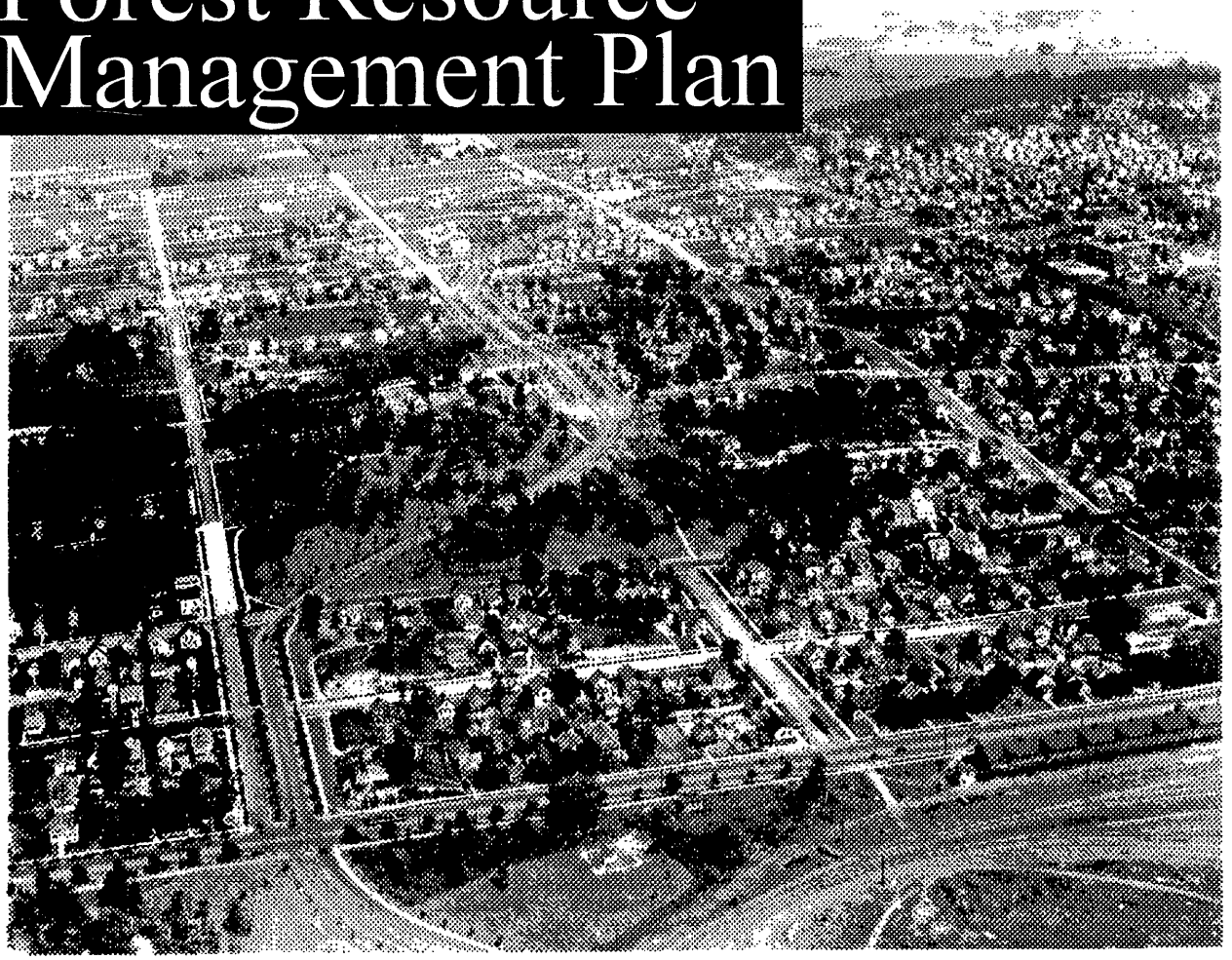
SUMMARY
REPORT
For Public Review

March 1994

Metro Region Forest Resource Management Plan



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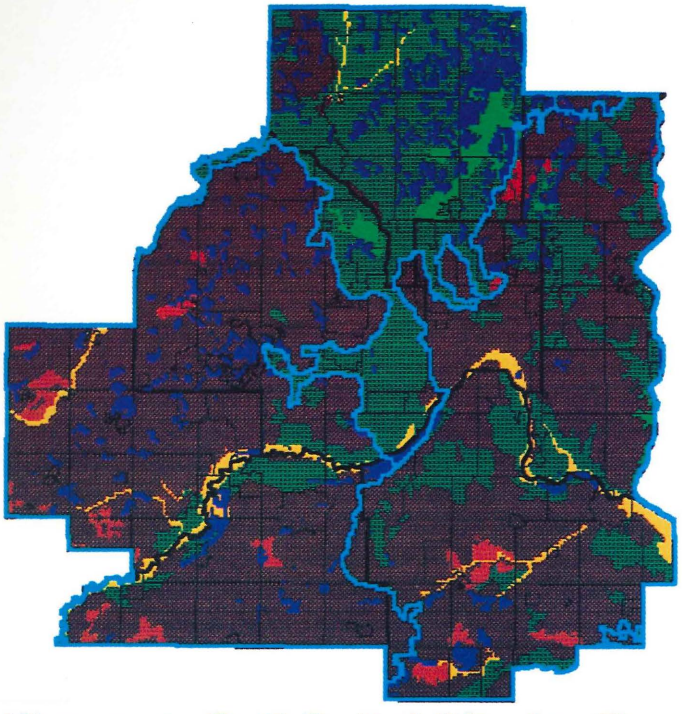
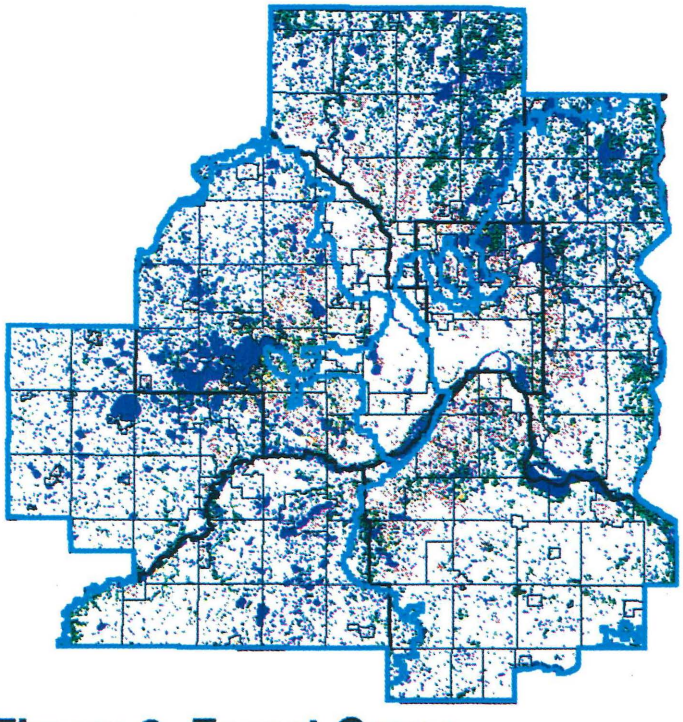


Rich soil with good drainage: Class 1
Rich soil with poor drainage: Class 2
Sandy soil with good drainage: Class 3
Sandy soil with poor drainage: Class 4
Riverbottom soils: Class 5
Not suitable for trees

Source: Modelled from data from Minnesota Soil Atlas, Univ. of Minnesota, Model by DNR FH Unit Staff, October 1992.

Scale: 0 10 20 mi

Figure 1. Soil Suitability for Trees



Conifer
Deciduous
Forested Wetlands
Savanna Forest
Shrublands
Wetlands
Water

Source: 30 meter LandSat image, June, 1988. Image processed by Remote Sensing Lab, University of Minnesota in cooperation with Metropolitan Council. Reclassed by DRN FH Unit.

Note: Urbanized forest areas not included.

Figure 2. Forest Cover

Minnesota Department of Natural Resources
Division of Forestry

Forest Health Unit
Forest Health Information System
February 1994

EXECUTIVE SUMMARY

INTRODUCTION

The *Metro Region Forest Resources Management Plan* provides strategic direction for the management of the urban and rural forests of the Metro Region. The plan was developed by the Minnesota Department of Natural Resources (DNR) Division of Forestry as a tool, in part, to direct Department policies and staffing. However, the immense need for managing the Region's forest resources clearly necessitates that all levels of government, the private sector, non-profits, and citizens cooperate to implement the strategies outlined in the plan.

This plan divides the seven county Region into three distinct geographic landscapes with their own indigenous conditions and management needs: the Anoka Sand Plain, Big Woods, and Oak Savanna. Furthermore, the forests within these landscapes are recognized as being interconnected with other natural resources which need to be managed as whole integrated ecosystems. Thus, the plan emphasizes restoration of natural biological diversity and begins to identify special management areas. These areas contribute significantly to the Region's ecological health and warrant specific management.

The plan consists of four major components: a resource assessment, statements of desired future conditions which collectively portray a vision for the Region, discussion of issues impeding attainment of the desired future conditions, and finally, a list of strategies to achieve those conditions.

RESOURCE ASSESSMENT

The Resource Assessment first evaluates the physical resource of soil, forest, and land use within each of the three major landscapes of the Region. Next, overviews are presented of community forestry and rural forestry programs as they exist across the region.

While most of the Region is still in agricultural use, only about 10% of the Region is undeveloped forestland. Predominately, these are elm-ash-cottonwood complex forests, followed by about half as much oak forests, and small percentages of evergreen plantations. Very small amounts of native maple-basswood forests remain.

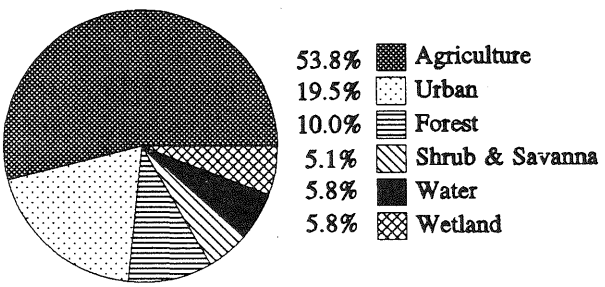


Figure 5 Land cover of the Metro Region.

Developed areas cover about 20% of the Region. Many communities have disease control and reforestation programs with about 50 communities achieving Tree City USA designation. Oak wilt persists as a major source of tree loss in developing communities.

DESIRED FUTURE CONDITIONS

The desired future conditions (DFC's) describe a vision for the Metro Region forests at some point in the future. The DFC's in this plan represent the collective thoughts of all those who were involved in the planning process. The following is an abbreviated synopsis of the DFC's for the Metro Region.

Throughout the Region significant native habitat is preserved, bio-diversity with native species is increased, trees are planted for energy conservation, and wood waste is well used. Diverse urban forests canopy areas of clustered development. Rural forests are well managed for wildlife, aesthetic, and recreational values and protected for their intrinsic values.

ISSUES

Numerous issues are impeding the attainment of the desired future conditions. The plan addresses issues identified by planning process participants including those summarized below.

- ❑ Forest habitats are being lost through residential and commercial development.
- ❑ Planning efforts are too often based on out-dated or incomplete natural resource information.
- ❑ Forest management focuses on individual properties rather than larger landscapes.
- ❑ Planting projects lack species diversity and native plants.
- ❑ Development in woodlands is increasing forest health problems of insect, disease, and wildfire.
- ❑ High land prices and property taxes are disincentives to rural forest preservation.

STRATEGIES

The plan recommends strategies which should be applied throughout the region, within the urban and developing areas, and to rural forests and undeveloped lands (each summarized below). Also, additional strategies are identified for each regional landscape.

Across the Region

Many actions would improve the quality of our natural resources if they were applied on both rural and urban lands across the region. These strategies (summarized below) are essential in achieving and sustaining a healthy regional ecosystem.

- ❑ Support coordinated natural resource inventories.
- ❑ Preserve forestland and other native plant communities.
- ❑ Strengthen environmental education concerning natural resource management.
- ❑ Promote planting of native species.
- ❑ Encourage availability of more native hardwoods through tree nurseries.
- ❑ Provide additional cost share funding for native tree species.
- ❑ Promote a high level of forest health.
- ❑ Use forest products from the Region.

Urban and Developing Areas

The strategies for achieving viable combinations of development and forests emphasize ways to strengthen the role of natural resources in local planning and implementation processes. Key strategies for cities, towns, and developing areas are noted below.

- ❑ Develop natural resource management sections in local comprehensive plans.

- ❑ Provide pro-active interdisciplinary DNR technical assistance to local planning efforts.
- ❑ Create community natural resource advisory boards and strengthen tree advisory boards.
- ❑ Incorporate tree protection measures into land development processes.
- ❑ Promote natural resource ordinances.
- ❑ Seek state legislation providing direction for community forest management.

Rural Forests and Undeveloped Lands

If the few undeveloped private forests in the Region are to be retained, and if reforestation is to occur on rural lands, actions aimed at long term management are essential, including those summarized below.

- ❑ Establish an interdisciplinary task force to prepare an action plan for managing rural forests in the Region.
- ❑ Identify rural forests for long term management.
- ❑ Target technical assistance and cost-share programs for rural forest management.
- ❑ Advocate changes in cost share programs and tax laws to encourage forest retention and management.

CONCLUSIONS

The community and rural forests of the Metro Region, along with the land, water, people, and development, are interrelated parts of larger scale landscapes. Resource management needs to be tailored to local situations, but within the context of broader ecosystems. A goal for the Metro forests is a healthy environment which not only meets current societal and ecological needs, but can be sustained for future generations.

Leadership and cooperation are essential to identify and implement necessary state legislation, local ordinances, education, and assistance programs. By achieving a better understanding of natural resources and ecosystems, and by strengthening the role they play in development, a future of regional prosperity and resource health will be more likely to be attained.

C R E D I T S

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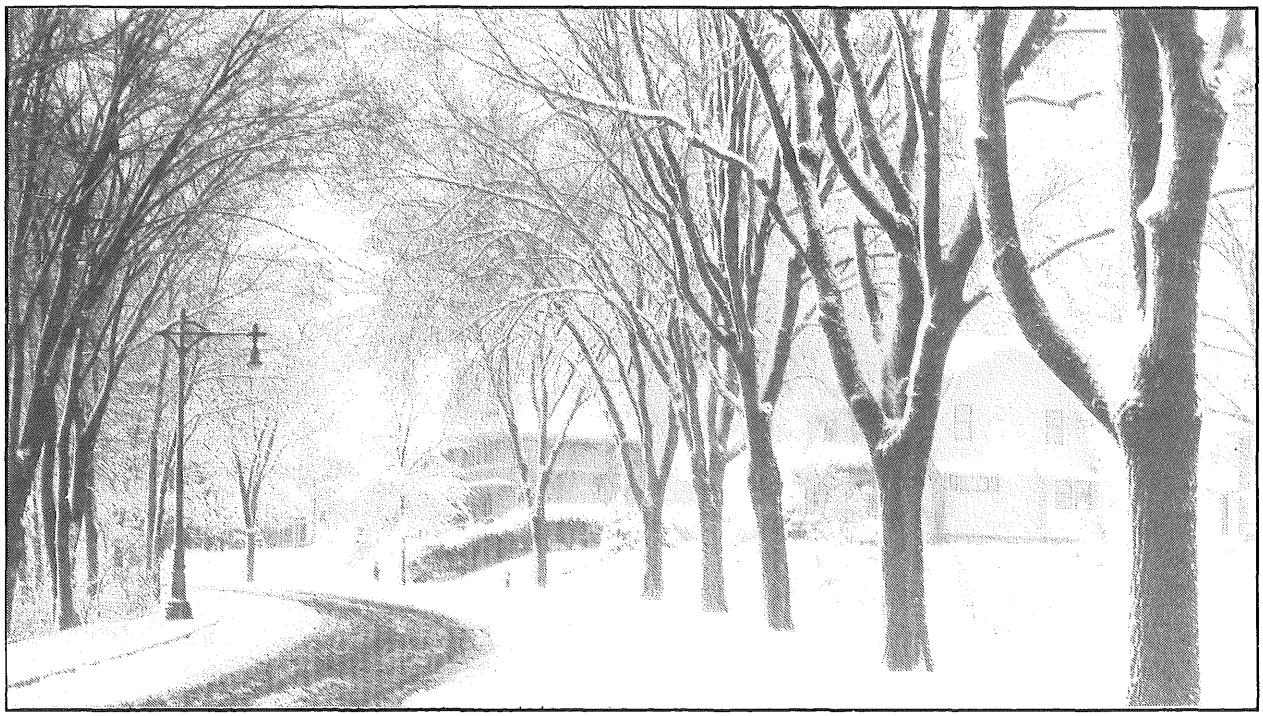


Figure 6 Valuable preserved and planted forests contribute to neighborhood quality.

INTRODUCTION

PURPOSE

The trees of the Twin Cities metropolitan area contribute significantly to the environmental quality and livability of the region. Yet, these urban and rural forests of the Metro Region are threatened not only by disease and insects, but also by development and neglect.

In response, the *Metro Region Forest Resources Management Plan* has been created to provide strategic direction for the management of the urban and rural forests of the seven county Metro Region. The plan was developed through the Minnesota Department of Natural Resources (DNR) Division of Forestry as a tool, in part, to direct Department policies and staffing. However, the immense need for managing the Region's forest resources clearly necessitates that all levels of government, the private sector, non-profits, and citizens cooperate to implement the strategies outlined in the plan.

LANDSCAPE ECOLOGY APPROACH

No longer can resources be managed as isolated tracts of forest or individual trees. Instead, they must be viewed as part of whole ecosystems whose land, water, plant, animal, and human components are functionally intertwined. An ecosystem or landscape ecology approach means that the

management of resources is addressed over larger scale areas, considering longer time frames, and through interdisciplinary and interagency cooperation. Interrelationships and landscape patterns are as important as the parts in creating sustainable ecosystems.

The most basic pattern in any region is that of the land itself. The Metro Region has three distinct geographic landscapes with their own indigenous conditions and management needs: the Anoka Sand Plain, Big Woods, and Oak Savanna.

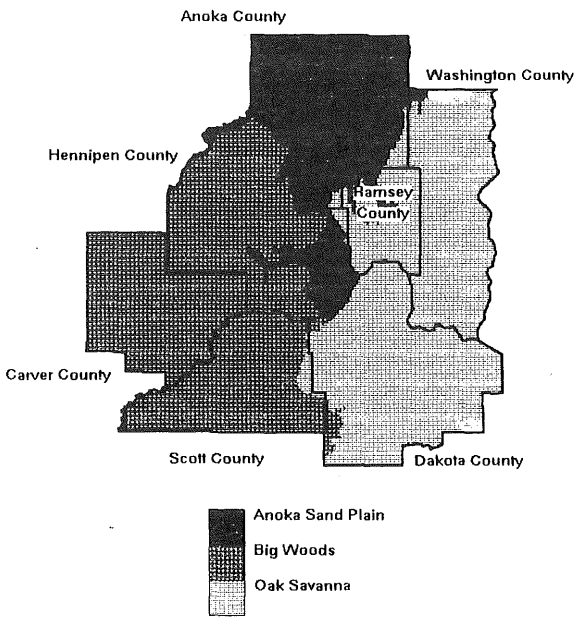


Figure 7 Landscapes of the Metro Region.

The forests within these landscapes are interconnected with other natural resources which need to be managed as whole integrated ecosystems. Thus, the plan emphasizes restoration of natural biological diversity and begins to identify special management areas. These areas contribute significantly to the Region's ecological health and warrant specific management approaches.

PLANNING AND IMPLEMENTATION PROCESS

The statewide *Minnesota Forest Resources Plan*, originally completed in 1983 and updated in 1991, provides the statewide policy framework within which other plans function. Since 1983, the Division of Forestry has also been developing comprehensive Area and, more recently, Region Forest Management Plans. This is one of the forest resource management plans being developed for each of the six DNR regions. The Metro Region consists of the seven-county metropolitan area of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington Counties.

This plan was produced with the assistance of Interdisciplinary Teams created for each of the three regional landscapes. The teams were composed of local citizens, city foresters, and staff from various DNR divisions, county park departments, USDA Forest Service, Minnesota Extension Service, and SWCDs.

The *Summary Report* has undergone internal DNR review and is now offered to the public for comment. Appropriate changes will be made to the plan, which will be submitted to the Commissioner of Natural Resources for final approval. In addition, elements of this plan will eventually be incorporated into a more comprehensive natural resource planning process for the Metro Region that is about to be developed.

ORGANIZATION OF THIS PLAN

This plan consists of a resource assessment, statements of desired future conditions, discussion of issues impeding their attainment, and finally, a list of strategies to achieve those conditions.

RESOURCE ASSESSMENT

INTRODUCTION

This plan is based upon an assessment of the region's forest resources and the factors which affect them as well as the way they affect their environment. The Resource Assessment first evaluates the soil, forest, and land use within each of the three major landscapes which comprise the Metro Region. Then, overviews are presented of community forestry and rural forestry programs as they exist across the region.

SPECIAL MANAGEMENT AREAS

Some locations warrant distinct attention because of the invaluable role they play in the ecological health of the Region.

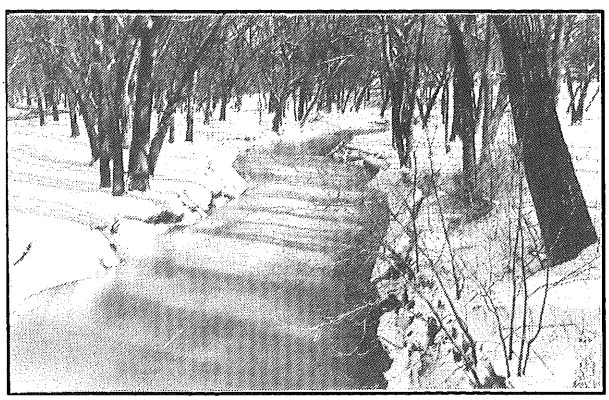


Figure 8 Special Management Areas, such as this forested stream corridor, are critical wildlife habitat.

These "Special Management Areas" consist of 1) public land areas of ecological importance and related management buffers, 2) site specific natural or ecological features not in public ownership and 3) river and stream corridors that act as overall landscape linkages facilitating movement of wildlife through the landscape and helping assure genetic diversity.

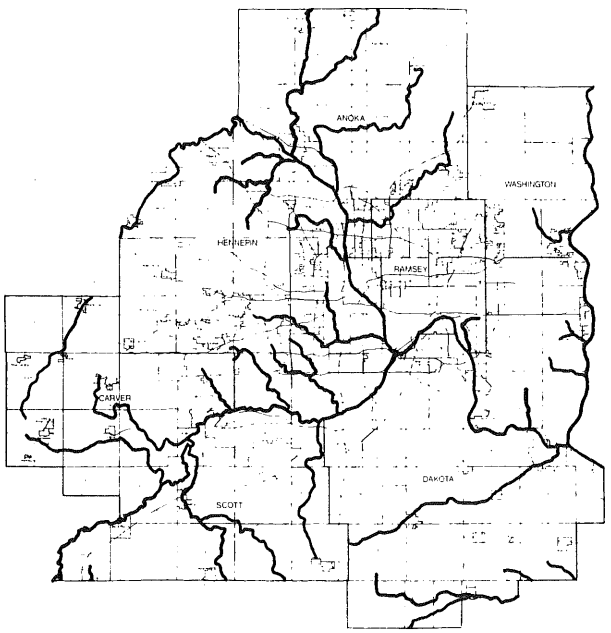


Figure 9 River and stream corridors in the Metro Region.

This plan identifies some of the Special Management Areas within each landscape based upon the Minnesota County Biological Survey of sensitive natural habitats and rare plant and animal species. However, a more complete inventory and strategic plan for these lands is needed which reflects their highly variable management and protection needs.

DEFINITIONS

Commercial Grade Forest

Forest lands throughout the country are inventoried as to the type, size and condition of trees suitable for harvesting as timber. A limited number of Metro Region forests (called "commercial grade forests" in this plan) were evaluated in the 1977 Forest Inventory Assessment. The assessment estimated the amount of each forest type (oak, elm-ash-cottonwood, pine and maple-basswood) which are of a size and species suitable for commercial wood use, regardless of their existing or proposed use. While few forests in the Metro Region are likely to be harvested, this information is a useful indication of the relative amount of stands with larger trees.

Cultivar

Plants of any one cultivar have been reproduced so they are genetically identical. This results in predictable plant characteristics (such as foliage color, branching habit, and form), but also places the trees at risk if too many of these identical trees are planted in a community. Examples of cultivars are the Greenspire linden, a cultivar of the European littleleaf linden, and the Northwoods maple, a cultivar of red maple which originally grew in northern Minnesota.

Exotic or Introduced Species

Any plant or animal that did not naturally grow in a location, but which lives there now, is an introduced or exotic species. The introduction of species to ecosystems that have evolved without that particular species sometimes produces serious problems. This is true with invasive exotics (such as buckthorn, alder-buckthorn, and Siberian elm) which aggressively replace more diverse natives. Some other introduced species (such as Colorado spruce and eastern pin oak) tend to have health problems from poor adaptation to local site conditions.

Hazard Tree

A tree with a mechanical defect that is likely to cause tree or tree part failure is a "hazard tree". To legally become a hazard, a tree must also have a target that might be hit if the tree failed. Targets can be people, places where people congregate, or property. Hazard trees need to be treated. Trees without targets are not considered hazards even if they are likely to fail. In the interest of habitat protection, trees away from homes, streets, people, etc. can be left untreated.

Landscape

This term is used in two ways in this plan. Primarily it refers to the three large geographic areas shown in Figure 6. These regional landscapes were delineated by the DNR's Ecological Classification System (ECS) and are synonymous with the land areas the ECS calls "subsections". The term "landscape" is also used in a more generic sense to refer to any larger area of land including all its development and natural features.

Metropolitan Urban Service Area (MUSA)

Lands within the Metropolitan Urban Service Area have been designated by the Metropolitan Council as appropriate for urban development requiring sanitary sewers. Communities must wait to develop land outside the MUSA line or they may permit larger lot development using septic systems. Within the MUSA are the central cities, first ring suburbs, substantial portions of other urbanizing suburbs, as well as larger freestanding cities (such as Waconia, Jordan, Hastings, and Forest Lake).

Natural Area Open Space

Areas retained in their natural condition (such as areas of native forest, savannah, prairie, and wetlands) are considered "natural area open space". These are not always the same as more generic "open space" which includes "recreation open space" such as ball fields, golf courses, and playgrounds.

Native Species

Any plant or animal that naturally evolved in an area is "native" to that landscape. In the Metro Region, native trees are primarily species indigenous to oak forests and savannahs, big woods (deciduous hardwoods), and floodplains.

Savanna (also spelled Savannah)

This term is used in three distinct ways in this plan. "Oak Savanna" is one of three regional landscapes whose boundary is shown in Figures 6 and 18. "Oak Savanna" also refers to a particular native plant community composed of prairie grasses, forbs and scattered trees such as bur oak. "Savanna Forest" as shown in Figure 2 denotes lands which are predominately scattered trees and grass including suburban residential yards, cemeteries, golf courses and parks with mowed turf and trees as well as isolated remnants of native oak savanna plant communities.

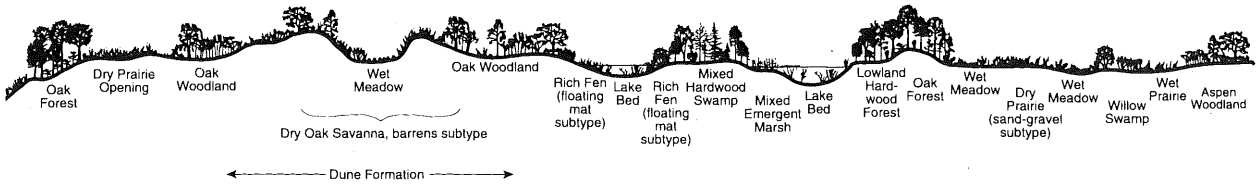


Figure 10 Typical transect of the Anoka Sand Plain landscape.

Resource Assessment for the Regional Landscapes

ANOKA SAND PLAIN

Its Origins and Soils

During prehistoric times, an extensive glacial lake and the forerunner of the Mississippi River left a relatively flat and sandy plain. Over time, the droughty uplands were covered with prairie grasses and scattered short bur oak and northern pin oak interspersed with bands of floodplain forest, brush, and wetlands.

The name Anoka Sand Plain has been historically used to refer to lands along the Mississippi River from Anoka north through St. Cloud. In the Metro Region, the Sand Plain landscape consists of nearly all of Anoka County, but it also includes significant portions of eastern Hennepin County and northwestern Ramsey County. Within the Metro Region, the major contiguous part of the Anoka Sand Plain consists of Anoka County and the Brooklyn Park area across the Mississippi River. The southern thumb-like extension of the Sand Plain includes most of the cities of Minneapolis, Richfield, Bloomington, St. Louis Park, and Hopkins.

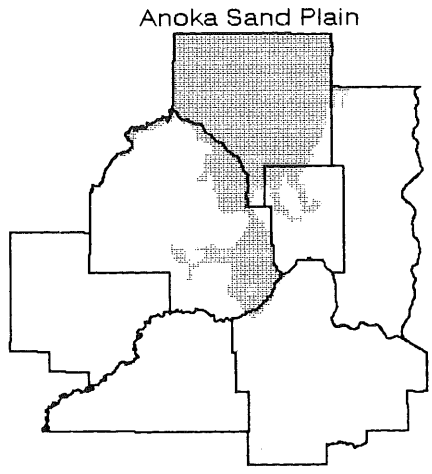


Figure 11 Extent of the Anoka Sand Plan in the Metro Region.

True to its name, the Anoka Sand Plain is largely made up of sandy soils (72.5%) (see Figure 1 inside the front cover). Where ground water lies close to the surface, overly moist soils also are common, particularly in the northeastern parts of the landscape. Since sand has a poor water and nutrient holding capacity and local conditions are either too dry or too wet, most soils in the Anoka Sand Plain tend to limit tree growth and species selection.

Land Use and Forest Cover

The Anoka Sand Plain is currently the most developed and most densely populated of the three landscapes in the Metro Region. As of 1988, approximately 30% of the land was already urbanized. Only 13.7% of the area was still in undeveloped forest cover (see Figures 2 and 12). Open water and wetlands comprised about 11.5% of the land area.

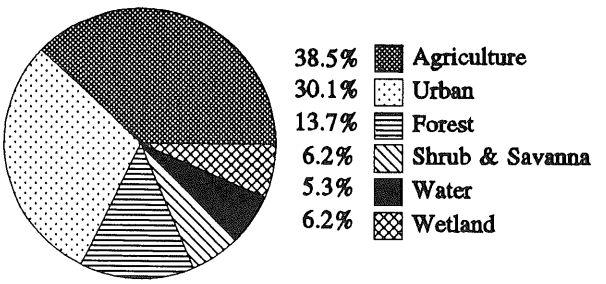


Figure 12 Land Cover in the Anoka Sand Plain.

According to the 1977 federal-state Forest Inventory Assessment, the Anoka Sand Plain contained the greatest amounts of commercial grade forests in the region (21%), consisting primarily of oak (11%), elm/ash/cottonwood complex forests (9%), and limited amounts of pine and spruce/fir plantations and maple/basswood forests.

In addition, the southern thumb of the Anoka Sand Plain contains the nationally renowned urban forest of Minneapolis. (This type of forest does not appear in the Figure 2 representation of forest cover in less urbanized areas. The *1989 Street Tree Survey of U.S. Cities and Towns* contained an inventory of 20 Minnesota cities including several in the Anoka Sand Plain landscape. That survey indicated that street trees occupied 82% of the spaces available in Minneapolis and of these 22% were American elm. Street trees occupied 53% of the spaces in St. Louis Park including 34% elm.

Significant patches of undeveloped forest also are found in urbanized areas. For example, on 30 upland forest patches sampled within Minneapolis and St. Paul city limits, 43 native and 31 exotic species were found.

Forest Condition

Both the rural and community forests suffer from major health problems aggravated by poor soil conditions. The most serious tree health problem on the Sand Plain is the widespread devastation caused by oak wilt. In the areas with extensive oak forest, oak wilt density varies from approximately 1.5 to 30+ infection centers per square mile. Currently, a state and federally funded oak wilt control program, the Oak Wilt Cooperative Suppression Program, is operating over most of the Sand Plain proper.

Dutch elm disease continues to extract a heavy mortality in many areas. However, aggressive sanitation programs in many cities have limited local loses to less than 5% of the elm population per year.

The numerous conifer plantations throughout the Sand Plain also have faced serious problems due to insect damage caused by overcrowding (lack of proper thinning), periodic drought, and poor soils.

Figure 13 Oak woodlands were common in the Anoka Sand Plain.

Special Management Areas

A comprehensive biological survey which identifies rare flora and fauna and remnant natural communities has been completed for the portions of the Anoka Sand Plain in Ramsey, Washington, and Anoka Counties. Among the significant native plant communities in the Sand Plain are the state-owned Helen Allison Savanna Scientific and Natural Area (SNA), Cedar Creek Natural History Area and Carlos-Avery Wildlife Management Area (WMA).

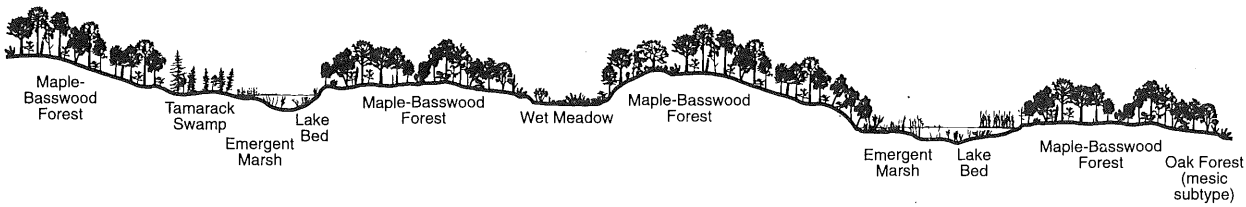


Figure 14 Typical transect of the Big Woods landscape.

BIG WOODS

Its Origins and Soils

The Big Woods landscape consists of a rolling glacial end-moraine whose rich soils supported native oak woodlands and dense maple-basswood forests (the popularly called "Big Woods"). The central third of the Big Woods landscape is within the Metro Region, including all of Carver County, nearly all of Scott County, and most of Hennepin County.

The deep, well drained loam soils covering 78.5% of the Big Woods landscape are the best for supporting plant growth within the Metro Region (see Figure 1). As a result, most of the original vegetation has been cleared for agriculture.

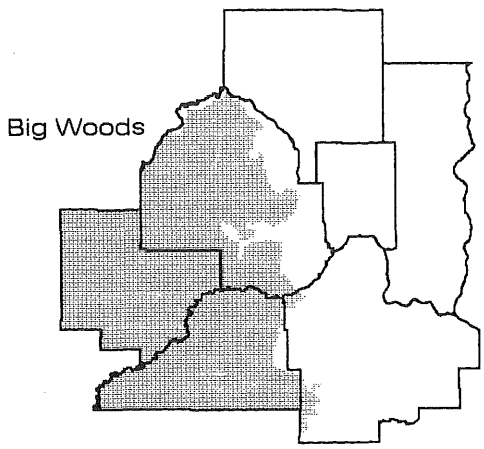


Figure 15 Extent of the Big Woods in the Metro Region.

Land Use and Forest Cover

The Big Woods is the least developed (13.9%), least populated, and least forested (6.9%) of the three landscapes. In 1988, it had the highest proportion of lakes (6.2%) and wetlands (6.9%) making it the wettest of the three landscapes (see Figure 2 and 16). It also contained the highest proportion of agricultural land in the region (62%). Forests here have suffered from both urban sprawl and conversion to agricultural use.

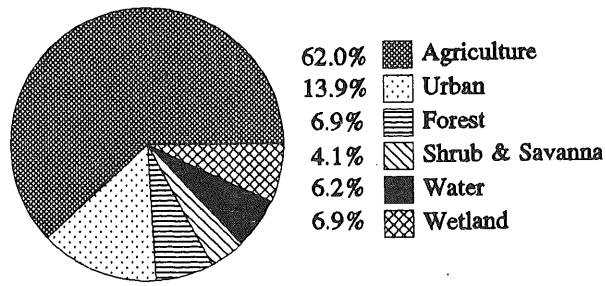


Figure 16 Land cover in the Big Woods landscape.

In 1977, the Big Woods contained the lowest percentage of commercial grade forest of the three landscapes with only 11% of its area in quality forest. Despite its indigenous hardwood forests of sugar maple, basswood and oak, the remaining commercial grade forests are primarily

elm/ash/cottonwood complex forests (8%) followed by oak (3%). Only isolated patches of commercial grade maple/basswood forests remain.

Forest Condition

The forest health in the region is generally good. However, the major threat to the forests of the Big Woods is the continued development of these areas. The only remnants of native forest are scattered and generally old and mature, but they have retained reasonable health due to the good soils of the landscape.

The Big Woods area continues to suffer losses due to Dutch elm disease in urban, rural, and free standing communities. Oak wilt is present in the landscape, but does not present a critical problem due to the more diverse nature of the forest and the landscape's better soils. Free standing communities also face serious problems with hazard trees and due to the overuse of green ash to replace elms and the aging urban forest.

Special Management Areas

Substantial areas have been set aside as park reserves by Hennepin Parks (the county regional park district). Much of these lands are former agricultural lands being restored to native grassland or forest cover. Also, a significant portion of the Minnesota River corridor is designated for inclusion into the Minnesota River Valley National Wildlife Refuge and some remnant tracts of the Big Woods natural community have been incorporated into Scientific and Natural Areas such as the Wolsfeld Woods SNA.

Figure 17 Maple-basswood forests like this predominated in the Big Woods landscape before European settlement.

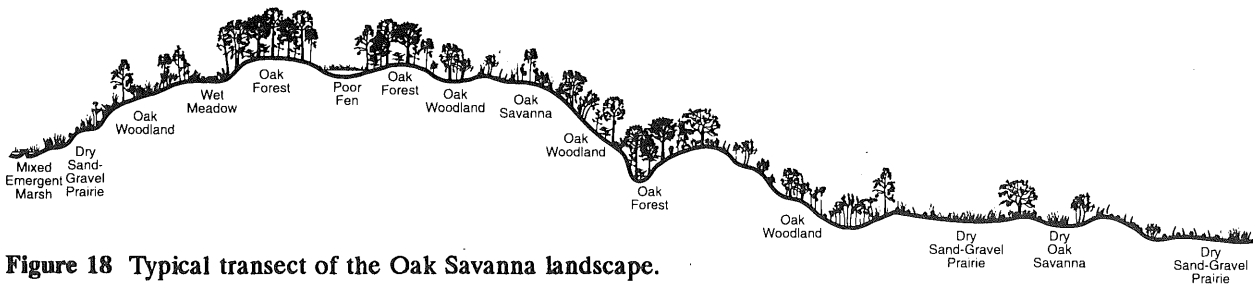


Figure 18 Typical transect of the Oak Savanna landscape.

OAK SAVANNA

Its Origins and Soils

The Oak Savanna landscape extends due south from the northern edge of Washington County to the Iowa border. The vegetation on this rolling plain evolved to be more fire resistant than the Big Woods on the hills to the west. The native landscape was primarily a savanna of bur oak trees scattered above a ground layer of prairie grasses and wildflowers. Maple-basswood forests were restricted to steep ravines and stream edges which offered protection from fire.

Within the Metro Region, the Oak Savanna landscape includes nearly all of Washington and Dakota Counties, all of Ramsey County except two fingers of Sand Plain, as well as small areas within Anoka and Scott Counties.

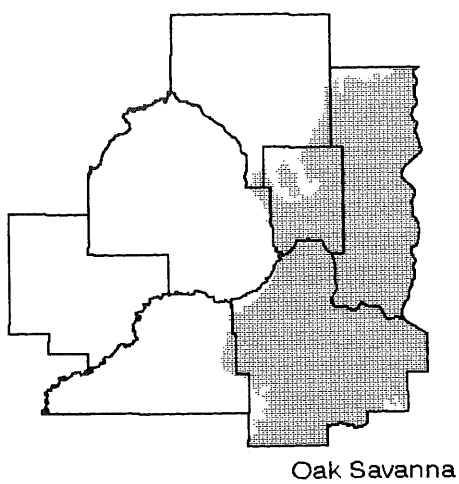


Figure 19 Extent of the Oak Savanna in the Metro Region.

The soils of the Oak Savanna closely parallel the diversity found in the geomorphology. Sands and loams are the most common soils coexisting in approximately equal quantities (see Figure 1). Well drained soils are more common, but poorly drained soils are common enough to add an interesting ecological dimension to the landscape, especially when added to the scattered areas of muck, peat, and alluvial soils.

Land Use and Forest Cover

The Oak Savanna landscape has the most heterogeneous land use and the highest population density in the Region. As of 1988, over 19% of the land was developed, including the city of St. Paul. Development has tended to be concentrated in the sandy soils in the central part of the Oak Savanna landscape. Agriculture lands, concentrated in the southern parts of the landscape, were significant at 54% of the total land area. The forested areas, totaling 11% of the landscape, tended to be in the northern part of the zone (see Figures 2 and 20).

In 1977, the Oak Savanna contained approximately 12% commercial grade

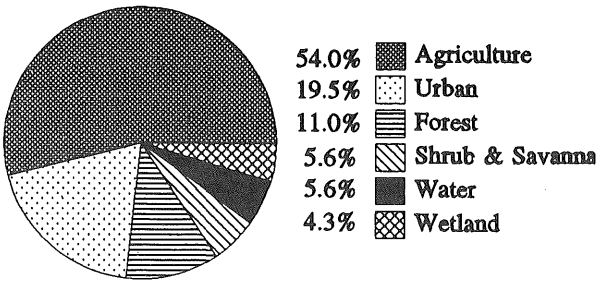


Figure 20 Land Cover in the Oak Savanna landscape.

forest. Nearly all was the elm-ash-cottonwood complex. Despite their historic prevalence, oak of commercial quality comprised less than 1% of the commercial grade forests. A few patches of commercial grade pine plantations and aspen-birch forests also occur.

A study in St. Paul and its northern suburbs found that urban forest cover in 1980 varied from nearly 50% in parks and 30% in single family residential areas to around 5% in commercial and industrial areas. As is true in many areas, community reforestation is tending to use too few species. For example, a 1989 survey found that green ash was the predominant street tree (at 23% to 51%) in each of the cities sampled in the Oak Savanna.

Forest Condition

Continuing development pressure is contributing to a significant oak wilt problem over much of Washington and Dakota Counties where oak and coarse soils abound. While not as common as in Anoka County, oak wilt is a serious problem with some 600 infection centers in Washington County and an additional estimated 500 centers in Dakota County. The presence of sandy soils and pine plantations in this landscape generates a moderate level of concern for bark beetle problems in unthinned stands or during prolonged drought periods.

Control of Dutch elm disease is continuing in most communities although fewer elms remain than in other areas. For example, St. Paul lost over 100,000 elms (79% of their street and park tree population) to Dutch elm disease between 1961 and 1980.

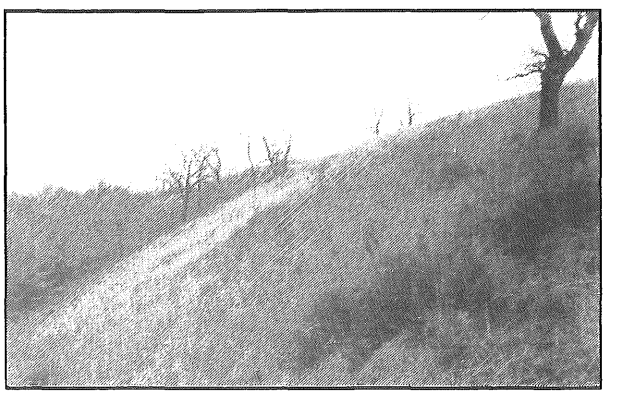


Figure 21 This publicly-owned oak savanna is a preserved and managed remnant in that native landscape.

Special Management Areas

Portions of the Oak Savanna landscape occurring in Washington and Ramsey Counties and some of Dakota County have been surveyed by the Minnesota County Biological Survey and areas of significant natural resources have been identified. Sections of the St. Croix and Mississippi Rivers which traverse the Oak Savanna landscape are in part under the jurisdiction of the National Park Service.

Some significant natural resources are protected as Scientific and Natural Areas, state or county park lands, or private nature reserves. A number of significant natural areas such as the tamarack-dominated Corie Swamp near Forest Lake, also remain in private ownership. Although most of the wetlands and bottomland forest of the Mississippi River are publicly owned, portions of these natural areas within the designated boundaries of the Gores Wildlife Management Area near Hastings are still privately owned.

COMMUNITY FORESTRY PROGRAMS

The status of local community forestry programs in the Metro Region is predominantly a function of the population density, age or stage in development of the community, and its proximity to the urban service area.

Types of Communities

Based on these factors of density, age, and proximity, the metro communities can be categorized as urban, suburban, or free-standing.

Urban communities are those with "high density urban" and "low density urban" populations as shown in Figure 3 (inside the back cover). They are older, nearly fully developed and contained within the urban service area. Lot sizes are smaller, with houses set close to the public streets with distinct boulevard planting strips. As a result, significant publicly-owned street tree populations dominate the urban forest.

How well these trees are managed is usually a function of how high a value the residents and local government place on trees, who (if anyone) is responsible for forest management, and the experience and formal training they possess.

Suburban communities can be considered those with "high density suburban" and "low density suburban" populations (see Figure 3). In contrast to urban communities, these suburbs are newer and undergoing rapid development. Residential lots are larger, with houses set further back from the street. Tree planting along streets is usually at the discretion of homeowners and is, in many cases, prohibited by local ordinance. Public trees are maintained as part of landscaped public buildings and parks. Urban forest management focuses more on tree preservation where woodlands are being developed.

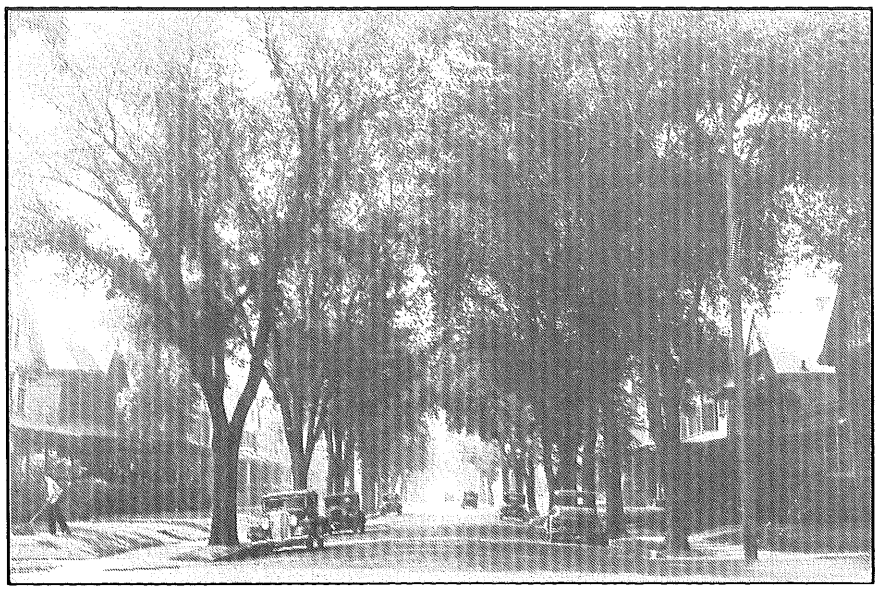


Figure 22 Significant numbers of elms planted over 70 years ago still exist on urban streets.

Free-standing communities can be seen in Figure 3 as small areas of densities higher than the surrounding rural lands. Usually, they are older communities with an agricultural heritage and well-developed downtowns. Now, within commuting range, they are becoming suburbs. Neighborhoods resemble ones in older urban areas, as well as newer subdivisions. Public trees receive minimal maintenance and are usually only "managed" in response to a crisis such as Dutch elm disease or storm damage.

Resource Management

Natural resource management by communities within the Region typically focuses on disease control, reforestation, and tree preservation. Differences in urban forest management approaches between communities are often related to their stage of development as discussed above.

Almost all communities have ordinances governing their trees, however most cover only disease control. Rapidly developing communities are adding provisions for tree and open space preservation. Communities with strong natural resource provisions within their comprehensive land use plans are more likely to practice urban tree management. However, all but a few cities lack the inventories necessary to assess the size, diversity and health of their tree resource.

Many communities employ staff or consulting foresters and have a tree board of citizens or elected officials to oversee tree matters. But, most simply delegate those responsibilities to existing park or street commissions. Too often, the general public fails to recognize that trees increase property values and that community-wide forest management is needed.

Approximately fifty communities in the Metro Region have achieved a Tree City USA designation (see Figure 4 inside the back cover). Each of these communities has met the standards of the National Arbor Day Foundation by having 1) a legally constituted tree board or department, 2) a city tree ordinance, 3) a comprehensive community forestry program supported by a minimum expenditure of $2 per capita, and 4) an annual observance of Arbor Day.

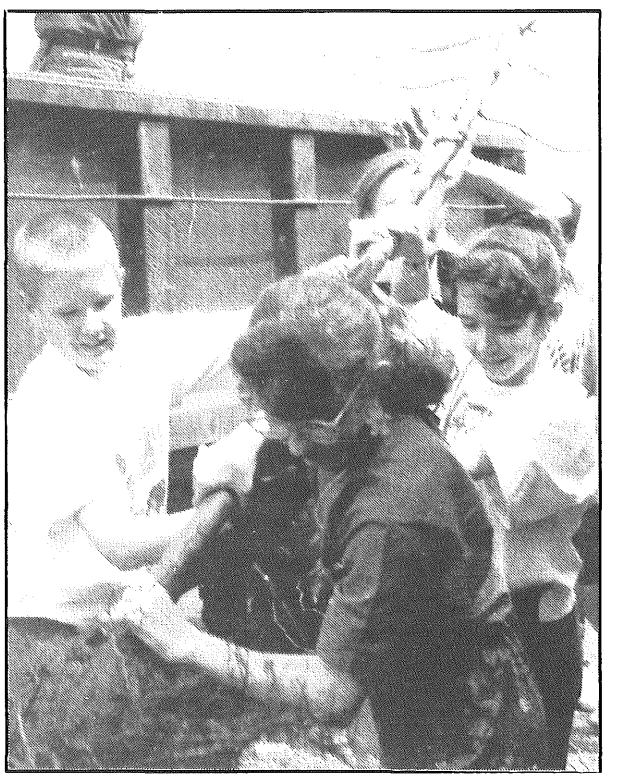


Figure 23 Active youth involvement is critical to the health of the urban forest.

Several significant state and federal programs offer communities technical and financial assistance for tree planting and management activities. Several dozen Metro communities have expanded their reforestation and management efforts with grants from the Small Business Administration, USDA Forest Service, and Minnesota Releaf. Much of this effort is coordinated through the Minnesota Shade Tree Advisory Committee and administered by various state agencies.

RURAL FORESTRY

Scattered development has blurred the distinction between urban and rural areas for many parts of the Metro Region. The Metropolitan Council differentiates between urban and rural areas of the region through demarcation of the Metropolitan Urban Service Area (MUSA) line. However, the urban service area continues to expand as local communities need to meet demands for development. Furthermore, large lot development with onsite septic systems continues to occur on rural agricultural and forest lands throughout the Region. For example, nearly half of the single family residential acreage in Anoka, Carver, Scott, and Washington counties occurs outside the MUSA line.

Incursion of roads and development into the rural woodlands results in forest fragmentation. Not only does this directly destroy forests, but the newly exposed edges of the remaining forest are very vulnerable to environmental damage leading to further degradation.

Consequently, larger tracts of forestland to be retained in the future may well be limited to those that are identified today for long term management and preservation.

Resource Management

Currently, responsibility for rural forests in the Metro Region is spread between 25,400 private landowners, in addition to publicly owned land. Only 28.5% own more than 20 acres, 38.8% own 10 to 20 acres, and 32.7% own less than 10 acres. These ownerships are shown for each regional landscape and for the region as a whole in Figure 24.

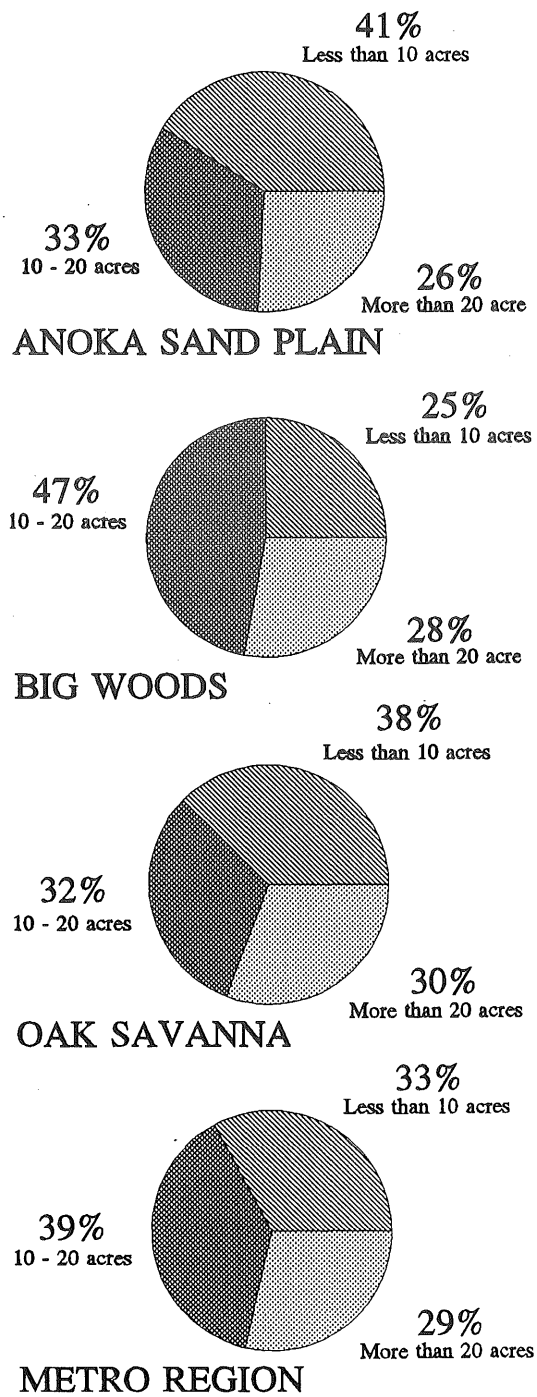


Figure 24 Private rural forest land ownership.

Four factors are affecting the extent and quality of management of rural forests under private ownership: 1) landowner commitment, 2) costs and expertise associated with proper management, 3) property taxes, and 4) local regulations.

First, the level of owner commitment to forest management is as varied as the reasons people own rural land in the Metro Region. Once rural landowners realize the value of forest management, they generally are more receptive to the need for planting, thinning, and other cultural operations. Traditionally, DNR foresters have assisted rural landowners by preparing forest management plans. But, only about 5% of the rural landowners have received this professional assistance and heling them to implement recommended practices. To reach all the people who need assistance, other professionals and consultants are needed.

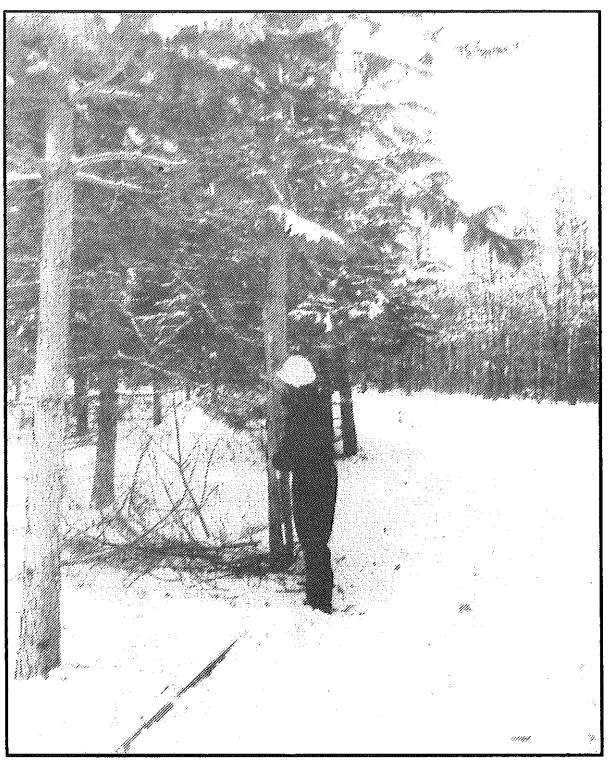


Figure 25 A managed pine plantation is healthier when thinned and pruned.

Second, landowners are often discouraged by the short term expense of thinning and pruning their forests. The lack of markets for forest products in the Metro Region contributes to this problem. Furthermore, too few commercial vendors are responding to the need to plant or thin rural forest stands.

Third, land management decisions are highly influenced by the property taxes. Some opportunities for landowners to decrease their tax liability are dependent upon county adoption of the programs. Counties are reluctant to include lands in these programs because their tax revenues are then reduced. Many rural landowners have been forced to sell wooded lands for development to finance heavy tax burdens. Programs to preserve agricultural cropland and wetlands through reduced taxes do not apply to forest lands.

Fourth, local policies and regulations directly impact management options. For example, regulations intended to prevent the destruction of a wooded area may inadvertently prohibit desirable management actions such as thinning crowded stands to increase forest health. Also, tree disease control ordinances typically apply equally to native forest areas as urban areas, but the differences in techniques and costs are not taken into account.

Finally, forest management may be unnecessarily limited by local ordinances aimed to protect shores, bluffs, and steep slopes. For example, shoreland regulations may prohibit the removal of vegetation. However, professionally guided selective cutting and replacement of trees may actually reduce the need for later disease control cutting by creating a healthier forest. By integrating good forest management into local land use management decisions, the need for more extreme and costly measures may be minimized.

OVERVIEW

Each of the three landscapes within the Region - the Anoka Sand Plain, Big Woods, and Oak Savanna - has evolved its own pattern of natural and developed resources. Indigenous soils limit each area's suitability for trees and affect forest health.

Together, the developed areas (cities, suburbs, and free-standing communities) cover about 20% of the Region (see Figure 26). These urban, suburban, and free-standing communities have differing patterns of community forests. Community building exacerbates problems like oak wilt, but also leads to local disease control and reforestation programs. Too often the quality of local forestry programs is limited by inadequate natural resource inventories, development policies which ignore trees, and lack of species diversity in reforestation.

The remaining 10% of the Region in forests are most threatened by scattered housing development.

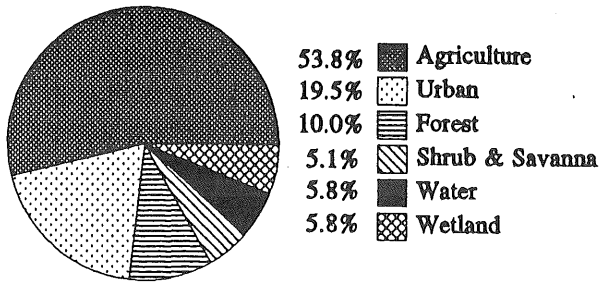


Figure 26 Land cover of the Metro Region.

Potentially, the only natural woodlands in the Region may be in public lands such as regional park reserves. Woodlands suitable for long term management need to be identified before they are subdivided and the forests irreparably fragmented. Also, protective zoning for significant private woodlands to reduce landowner's tax burden would enable ongoing forest management to be practical.

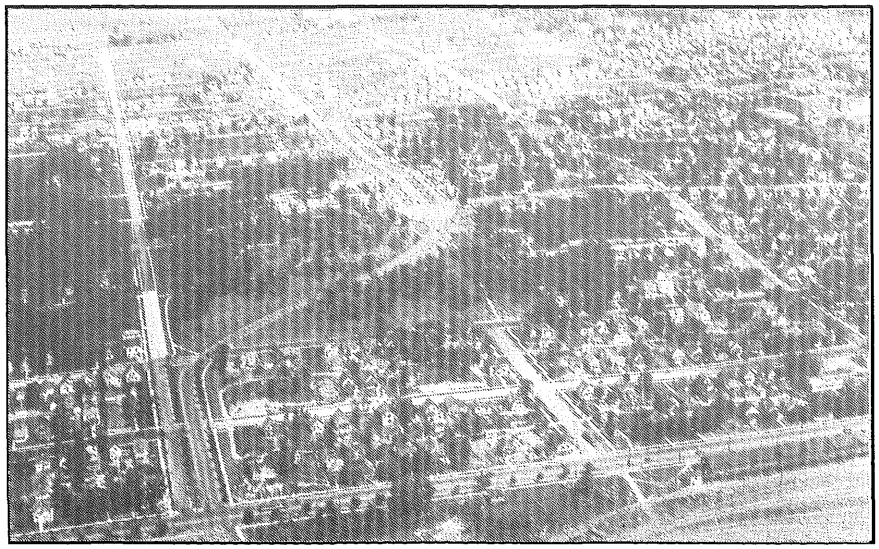


Figure 27 Parkway planting and tree preservation were integrated with development early this century in Minneapolis.

DESIRED FUTURE CONDITIONS

Imagine the Twin Cities metropolitan area of the future. The desired future conditions (DFC's) describe a vision for the Metro Region forests at some point in the future. The DFC's in this plan represent the collective thoughts of all those who were involved in the planning process.

ACROSS THE REGION

Throughout the Region, thriving human communities are interwoven with natural area open space which work together in an ecologically sustainable pattern. Extensive use of well-managed native and cultivated vegetation have improved air and water quality, have increased wildlife, have effectively eliminated the urban heat island, and contribute significantly to the quality of life.

All areas providing habitat for endangered and threatened species, wetlands, and significant examples of remnant natural communities are being preserved and protected as special management areas in public or private ownership.

Major river corridors mostly resemble pre-settlement conditions of native bottomland forest interwoven with prairie, wetlands, and wooded ravines and bluffs. Together with some undeveloped secondary streams, these riparian corridors connect special management areas.

Buffer strips are retained along environmentally sensitive areas such as lakes, bluffs, steep slopes, streams, rivers, rare communities and special management areas.

Biological communities suitable for permanent retention have been designated as natural area open space. Open spaces are being actively managed to help natural processes, such as the hydrologic system, function without impediment and to preserve ecological communities.

Abandoned railways have been converted to trails and open space. All residents live within walking or biking distance of a regional park or natural area open space.

The water quality of area lakes and wetlands is excellent. Stormwater runoff is not polluted with sediment from erosion or from the use of fertilizers or pesticides.

Wood waste from removed trees is utilized for fuel, mulch, lumber and pallet material. Landfills are no longer used for dumping wood waste. Property owners leave many dead trees standing, when not hazardous, to provide habitat for birds and other wildlife.

Tree losses from insects, diseases, and fires have been lowered to .5% to 1% per year.

URBAN AND DEVELOPING AREAS

The developed areas of the Metro Region have a dense tree canopy cover of over 50%. In addition, valuable open areas including lakes, wetlands, and prairie abound. The tree cover varies throughout each community, with limited interruptions from large buildings, parking lots and utility lines. The dense canopy shelters homes in the winter, cools the cities in the summer, provides habitat for a variety of birds and

other wildlife, and contributes to property value.

A minimum of 10% of the urban area is kept in natural area open space land including large patches of restored native forests, wetlands, and prairies. Housing developments are clustered and interlaced with corridors of natural habitat.

Trees have been strategically placed around homes and small commercial and institutional buildings to maximize summer shade, to minimize winter shade, and to reduce winter winds in order to conserve energy. Some outlying subdivisions and communities have large shelterbelts, planted to the west and north to protect the neighborhoods from winter winds.

Attractive yards and properties designed to function like native plant communities have replaced much of the high maintenance turfgrass. Vegetation consists of carefully designed plantings of trees, shrubs and other plants which increase biological diversity and contribute to a healthy ecosystem. Plantings are typically mulched to encourage an active humus layer and reduce maintenance. Mowed turfgrass is used selectively to demonstrate care for the landscape and allow for recreational activities. Noxious weeds and plants are controlled.

Native trees and shrubs, from local seed sources best adapted to the local environment, have been planted wherever site conditions are appropriate. Introduced species have been planted where site conditions limit the use of native species. Each community has planted no more than 10-15% of any one species of tree and no more than 5% of any single cultivar. A mix of ages of trees (about 10% of each ten year age class) thrive in every community. Having diversity in the type and ages of trees has dramatically reduced the occurrence of disease and insect problems and provides habitat for a variety of birds and other urban wildlife species.

Development in wooded areas preserves 60% of the trees maintaining a 70% tree canopy cover in residential areas.

RURAL FORESTS AND UNDEVELOPED LAND

Rural forests continue to contribute substantially to the environmental quality and economic vitality of the Region. Thoughtful forest preservation, reforestation, and management have resulted in unique systems of thriving forests in each of the regional landscapes. The forest species planted and the management practices used to sustain the forests are so well-suited to site conditions that the benefits of these forests are optimized.

The rural forests in the Region are managed primarily for wildlife, aesthetic and recreational values. Rural woodlots have been reserved and are being managed to have a variety of mostly native species and a good mix of ages. Native forest plant communities and working timber stands have been re-established where new forest cover is needed and on marginal agricultural lands. A diversity in the type and ages of trees has increased forest health and provides habitat for a range of wildlife species.

Several large tracts of land have been established as regional forest preserves. Many tracts of rural forestland have been purchased for environmental educational purposes.

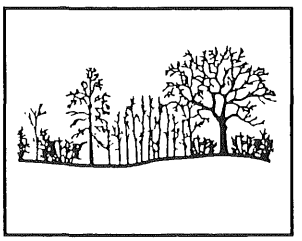
All farms have implemented complete soil and water conservation plans. All farmsteads have shelterbelts and field windbreaks along with strategic shade trees.

Wood products come mostly from thinning operations. Wood from the thinning or harvest of rural forests is utilized for fuel, chips for mulch, lumber and pallet

material. Property owners are encouraged to leave dead trees (and live trees with dead branches) standing, if not hazardous, to provide habitat for birds and other wildlife.

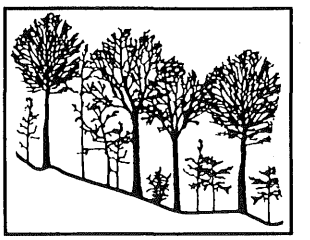
REGIONAL LANDSCAPES

The Interdiscplinary Teams for each landscape developed additional vision statements for their undeveloped forests.



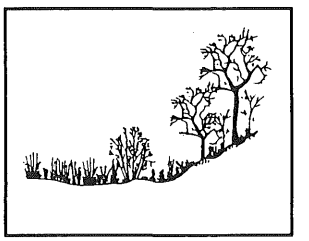
Anoka Sand Plain

Development in the Anoka Sand Plain has been limited to 40% of the land area and the undeveloped forest lands have increased to 20% of the landscape. Abandoned and marginal agricultural lands have been converted to forest wherever possible. Savanna forests and shrublands have been maintained at their 1990's levels. The forested areas are interspersed with a more open savanna /shrubland complex. These native communities consist of areas of sufficient size and interconnecting contiguous corridors to avoid habitat fragmentation. Oaks and pine predominate on the higher, excessively drained soils and a hardwood complex including elm, ash, cottonwood, and tamarack are found on the wetter soils. Oak wilt control programs have reduced annual losses to acceptible levels.



Big Woods

The remnants of the native Big Woods forests have been reserved where possible. More appropriate locations for development have been specified and the remnant stands of Big Woods forest are managed for their long term health. Reforestation of marginal agricultural lands has returned 25% of this landscape to undeveloped forests.



Oak Savanna

The heavy forest cover of the northern part of the Oak Savanna is maintained with 40% of this section as undeveloped forest land. The remaining portion of the landscape has a forest cover ranging from 25 to 40%. The southern portions of the Oak Savanna have expansive areas of reintroduced native prairie to provide habitat for indigenous flora and fauna. Thinning in both conifer and hardwood stands slated for development, has been completed several years before development. Thus, existing forests are in excellent condition before being subjected to the stress associated with development.

ISSUES

Progress towards achieving this vision for the future is hindered by the conditions, attitudes, and practices summarized below.

ACROSS THE REGION

The public is either unaware of the value of forests and the benefits of forest management or they take it for granted. This has often inhibited adequate planning, scheduled maintenance and replacement of the tree resource.

Forest habitats are being lost through residential and commercial development. Impacts are both direct, in the removal of trees, and indirect, through fatal construction damage and disruption of habitats critical to many woodland species.

Natural resource assessment information is inadequate for appropriate decision-making. Local comprehensive land development plans are often based on out-dated or incomplete natural resource information. A consistent inventory and assessment system is needed which encourages coordination between communities and agencies, but responds to variable local situations.

Forest management traditionally has focused on individual properties rather than larger landscapes. These disjointed ownerships lead to forest fragmentation and inhibit creation of larger habitat blocks and corridors needed to sustain native plant and animal communities.

Additional markets are needed for forest products, particularly wood waste, but also commercial timber derived from thinning rural forests and plantations.

URBAN AND DEVELOPING AREAS

Construction is happening without the benefit of ecosystem-based planning addressing natural resources in creating sustainable communities. As a result, valuable forests and tree cover are being lost and not replaced. Furthermore, remaining woodlands have increasing insect, disease, and wildfire problems.

The elm-dominated monoculture of the past is being transformed into a urban forest resource with an overdependence on just a few species (such as green ash, Norway maple, and silver maple). Lack of availability of certain planting stock (including native hardwoods such as oak) as well as stock quality and quantity have contributed to this problem.

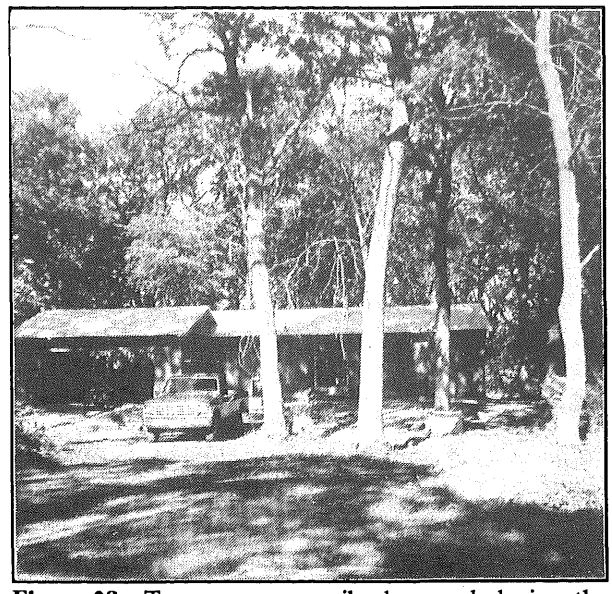


Figure 28 Trees unnecessarily damaged during the construction of this new home are likely to decline and die.

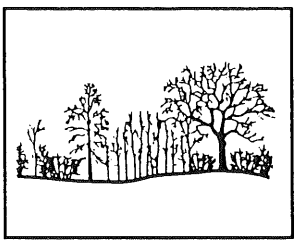
RURAL FORESTS AND UNDEVELOPED LAND

Policies to preserve wetlands and agricultural lands do not include preservation of forestlands. The Wetland Conservation Act, various agricultural preservation acts, and tax laws force development into forest areas.

Managing for forest uses has many disincentives. High land prices and high property taxes are probably the greatest disincentive to forestland management in the Metro Region. In addition, timber production is impeded because of the great distance to processing facilities. Landowners fear government regulations controlling use of land and communities resist regulations controlling woodlands.

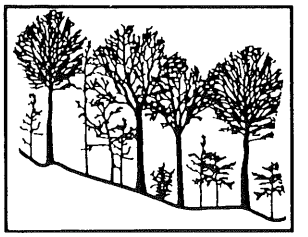
REGIONAL LANDSCAPES

In addition to the Issues which apply across the Region, each Interdisciplinary Team identified the following issues particularly important to their landscape.



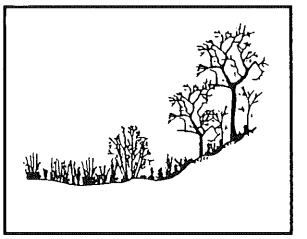
Anoka Sand Plain

People are reluctant to plant oaks and floodplain species. Some community leaders have given up on oak wilt suppression. Management of pine is inhibited by high costs and lack of markets and vendors in the Region for pine logs from thinning. Due to wetlands protection legislation, examples of upland forests being taken to replace wetlands are occurring.



Big Woods

Remnants of Big Woods vegetation are small, degraded, and fragmented. These forests are unique, old, and not replaceable through normal resource management practices. Introduced species are contributing to native forest degradation. Native species planting stock (particularly understory species) is in short supply. The impact of land development on soil limits species selection.



Oak Savanna

Little original oak savanna and prairie vegetation remains in the region. Efforts to maintain and restore these native communities are inhibited by opposition to burning from adjacent landowners. Species diversity is limited by soil conditions (including localized high water tables) and lack of availability of native planting stock. The area's predominant soils also limit standard oak wilt control methods. Furthermore, the soils in areas such as central Dakota County are particularly susceptible to groundwater pollution when sites of native vegetation are developed. Additional localized issues include: inadequate tree planting on public right-of-ways, ordinances prohibiting trees for noise control, and too little open space is under public control.

STRATEGIES

Both immediate and long term actions are necessary to realize the vision of an ecologically sustainable Region. The following strategies need cooperative implementation to secure that goal.

ACROSS THE REGION

Support coordinated natural resource inventories.

Each local community should be encouraged to conduct a detailed natural resource inventory that would include trees and any natural understory, water resources, wetlands, soils, rare and unique plant and animals, geologic, and historic features. Forestlands and areas of native plant communities should be identified which possess the size, shape, location, connectivity, and types of species warranting designation as special management areas.

The natural resource inventory data should be used by local officials during planning and review processes as well as by land developers in considering and implementing projects on environmentally sensitive sites. The data should be integrated into state natural resource inventories by being in a format compatible to the state geographic information system (GIS).

Preserve tracts of forestland and other native plant communities.

Tracts of forestland and other native plant communities should be reserved in sufficiently large acreage to provide habitat for wildlife, including endangered or rare species, to retain remnant examples of pre-settlement vegetation and plant communities, and to provide opportunities for outdoor environmental learning. Lands which warrant designation as special management areas should be identified and strategies developed for their ongoing stewardship. Particular attention should be paid to riparian corridors and other special management areas crossing local jurisdictions. The use of conservation easements should be fostered as a significant tool to retain forestland.

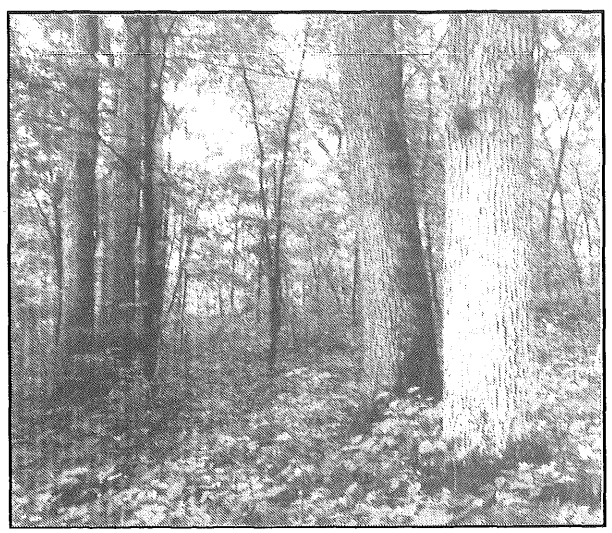


Figure 29 This privately owned oak forest of a type rare in the Region is in an area undergoing significant development.

Strengthen environmental education concerning natural resource management.

Environmental education efforts for the public, decision-makers, and youth should aim to improve their understanding of and support for wise forest resource and ecosystem management.

Specific proposals for assuring that Metro schools include urban natural resource conservation in their curriculum should be part of the *Statewide Environmental Education Plan.* Environmental educational materials should integrate all aspects of natural resource conservation.

A comprehensive public affairs program, incorporating both long and short term actions, should be established to foster cooperation in the improvement of the natural environment. A long term public relations effort should encourage people to understand that their yard is an integral part of the natural environment, and that practices undertaken in that yard have far reaching impacts on the regional ecosystem. Short term efforts should target audiences for informational seminars and to apprise them of changes in policy and recent accomplishments.

Forest lands and landscape plantings should be visibly used as a form of environmental education. School forests (both larger forest preserves and onsite outdoor learning labs) should demonstrate appropriate land stewardship.

Promote planting of native species and landscapes modeled after native plant communities.

Alternative methods of planting and maintaining yards should be promoted which decrease the use of lawn chemicals, municipal water, and fuel for mowing lawns, which incorporate wood chip mulch and native ground covers, and which increase the occurrence and diversity of wildlife. Emphasis should be placed on having naturalized landscapes and gardens modelled after the plant communities native to the Metro Region.

Educational materials and a "natural lawn" model ordinance should be developed to promote the use of naturalized landscaping methods. These methods should also be promoted at events such as home and garden shows and model homes. Public grounds (such as the Metro Region DNR offices) should be converted to native landscape demonstration sites.

Encourage availability of a wider selection of native hardwoods through tree nurseries.

More native species planting stock should be available which is grown from local seed sources. The public should be informed on the benefits of planting native trees, particularly native hardwoods. Public and private nurseries should increase the selection of native plants available and encourage their use by the public.

Provide additional cost share funding for native tree species.

In order to the promote the use of native tree species, cost share programs should give priority to projects that use native species with locally grown seed sources.

Promote a high level of forest health.

Existing forest resources should be protected through programs which actively control oak wilt, Dutch elm disease, gypsy moth, and other serious insect and disease problems. Potential threats to the Region's forests should be actively monitored.

Encourage the use of forest products from the Region.

Local communities should make wood chip mulch available to residents. Urban tree residue should be promoted for use as lumber, fuel, pallets, and feedstock. Incentives should be provided to create markets and vendors for timber derived from thinning rural forests and plantations.

Develop natural resource management sections in local comprehensive plans.

Local units of government should be encouraged to develop separate natural resource management sections in their comprehensive plans. The local plans should present an analysis of inventory information and specific proposals for the management and protection of a wide range of natural resources.

Guidelines or minimum standards should be developed that specify the scope and content of the natural resource management section. Whether this would require amendments to the Metropolitan Land Planning Act of 1976 or other legislation should be investigated.

A community forest management plan should be a part of the natural resources section of each local comprehensive plan.

Provide interdisciplinary technical assistance to local government planning efforts.

DNR should pro-actively offer its technical assistance to communities that are updating their local comprehensive plans or developing natural resource management sections in their local comprehensive plans. The DNR Metro Region Administrator should organize and direct the efforts of an interdisciplinary team that will provide this assistance. The assistance and information provided should include GIS technology to manage resource information.

Plans developed by local water management organizations, such as watershed districts, should include relevant information on tree cover, wetlands, wildlife and other resources. Information presented in these plans should then be used by local governments in developing comprehensive plans. Emphasis should be placed on integrating ecosystem-based planning and management into local processes.

Create community natural resource advisory boards and strengthen tree advisory boards.

The roles of citizens, volunteers, and non-profits in local natural resource management should be strengthened.

Natural Resource Advisory Boards (NRABs) should be established in each local community to build the partnerships necessary to promote the management of a wide range of natural resources. Each NRAB should take leadership in implementing locally the strategies described in this plan, including developing tree protection measures and natural resource ordinances promoting native plant community preservation and planting, and re-using urban tree residue.

Tree Advisory Boards should be encouraged to help oversee the planning and management of the local community forest. The Tree Advisory Board should work with its city forester (or, if none are available, a consultant or DNR forester) to develop a long term management plan that will evaluate and project the needs of the community's forest.

Incorporate tree protection measures into land development processes.

Local units of government should be encouraged to integrate tree and native plant community protection measures into each phase of the planning and land development process. Forestry concerns should be made integral in the capital improvement planning and implementation process, zoning, neighborhood and special area plans, and publicly funded and assisted projects.

Applications for platting, subdivision, planned unit development, and other land

development should trigger review of the development's potential impact on natural resources and how tree protection and management will be addressed. Applications for permits for grading, building, utilities, and other construction should be reviewed by a person, such as the city forester, who is qualified to assess the project's potential impact on forest resources.

Figure 30 Appropriate tree preservation measures should be a standard development practice.

Tree and native plant community protection plans should be reviewed along with other construction drawings. Site plans and landscape plans for industrial, commercial, and large scale residential projects should also be reviewed. Routine site inspections should follow to assure compliance to the approved tree protection plans.

Clear information packages and streamlined review procedures should be developed to encourage private and public cooperation and support of local tree and native plant community protection requirements.

Promote the development of natural resource ordinances.

Local units of government should be encouraged to adopt ordinances intended to reduce tree loss, mitigate tree removal in wooded areas of the community, and promote retention of native plant communities. The ordinances should limit indiscriminant cutting or removal of trees and encourage appropriate resource management in environmentally sensitive sites, such as those with significant natural vegetation or steep slopes, shorelands, and adjoining special management areas.

Additional ordinances for wetland protection, wildlife habitat improvement, native plant community establishment (including permitting prairie and wildflower gardens), endangered species protection, shoreland preservation, air and water quality enhancement, and conservation area designation need to be developed.

Seek state legislation providing direction for community forest management.

State legislation should be used to encourage better local community forestry management. Such legislation should establish general policy direction and specify the essential components and minimum requirements for community forestry programs.

RURAL FORESTS AND UNDEVELOPED LAND

Establish an interdisciplinary task force to prepare an action plan for managing rural forests in the Region.

An Interdisciplinary Task Force on Metro Region Rural Forests should be assembled to guide the process of evaluating the Region's rural forest resource and to prepare an action plan for implementing the following strategies.

Identify forestlands for long term management.

Tracts of high quality forestland that should be reserved (or tracts that have the best potential for remaining undeveloped) should be identified on a series of maps. Information contained in local comprehensive plans, the long range plans of the park reserves, the County Biological Survey, the special management areas identified in this plan, and other relevant information should be reviewed to help select tracts.

Target technical assistance and cost-share programs for rural forest management.

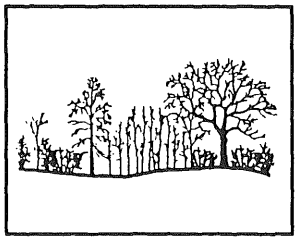
DNR's limited funding and staff time available for rural forest planting and management activities should be invested in lands that will remain in forest for the long term. Forest management efforts should be targeted to lands that have the greatest natural resource value as well as the best potential to remain undeveloped.

Advocate changes in cost share programs and tax laws to encourage forest retention and management.

Long term retention and management of trees beyond the ten years required by federal and state cost share programs should be encouraged. Methods to obtain long term management of forestland should also be recommended. In the future, cost share programs should give funding priority to projects using native species grown from local seed sources.

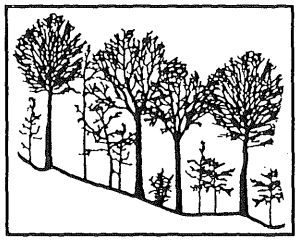
Land dedicated to long term forest management in the Metro Region should be put into a tax status that will ensure that the landowner is not forced to sell it for development. Forestlands should receive tax considerations similar to agricultural lands and wetlands.

STRATEGIES FOR THE LANDSCAPE REGIONS



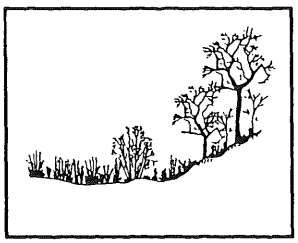
Anoka Sand Plain

Increase forest resource management and reforestation appropriate for local conditions. Involve all communities in oak wilt suppression. Increase cost share funding for pine thinning.



Big Woods

Promote preservation and restoration of native Big Woods remnants. Identify sites for establishing and/or restoring forest preserves and woodlands. Hold a conference on Big Woods preservation and protection.



Oak Savanna

Identify sites for establishing oak savanna and/or prairie. Increase use of oak wilt control programs. Develop forest management recommendations based upon soil suitability. Establish more public natural area open space in Dakota County.

CONCLUSIONS

The community and rural forests of the Metro Region along with the land, water, people, and development are interrelated parts of larger scale landscapes. Resource management must be tailored to local situations, but within the context of broad ecosystems. A goal for the Metro forests is a healthy environment which not only meets current societal and ecological needs, but can be sustained for future generations.

Significant problems are threatening the Region's forests and hindering the effectiveness of forestry programs. Urban development is endangering not only the Region's forests, but the landscape as a whole. Valuable trees are lost through preventable construction damage and oak wilt. But, furthermore, forest fragmentation destroys habitats needed to sustain many woodland species. In addition, reforestation lacks the diversity of species and commitments to ongoing management essential to a healthy ecosystem.

Strategic actions are necessary to head off environmental deterioration. Everyone (from citizens, non-profits, and businesses to elected officials and agencies at all levels of government) has a critical role to play. Both strong leadership and cooperative efforts are critical. New state legislation, local ordinances, education, and assistance programs are each essential components. By achieving a better understanding of natural resources and ecosystems and by strengthening the role they play in development, a future of regional prosperity and resource health will be more likely to be attained.

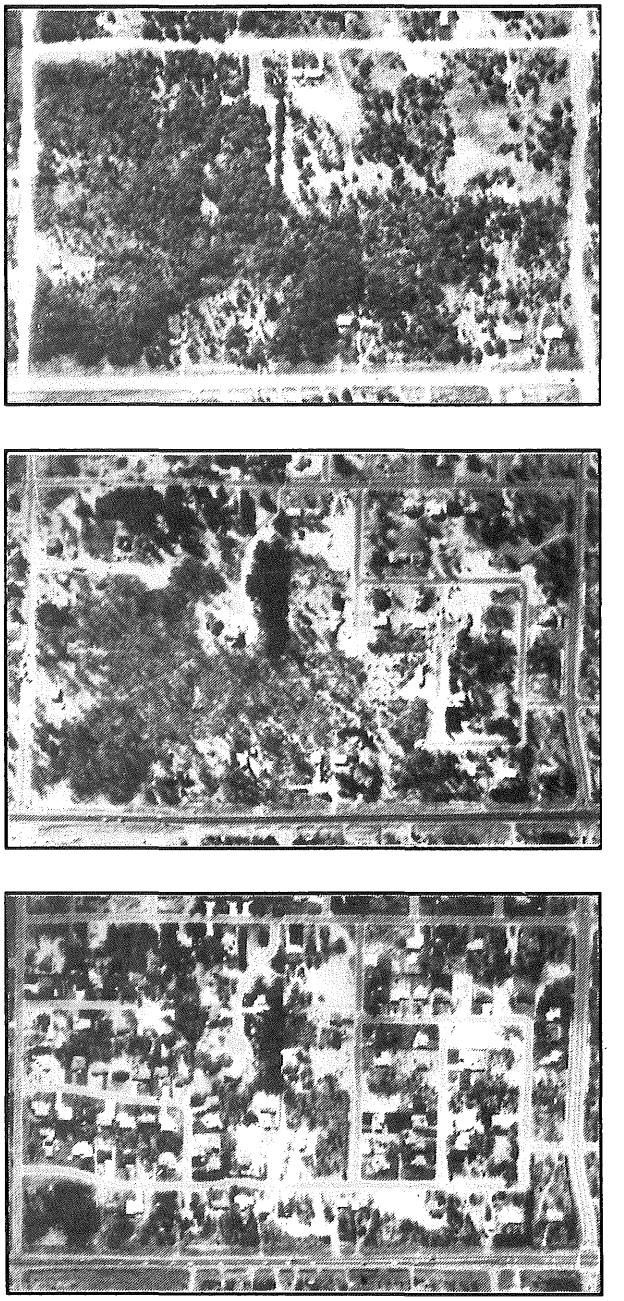
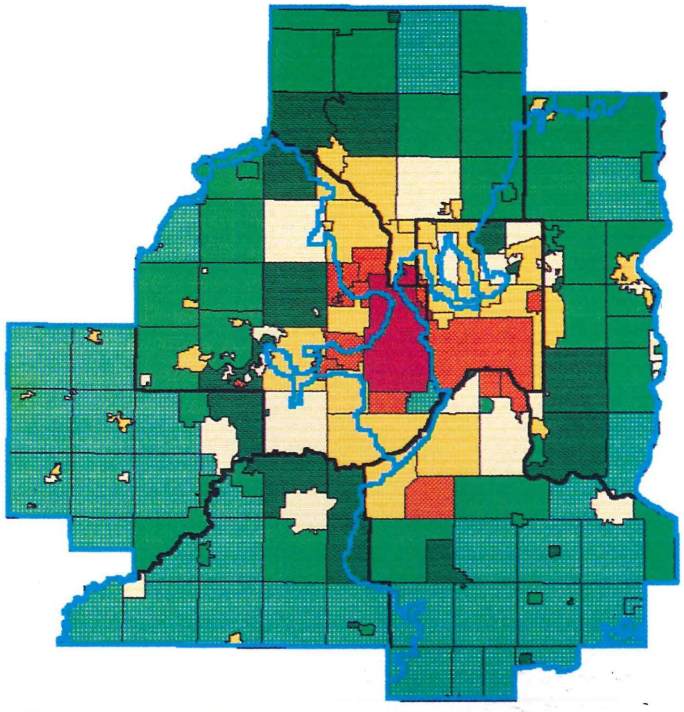


Figure 31 From its pre-development condition (shown in 1970, top), the native forest was lost and fragmented within about five years (1987 middle, 1990 bottom).



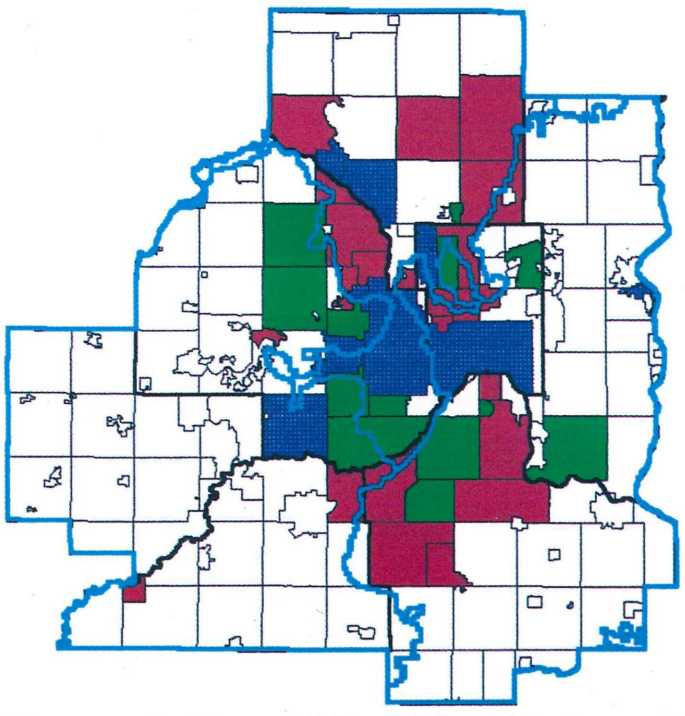
People per acre

- Sparce Rural (<.10)
- Low Density Rural (.11 - .50)
- High Density Rural (.51 - 1.00)
- Low Density Subruban (1.01 - 2.50)
- High Density Suburban (2.51 - 5.00)
- Low Density Urban (5.01 - 8.00)
- High Density Urban (> 8.01)

Source: Modelled from 1990 Census data
by DNR FH Unit Staff, March 1993.

Scale: 0 10 20 mi

Figure 3. Population Density



- 1 to 5 Years
- 6 to 10 Years
- 11 to 15 Years

Source: DNR Urban & Community Forestry Program.
Reclassed by DNR Forest Health Unit
in February 1994.

Minnesota Department of Natural Resources
Division of Forestry

Forest Health Unit
Forest Health Information System
February 1994

Figure 4. Tree City USA Status: 1992

Minnesota Department of Natural Resources
Division of Forestry / Metro Region
St. Paul, Minnesota