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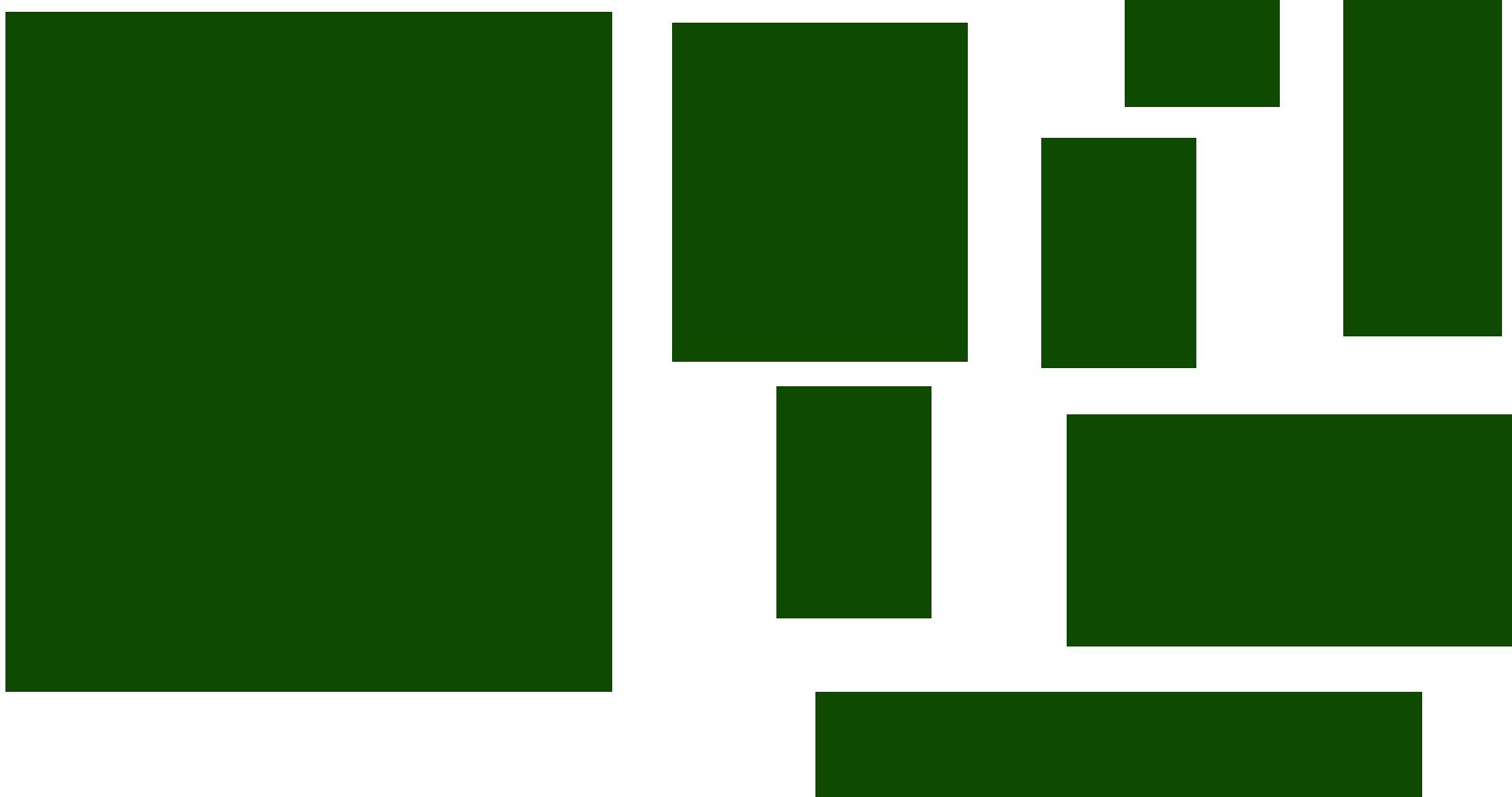
Department of  
Ecology and  
Evolutionary Biology

University of  
Connecticut

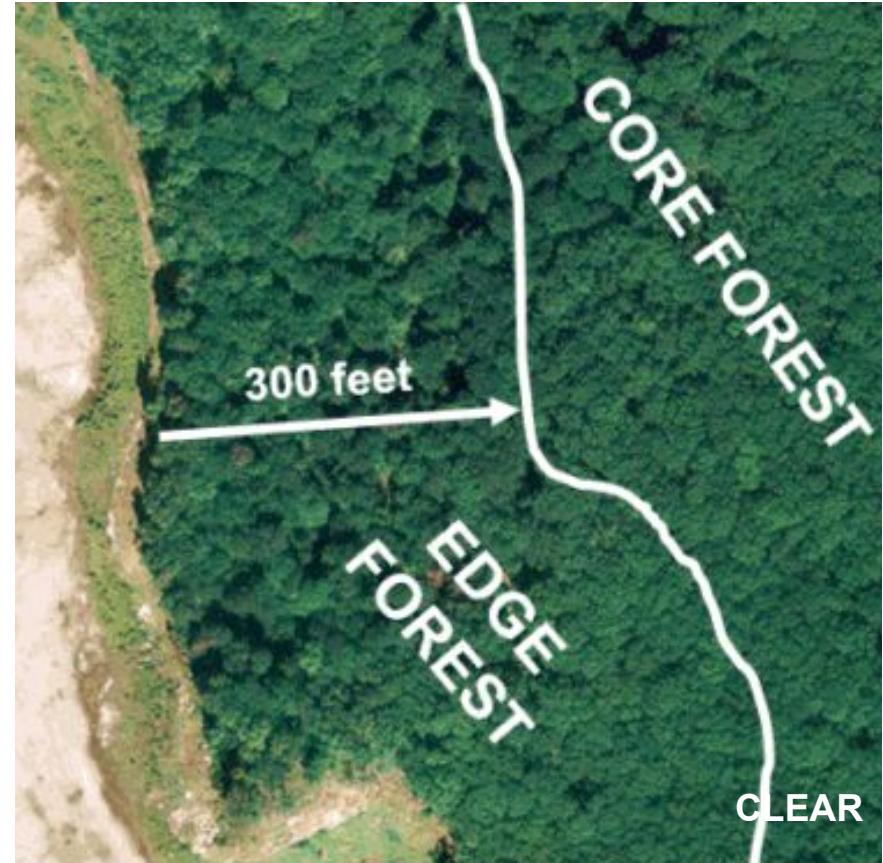
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What is forest fragmentation?

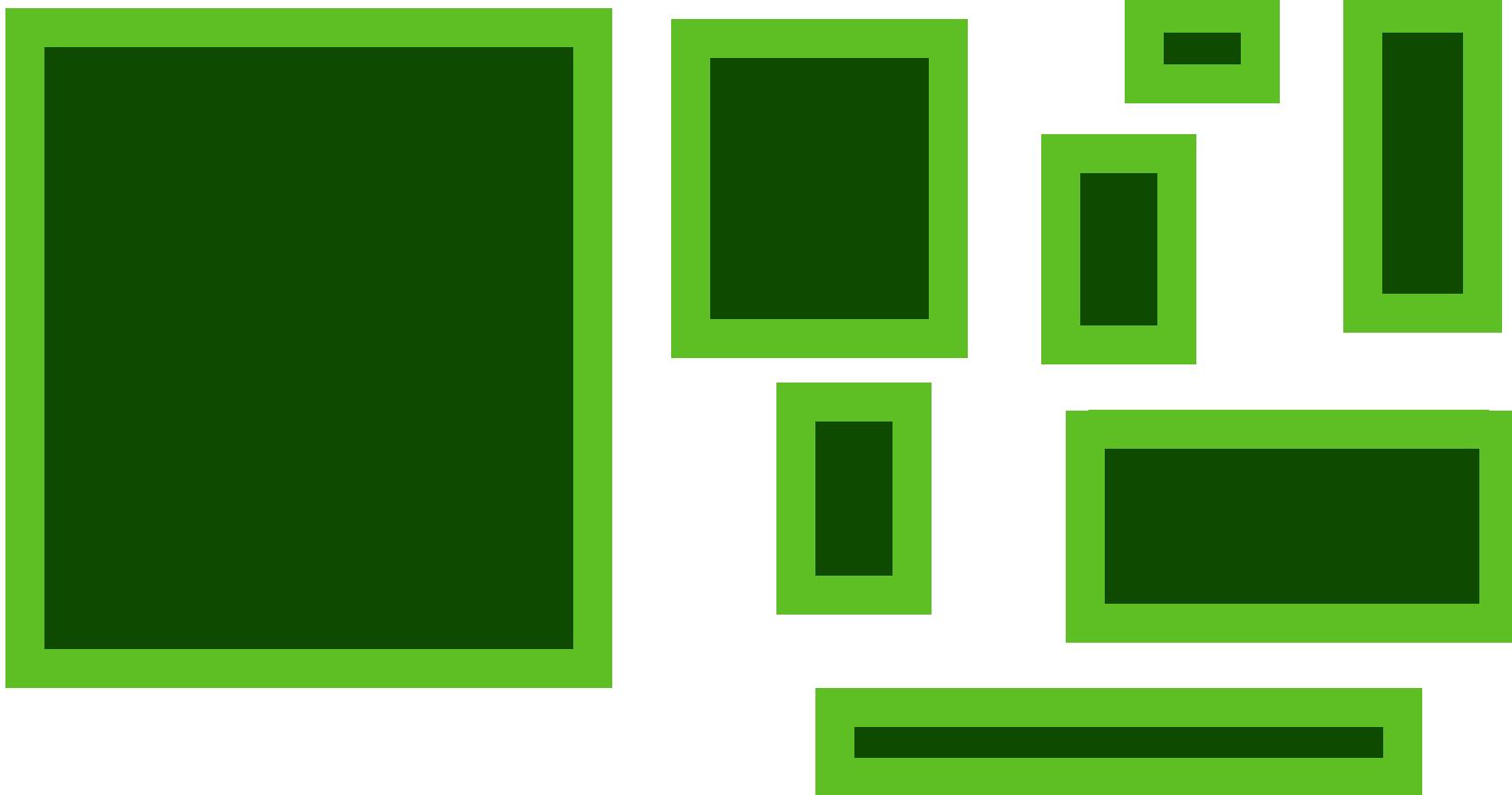
Fragmentation breaks habitat into smaller patches.



# Edge habitat is not the same as core habitat.



Proportion of edge habitat relates to shape and size.



Less core forest is left after fragmentation.



What are the leading anthropogenic causes of forest fragmentation?

Roads create strips of edge habitat on each side.



Rhett Butler

# Logging exposes core forest habitat with abrupt edges.



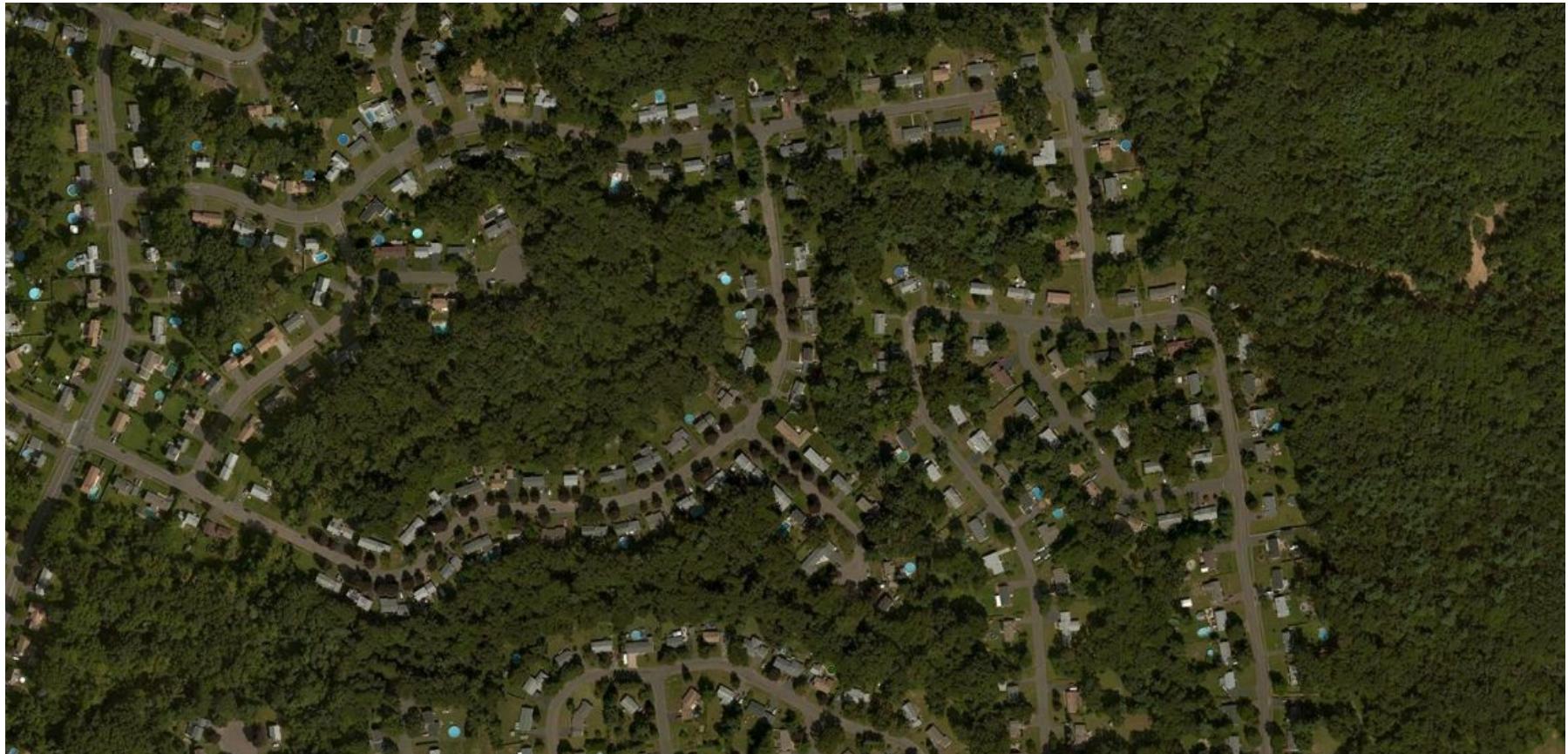
TJ Watt

# Agricultural mosaics give grassland species access.



JS and SW Aber

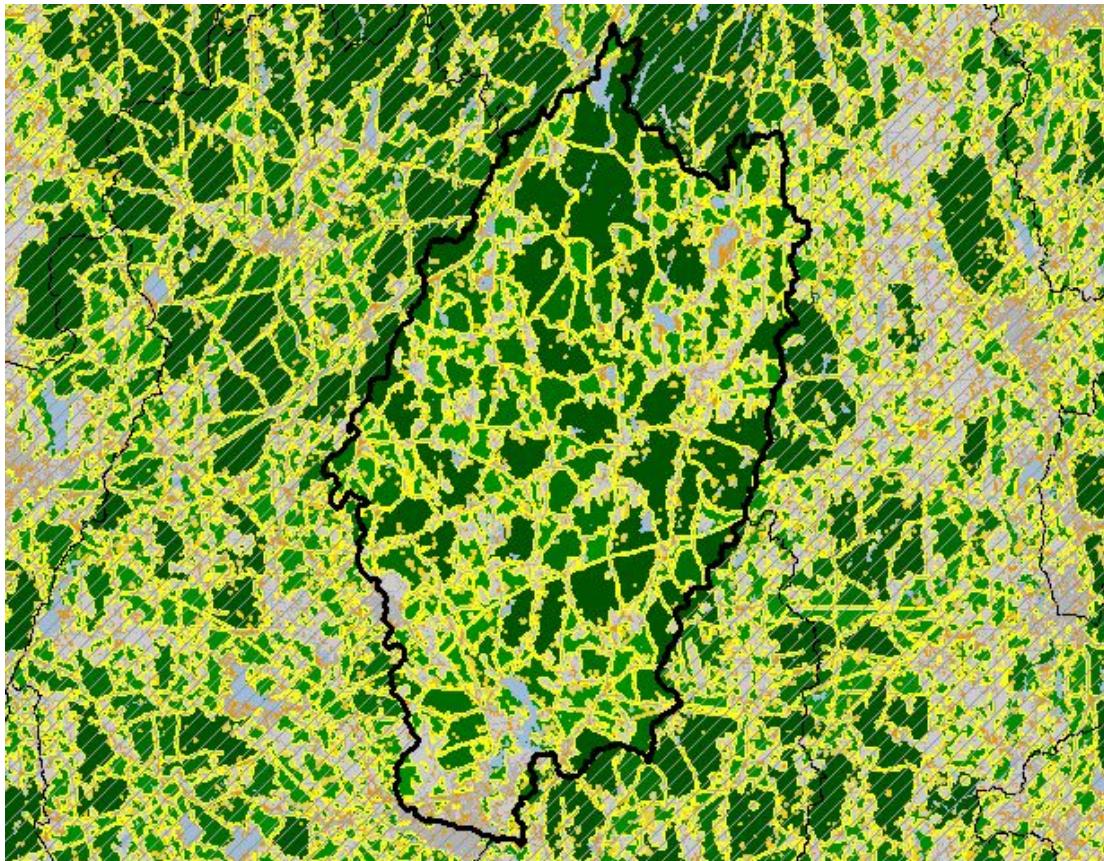
# Urbanization and development fragments forests.



What does forest fragmentation look  
like in Connecticut?

# Core forest area in CT decreased 16% from 1985-2006.

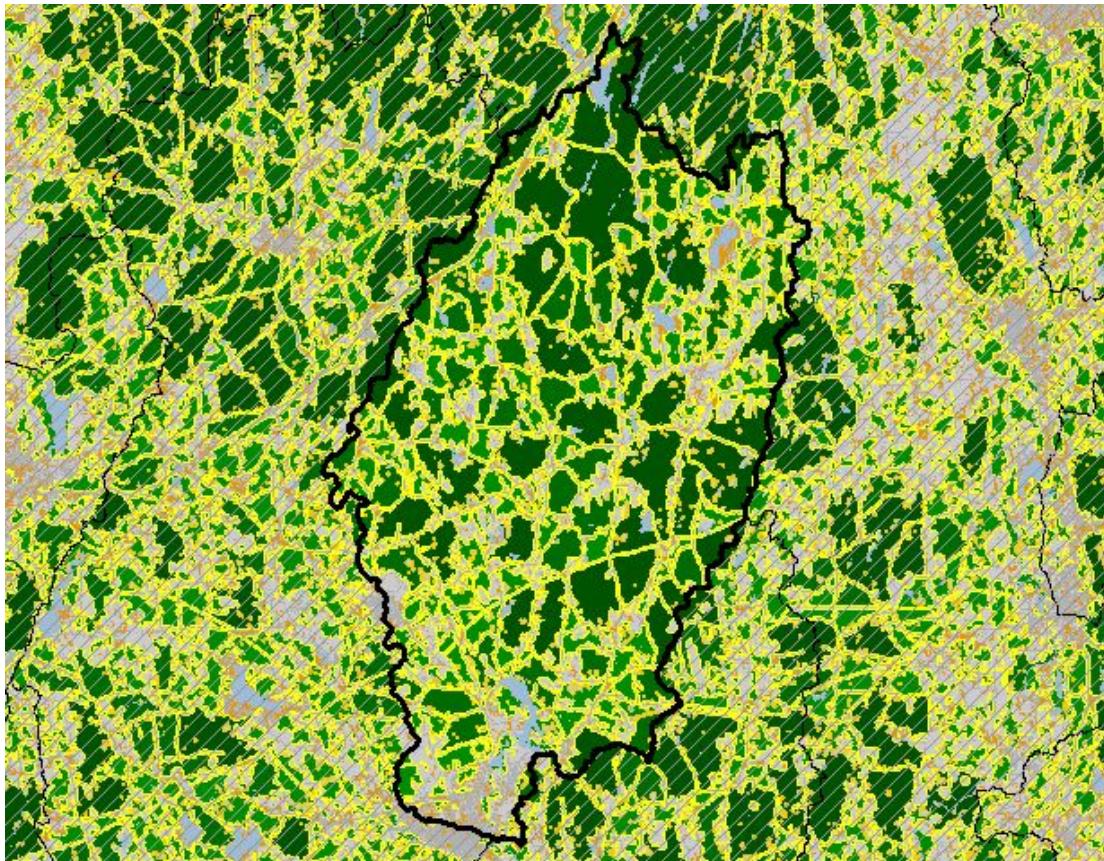
1985



Data and images  
from the UConn  
Center for Land Use  
Education and  
Research

# Core forest area in CT decreased 16% from 1985-2006.

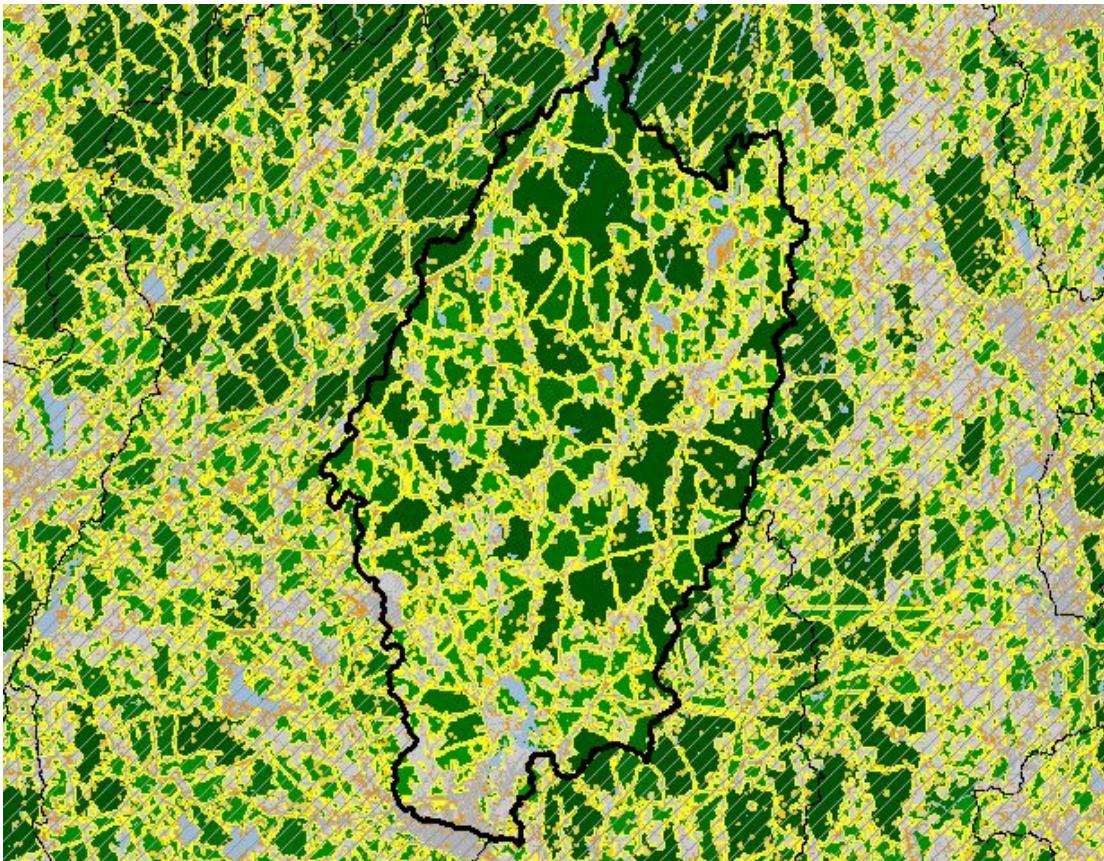
1990



Data and images  
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# Core forest area in CT decreased 16% from 1985-2006.

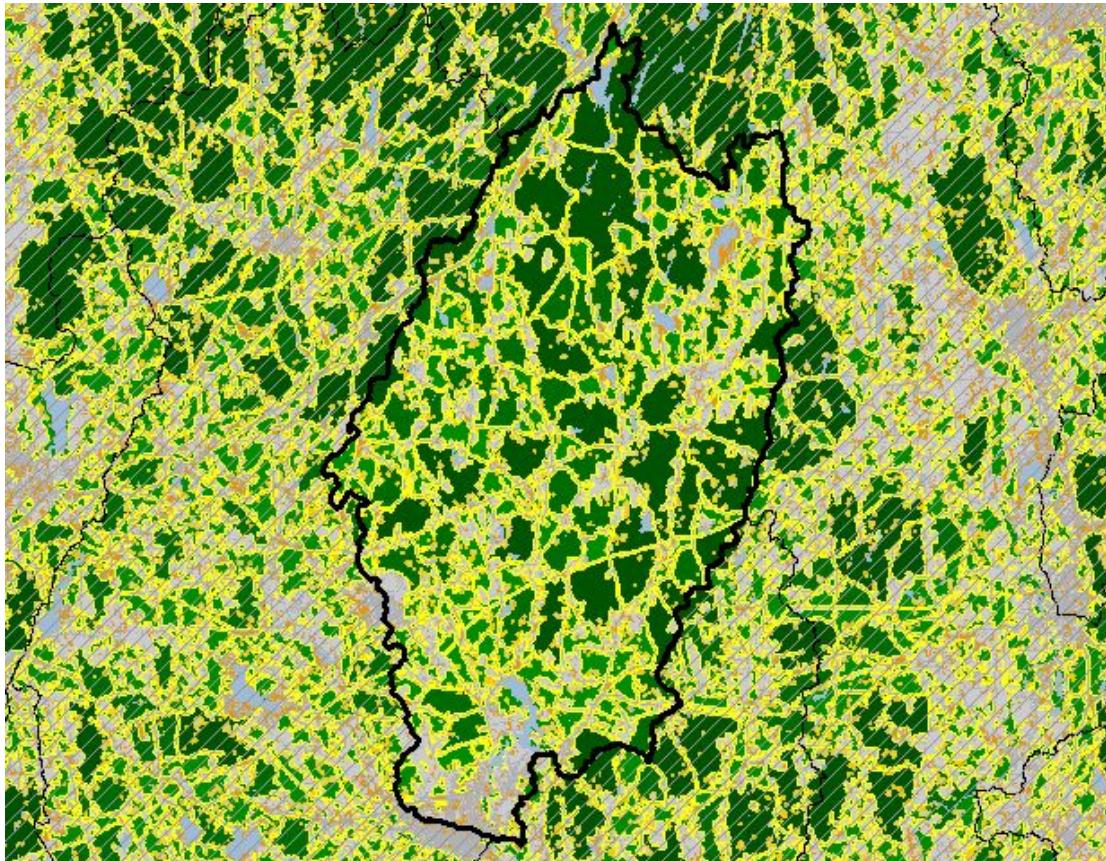
1995



Data and images  
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# Core forest area in CT decreased 16% from 1985-2006.

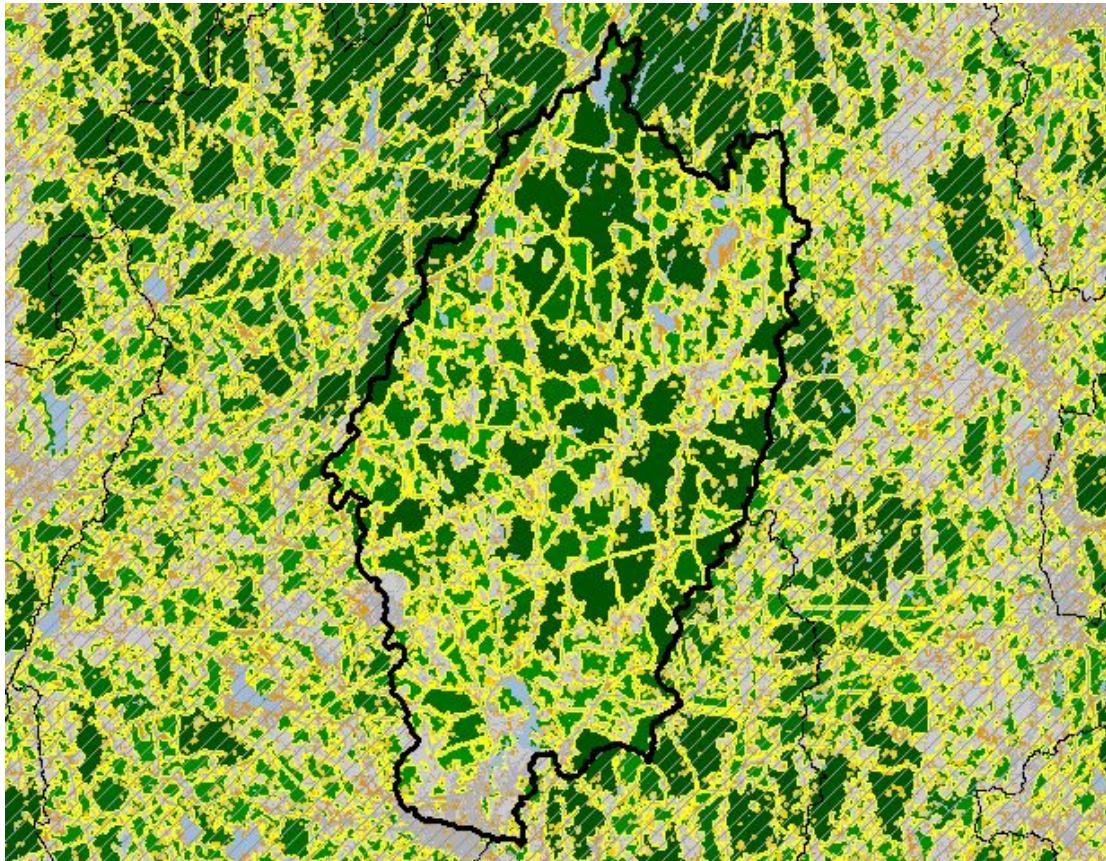
2002



Data and images  
from the UConn  
Center for Land Use  
Education and  
Research

# Core forest area in CT decreased 16% from 1985-2006.

2006



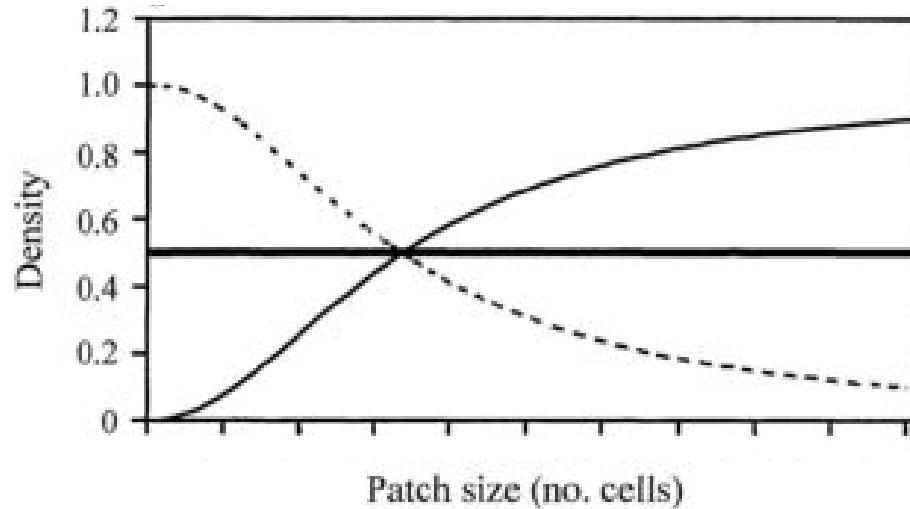
Data and images  
from the UConn  
Center for Land Use  
Education and  
Research

How does fragmentation impact  
breeding bird populations?

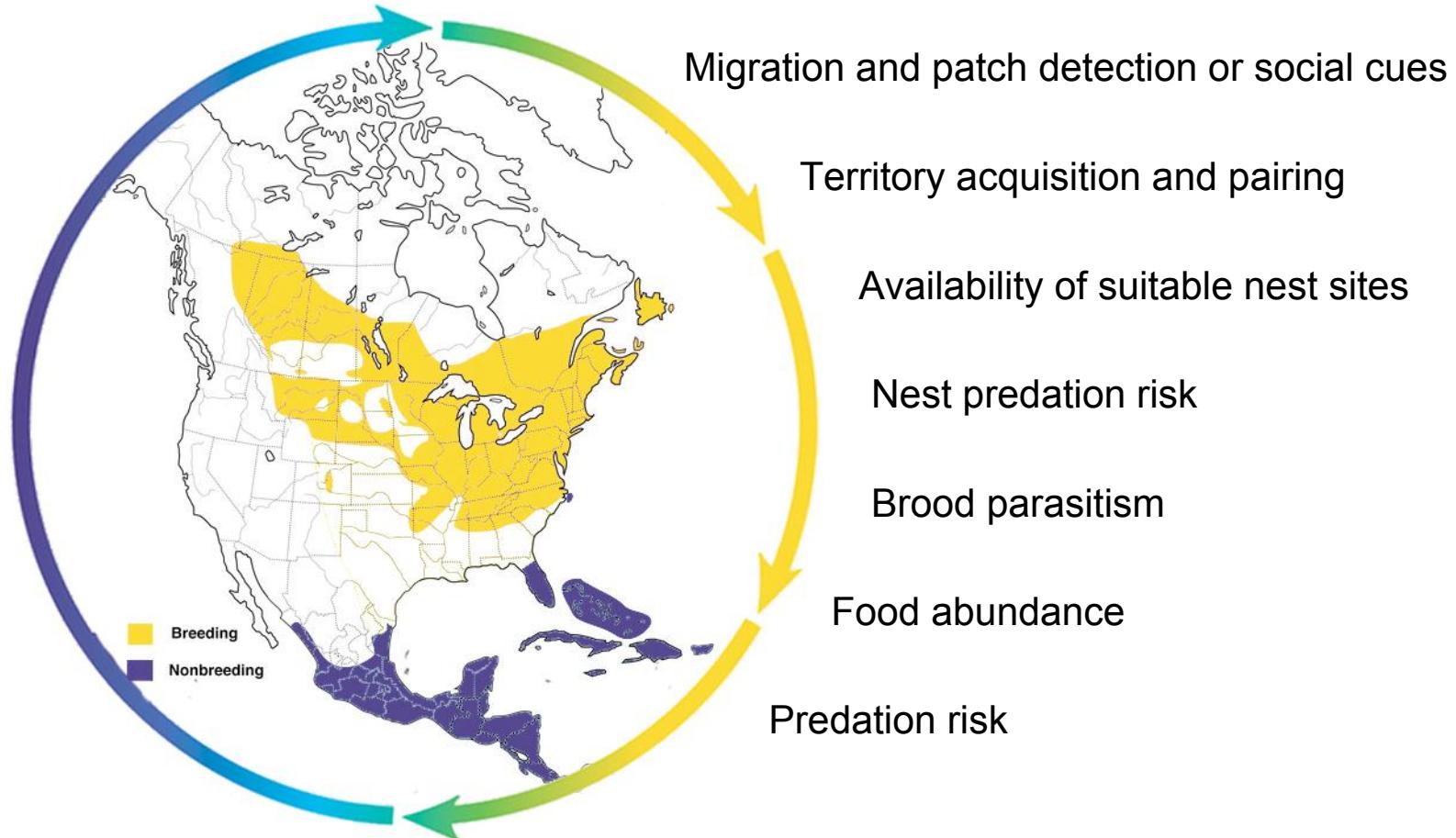
# Area sensitive birds are less dense in small fragments.



Ron Austing



# What drives species' sensitivity to fragmentation?



# Ovenbirds are area sensitive forest interior warblers.



Jacob Spendelow



Chris Cunningham

# Do Ovenbirds avoid small patches during migration?



Tom Reed

# Small patches have high rates of unpaired males.



Harold Stiver

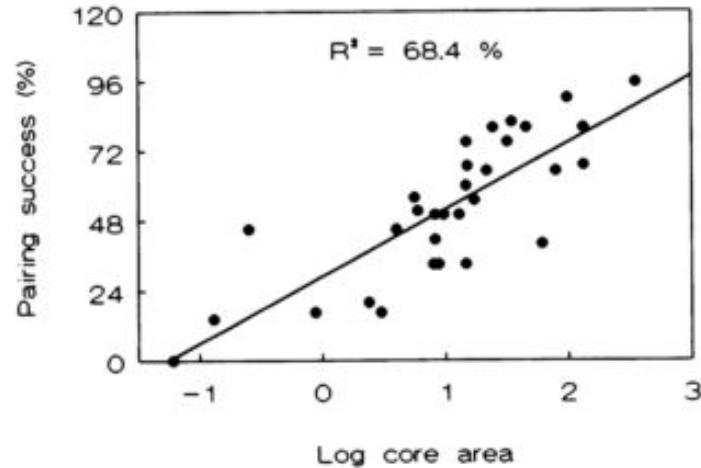


FIG. 1. Relationship between woodlot core area and pairing success of territorial male Ovenbirds. Data were collected from 1994 to 1996 in Ovenbird territories from 31 different woodlots ranging from 0.06 to 351 ha in core area.

Burke & Nol (1998)

# Suitable nest sites are scarce in small patches.



Gerry Biron

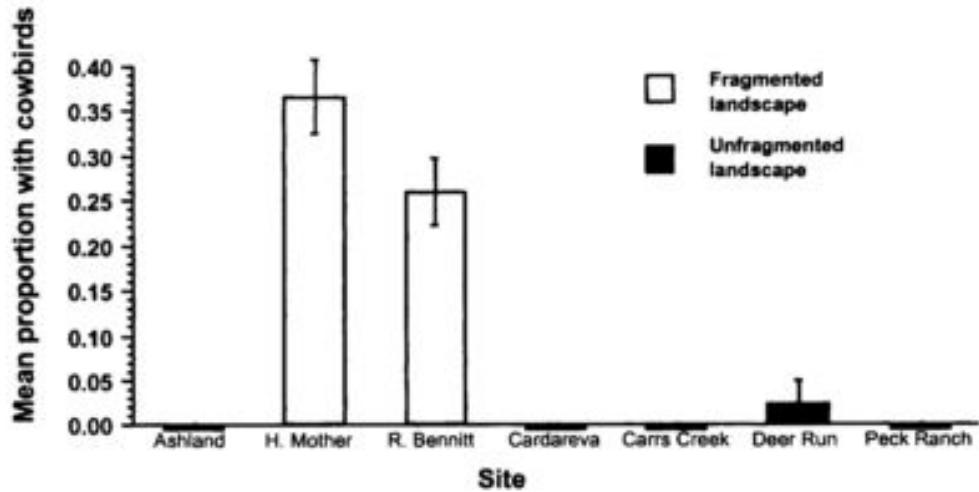


Don Freiday

Nest predation is more common along patch edges.



# Brood parasitism is more common in small fragments.



*Figure 4. Mean proportion of Ovenbird pairs raising at least one cowbird by site.*

Porneluzi & Faaborg (1999)

# Cowbird nestlings outcompete Ovenbirds for food.



# Food is less abundant in small patches.



Terry Sohl



Jeffrey Miller



unknown

# Invertebrates are scarce in small patches.



Jerry Jourdan

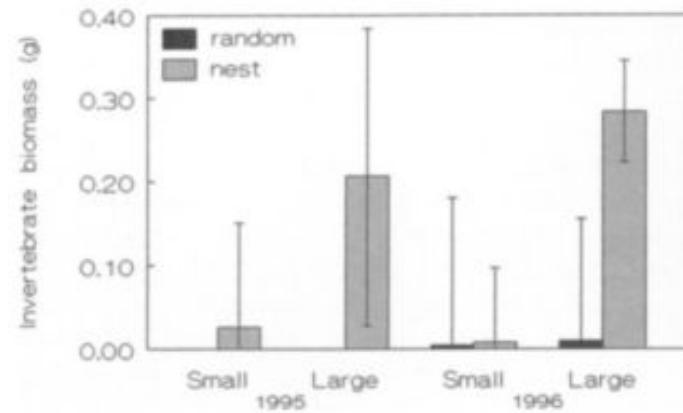


FIG. 2. Biomass of litter invertebrates ( $\bar{x} \pm \text{SE}$ ) within Ovenbird territories and at random sites in small ( $<20$  ha core area) and large ( $\geq 20$  ha) woodlots. Data are presented for nest sites only in 1995 because no samples were collected from randomly located sites within the 17 woodlots ( $n = 51$ ). In 1996, 163 litter samples were collected from 9 woodlots.

Burke & Nol (1998)

Predation rates of adult birds are higher along edges.

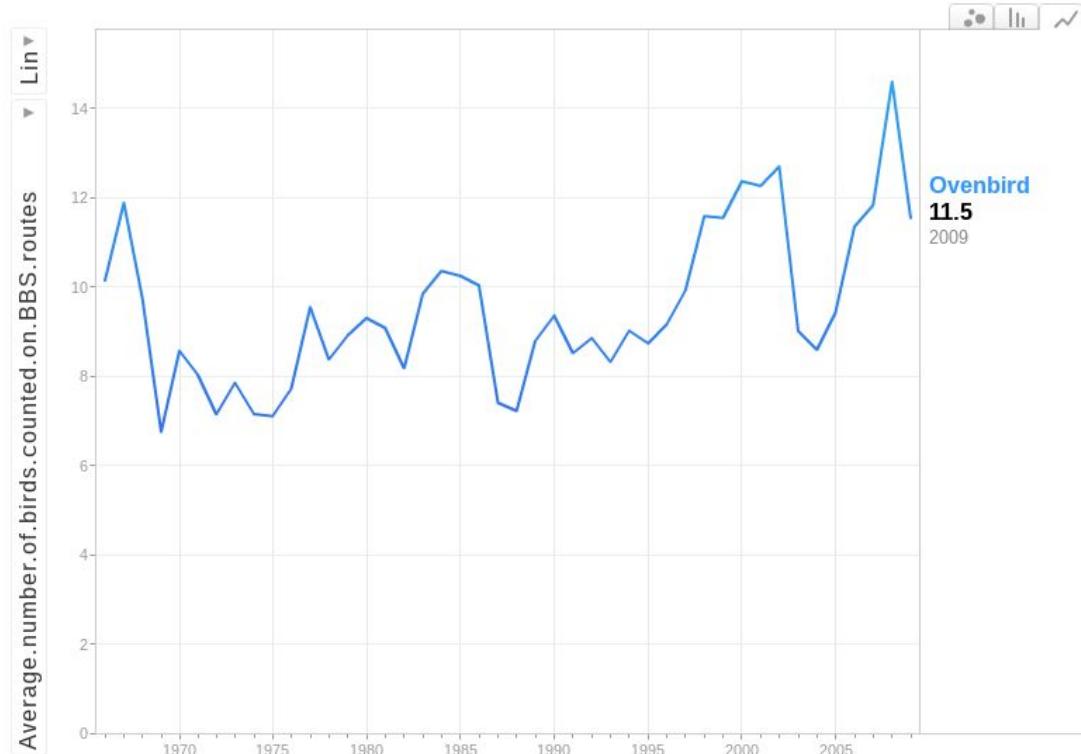


Does fragmentation reduce  
bird populations?

# Connecticut Bird Trends, 1966-2009



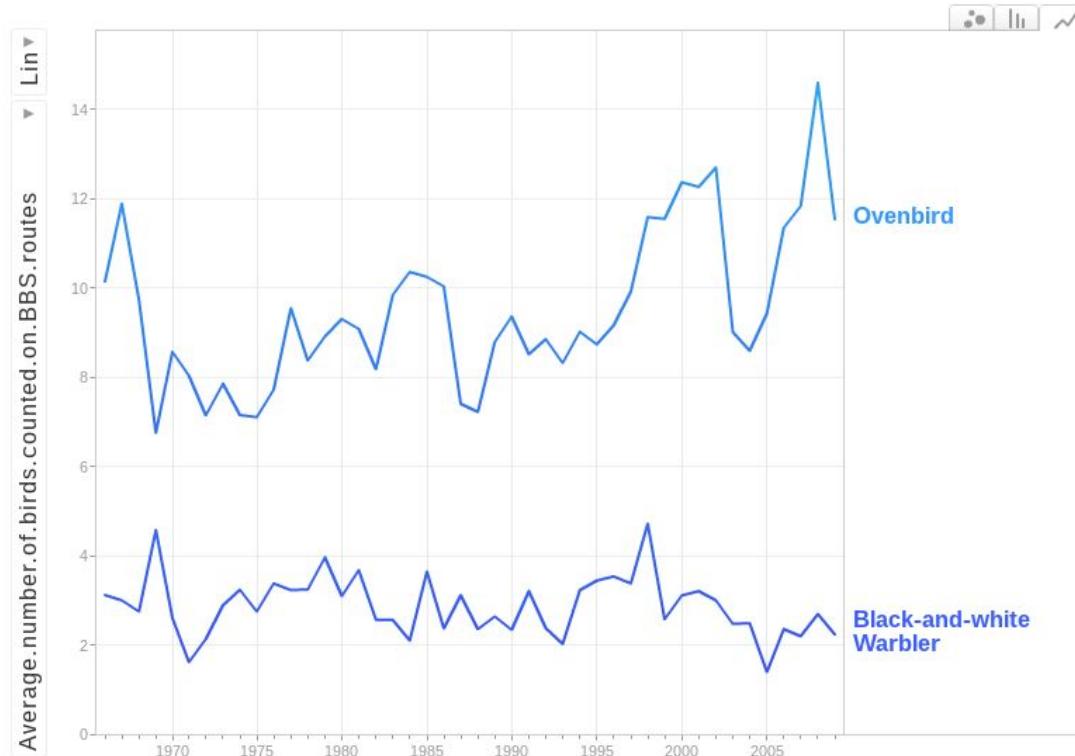
Daniel Cadieux



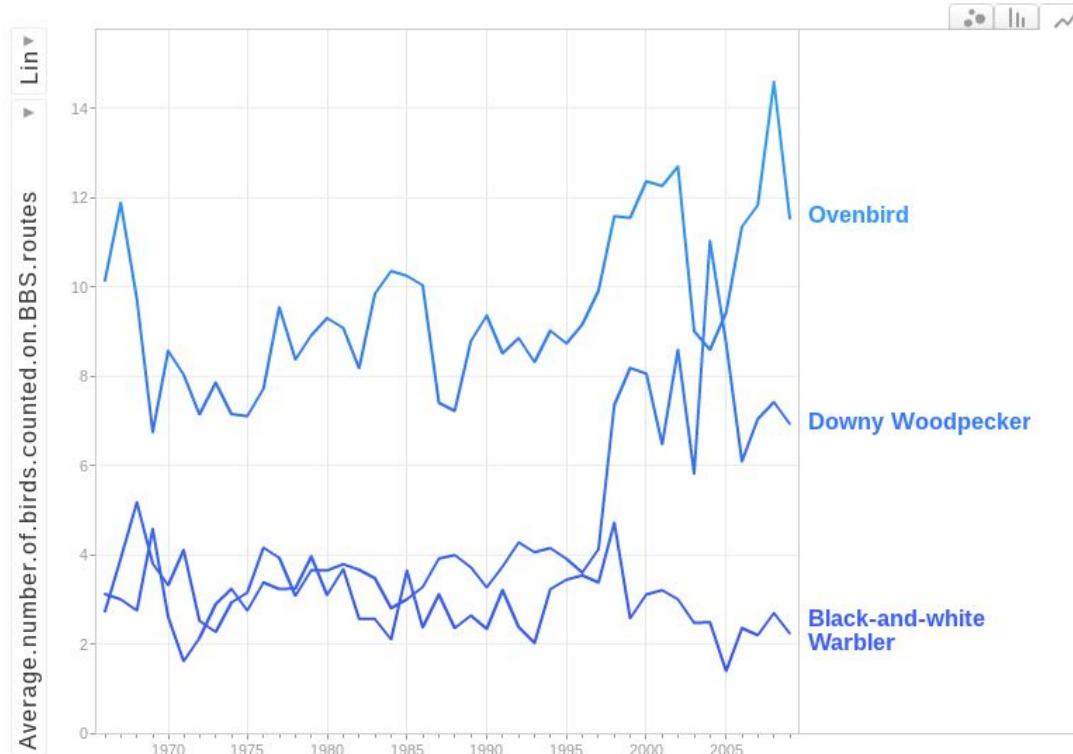
# Connecticut Bird Trends, 1966-2009



Friends of Mount Auburn



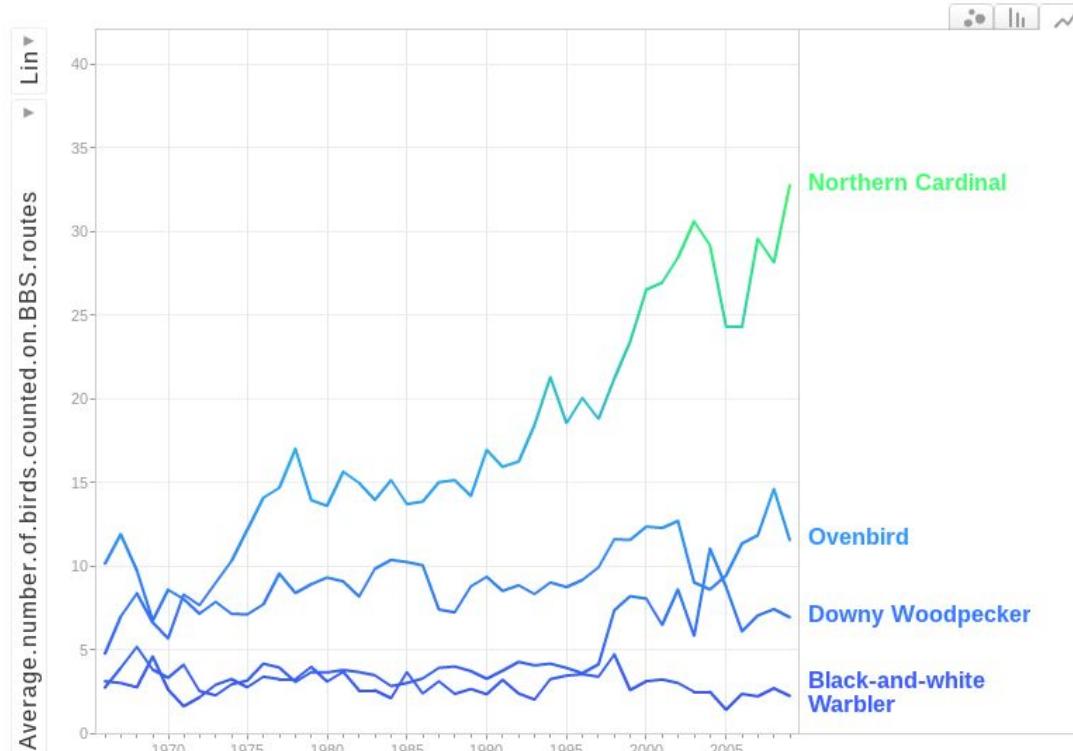
# Connecticut Bird Trends, 1966-2009



# Connecticut Bird Trends, 1966-2009



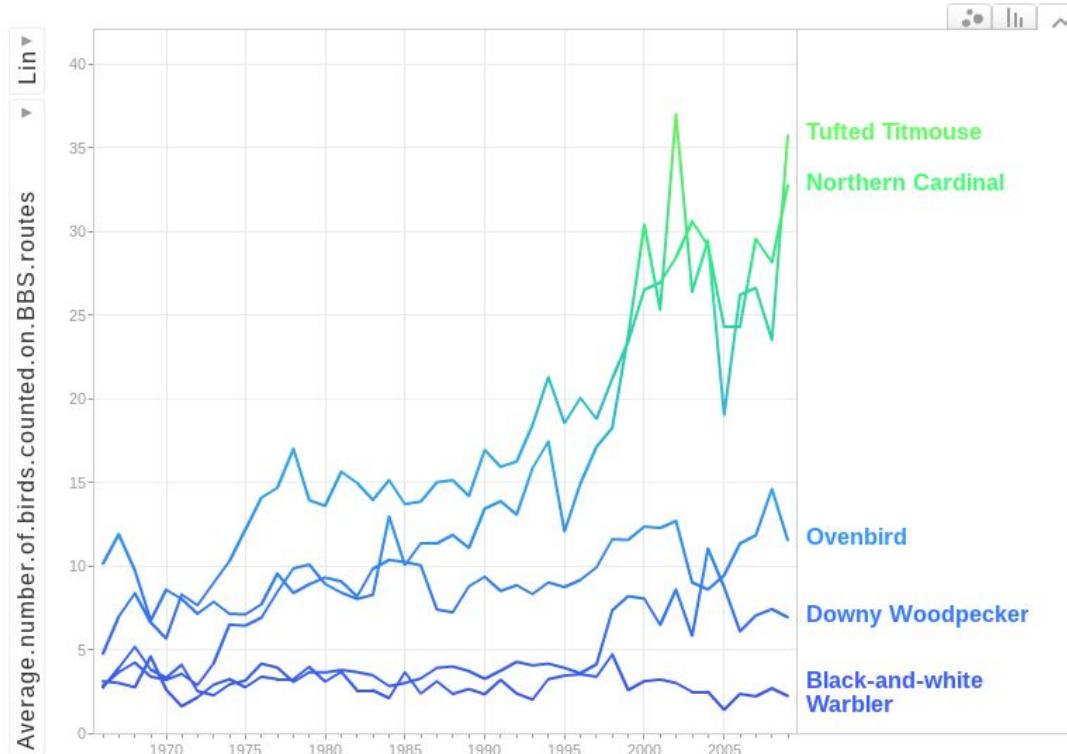
Rüdiger Merz



# Connecticut Bird Trends, 1966-2009



Gregg Williams



What research is currently being done?

# What happens to trophic interactions in small patches?



# Testing a conceptual model of area sensitivity in birds.





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