What do we know about the Winter Ecology of Rusty Blackbirds?

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WINTER PLUMAGE

Sampling Sites

Reasons for the Species' Decline

(A) Habitat loss

=> Current use

(B) Competition with other species due to opening of forest

(C) Blackbird roost control

=> Does rusty blackbird use roosts of other blackbirds?

(D) Diseases

Current Habitat Use

HABITAT CHARACTERISTICS

- Medium to dense understory
- Near water
- Mixed wetness (12% +- 4% water cover)
- Puddles max water depth 10 cm +- 4 cm
- Dominant tree species: willow oak, water oak, overcup oak, pecan, sugarberry

Site fidelity

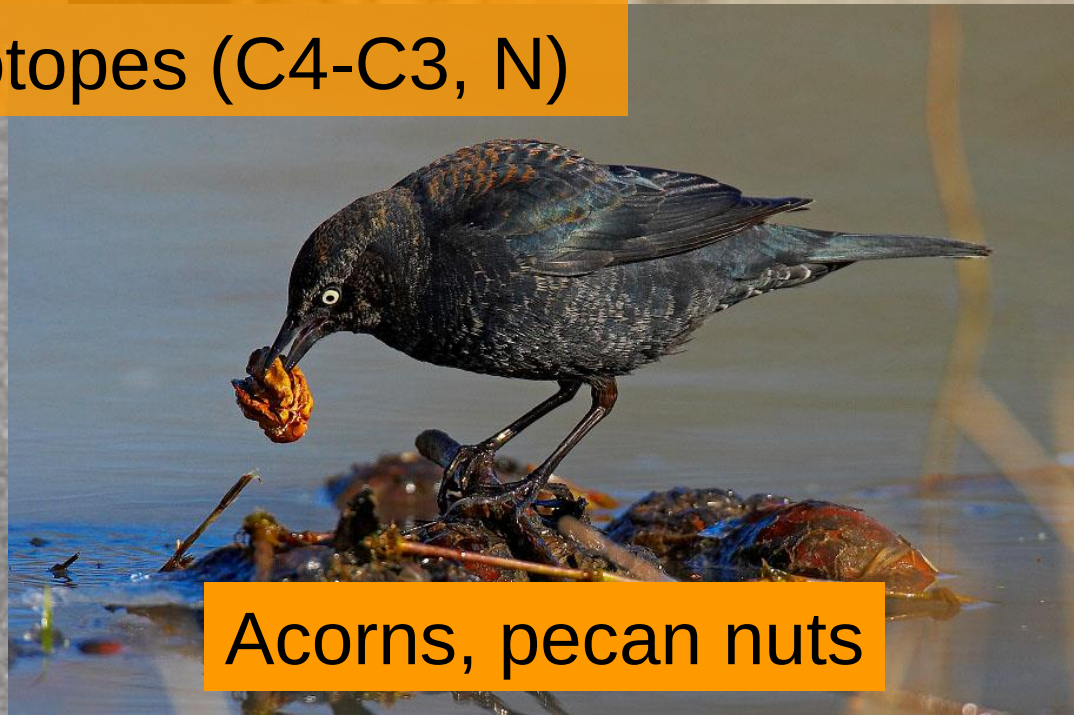
Diet

Invertebrates, fish

Blood samples

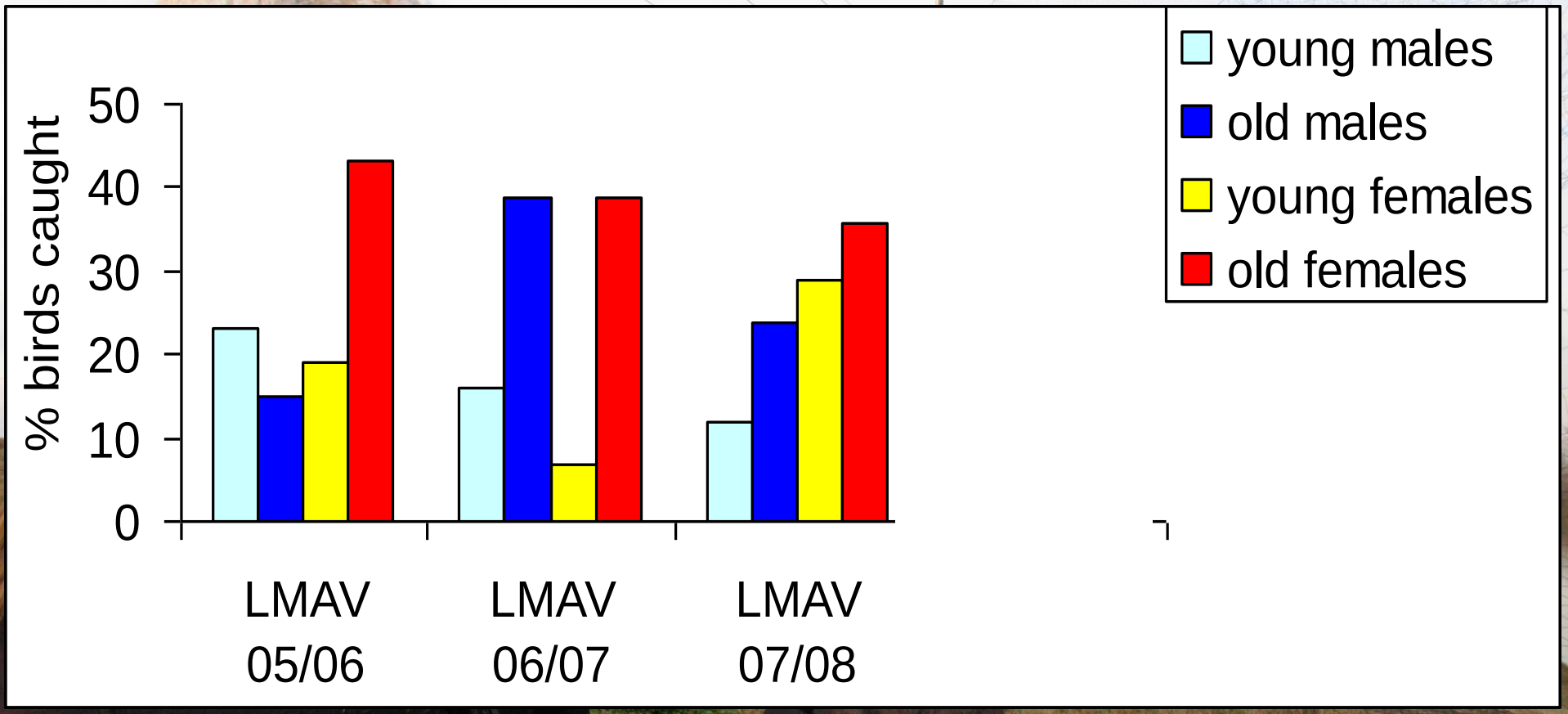
- Stable isotopes (C4-C3, N)

Sugarberry, poison ivy



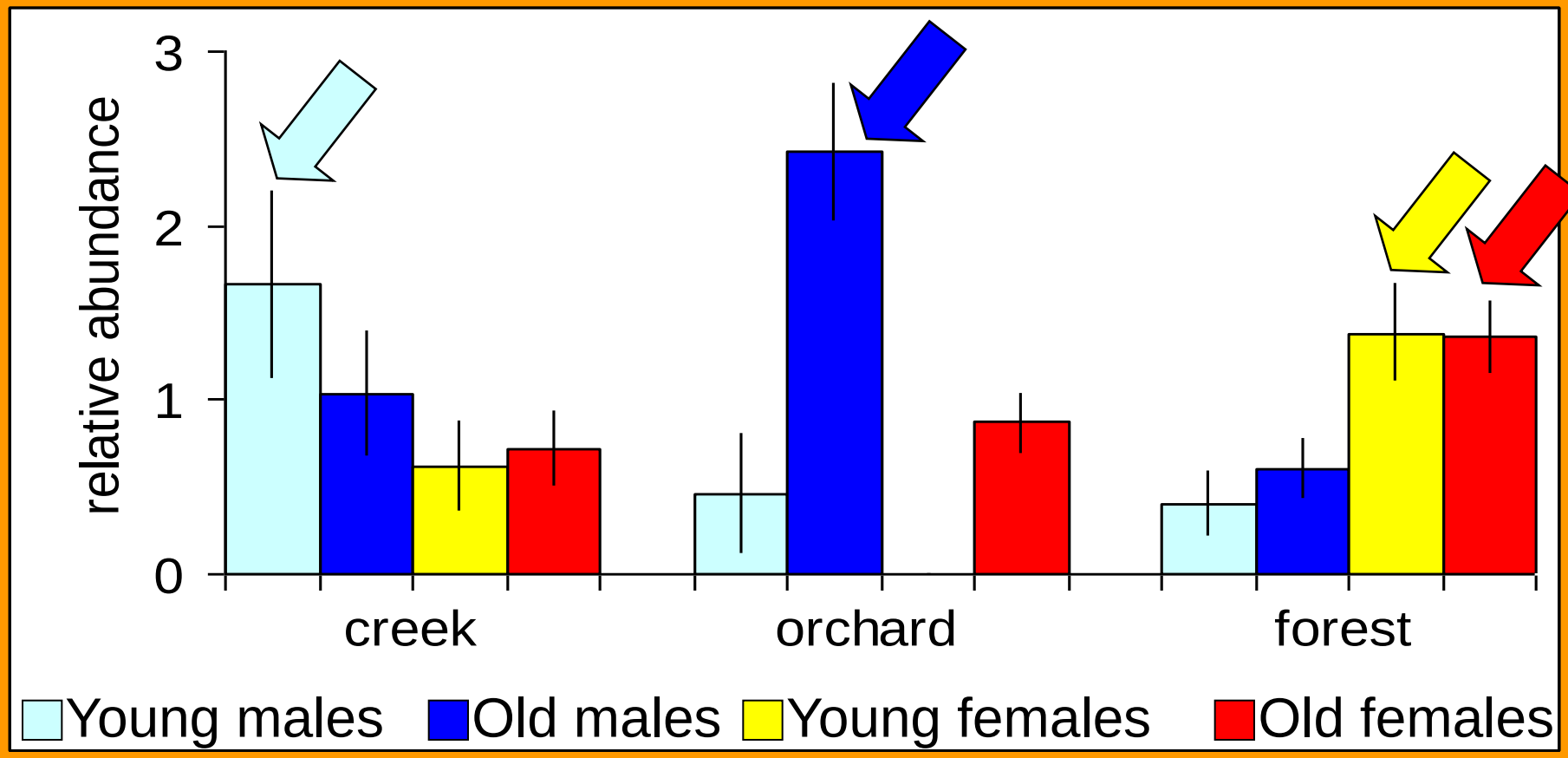
Acorns, pecan nuts

Overall Abundance



- variation across years
- variation across sites

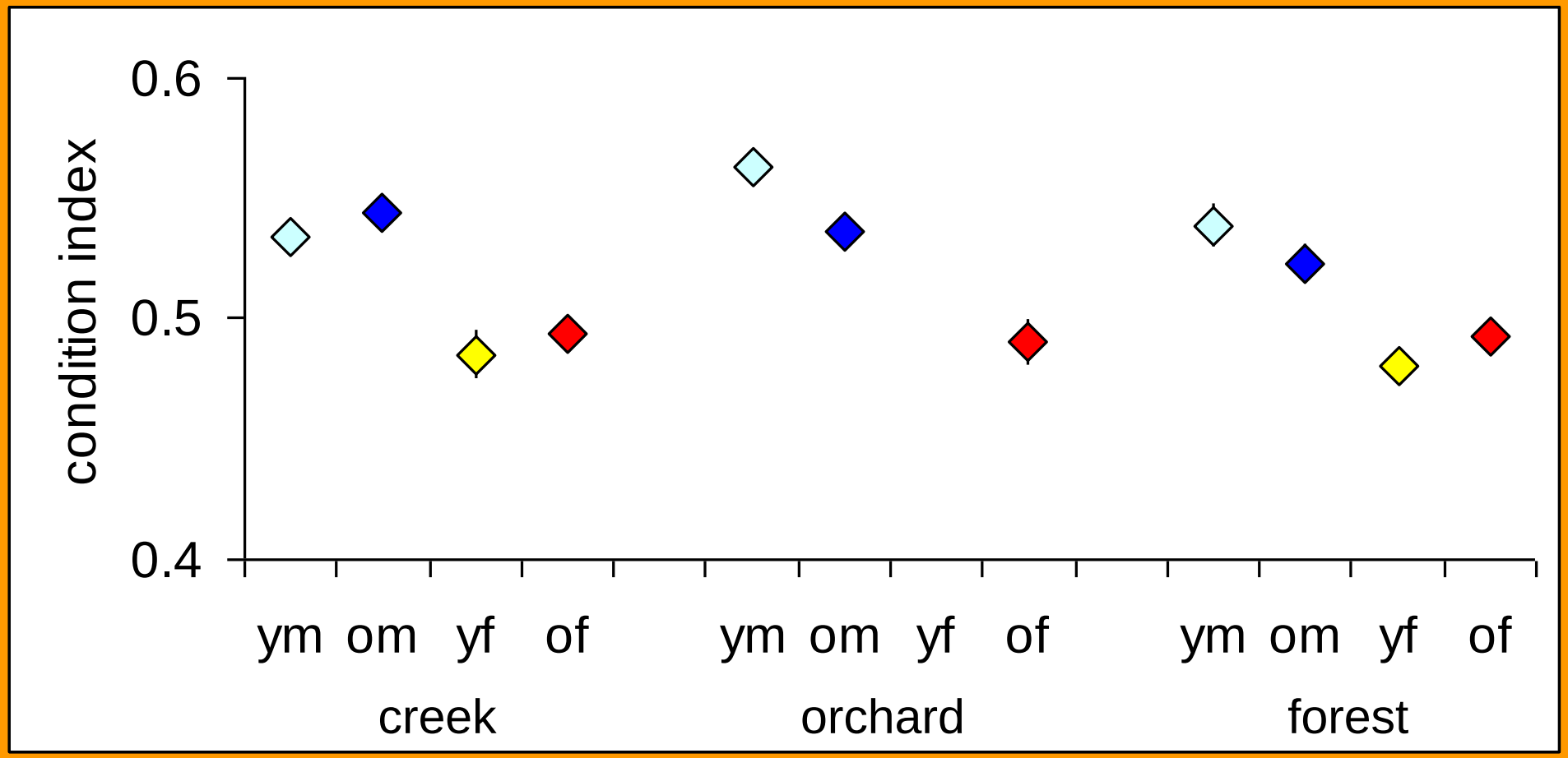
Distribution of Age/Sex Classes



- Age/sex classes segregate in different habitats
  - Particularly in good crop years
  - Fewer young birds in poor crop years

Body Condition

(body mass/ wing length)



- **Males have a better body condition than females**
- **Body mass of males increased over the winter**

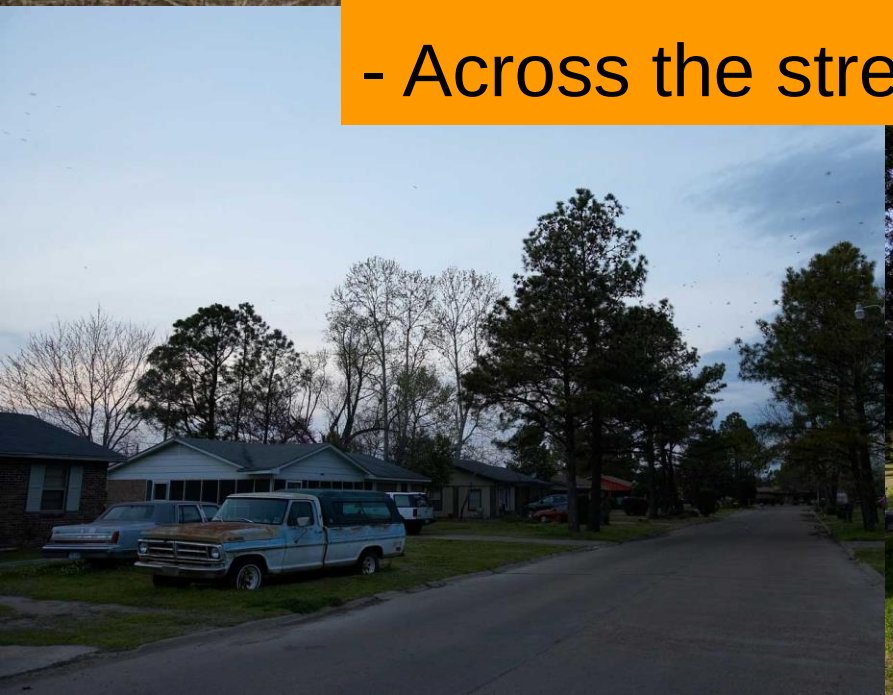
Do pecan orchards and forest fragments along creeks provide better habitats than forests?

Competition with other species

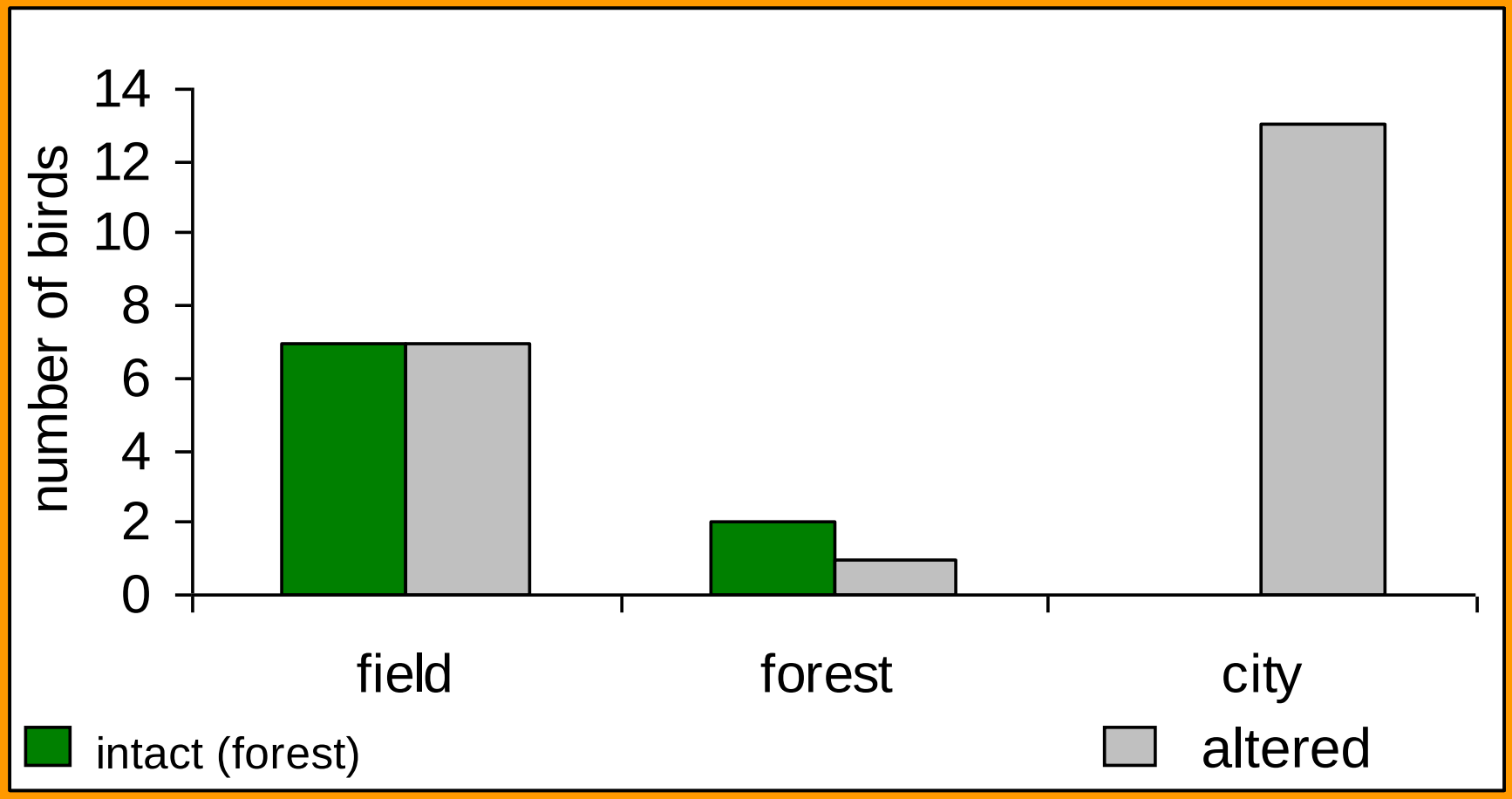
High competition in open pecan orchards?

Where do Rusties Roost?

- 400-5000 Rusty blackbirds
- Across the street – 11 miles away

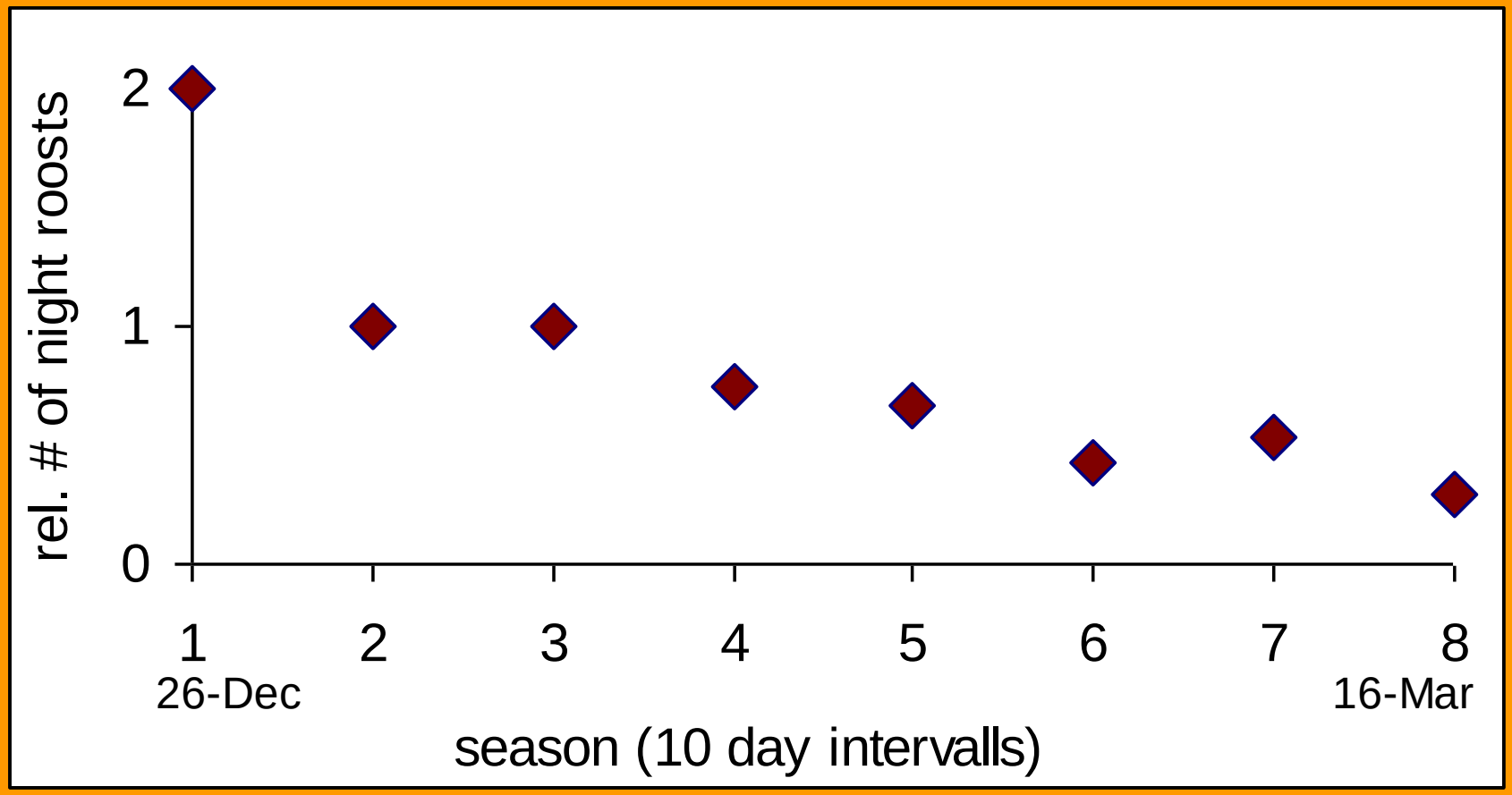


Who Sleeps Where?



Forest birds stay away from the cities

Seasonal Changes in Use of Night Roosts



Rusties concentrate in few night roosts later in the season (especially in cities)

Diseases and Contamination

- Methyl-mercury — David Evers
- Blood parasites — William Barnard

W. Barnard

Matrix Revisited

(A) **Current habitat use**

- Less specialized than we expected
  - Feeding trees, puddles, ground cover
- Age/sex classes segregate
- Birds in altered habitats do better than birds in forests
- Forest important for females

(B) **Competition**

- More competition in pecan orchards?

(C) **Blackbird roost control**

- Rusties use city night roosts; afforestation areas

(D) **Diseases** – David Evers; William Barnard

Discussion of Management Recommendation

- Support extensive use of pecan orchards
- Reforestation of creeks
- Monitor influence of biofuel on pecan orchard availability

- Further support afforestation, particularly with small acorn producing oaks

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Objectives

Occupancy estimation for monitoring

Winter habitat use in the Lower Mississippi Alluvial Valley (LMAV)

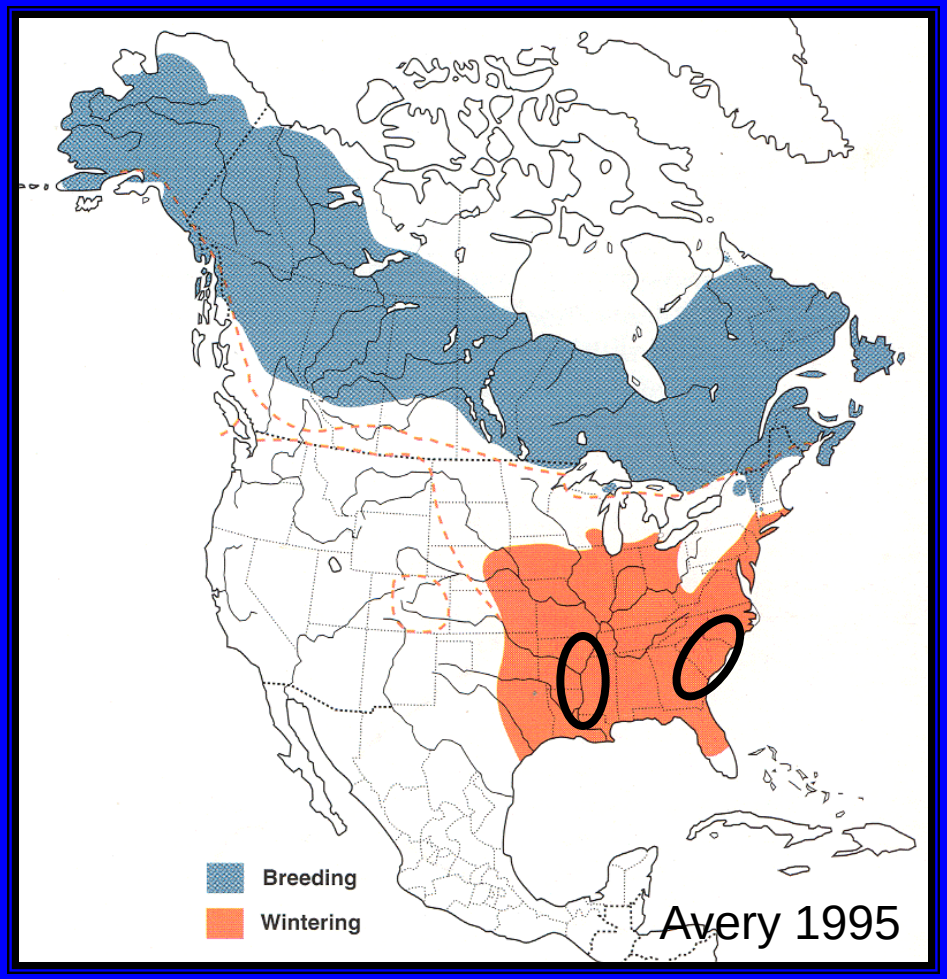
Co-occurrence with Common Grackles in the LMAV

Short-term responses to water level changes in the White River National Wildlife Refuge, AR

Occupancy Rate Estimation

- Presence/absence surveys
  - Detection/Non-detection
  - Reduced effort
  - Decreased observer effects
- Does not require large sample sizes
  - Most other techniques are data hungry
  - Ideal for rare/elusive spp. (lots of 0's)
- Habitat use!!

Sampling Design



WINTER – bottomland hardwood forests of the southeast

Rusties congregate in "large" flocks

- **<u>LMAV</u>: 115 sites surveyed 10 times during 2006, 2007, and 2008**
- **<u>S. Atlantic Coastal Plain</u>: Field tested 300 sites; surveyed 2 times during 2007 (not analyzed yet)**

LMAV Detectability (SE)

2006	
January	**0.29 (0.05)**
February	**0.22 (0.05)**
2007	
January	**0.11 (0.03)**
February	**0.18 (0.04)**
2008	
January	**0.07 (0.03)**
February	**0.12 (0.04)**

Detectability may increase later in the winter

- Perhaps Feb. would be a good time for atlas-level monitoring

SE vs. LMAV

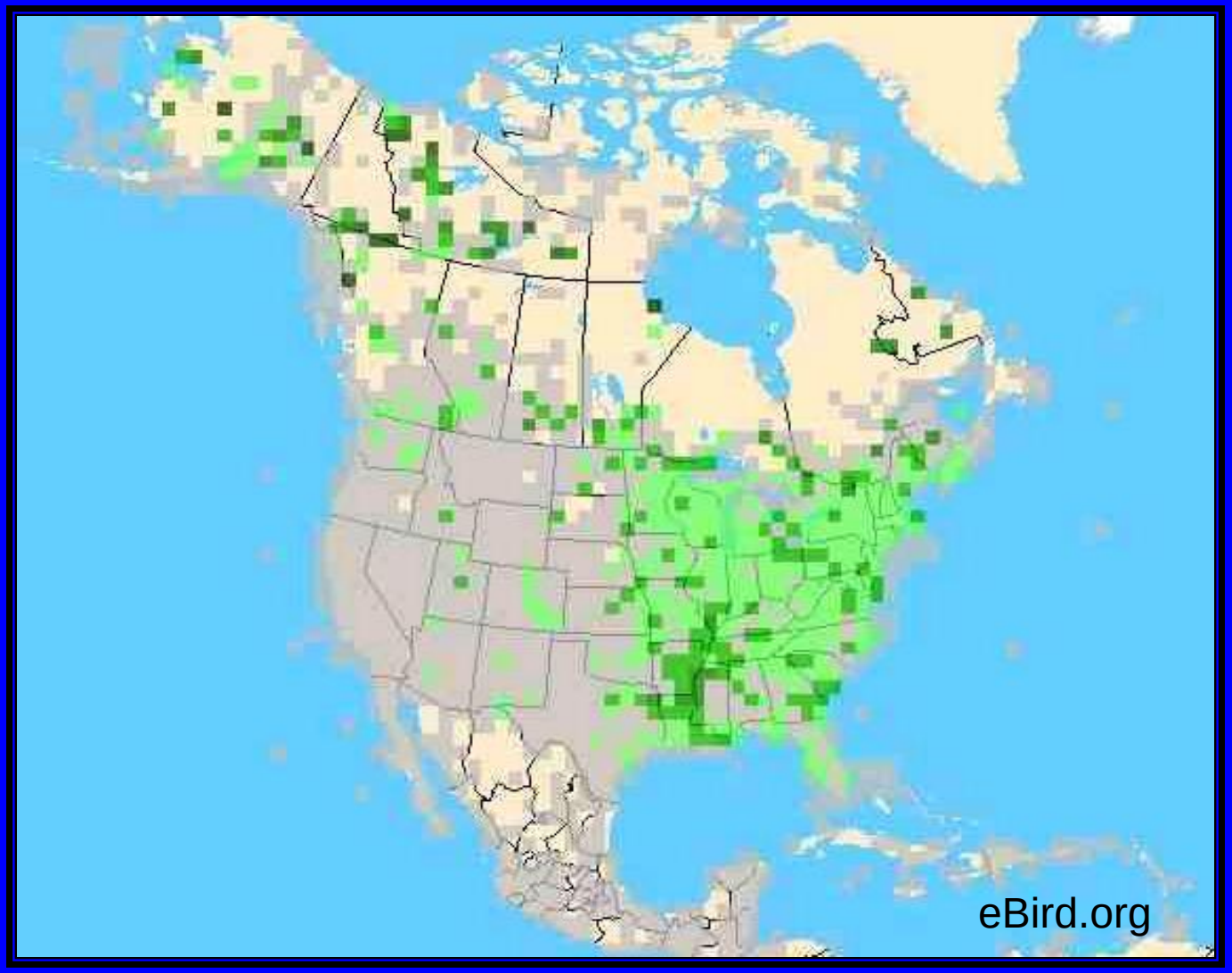
<u>SE</u>: only **~5%** (14 of 300) sites had detections during 2 surveys

- More than 2 surveys
- Cluster sampling (?)

<u>LMAV</u>: on average **~12%** of sites had detections during 2 surveys, but **~42%** of sites had detections in 10 surveys

Citizen Science???

Freq. of Rusty reports on eBird from 2004-2008



We can examine sites with and without RUBL sightings

Pitfall – lack in randomization (decreased inference power)

Presence/absence surveys for Citizen Science approach??

- Occupancy for monitoring the system state of Rusty Blackbirds
- Reduced effort
- Decreased sample size
- Reduced observer effects

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