Wildlife Management Considerations for Michigan's Lowland Forests

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Three Significant Challenges

1. Predicting trends in an increasingly uncertain future
2. Adapting successful strategies for species of traditional emphasis
3. Meeting growing demands and opportunities for species in greatest need of conservation

1. Predicting Trends

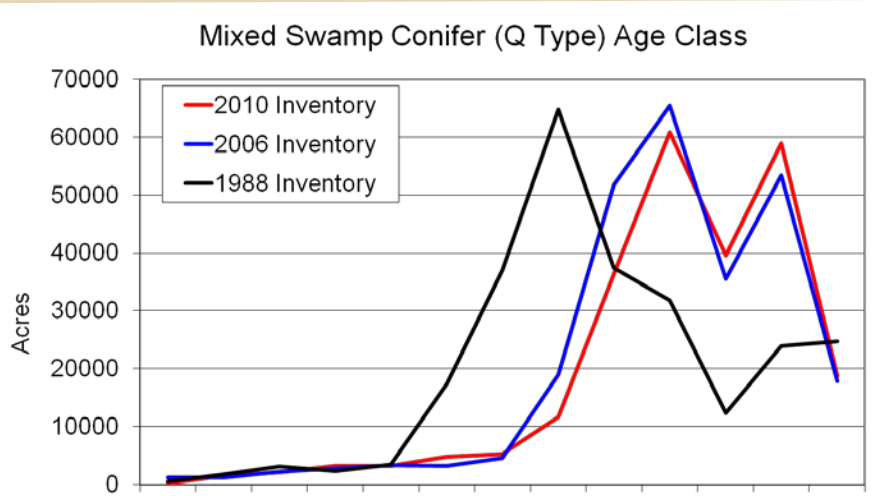
- Advancement of equipment, techniques, and knowledge
- Market demands
- Changing ecosystems

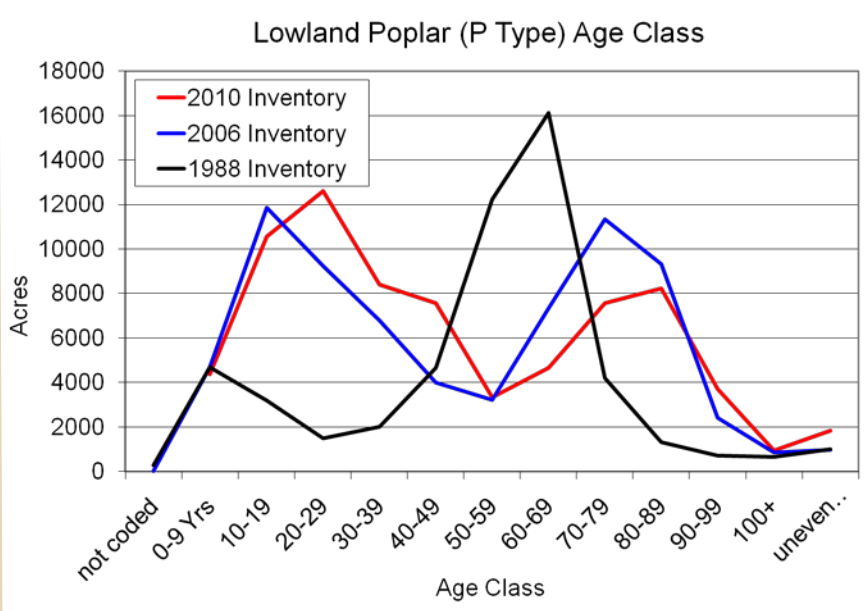
Managing Lowland Types

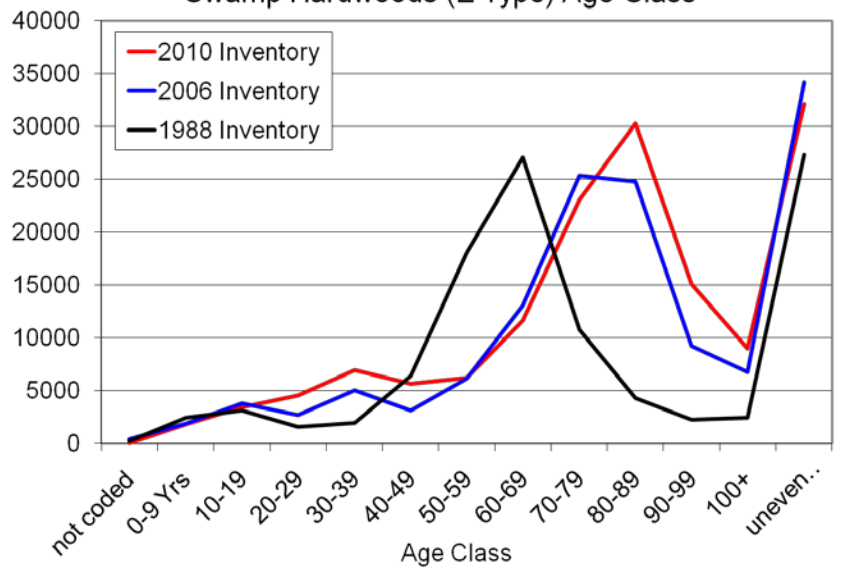
- Slope, moisture, water quality concerns all present limiting factors
- Access to feasible stands
- Weather
- Markets (not high value timber)
- Regeneration concerns
- Knowledge: minimal silvicultural guidance

Advances in equipment and techniques may address some of these issues

Lowland Forest Types Inventory







Change in Forestland Acreage

Michigan forestland	Circa 2000		Circa 1800		Change	
	Acreage	Percent	Acreage	Percent	in acres	in percent
aspen—birch	3,163,200	16.5	292,266	0.8	2,870,934	982.3
black ash swamp	680,700	3.6	280,705	0.8	399,995	142.5
cedar swamp	1,351,700	7.1	1,254,055	3.6	97,645	7.8
eastern red cedar	11,500	0.1	0	0.0	11,500	0.1
exotic pine—spruce—fir	178,600	0.9	0	0.0	178,600	0.9
hemlock	118,800	0.6	4,714,602	13.5	-4,595,802	-97.5
jack pine	715,300	3.7	596,836	1.7	118,464	19.8
mixed conifer swamp	701,200	3.7	4,290,553	12.3	-3,589,353	-83.7
mixed hardwood swamp	834,900	4.4	1,421,462	4.1	-586,562	-41.3
mixed oak savanna	1,500	0.0	1,061,564	3.0	-1,060,064	-99.9
mixed oak—hickory	2,612,500	13.7	2,306,373	6.6	306,127	13.3
mixed pine—oak	352,700	1.8	543,562	1.6	-190,862	-35.1
n. hardwoods	4,971,900	26.0	7,503,633	21.4	-2,531,733	-33.7
oak/pine barrens	11,400	0.1	1,101,424	3.1	-1,090,024	-99.0
red pine	886,000	4.6	70,889	0.2	815,111	1,149.8
red/jack pine	0	0.0	515,819	1.5	-515,819	-100.0
s. hardwoods	1,520,400	8.0	5,845,677	16.7	-4,325,277	-74.0
spruce—fir—cedar	557,700	2.9	823,253	2.4	-265,553	-32.3
white pine	278,600	1.5	69,141	0.2	209,459	302.9
white pine—mixed hardwoods	164,500	0.9	1,185,681	3.4	-1,021,181	-86.1
white—red pine	0	0.0	1,132,097	3.2	-1,132,097	-100.0
Totals	19,113,100	100	35,009,592	100	15,896,492	-45.4

State Forest Management Plan
April 10, 2008
MNFI 1998
DNR 2001
USFS 2003

Changing Ecosystems

- Emerald Ash Borer
  - Serious limiting factor for all *Fraxinus* species
- Black Ash Decline and Mortality
  - drought impacts
- Green Ash: heavy, wet soils & riparian
- Black Ash: mixed stands, bogs, swamps (sometimes sole tree species)
- Prolific seeds: ducks, songbirds, gamebirds, small mammals, insects
- Browse and cover: deer, moose

1. Challenges in Predicting Trends

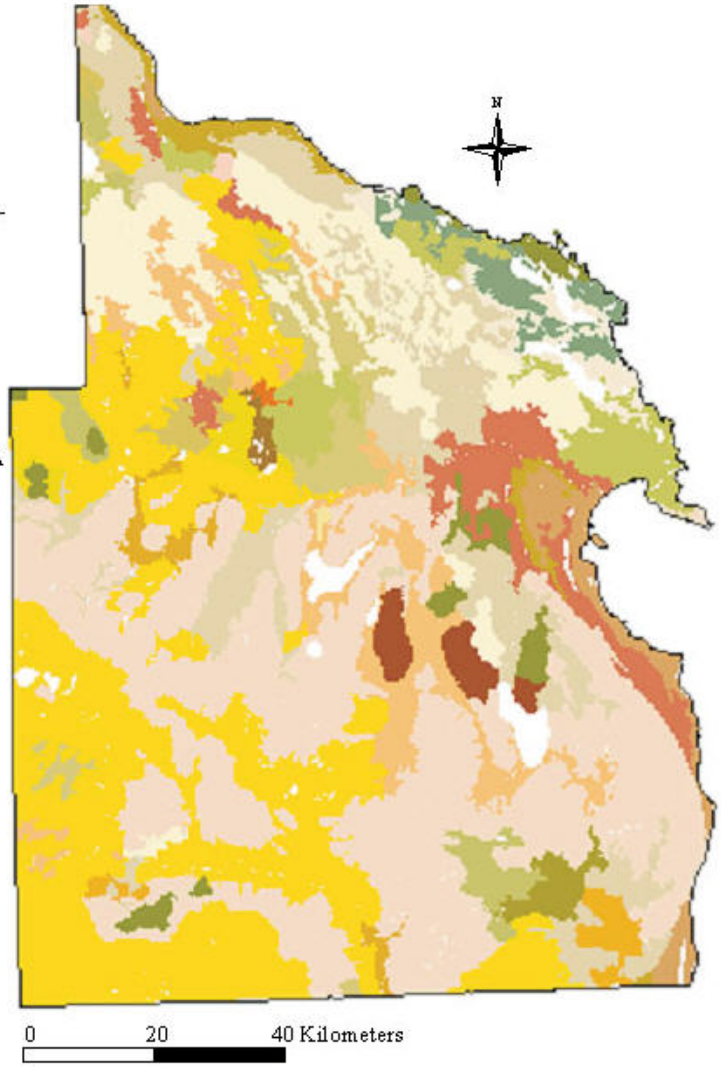
- Interrelated changes in techniques, markets, and ecosystem stresses
- Impacts on wildlife are a step removed from impacts on forests
- Obligation to protect resources leads to conservative approach where knowledge and information are limited

2. Traditional (Game) Species

- White-tailed deer
- Ruffed grouse
- American woodcock

Habitat Potential and Planning

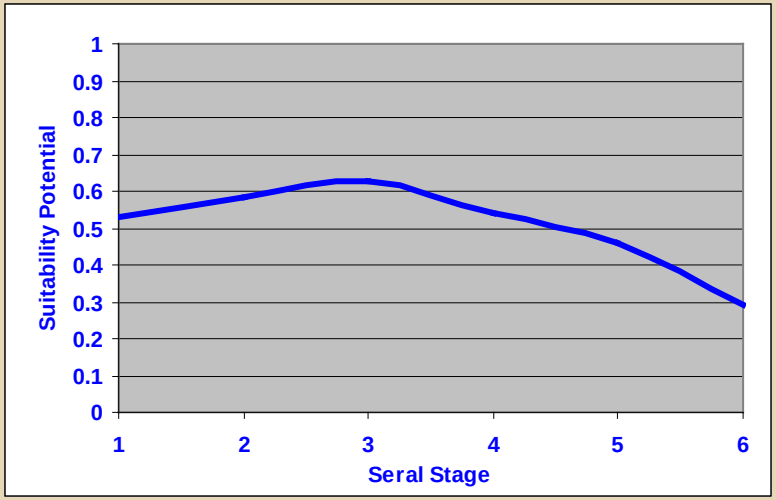
Prop.	EARLY	MID	LATE
0.017	Lake/River		
0.018	A	A/RM/WP	WP/RM/Bee/SM
0.266	A	O/RM/WP	WP/RM
0.009	A/BP	BA/AE	RM/SM/BA
0.001	A/BP/Bir	A/BP/BA	BA/C
0.037	A/Bir	BF/WS/RM	C/BF/RM
0.001	A/Bir	BS/BF/C	C/BS/BF
0.012	A/Bir	RM/Bee/WA/Bas/WP	SM/Bee/H
0.008	A/Bir	RM/Bee/WP	WP/RM/Bee/SM/WA
0.006	A/Bir	SM/Bee/Bas/RM/WA	SM/Bee
0.082	A/Bir	SM/Bee/Bas/RM/WA	SM/Bee/Bas
0.007	A/Bir	SM/O/Bee	SM/Bee/H
0.003	A/Bir	WP/RM/Bee	WP/RM/Bee/SM
0.016	A/Bir	BS/BF/C	C/BS/BF
0.013	A/JP	JP/RP	RO/RM/WP
0.011	A/O	O/RM/WP/BC	WP/RM/Bee/SM
0.018	LBr	BS/T/BF/C/BA	BS
0.016	JP/WP/RP/O	JP/WP/RP/RM/BC	WP/RM
0.001	LBr/T/BA/Bir	T/BA/RM	C/BS/BF
0.009	LBr	BS/T/BF/C/WP	BS/T
0.098	LBr/A/Bir/BP/BA	C/BS/BF	C/H
0.056	LBr/Bir/T/BA	C/BS/BF	C/BS/BF
0.025	LBr/Bir/T/BA	T/BA/RM	C/BS/BF
0.233	Shr/G	JP/RP/WP/O	WP/RP/O/JP
0.037	T/BA/Bir/RM	T/BA/Bir/RM/C	C/BS/BF

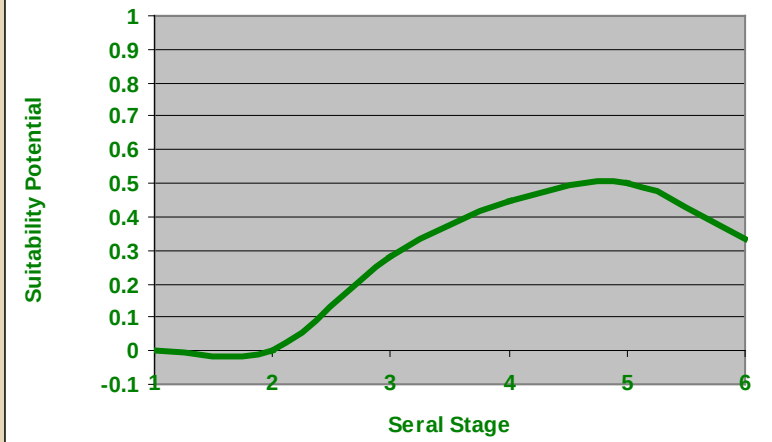


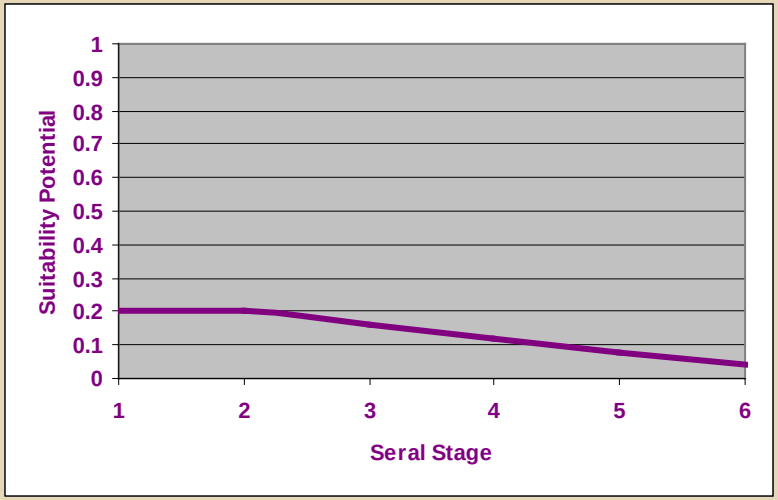
Felix, A. B., H. Campa III, K. F. Millenbah, S. R. Winterstein, and W. E. Moritz. 2004. Development of landscape-scale habitat-potential models for forest wildlife planning and management. Wildlife Society Bulletin 32:795-806.

Habitat Potential and Planning

Over seral stages, habitat provides different potential as Thermal Cover, Fall & Winter Food, and Spring & Summer habitat.



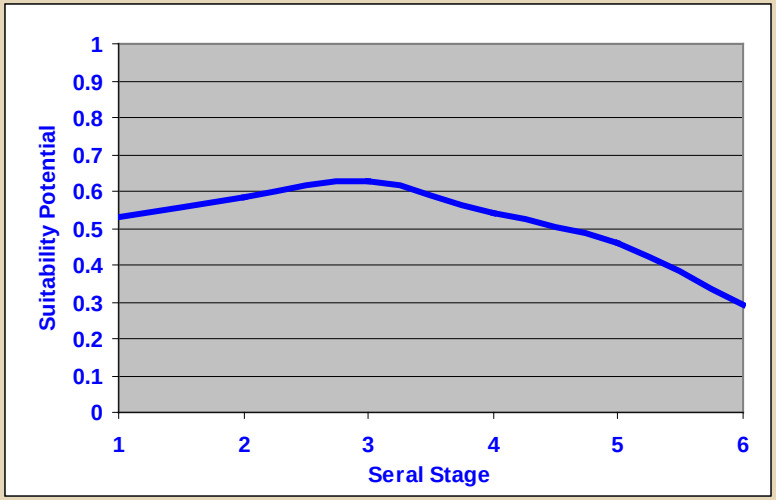


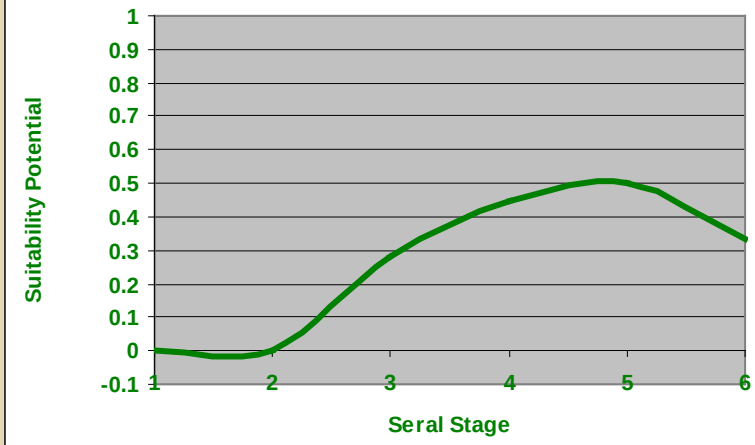


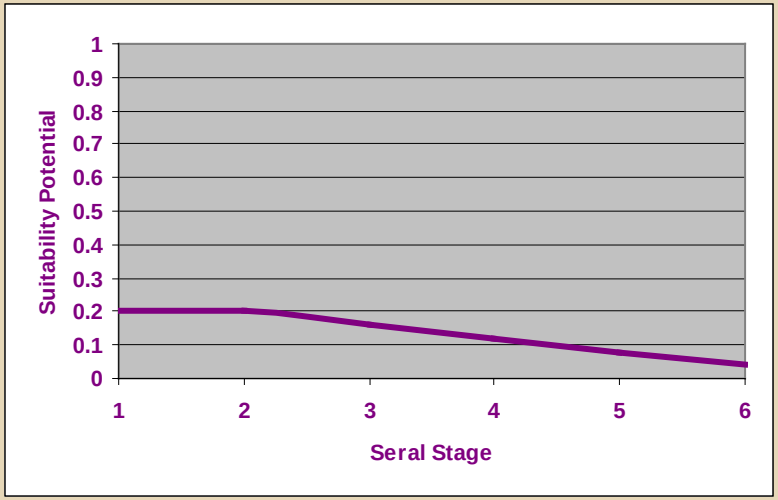
Aspen, Balsam Poplar, Birch – Aspen, Balsam Poplar, Black Ash – Black Ash, Cedar

Habitat Potential and Planning

Some areas identified for improvement may never provide optimal conditions for some or all habitat needs.







Aspen, Balsam Poplar, Birch – Aspen, Balsam Poplar, Black Ash – Black Ash, Cedar

Ruffed Grouse Conservation Plan

“Population declines of ruffed grouse and of other wildlife species that require thick, young forest habitats can only be stemmed or reversed by increasing the abundance of these habitats through the use of sustainable forest management.”

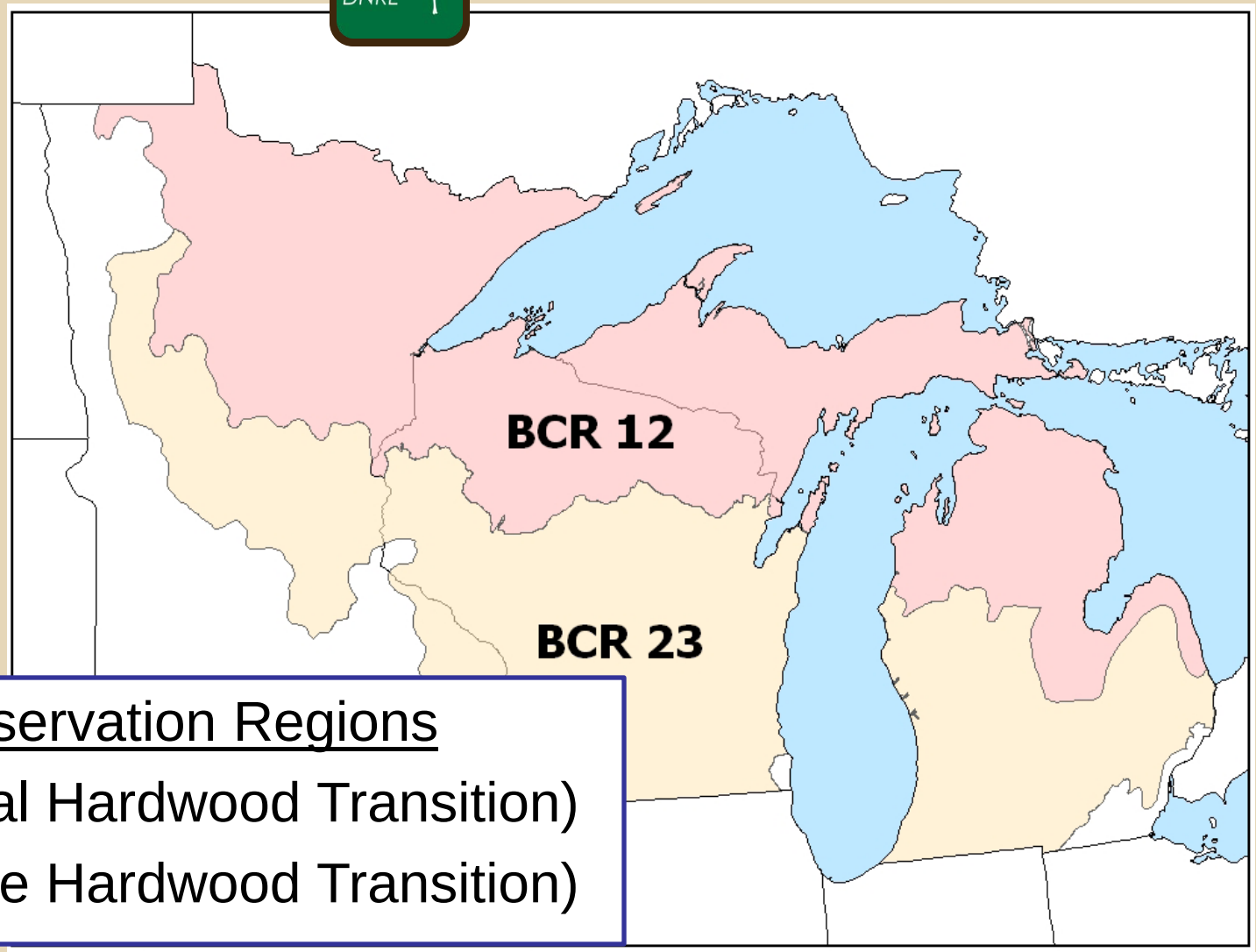
Ruffed Grouse Conservation Plan

“The negative public attitude toward this type of habitat management is the single greatest challenge faced by natural resource managers when proposing to manage forestland for ruffed grouse and for numerous other species of wildlife that prefer similar habitats.”

Woodcock Conservation Plan

- Upper Great Lakes Stepdown: regional habitat goals
- Best Management Practices: optimum methods for producing young-forest habitat
- Context of Management: guidance on where & where not to actively manage (*under development*)

Upper Great Lakes Region

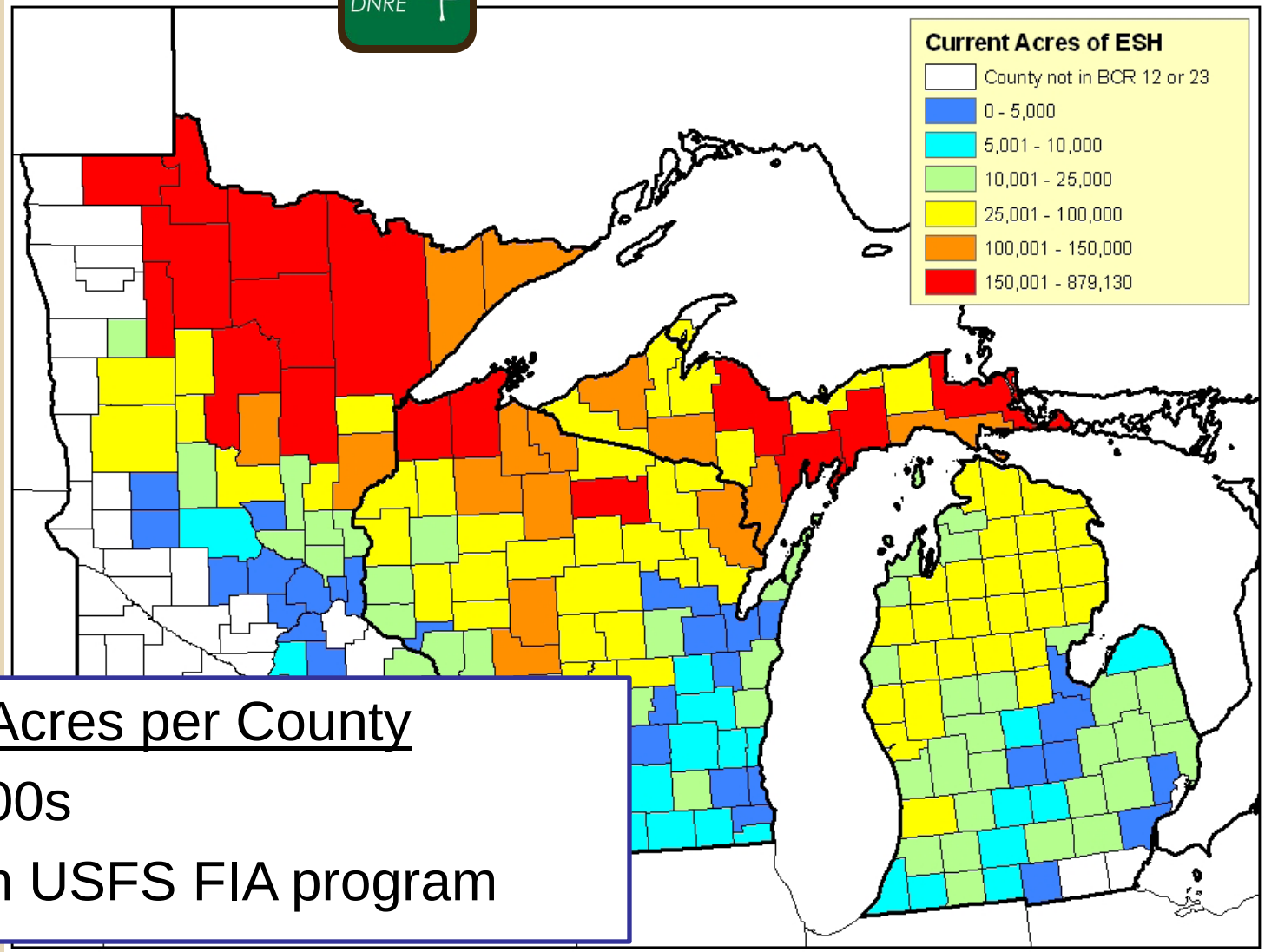


Bird Conservation Regions

12 (Boreal Hardwood Transition)

23 (Prairie Hardwood Transition)

Early Successional Habitat (ESH)

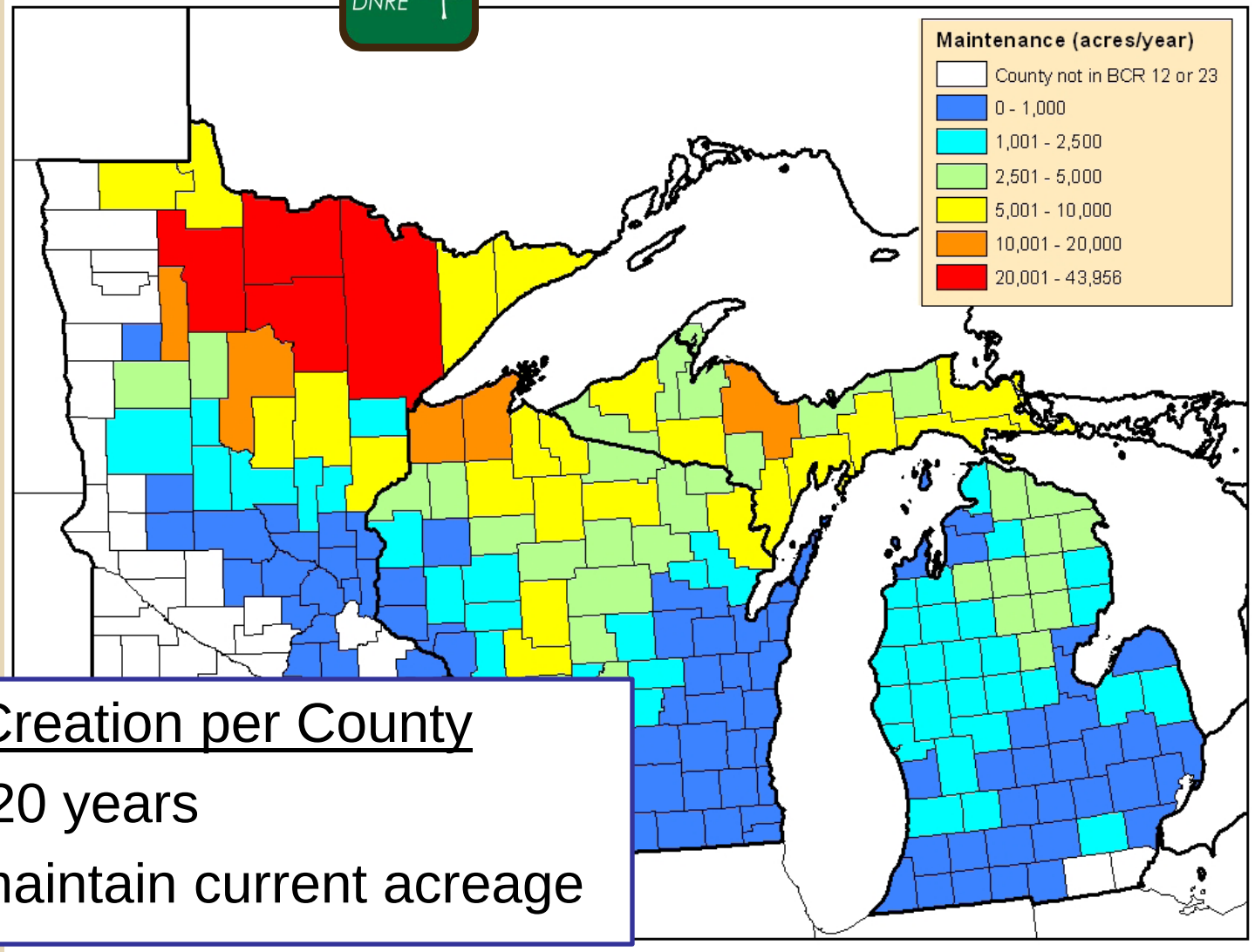


Current Acres per County

early 2000s

based on USFS FIA program

Early Successional Habitat (ESH)



Annual Creation per County

for next 20 years

goal to maintain current acreage

20 Year Woodcock Habitat Goals

BCR	State	ESH (acres)	Acreage to stabilize (acres/yr)
12	MI	2,928,151	146,408
	MN	4,319,526	215,976
	WI	2,020,144	101,007
	Total	**9,267,821**	**463,391**
23	MI	615,231	30,762
	MN	396,939	19,487
	WI	1,243,911	62,196
	Total	**2,256,081**	**112,445**

Woodcock Habitat

Feeding

- Rich, moist soils
- Abundant soft-bodied inverts (esp. earthworms)
- High woody stem densities

Singing & Roosting

- Open, sparse cover
- Close to feeding & nesting areas

Nesting & Brooding

- Brushy and dense
- Some pole-sized trees
- Often somewhat drier than feeding areas

Woodcock Habitat Management

- Aspen
- Riparian Zones
  - north-south oriented zones may be key migration-stopover feeding sites
- Alder
  - no standing water or heavy sedge
  - too old when stems grow horizontal

Alder Management

- Mow/shear strips 50-100’ wide
- 25% every 5 yrs
- Minimize root disturbance
- Orient perpendicular to water sources
- Adjacent to commercial harvest sites, drag felled aspen or clip from frozen ground using skidder blade
- Biomass energy production may create commercial viability

2. Challenges in Adapting Strategies

- Decisions will need to consider the greatest benefit from limited resources spread around the state
- Non-commercial treatments require extra effort for adoption

3. Species in Need of Conservation

- Declining game species
- Endangered & threatened species
- Lesser-known or “conservation gap” species

Wildlife Action Plan

“The goal of Michigan's Wildlife Action Plan is to provide a strategic framework and set of management tools that will enable our state's conservation partners to implement a long-term holistic conservation approach for all aquatic and terrestrial wildlife species.”

Wildlife Action Plan: Mammals

Examples: lowland or riparian habitats and potential threat by forestry practices…

Water shrew (*Sorex palustris*)

- UP, NLP: uncommon, difficult to assess
- Lowland shrubs & conifers, swamps, riparian/floodplain
- Threats: altered hydrology, forestry practices, aquatic pollution

Wildlife Action Plan: Mammals

Examples: lowland or riparian habitats and potential threat by forestry practices…

Least weasel (*Mustela nivalis*)

- Statewide: possible locally common, fluctuate, poorly documented
- Lowland hardwoods, riparian/floodplain
- Threats: invasive plants & animals (including feral cats), lack of knowledge

Wildlife Action Plan: Mammals

Examples: lowland or riparian habitats and potential threat by forestry practices…

Seven bat species, including:

- Indiana bat (*Myotis sodalis*)
- Northern or long-eared bat (*Myotis septentrionalis*)
- Eastern pipistrelle (*Pipistrellus subflavus)*
  - *all (plus little brown bat) hibernate in MI and are vulnerable to White-Nose Syndrome*

3. Conservation Challenges

- Even high-profile species face funding shortages and public resistance to active management
- Diverse funding sources create opportunities but carry unique restrictions
- Limits to known distribution and dynamics of rare or “gap” species

Lowland Forest Challenges

- Limited past experience has created few demands for distributional, ecological, and management knowledge
- Many of these wildlife species are difficult to survey, and areas are difficult to access

How to Meet the Challenges?

1. Predicting trends in an increasingly uncertain future
2. Adapting successful strategies for species of traditional emphasis
3. Meeting growing demands and opportunities for species in greatest need of conservation
4. Plans and partnerships

4. Plans and Partnerships

- Efforts to diversify conservation funding and reduced agency resources increase grant reliance
- Plans identify areas for public-private partnerships
- Initiating and tracking plans, planning areas, and partner commitments will itself demand resources

Questions and Future Contacts

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