

# Uneven-aged Management and Wildlife Habitat -- What Do We Really Know?



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## What we'll deal with today

- What habitats are provided through UAM
- How do these habitats compare with EAM
- Scale of application
- Vertebrate taxa response

# Silvicultural Approaches



- **Group selection:** Partial canopy, midstory and shrub understory, mid- to late successional species mixes



- **Individual tree selection:** Closed canopy, midstory layer, late successional species mixes

# Even-aged Management Approaches



- **Clearcutting:** open canopy, shrub/herb layers, early successional cover types, species diversity



- **Shelterwood:** partial canopy, exposed perches, heavy midstory, shrub layer

# Opening Sizes Are Variable Across NE Landscape



- Influences woody, herbaceous, and avian species composition
- Available forage and foraging substrates
- Presence of soft mast

## Species composition of stocked milacres, 10 to 15 years after cutting in beech-birch-maple by tolerance groups

Tolerance Group	Clearcutting	Group Selection	Single-tree Selection
	-----	Percent	-----
Tolerants	43	62	92
Intermediates	19	34	7
Intolerants	38	4	1

**Tolerants:** beech, sugar maple, hemlock, red spruce

**Intermediates:** yellow birch, white ash, red maple, white pine

**Intolerants:** paper birch and aspen

From: Leak et al. (1987)

# Predictable Structural Features and Management

## Canopy Characteristics

Features	No Mgt	UAM		EAM
		Single-tree	Group / patch	
Closed canopy	Tree-sized gaps	Tree-sized gaps		Closes in time
Partial canopy			Small gaps	
Open canopy				Large gaps
Overstory inclusions	X	X	X	X

# Predictable Structural Features and Management

Perches, Cavity Trees, CWD, and Mast

Features	No Mgt	UAM		EAM
		Single-tree	Group / patch	
High perches			X	X
Low perches			X	X
Large cavity trees	Abundant	X*	X*	X*
Coarse woody debris	Abundant	Minimal	X	X
Hard mast	X	X	NI	NI
Soft mast			X	X

From: DeGraaf et al. (2005)



# Predictable Structural Features and Management

## Vertical Structure

Features	No Mgt	UAM		EAM
		Single-tree	Group / patch	
Midstory	X	X	NI	NI
Shrub layer			X	X
Herb layer			X	X

From: DeGraaf et al. (2005)

# Application Scales

## Size Matters

- Within-stand
- Stand
- Landscape
- Regional



# Continuing Forest Habitat Issues

- Quantity and quality of forest regeneration
- Breadth of species available – both vertebrates and woody/herbaceous plants
- Frequency and extent of disturbance patterns
- Availability of wildlife trees and coarse woody debris in managed stands
- Hard and soft mast availability

# Vertebrate Taxa Responses

## Amphibians



- Gap size can influence rate of reoccupation
- Effects of cuts are temporary
- Movements between temporary wetlands and adjacent uplands



# Vertebrate Taxa Responses

## Reptiles



- Basking sites in open sunny sites
- Sandy, gravelly nest sites
- Snakes and sunny brushy areas



# Vertebrate Taxa Responses

## Birds

- Proximity to openings
- Large snags and wildlife trees throughout stands



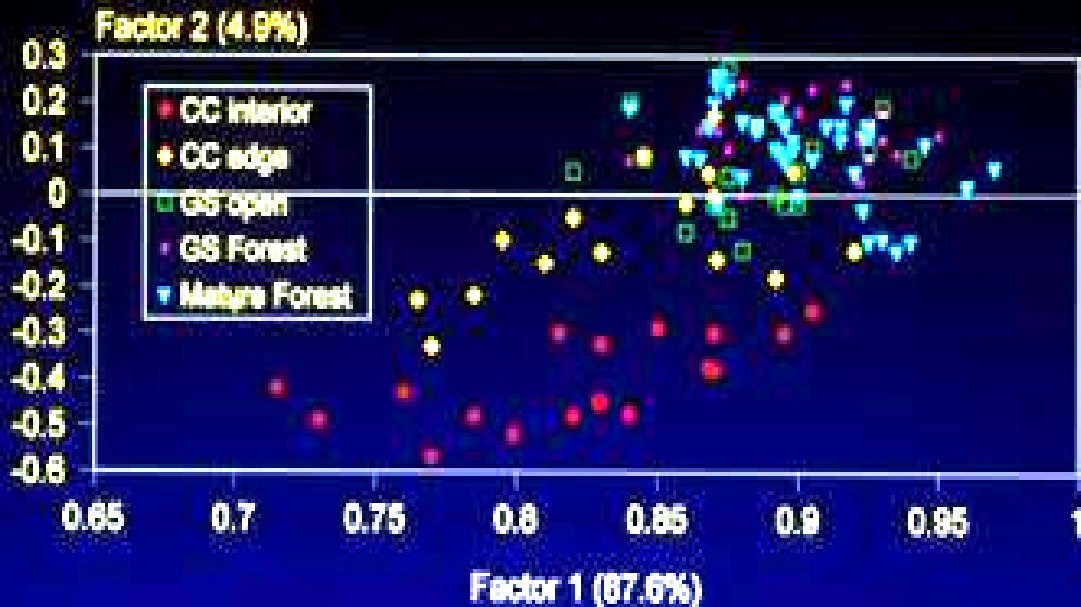
# Birds Found in Larger vs Smaller Cuts and Where Cavity Trees Are Present (Costello et al. 2000)



- Tree swallow
- Indigo bunting
- Alder flycatcher
- Cedar waxwing
- Eastern towhee
- Eastern bluebird
- Olive-sided flycatcher
- Northern flicker
- Purple finch
- American goldfinch
- Song sparrow

# Vertebrate Taxa Responses

## Birds



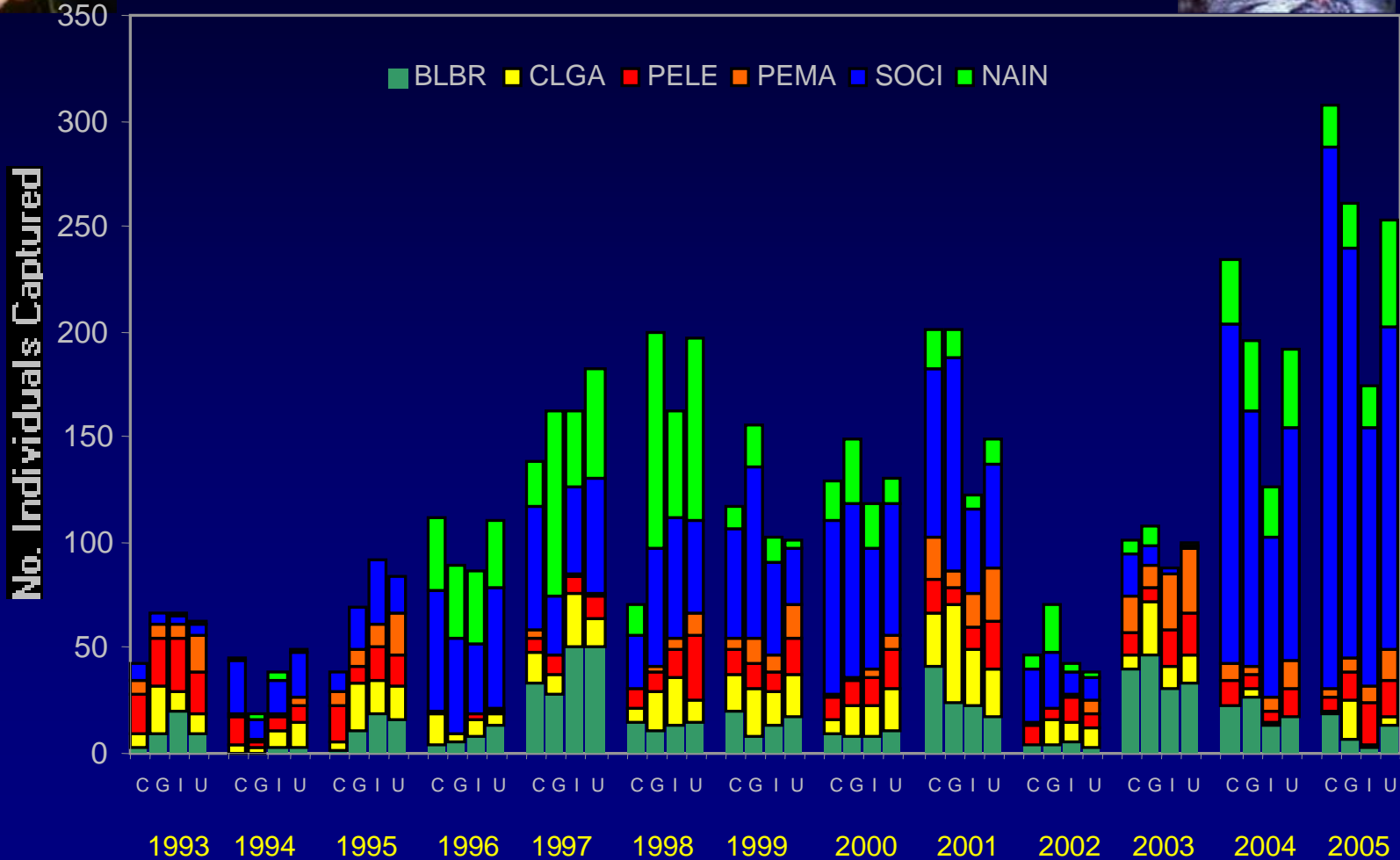
From: Costello (1995)

- Early successional bird community in new hardwood clearcuts is very different from the mature hardwood bird community
- Bird community in group selection cuts are mixtures of mature hardwoods and some but not all early successional communities



# Vertebrate Taxa Responses

## Mammals



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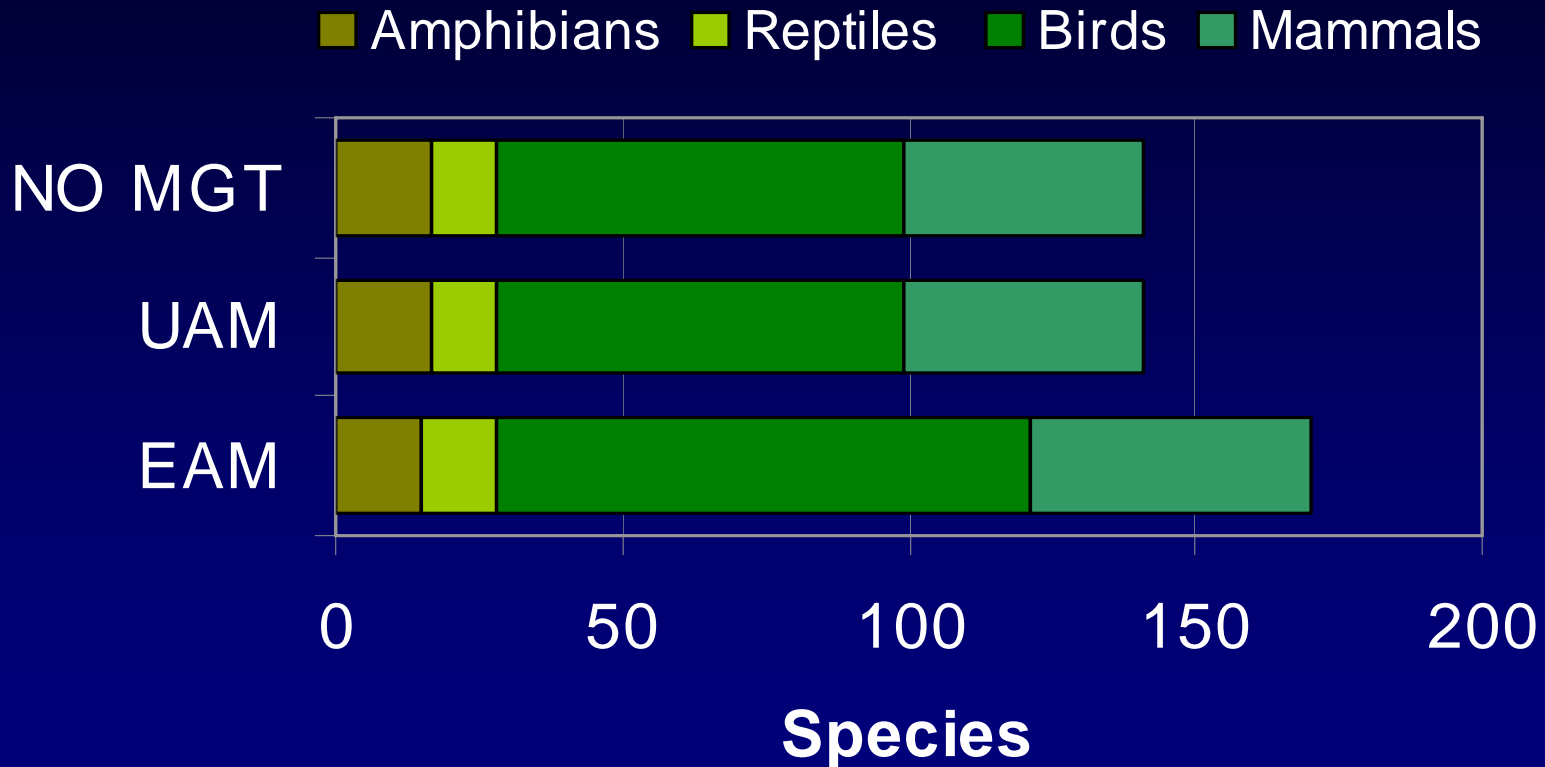
# Uneven-aged Management Concerns



Single-tree selection used across extensive landscapes tends to:

- limit horizontal diversity;
- decrease the amount and distribution of browse;
- restrict the early and mid-successional foraging substrates used by herbivores and insectivores alike

# Management Strategies and Potential Habitats



From: DeGraaf et al. (2005)