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## Theme A: Fragmentation & Parcelization

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### **GOAL**

**FOREST LAND: The amount of forest land increases and is focused in desired landscapes.**

### *DESCRIPTION OF GOAL*

The amount of forest land in Wisconsin has increased but the landscape patterns have changed due to fragmentation of forest patches, parcelization of forest ownerships, and urbanization. Fragmentation is a term used to describe landscape characteristics like how big a forest patch is, is the forest patch isolated from other forests, and how much 'edge' there is with other land uses (e.g., agriculture). "Permanent fragmentation" refers to long-term conversion of forest to urban, residential, agricultural, or other non-forest uses. Permanent fragmentation is a permanent loss of habitat and alters some ecological processes. "Habitat fragmentation" is defined as a disruption of habitat continuity caused by human or natural disturbance. Dispersal can be affected if species or their propagules cannot cross a disturbed area, find suitable habitat within it, or successfully compete with disturbance adapted species.

The growth in forests is not constant across the state – forests in eight counties have not increased. Increasing the amount of forest land can help ameliorate the negative effects of disrupted landscapes. In order to retain the forest we have and increase it, landowners could maintain their current amount of forest and plant more trees, and conversion of forestland could be reduced. Trees are not ecologically desirable in all ecological landscapes and strategies should be focused accordingly. (See DNR's Ecological Landscapes [webpage](#)).

Ecological landscapes are areas of Wisconsin that differ from each other in ecological attributes and management opportunities. They have unique combinations of physical and biological characteristics that make up the ecosystem, such as climate, geology, soils, water, or vegetation. They differ in levels of biological productivity, habitat suitability for wildlife, presence of rare species and natural communities, and in many other ways that affect land use and management.

### **STRATEGY**

1. Encourage planting to enhance, protect, and connect larger tracts of forested land in appropriate locations consistent with ecological landscapes.

Due to fragmentation and forestland conversion, the connections between forests may be broken. This has effects on issues like wildlife movement and seed dispersal. Not all areas are ecologically desirable for forests, though on private lands this is a landowner's decision. The DNR's ecological landscapes help define where afforestation or reforestation is most desirable ecologically. Other criteria to prioritize reforestation could be areas that can connect or buffer existing high-quality forests.

Possible Actions:

- Provide tax credits for landowners who conduct forest reclamation. (Reclamation refers to changing land in uses such as abandoned brownfields, mines or borrow pits and restoring them to forests.)
- Encourage the afforestation of abandoned and marginal agricultural lands to expand the benefits from forests and enhance, protect, and connect larger tracts of forested land.
- Contact landowners of abandoned and marginal agricultural lands to inform them about afforestation programs and incentives.
- Coordinate landscape-scale planting projects in targeted areas.
- Increase cost-share for tree planting and seeding in areas identified as priority for enhancing and protecting larger tracts of forested land in cases where natural regeneration methods have been found to be insufficient.

**STRATEGY**

2. Reduce the rate of conversion of forestland to alternative uses.

Urbanization, population growth, and development in the wildland urban interface put conversion pressure on forestland. As forests are converting to different land uses, public values are lost, and the ability to return it to forests is difficult. There are different ways to maximize values for communities and landowners yet retain the benefits of working forests.

Possible Actions:

- Utilize comprehensive planning and zoning restrictions to prevent conversion of forestland.
- Monitor and respond to effects of agriculture use assessment on conversion of high value forests to agriculture.
- Increase the number of working forest easements and land trusts.
- Consider regulations, incentives and easements to discourage the deforestation of wooded wetlands.

**GOAL**

**PARCEL SIZE: The rate of forest land parcelization is reduced.**

*DESCRIPTION OF GOAL*

Parcelization is the subdivision of a single forest ownership into two or more ownerships. The forest land itself may not change immediately when broken up into separate tracts, but it becomes more susceptible to fragmentation (e.g., some tracts may be sold for development). Increases in the number of small ownership holdings increase the difficulty in providing sustainable forest management plans. As parcel size decreases, the economies of scale to conduct forest management decrease. Furthermore, a higher percentage of landowners may not be willing to harvest if they have small properties, adversely affecting the forest-based economy.

As such, the strategies presented to address this goal focus on maintaining or slowing the rate of division of parcels. Attempting to increase the size of ownership holdings through policies, incentives, or other actions was seen as not practical or cost-effective. It might also result in unintended negative consequences (e.g., increasing the minimum size of MFL enrollments may in the end reduce participation and accelerate parcelization) and thus are not presented.

Given the differences in goals, pressures, and motivations between industrial forest owners and smaller, non-industrial private forest owners, the strategies address these groups separately.

### **STRATEGY**

3. Reduce the rate of ownership parcelization of large forest blocks (i.e. greater than 500 acres).

There is continued need and opportunity to acquire conservation easements on key parcels that maintain large ownerships and keep them as sustainably-managed working forests. Many of these large blocks provide important ecological and economic benefits that are compromised when land is parcelized. Some large forest blocks may provide critical linkages between existing public properties or may provide essential habitat for rare species. Others may be prone to increasing the potential for catastrophic fire if they are divided and developed. 500 acres was chosen to describe large forests because this is a common minimum acreage required by cost-share programs and grant opportunities.

Purchasing easements is an expensive but effective approach to prevent parcelization and development of forest blocks. There are also likely to be many more opportunities to purchase easements on large forest blocks than funding available for these acquisitions. Thus, there will be a need to prioritize easement acquisitions based on the habitat, environmental, economic, and recreation values provided.

Possible Actions:

- Identify and seek to acquire easements or fee title on forests that provide the highest conservation and recreation benefits and are most at risk of parcelization.
- Link financial incentive programs to the quality of conservation and recreation benefits provided.

### **STRATEGY**

4. Reduce the rate of ownership parcelization of small forest blocks (i.e. less than 500 acres).

Forestland is changing hands at an increasing rate. As forest changes hands, it tends to be sold in smaller parcel sizes. For the small private forests, different factors influence parcelization (e.g., economic incentives, family dynamics, local land use, property values and taxes). Sustainable forest management incentive programs such as the MFL or cost-share help off-set those costs and help landowners sustainably manage their

forest so they are able to produce a full array of economic and ecological benefits forests can provide. This type of management supports forest related jobs and businesses. A landowner who has learned about the benefits available from their land and an understanding of how to manage it may choose to keep their land instead of selling it.

To address these and other factors, an effective way to reduce the rate of parcelization is through improved consideration of forest values in local comprehensive plans (i.e. Smart Growth). One option that might result in keeping larger parcels intact would be to provide bonus payments for larger tracts. Similarly, providing increased incentives for landowners enrolling into longer-term contracts may result in slowing the parcelization of holdings.

A more aggressive approach would be to create a financial disincentive to parcelization through the creation of a fee on subdivisions or changes to land uses. This would require public support and may not be practical without other taxation offsets (e.g., a property tax reduction for maintaining land in existing uses). The fee could go to a program that supports public access to forest land or acquiring easements with the highest conservation and recreation benefits.

#### Possible Actions:

- Work with regional planning commissions and local land use and zoning offices to enact policies that discourage parcelization.
- Increase enrollment in sustainable forest management incentive programs.
- Provide investment tax credits and property tax credits to landowners who do not convert their forest to other land uses.
- Develop educational and outreach materials, tools, and resources to understand the ecological and economic benefits of maintaining larger ownership blocks.
- Provide higher incentive (bonus) payments for larger ownership blocks enrolled in a sustainable forest management program.
- Increase incentives for longer incentive program plan lengths.
- Establish disincentives to parcelization through a fee on ownership subdivisions.
- Identify and seek to acquire easements (including development rights) or fee title on forests that provide the highest conservation and recreation benefits and are most at risk of parcelization.
- Create a taxing structure that is a disincentive to subdivision.
- Draft new legislation that addresses fragmentation and parcelization similar to the Working Lands Initiative for agriculture.
- Develop educational and outreach materials, tools, and resources on succession planning (e.g. Ties to the Land).
- Create tax categories for forested land that adequately reflect their cost to the local government(s) providing services.
- Research the true impact of tax burden on the decision of landowners to sell/develop forest land.

## **GOAL**

**LARGE BLOCKS OF FORESTS: Large blocks of forest are maintained/increase.**

### *DESCRIPTION OF GOAL*

Large expanses of working forests free of development pressure are decreasing. Anthropogenic factors such as housing and road development alter habitat, fragment landscapes and threaten biodiversity. The majority of forests either contains or is near housing (Radeloff 2005). Fragmentation of forests creates smaller forest blocks. Fragmentation is a term used to describe certain kinds of landscape structures. Common measures of fragmentation are patch size, isolation (distance between patches), and edge (cumulative length of patch edges). "Permanent fragmentation" refers to long-term conversion of forest to urban, residential, agricultural, or other non-forest uses. Roads and utility corridors can also create permanent fragmentation. Permanent fragmentation is a permanent loss of habitat and alters some ecological processes. Permanent fragmentation therefore has the greatest negative impact on forest biodiversity.

"Habitat fragmentation" is defined as a disruption of habitat continuity caused by human or natural disturbance, which creates a mosaic of successional and developmental stages within a forested tract. At a landscape scale, aggregated human disturbance may result in relatively high levels of habitat fragmentation with negative impacts. In general, increased road and housing density threaten the conservation of biodiversity by:

- Altering composition, structure, and function of adjacent ecosystems.
- Changing land use through development (removing habitat).
- Increasing edge and decreasing interior forest.
- Providing avenues and sources of invasion for exotic species.
- Causing air and water pollution.
- Altering hydrological networks.
- Increasing ecosystem disturbance through increased human access and activity; impacts are both direct (e.g. road kills, potential overhunting) and indirect (e.g. habitat alteration, wildlife behavioral changes).
- Limiting management alternatives.

In order to maintain or increase large blocks of forest, strategies should look for opportunities to conserve and protect forest lands and pursue ways to collectively approach the management planning within all units of government.

### **STRATEGY**

5. Pursue the conservation and protection of large, unfragmented blocks of forest lands.

The terms conservation and protection in this strategy include both active and restricted management. Sustainable forest management conserves forests and protection measures are meant to keep forests as forests, not to solely restrict management. Partnerships play an important role in this strategy. While it is recognized a collective

approach can stretch the limited resources of each partner, it should be also noted working together allows for a broader range of goals and objectives depending on the ownership. With limited resources available, it is important that the lands conserved and protected provide the best opportunities. It is also important to focus efforts in landscapes involving environmentally, economically and ecologically important working forests. While acquisition can lead to a desired future state it is unrealistic to think all benefits can be achieved by this method alone. There are more tools than just acquisition to conserve and protect large, unfragmented blocks of forest lands.

It can be several years between revenue producing activities on forest land and while it is understood there are many factors affecting the decisions of ownership it can be a financial burden to carry those costs. Finding alternatives to reduce that burden will create an atmosphere that allows long-term ownership in which forests will stay forest.

#### Possible Actions:

- Identify remote forests with minimal adjacent development and infrastructure.
- Increase the amount of reserved forest that is committed to be passively managed.
- Continue to identify opportunities to purchase easements through the Forest Legacy program and pursue existing Forest Legacy projects.
- Public agencies continue to acquire land within planned public property boundaries.
- Limit the road density in large blocks of forests in the north.
- Provide tax credits or structure that favors large block forest landowners for the continual ownership and proper management of the resource.
- Create a grant or loan program for large land holding industrial companies in exchange for a long-term commitment of ownership and proper management.
- Provide education and outreach to landowners and the public on the benefits of large blocks of forests.

### **STRATEGY**

6. Strengthen collaborative and large scale planning at the town, county, state and federal levels.

When considering large blocks of forest it is critical to think into the future. To begin to achieve a desired future condition such as increased canopy cover, partnerships in the planning effort need to be initiated no matter the jurisdictional boundaries. This strategy does not insinuate regulation; rather it encourages all levels of government to consider their plans in the context of a larger landscape with neighboring governments.

If the necessary steps are taken today in planning cooperatively, it is possible to think about the landscape at a larger level. In the end, this will allow Wisconsin to have a variety of options available to assist in maintaining a diversity of successional and developmental stages.

Possible Actions:

- Increase local aid payments for those units of government that have completed landscape level planning and implemented conservation strategies.
- Work with local units of government to influence zoning ordinances that favor conservation of large blocks of forestland.

**GOAL**

**LANDSCAPE SCALE MANAGEMENT: An increasing amount of land management at small scales is in alignment with landscape scale plans. Small forest parcels will be effectively managed forests at a landscape scale that accounts for multiple benefits such as ecosystem services and risks such as wildfire.**

*DESCRIPTION OF GOAL*

The goal of landscape scale management has many components. This section focuses on the issue of maintaining the functional size of forest blocks as a means of applying larger landscape scale opportunities at smaller scales. To achieve landscape scale management on small parcels, landowners could coordinate management practices such as sharing road access for harvests or work together to reduce invasive species on properties that border one another. The issues related to connecting appropriate landscape-scale goals and objectives down to property level actions are addressed in Theme B. (Ecosystem services are functions performed by natural ecosystems that benefit human society, such as hydrological services, protection of the soil, biomass, carbon sequestration, habitat for wild species, and recreation opportunities.)

**STRATEGY**

7. Increase the functional size of forest blocks by encouraging coordination of management of clusters of forest ownerships.

There are many barriers to groups of individual landowners agreeing to both develop collaborative management plans and to implement various management actions in a coordinated fashion over time. However, by planning and managing collaboratively the functional size of forest blocks could increase and achieve significant results from conservation, forest health, ecosystem service and economic perspectives. The formation of formal and informal forest cooperatives speaks to this potential.

Private forest plans could be influenced by the management goals and actions prescribed on adjacent and nearby lands, as well as those on nearby public or other protected lands, consistent with the interest and desires of the affected landowners. Further, management plans for lands within Wildlife Action Plan Conservation Opportunity Areas could be influenced by the opportunities to address species and natural communities of particular concern.

Forestry professionals (both public and private) can facilitate developing management plans that meet a property owner's needs and goals in a manner that also incorporates larger ecological goals. Similarly, foresters and loggers can bring adjacent or nearby

landowners together to coordinate harvest and management actions thereby potentially improving efficiency and outcomes.

Not all forested areas are good fits for trying to maintain large functional blocks. For example, some areas are simply too fragmented in their ownership while other forests are too disjunctive, small, or fragmented to realistically achieve meaningful, larger-scale management goals.

#### Possible Actions:

- Establish criteria that identify where blocks of forest in fragmented ownership could feasibly be managed to achieve broader landscape-scale goals, particularly related to ecosystem services and wildfire.
- Provide incentives for landowners to collectively develop and implement management plans (e.g., provide bonus payments or reduce costs to landowners that manage their forest land as a larger block).
- Encourage that plans for private and public lands incorporate 1) the management plans of adjacent and nearby public lands and lands enrolled in conservation programs and 2) appropriate ecological opportunities as described in the ecosystem management handbook and the Wildlife Action Plan.
- Provide incentives to writers of property management plans to coordinate larger clusters of landowners into a unified management approach.
- Provide incentives to private contracting foresters, loggers and others involved in harvests to coordinate management actions with nearby landowners and incorporate broader forest management goals into harvest actions.
- Educate landowners on the benefits of landscape scale management and how this can be done in a manner that respects landowner rights.

#### GOAL

<b>SUSTAINABLY MANAGED FOREST: The percentage of sustainably managed forest land will steadily increase.</b>
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#### DESCRIPTION OF GOAL

In order to increase the amount of forest land that is sustainably managed either more private landowners could sustainably manage their forests (ones who are not already) and/or more public forest land could be purchased and sustainably managed. Seventy percent of timberland is owned by private individuals or corporations.

Challenges to reach this goal include smaller ownership size, more forest owners, limited capacity to deliver professional forestry assistance, and increasing forest land values. The average private forest parcel size decreased from 37 acres in 1997 to 28 acres in 2007. In the same time period, the number of private non-industrial forest owners grew by 37%.

Sustainable forestry is defined in statute as “the practice of managing dynamic forest ecosystems to provide ecological, economic, social, and cultural benefits for present

and future generations (Ch.28.04(1)e, Wisconsin Statutes). “Wisconsin Forest Management Guidelines” are a commonly held standard for sustainably managing forests. (See <http://dnr.wi.gov/forestry/Publications/Guidelines/> for an electronic copy of the Guidelines.)

### **STRATEGY**

8. Encourage a tax structure that favors well managed forests.

Every five years, taxes increase on average 10 percent. It is becoming increasingly difficult for landowners to carry that cost when at times revenue derived from the land is intermittent. Wisconsin has what is widely considered one of the best tax incentive programs for forest land owners in the country; however, one program does not meet the needs or desires of all landowners. (See Indicator 16.6 in the “Assessment” for a discussion on forest land in property tax incentive programs.)

It is often pointed out that undeveloped forest land requires fewer public services (roads, water, utilities, etc.) than developed land. Discussions about tax structure should consider this.

Possible Actions:

- Evaluate forest tax incentive programs for inefficiencies, disincentives, effectiveness, and inclusion of other management opportunities.
- Adjust forest land property taxes to accurately reflect the price of public services (e.g., roads, water, utilities) required for forests.

### **STRATEGY**

9. Increase acreage of privately owned forests managed based on generally accepted forest management practices.

The MFL program requires management based on Wisconsin’s forest management guidelines. The program is now twenty-five years old with the first round of entries expiring. A tremendous amount of investment has been made into these properties by the public and landowners. If these entries re-enrolled in the MFL program, the benefits would continue.

Third-party forest certification, such as Sustainable Forestry Initiative and Forest Stewardship Council in Wisconsin, is a generally accepted label of sustainably managed forests. If private landowners are not interested in the MFL program, forest certification offers another option to sustainably manage. Certification may provide an opportunity for landowners to increase income from their forests and therefore afford to retain it or purchase it. Certified status smoothes landowners an entry into ecosystem service markets such as the Chicago Climate Exchange.

Landowners realize many different benefits of owning forest land and produce ecosystem services for the general public like clean air and water. To date, there are

limited opportunities to compensate landowners for those benefits they are providing to all citizens and the connections of enhancing those qualities through a well managed forest. If there were more ways to compensate these landowners, more people may purchase and manage their land.

Possible Actions:

- Implement procedures to quickly and easily re-enroll MFL properties when expiring.
- Seek opportunities that provide premium pricing on products harvested from properties practicing sustainable forestry.
- Develop programs with the forest certification systems that would target forest landowners not interested in joining other programs.
- Develop incentive programs that benefit landowners for managing for ecosystem services.
- Educate landowners on how to manage based on accepted forest management practices.

### **STRATEGY**

10. Increase acreage of publicly owned forests managed based on generally accepted forest management practices.

Public land in this document can refer to any level of government: local, county, state, federal. One way to increase the acreage of publicly owned forests is for government to purchase land. Public property plans outline project boundaries and areas for future purchase. By continuing to purchase land from willing sellers, the amount of sustainably managed lands under certification standards would increase.

Possible Actions:

- Increase third party certification of public forest lands.
- Invest in the management of public lands to produce the desired values and goals the public has outlined in property plans.