

## **GDS 1B Strategy c. Coordinate with the MFRC's Northeast Landscape Committee planning efforts on forest composition goals and objectives.**

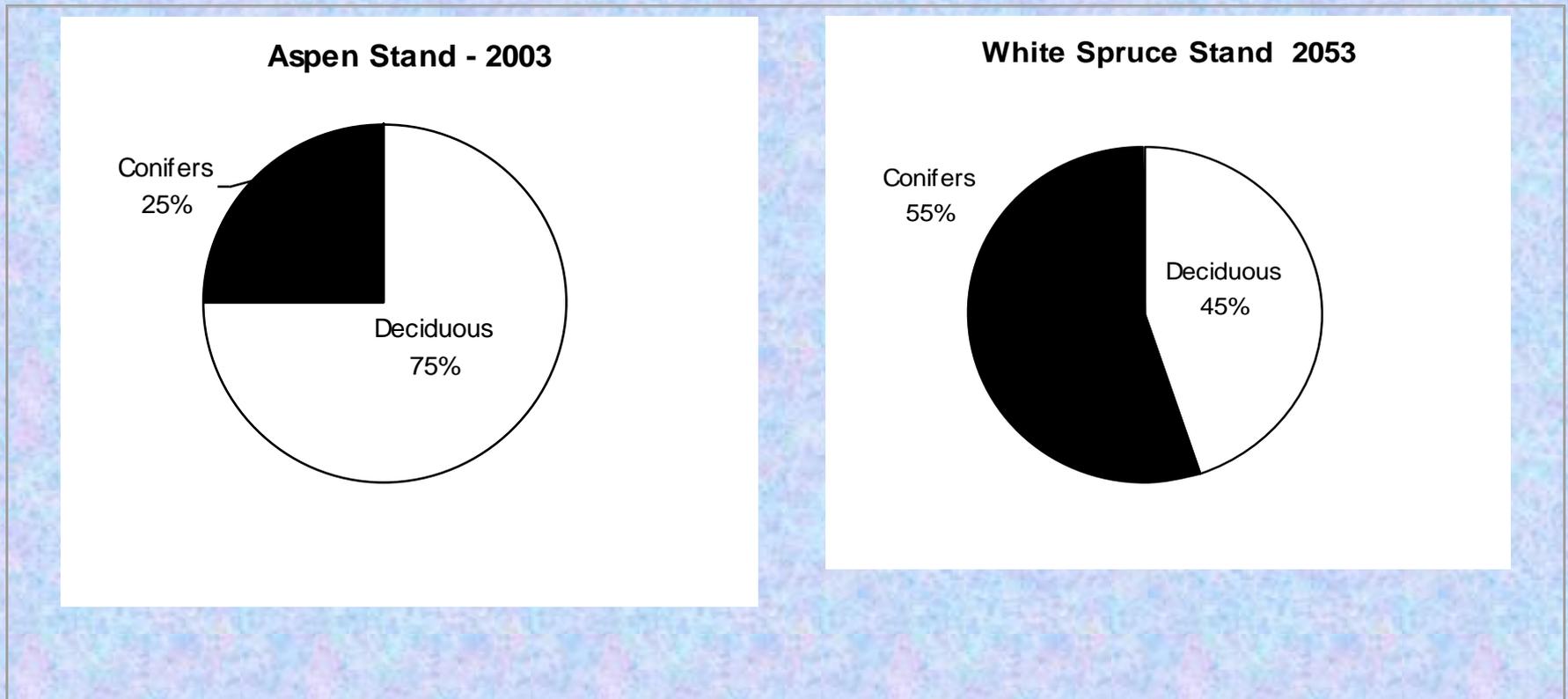
- Increase long-lived upland conifers (white pine, red pine, white spruce, cedar, tamarack)
- Retain/increase long-lived conifer component in aspen and birch cover types.
- Consider native plant communities and associated growth stages in stand management. Manage for older growth stages in some stands.
- Increase acres with older multi-aged conifers (white pine and white spruce component).
- Increase jack pine cover type and component in appropriate native plant communities.
- Increase the white pine, yellow birch, white spruce, and white cedar components in northern hardwood stands.

## **DFFC Goal: Move toward the desired cover type acreage goals recommended in this plan.**

- Increase conifer cover type acreage in upland areas:.
  - red pine
  - white pine
  - jack pine
  - white spruce
  - white cedar (upland)
- Minor increases in northern hardwoods and oak.
- Decreases will occur primarily in these cover types:
  - aspen/BG
  - birch
  - balsam fir

# GDS-1B Strategies Strategy a. (continued)

**Figure 3.1d: Example of an Increase in Conifer Cover Type Acres: Aspen Stand Converts to a White Spruce Stand**



## GDS-1B Strategies

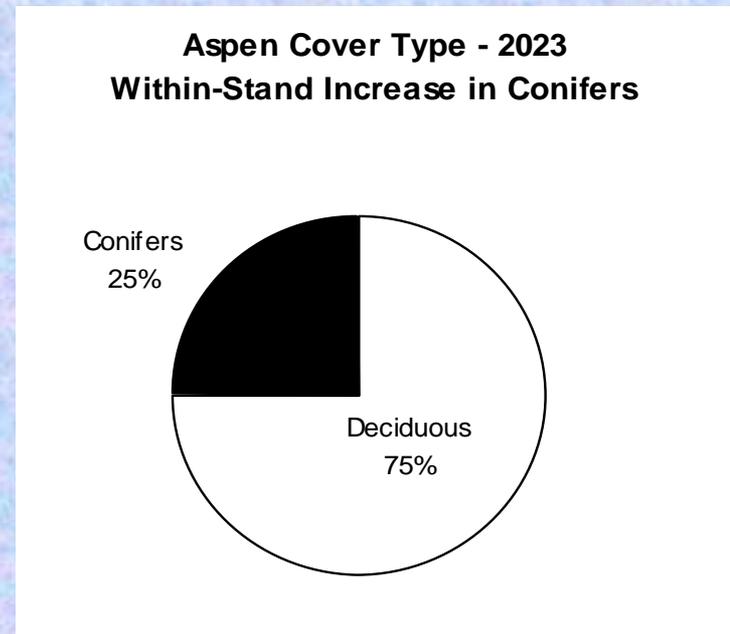
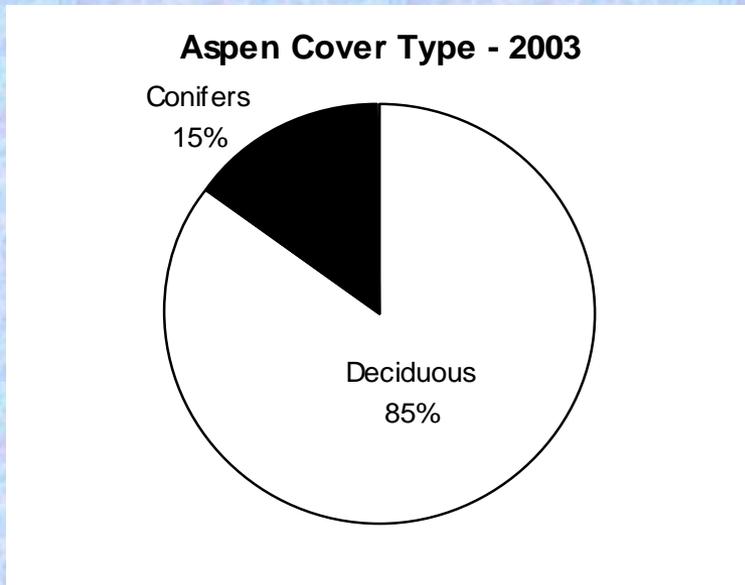
### **Strategy b. Increase mixed forest conditions in some stands in all cover types.**

Implementation of this strategy may range from application of the MFRC's *Voluntary Site-Level Forest Management Guidelines* (e.g., legacy patches and conifer retention) in harvest operations to other management such as mechanical site preparation, prescribed burning, seeding, and planting.

Favor species found in native plant communities appropriate to the site, especially tree species that have significantly declined from historic levels such as: *white pine, red pine, white cedar (upland), white spruce, tamarack (upland), and yellow birch*

# Strategy b. Increase mixed forest conditions in some stands in all cover types (continued)

Figure 3.1e: Generalized Example of an Increase in Mixed Forest Conditions Within an Aspen Stand



**GDS- 2A: Even-aged managed cover types will be managed to move toward a balanced age-class structure.**

A balanced age-class structure has relative equal acres in each 10-year age class out to the normal rotation age.

**Goal: *provide an even flow of wildlife habitat and timber harvest over time.***

A steady supply of these resources over time is important to wildlife, recreation, the forest products industry, and the Local economies that depend on them.





# Oak Forest – Mast Production

- Acorns important high-fat food for deer, grouse, bears, squirrels, etc.
- Maintain large trees with mast production potential.
- Look to increase presence of individual trees where present.
- Identify suitable sites for expansion of type.



UGA1219200



# Jack Pine

- Skewed age class with little regeneration occurring in MN
- Favor natural regen with less site prep – seedtree cut, scatter slash, prescribe fire
- Lower planting densities favor the understory
- Resist red pine conversions - NPC





# White Cedar



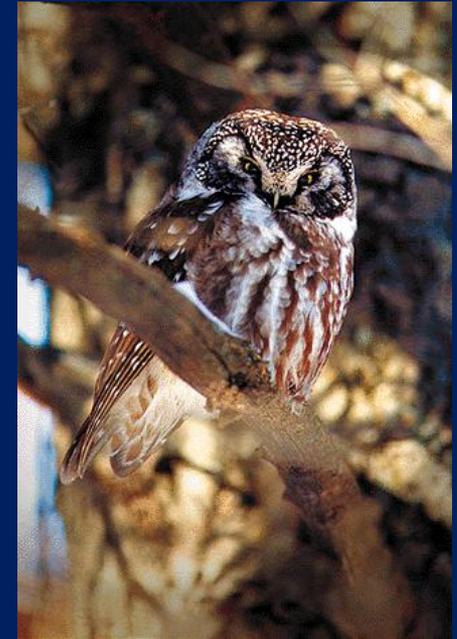
- Important deer and moose thermal cover and food
- Upland cedar important/decreasing
- Traditionally difficult to regenerate in most areas
- Reserve individuals within clumps

# Leave Tree & Snag Guidelines:

## *Review/Implementation Concerns*

### *Why the Concern?*

- **Monitoring results suggest little improvement in retention amounts (leave trees)**
- **MN DNR Forest Certification Corrective Action Request (CAR)**
- **Concern over lack of focus on leave tree species/size/condition guidelines**
- **Concern over potential to negatively impact wildlife species (need: 40 birds, 29 mammals, several reptiles/amphibians)**



# MN DNR C.A.R.

*2009 Annual SFI Audit of MN DNR  
forest management operations:*

**“Implementation of...stand level wildlife habitat elements,  
notably den trees and large/live and declining trees,  
is not adequate and does not fully meet the spirit, intent,  
or detailed guidance within the published guidelines”**

# Review:



## Leave Tree Guideline:

*4 components*

- Retention Style/Amount
- Species of Tree\*
- Size of Tree\*
- Condition of Tree\*



**Note: Leave Tree Guidelines Covered in 3 locations**

Rationale (yellow tab) WH 7-9

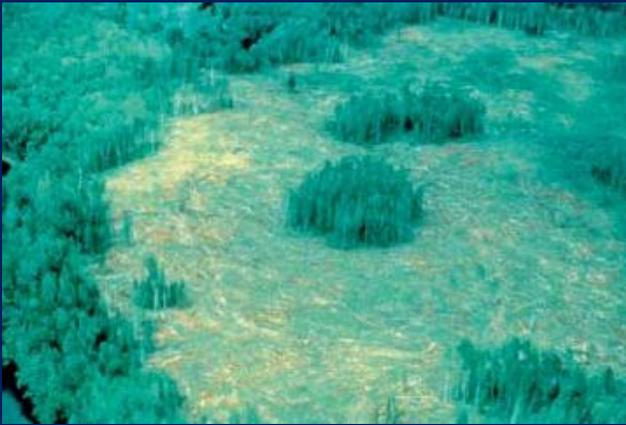
General Guidelines (green tab) GG 75-77

Timber Harvesting (Blue Tab) TH 33 - 40

# Leave Tree Guideline: Retention

## Option 1

Clumps (minimum of 5% of harvest unit)



Clump?



## Option 2

Scattered ( 6-12 trees/acre on 80% of sites)

# \*Species!



- Preference per Table GG7
- Mix of species is desirable
- Work with natural species present in stand

Table GG-7

## Leave Tree Preferences for Longevity, Windfirmness and Cavity Potential

| Excellent    | Good          | Fair          |
|--------------|---------------|---------------|
| white pine   | aspens        | white birch   |
| oaks         | red pine*     | balsam fir*   |
| elms         | tamarack      | jack pine*    |
| ashes        | cedar         | black spruce* |
| sugar maple  | red maple     | balsam poplar |
| yellow birch | white spruce* |               |
| basswood     | black cherry  |               |
|              | hickories     |               |
|              | box elder     |               |
|              | cottonwood    |               |
|              | walnut        |               |
|              | hackberry     |               |

*\*Leaving these species in the overstory imposes a risk of insect and disease infestation to understory regeneration of that same species.*

# \*Size!

- Range of sizes on each managed site
- All should be at least 6" DBH
- About 50% should be > 12" DBH
- At least 1-2/clump or acre > 18" DBH (if available)



Jonathan Gilbert, GLIFWC

Species Example:  
Boreal Owls



# Species Example: Fisher/Marten Research



Jon Erb/MN DNR Photos



Jonathan Gilbert/GLIFWC Photo

# Moose: *Status/Habitat Plans*



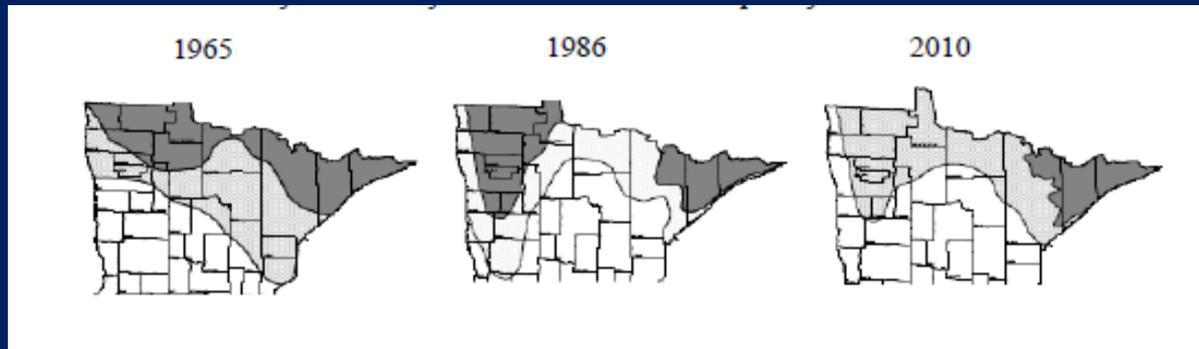
*Excerpts from:*

*“Minnesota Moose Research and Management Plan ”*

*MN DNR (aided by MAC report)*

*[http://www.dnr.state.mn.us/fish\\_wildlife/wildlife/moose/management/mooseplan-final.pdf](http://www.dnr.state.mn.us/fish_wildlife/wildlife/moose/management/mooseplan-final.pdf)*

# Historical Decline



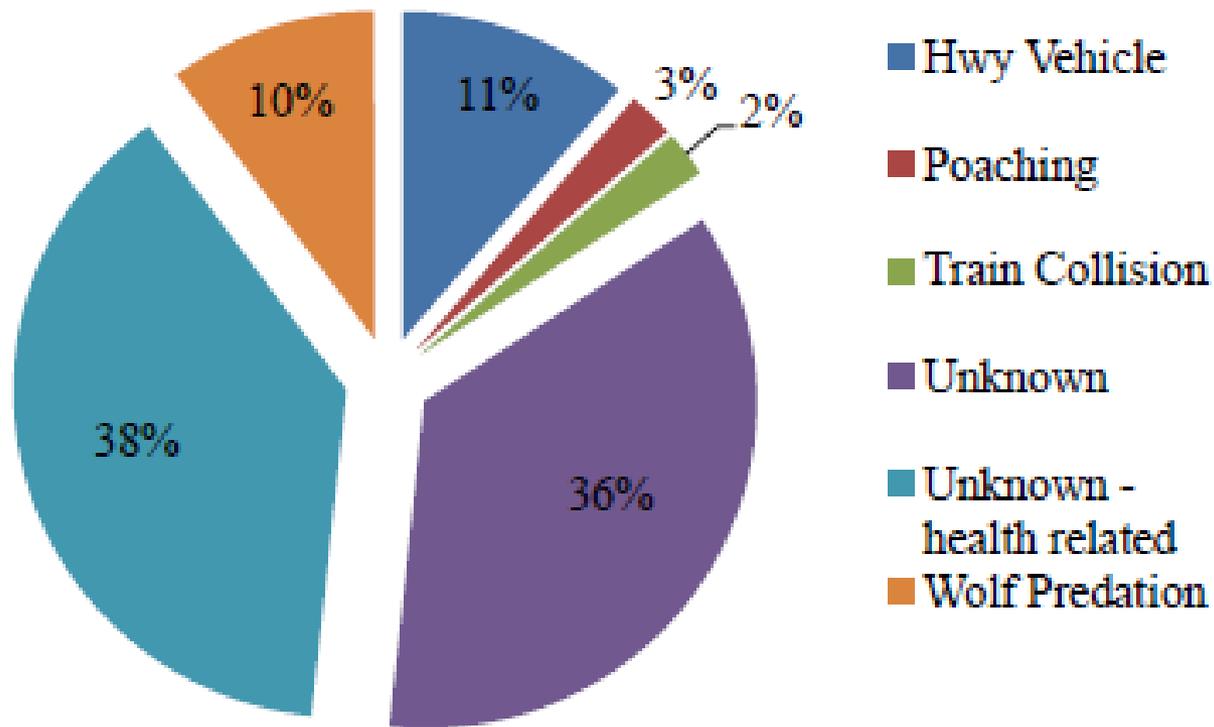
- **Range Expansion then contraction**
- **Near extirpation NW MN in span of 20 years**
- **Current NE MN pop. Estimate: app. 4,200**
- **Downward trend, troubling population dynamics**

- **High Adult non-hunting mortality rates;**
- **Declining Bull: Cow ratio;**
- **Declines in calf recruitment;**
- **Evidence of correlation between seasonal ambient temperature and adult survival;**
- **Similarities in above to NW population as it declined**
- *Warming climate = smaller “barrel”?*



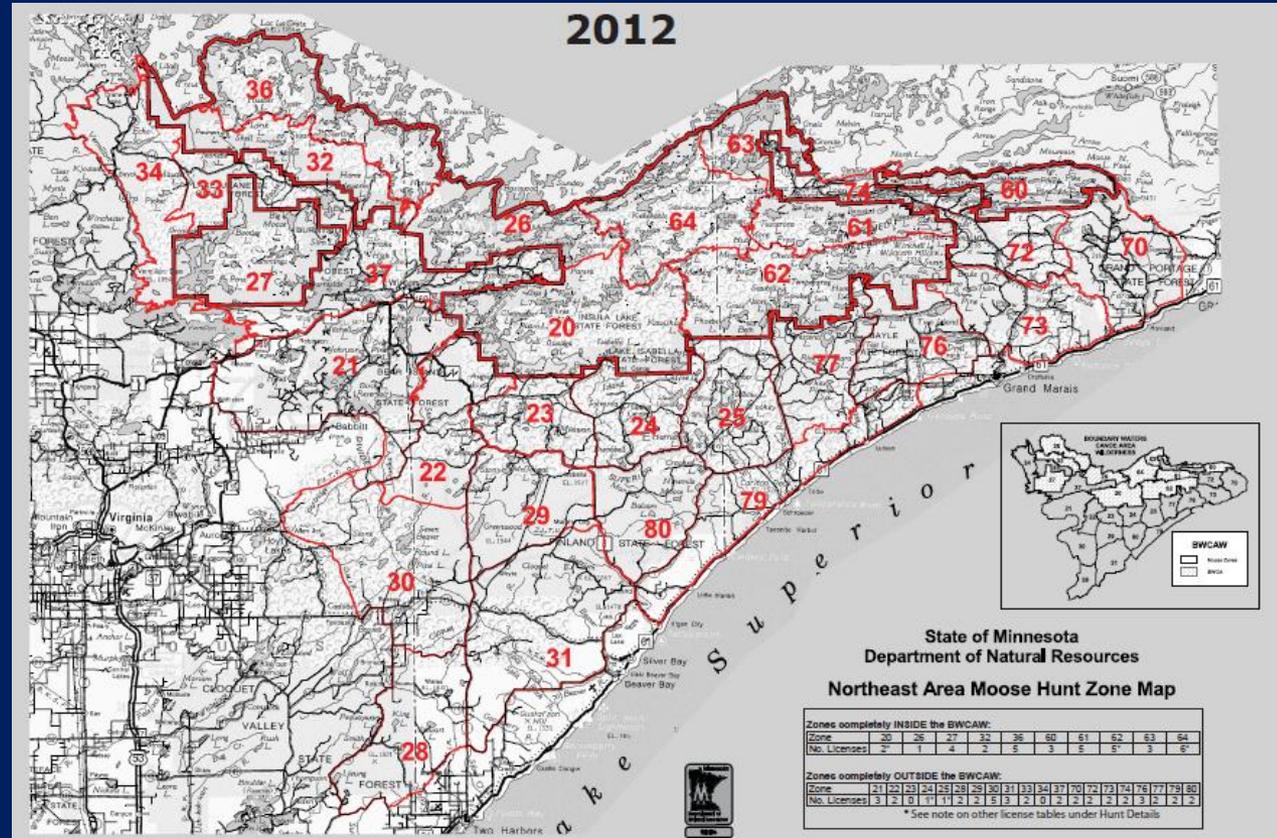
# Mortality Cause

Figure 6. Cause-specific non-hunting mortality of 89 radio-collared moose, 2002-2010.



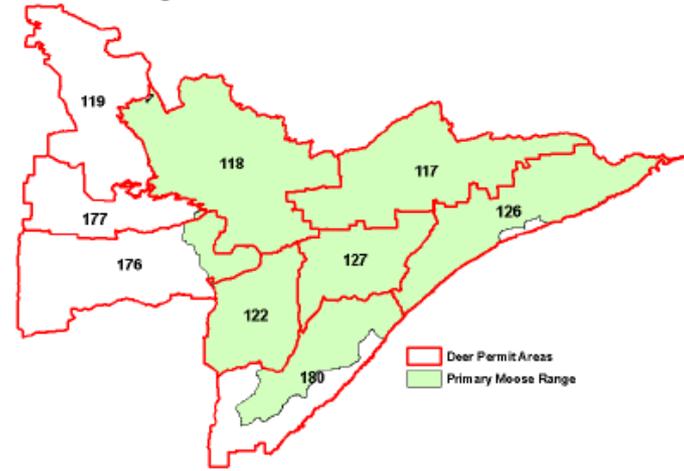
# Moose Hunting

- 2012: 87 permits
- Bulls Only
- 5% < population
- Thresholds set for closing of season (hunter success/ Bull: Cow Ratio)



# Moose vs. Deer

Figure 11. Distribution of deer permit areas and moose hunting zones relative to the primary northeast moose range.



- No definitive link between deer numbers/moose mortality
- Until more information available, prudent course = limit deer density
- < 10 deer/mile goal (currently met in all but one permit area)
- Proposed ban on recreational deer feeding in primary moose range



# MAC: Moose Habitat Recommendations

- Increase stand complexity, promote shrub production/diversity, maintain thermal cover (mimic fire, windthrow, I and D and age declines);
- Promote mixed (species composition, age, structure) stands during regeneration efforts;
- Maintain proximity of browse production areas, winter/summer thermal cover, aquatic feeding areas;
- Protect/retain tree/shrub browse availability during TSI/release efforts;
- Increase the use of Rx fire as a management technique;
- Identify, retain rather than convert, and manage upland brush communities;
- Increase rotation age of aspen stands to increase understory browse component while retaining summer thermal cover



# Conifer Retention and Regeneration

- To increase site-level diversity through the retention and regeneration of conifers in mixed deciduous/coniferous stands.





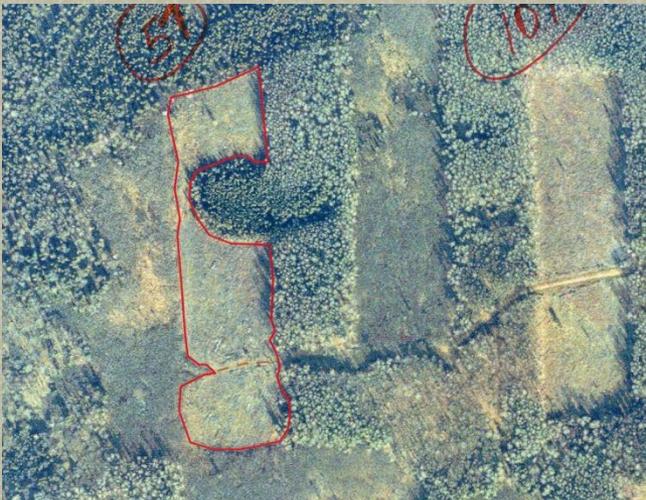
# Conifer Retention and Regeneration - Wildlife Benefits

- Pine Warbler
- Pine Marten
- Deer
- Moose
- Owls
- Spruce Grouse



# Patterns of Cutting

- To provide site-level wildlife habitat requirements by using a variety of sizes and shapes of harvest areas.





# Patterns of Cutting

## -Wildlife Benefits

### Small Patch

- Ruffed grouse
- Woodcock
- Golden-winged warbler
- Deer
- Songbirds

### Large Patch

- Moose
- Goshawk
- Black-throated blue warbler
- Ovenbird
- Bears



# Riparian Wildlife Habitat

## -Wildlife Benefits

- Woodcock
- Beaver
- Otter
- Waterfowl
- Deer
- Raccoon
- Amphibians
- Turtles
- Eagles
- Moose





# Open Landscape Priority Areas



# Examples of Brushland in Minnesota

**Brush Prairie**



**Bog**



**Oak Savanna**



**Shrub Swamp**



# Wildlife Which Utilize (and Depend Upon) Open Landscapes

And occur regularly or permanently in the Minnesota OLAA

|              | <u>Openland</u>  | <u>Brushland</u> |
|--------------|------------------|------------------|
| Amphibians   | 14 (1)           | 13 (0)           |
| Reptiles     | 17 (7)           | 14 (0)           |
| Mammals      | 56 (9)           | 58 (1)           |
| <u>Birds</u> | <u>214 (137)</u> | <u>171 (17)</u>  |
| 404 species  | 301 (154)        | 256 (18)         |
|              | 75% (38%)        | 63% (4%)         |

# Recap: Brushland Management Issues

Decline of brushland quantity and quality due to:

- Natural succession
  - Wildfire suppression
  - Increased difficulty of prescribed burning
  - Lack of other disturbances (e.g. haying, grazing or mowing)
- Conversion to other land uses
  - Intensive agriculture lands – conifer plantations, SRWC, sod & rice fields, etc.
  - Development
- *Conflicting programs and planning*



# Open Landscape Assessment: Purpose

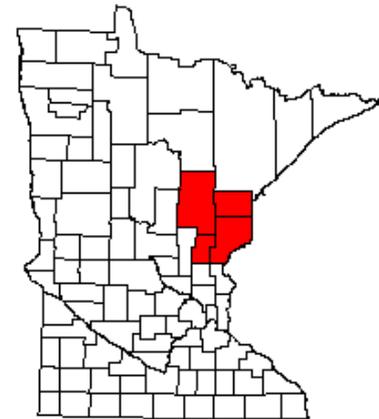
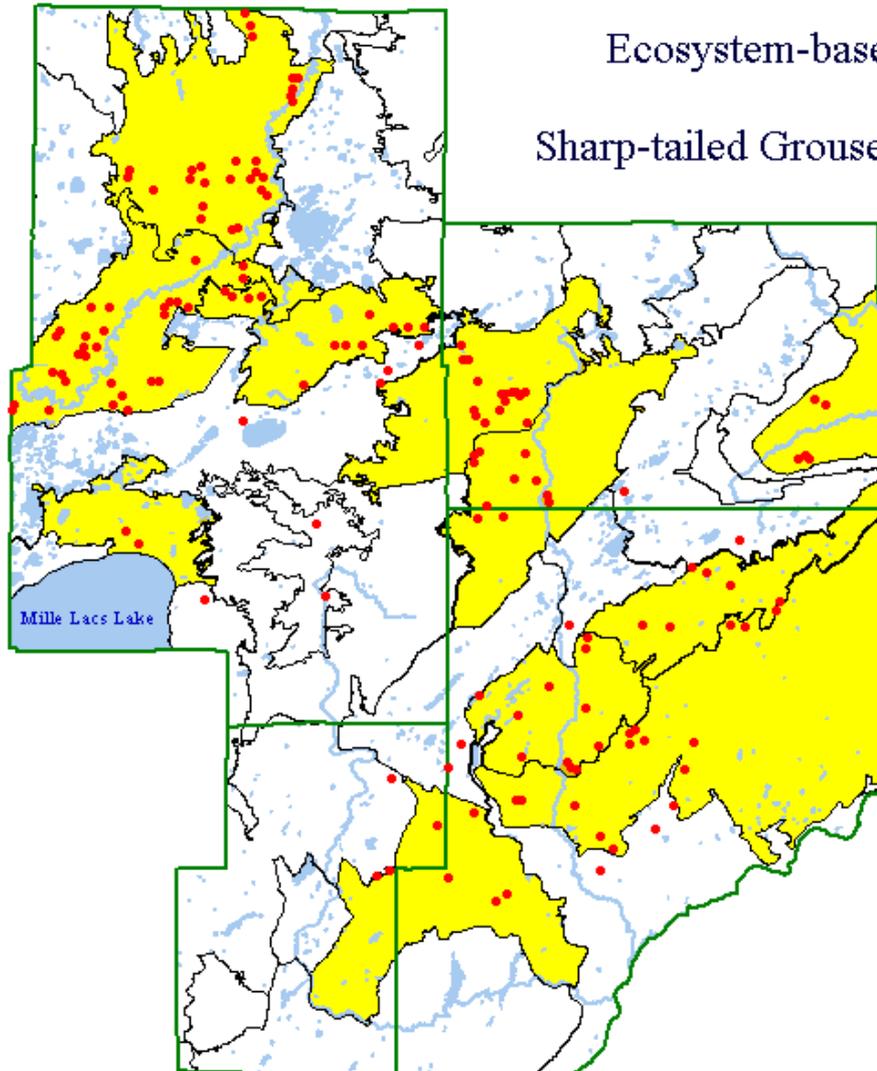
1. Identify large, open landscape complexes;
2. Assess where habitat enhancement would be most effective;
3. Ensure consideration of identified open landscape complexes in landscape planning efforts;
4. Facilitate agreement on identification & management of these complexes;
5. Document funding needs and priority areas.



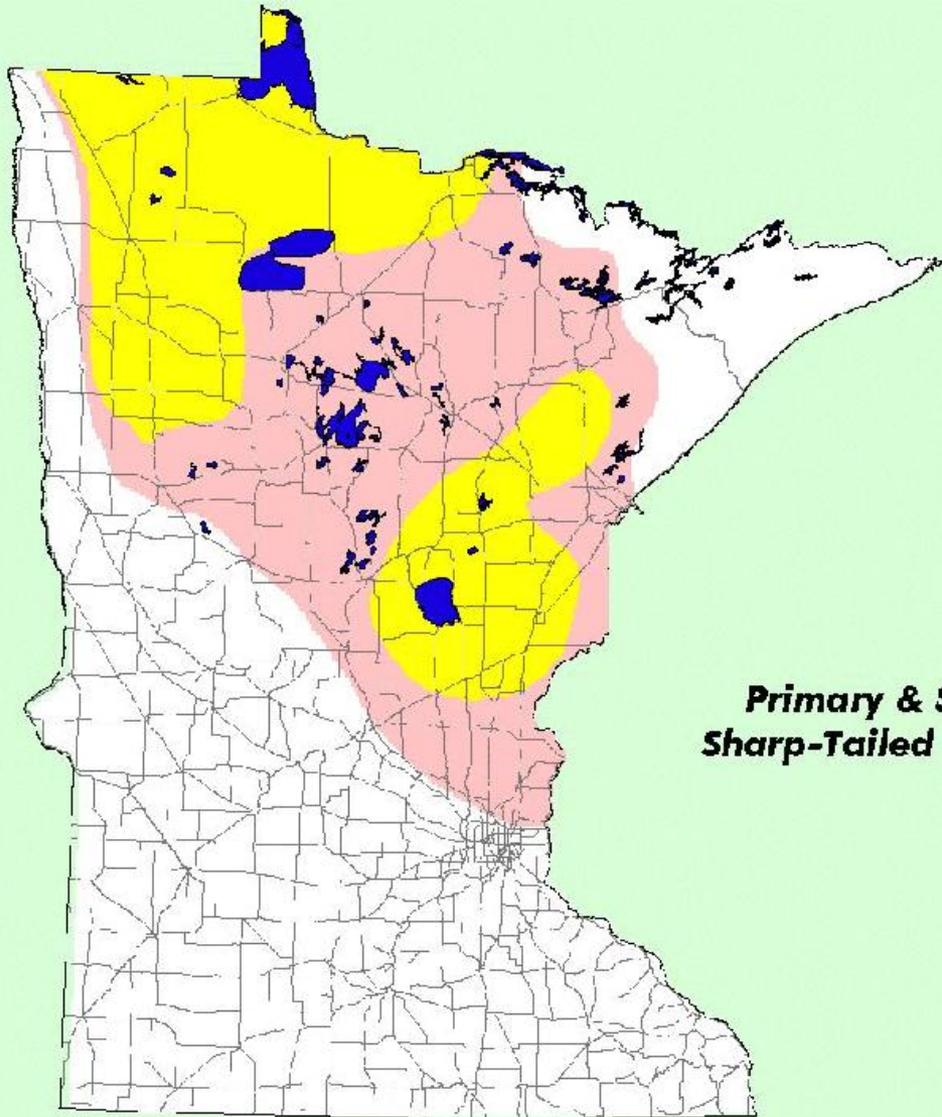
# Brushland Species: Often Closely Tied To Landform

Ecosystem-based Resource Assessment

Sharp-tailed Grouse Leks and Associated LTAs



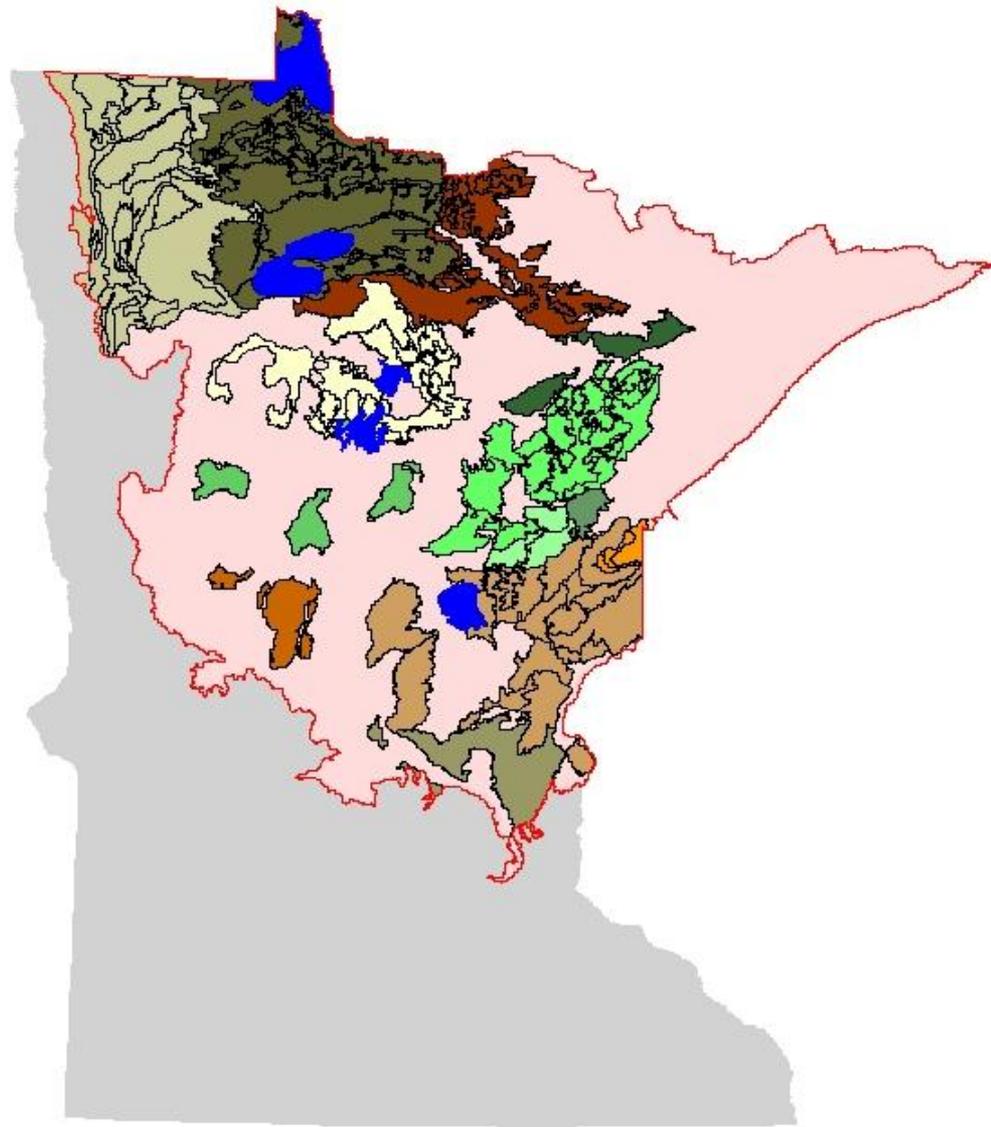
# Historical Brushland: Location



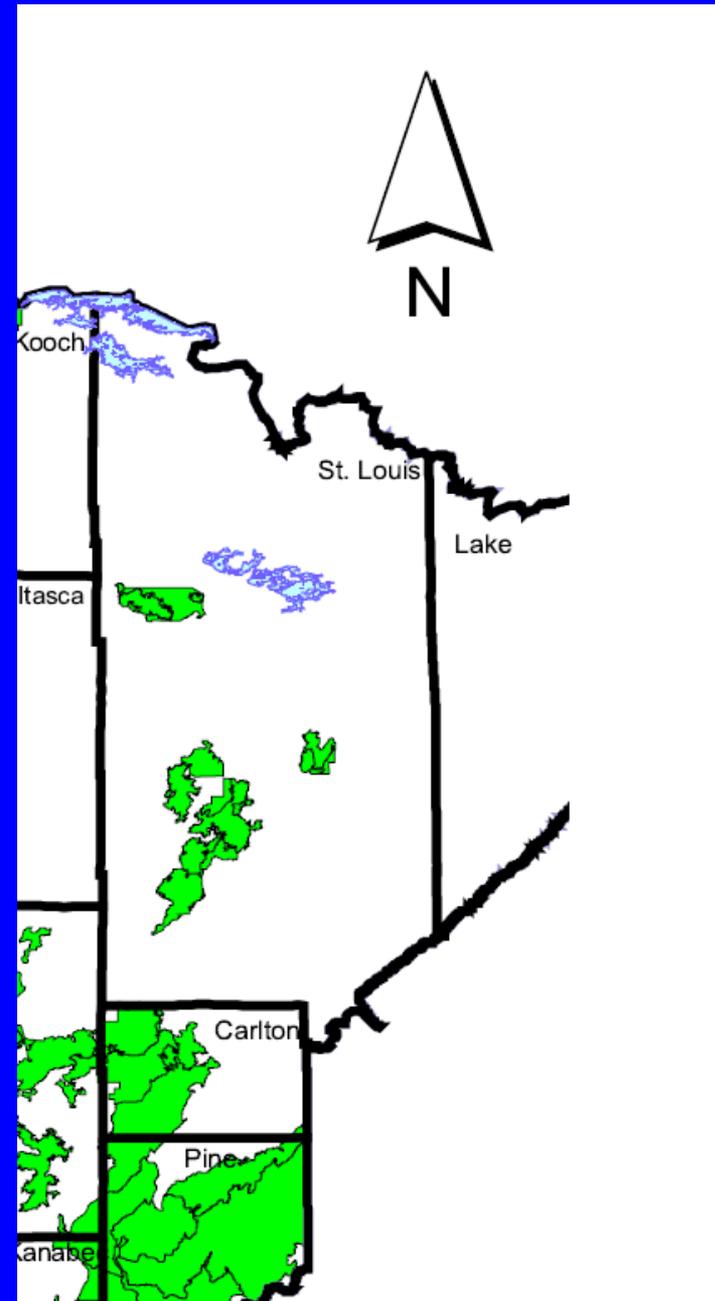
***Primary & Secondary  
Sharp-Tailed Grouse Range***

# Minnesota Open Landscape Assessment Area

84 LTAs Selected within 13 Subsections for Additional Assessment



# DNR Designated Open Landscape LTA's *w/in NE FRC Landscape*



- All in Carlton/St. Louis Counties
- Mostly sedge meadow/bog/Agr.

# What Does Designation as a Priority Open Landscape Mean To Land Managers?

- Younger rotation age when harvesting even-aged trees.
- Larger patch size when harvesting trees.
- Fewer snag/leave trees left after harvest.
- Brushland funding focused on priority open landscapes.
- More coordination with other landowners - public, industrial, and private.
- MDNR Private Lands Program focus on open landscape mgt..

