, nor are they likely to be present. A low rare features ranking is assigned.

### Stewardship Recommendations

1. The ravine and associated hill slopes to the west of St. Croix Trail are severely eroded. The City should evaluate sources of stormwater discharging to this ravine and if possible, provide for rate control to reduce flows within the ravine.

### Community Description

#### Community 33-28-20-02

Community 33-28-20-02 is a mesic oak forest dominated by very large, old red oak, red maple, and basswood. This community encompasses one of the more mature oak forests in the city, with many of the trees approaching old growth status. One red oak with a 30-inch diameter was estimated to have 161 growth rings, indicating an age of approximately 166 years. Other tree species present include boxelder, black cherry, white oak, big-toothed aspen, and American elm. Buckthorn, prickly gooseberry and Virginia creeper dominate the shrub layer. The ground cover is very rich and includes such species as maidenhair fern, sweet cicely, lady fern, yellow avens, greenbrier, black snakeroot, white snakeroot, sweet scented bedstraw, spikenard, largeflower bellwort, and wild geranium. This community contains numerous dead and down snags providing excellent wildlife habitat. Where trees have recently fallen down, canopy gaps help to

create a diverse range of microhabitats favorable to a diverse mix of forest herbs. The "old growth" status of this community, along with its floristic diversity and presence of dead and downed snags creates a high quality wildlife habitat. The MNDNR Natural Heritage Program has this area mapped as oak forest, and once mapped it as being MCBS Site #22 but eliminated it due to grazing history.

*Disturbance Indicators:* This community contains pockets of wind throw and old wilt damage as well as areas of fragmentation from roads and home sites. The quality of this oak forest is somewhat variable with some areas west of Trading Post Road approaching a B to BC quality. Most of this community; however is of somewhat lower quality due to invasive shrubs and fragmentation. The quality ranking for this community is C.

#### **Community 33-28-20-04**

Community 33-28-20-04 is a mesic oak forest dominated by bur oak, red oak, butternut, and bitternut hickory. Most upper canopy species are large, old growth trees with an average diameter of 20 to 20 inches. Subcanopy species include elm, basswood, and tall buckthorn. Large fruiting buckthorn also dominate the shrub layer along with wild raspberry, black cherry, prickly gooseberry, common elder, and Virginia creeper. Maidenhair fern, lady fern, rice cut grass and yellow avens dominate the sparse ground layer.

*Disturbance Indicators:* Primary disturbances include buckthorn and sheet erosion on erodible hill-slopes. In spite of these disturbances, this community is assigned a C quality ranking due to the large, old growth trees and fair forb diversity.

#### **Community 33-28-20-05**

Community 33-28-20-05 is a 25-year old red pine plantation with a needle duff ground cover. Other noted tree species include eastern cottonwood and American elm. Shrub species include buckthorn, smooth sumac, pagoda dogwood, black berry, boxelder, and Virginia creeper. Openings also include herbaceous species such as Canada goldenrod, asters, Common St. John's-wort, gray goldenrod, and white snake root.

#### **Community 33-28-20-10**

Community 33-28-20-10 is located within a ravine running along the west side of St. Croix Trail. This ravine is one of several, intermittent tributaries outletting to Trout Brook. Like many of these tributaries, there is ample evidence that severe erosion once occurred. Examples of erosion include large, sediment plumes within the ravine where sediment deposits cover large areas and are often several feet deep. In other areas, hillslope slumps have occurred. Today, erosion/sedimentation continues to degrade this ravine; although probably not as severe as it once was.

Community 33-28-20-10 is a lowland hardwood forest dominated by basswood, cottonwood, black willow, and paper birch. Some cottonwood trees are up to 20 inches in diameter. The shrub layer is dominated by buckthorn and Tartarian honeysuckle. The sparse ground cover consists of Canada goldenrod, perennial phlox, day lilies, rice cut grass and introduced grasses such as Kentucky bluegrass.

*Disturbance Indicators:* Although some of the trees within this community are impressive, there is little diversity in the shrub or ground layer. Erosion continues to degrade this community as well. A D quality ranking is assigned.

**Community 33-28-20-12**

Community 33-28-20-12 is a mesic oak forest dominated by red, bur, and pin oaks. Trees are generally larger than 10 inches in diameter, with many over 20 inches. This community has a woodland structure, but the subcanopy is now filled in with younger classes of oak, with some big-toothed and quaking aspens. Buckthorn and black cherry regeneration dominates the shrub layer. The ground layer appears depauperate, although more species would likely be noted during a summer survey.

*Disturbance Indicators:* Like other nearby oak forests, this community contains many large-diameter oak trees. The shrub layer is mostly dominated by buckthorn, leaving little opportunity for other shrubs or ground cover species to exist. A resurvey of groundcover flora may be warranted for this community. The quality ranking for this community is C.

**Community 33-28-20-15**

Community 33-28-20-15 is an old farmstead dominated by boxelder and old-field vegetation succeeding to shrubs.

**Community 34-28-20-01**

Community 34-28-20-01 is a mixed oak woodland dominated by large scattered bur oak, with an average diameter of 15 to 20 inches. Pioneer species have filled in the subcanopy, including large (10 to 20 inch diameters) quaking and big-toothed aspen, with red cedar and black cherry having average diameters of 8 inches. Some buckthorn and prickly ash comprise the shrub layer, but have not degraded the area. A sparse ground cover only consisted of wild grape at the time of field survey.

*Disturbance Indicators:* This community is a narrow north to south running strip between a residential area off of St. Croix Trail and open fields of Afton State Park. Therefore it is influenced on both sides by human management regimes. Despite these pressures, the shrub layer does not seem to be invaded by neither buckthorn nor prickly ash. For these reasons we assigned a CD quality ranking.

Most of section 34 is either Afton State Park or has communities extending from adjacent sections 33 (to the west) and section 26 (to the north).

**Community 34-28-20-02**

Community 34-28-20-02 is a deciduous woodland.

**Community 34-28-20-03**

Community 34-28-20-03 is a conifer plantation.

**Community 34-28-20-04**

Community 34-28-20-04 is an old pasture that has succeeded to juniper scrub and oak woodland.

**Community 34-28-20-05**

Community 34-28-20-05 is a conifer plantation.

**Community 34-28-20-06**

Community 34-28-20-06 is a conifer plantation.

