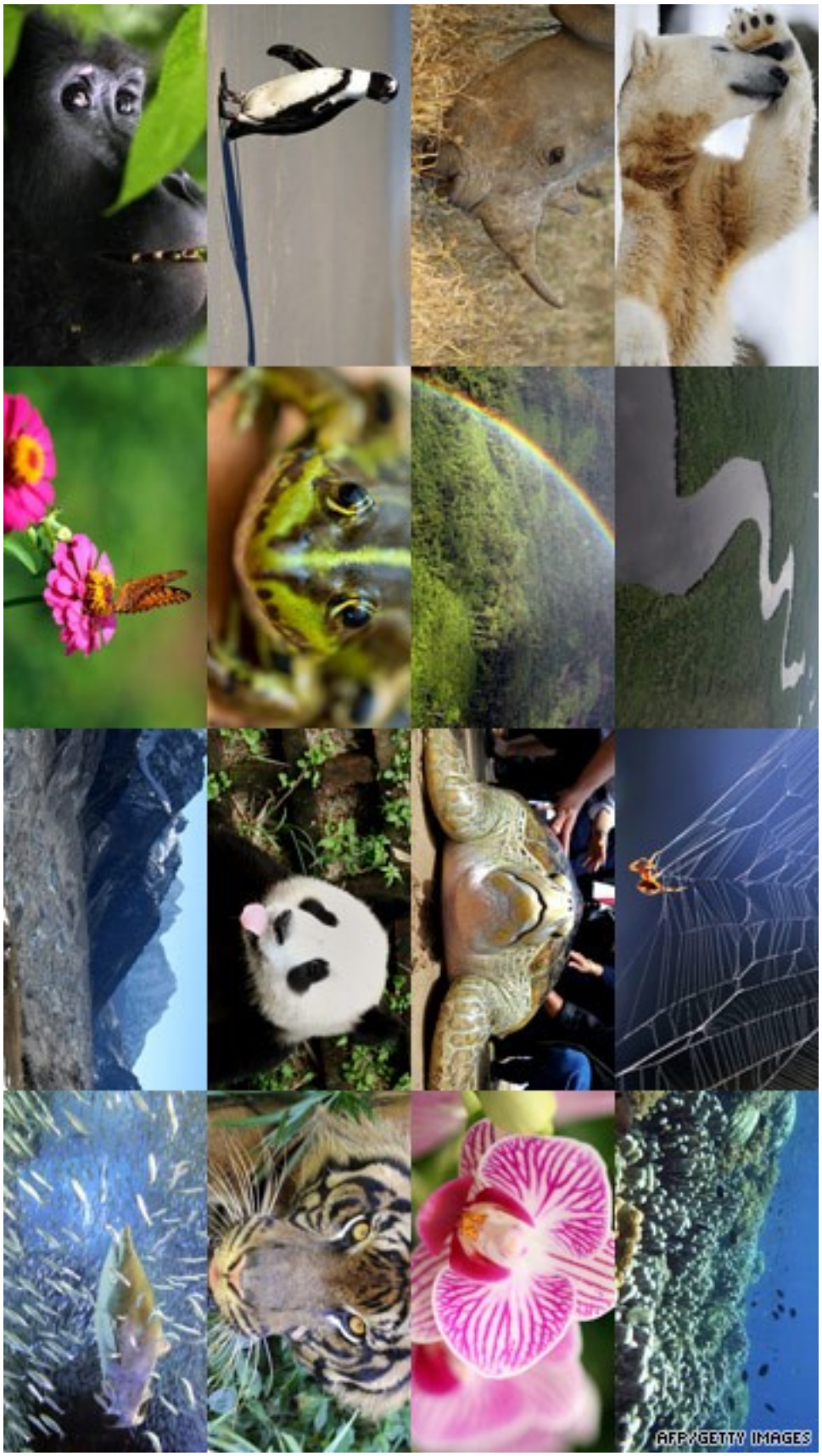
Apr 25th, 5:50 PM - 6:10 PM

Size increase with altitude in the Rufous-collared Sparrow (*Zonotrichia capensis*)

Kyle Davis
Ohio Wesleyan University

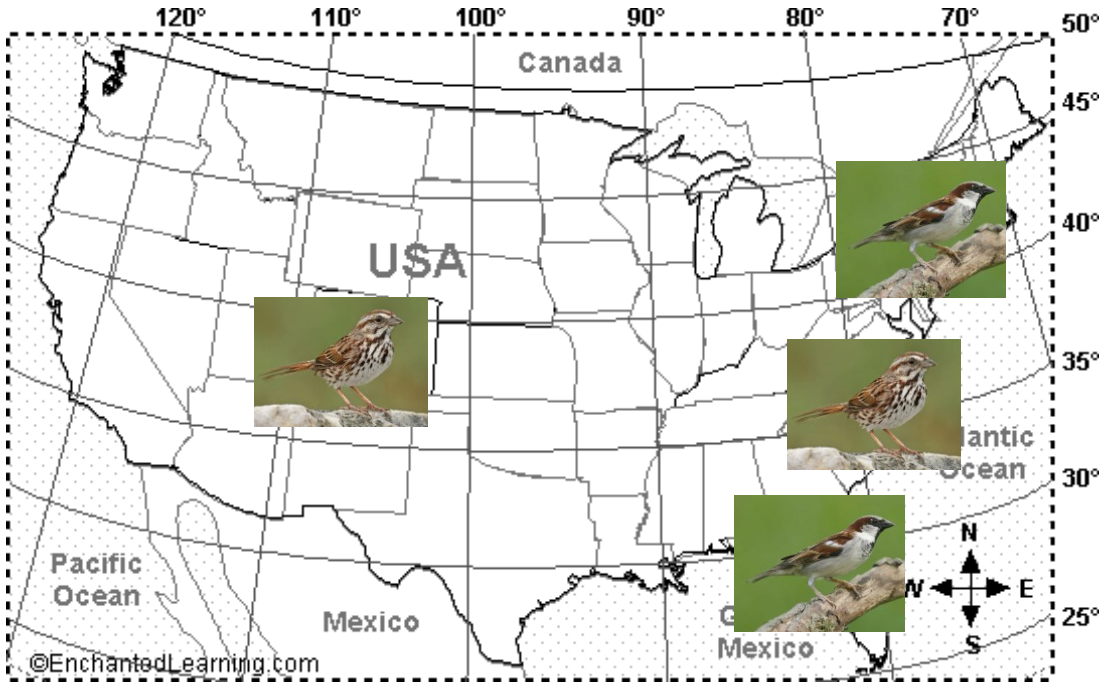
Size Variation with Altitude in the Rufous-Collared Sparrow


AFP/GETTY IMAGES

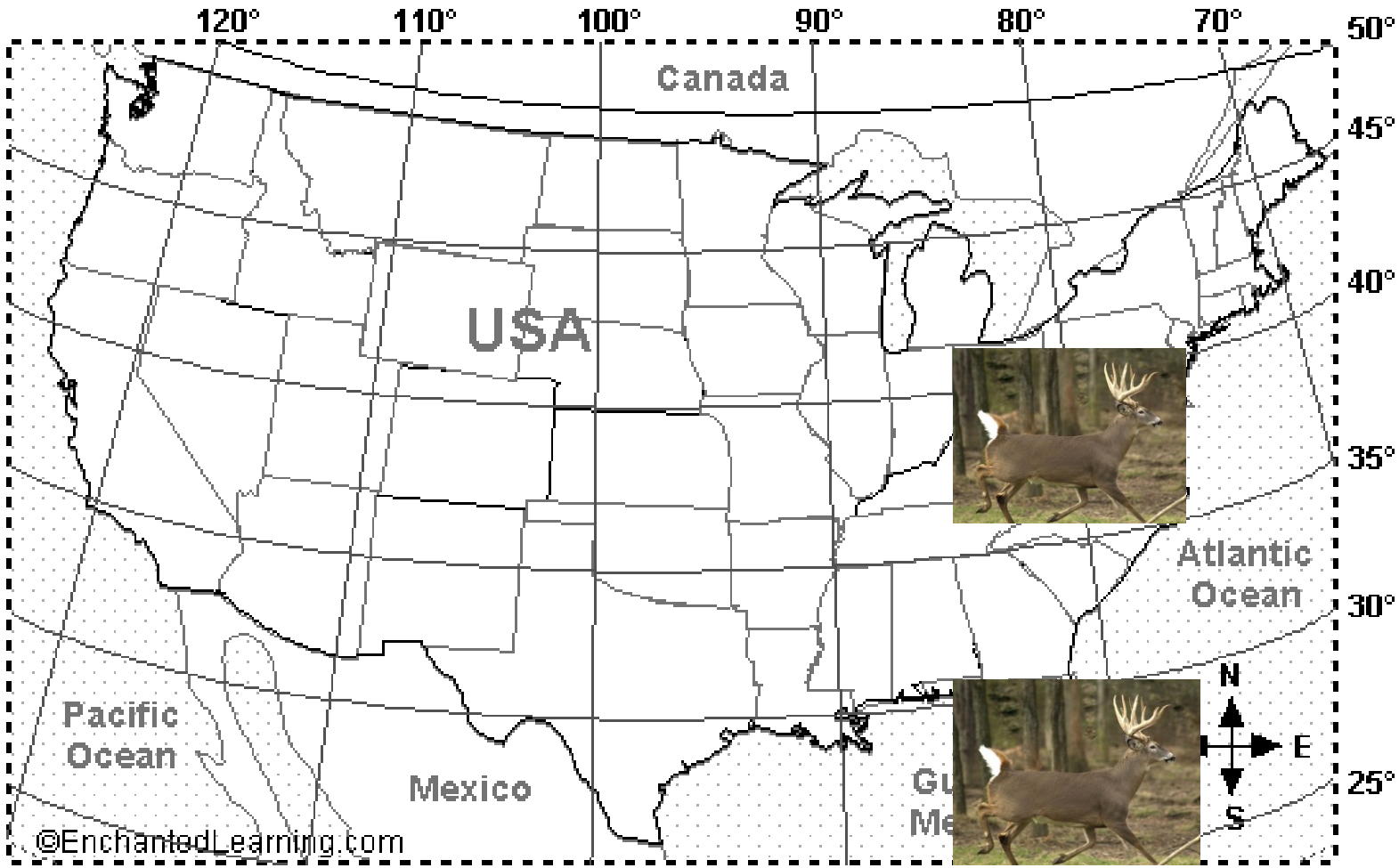

Map of the Western Hemisphere: Political
TeacherVision
ARCTIC OCEAN
ATLANTIC OCEAN
PACIFIC OCEAN
UNITED STATES
MEXICO
JAMAICA
COLOMBIA
BRAZIL
PARAGUAY
CHILE
ARGENTINA
National border
National capital
Other city

What is a Cline?

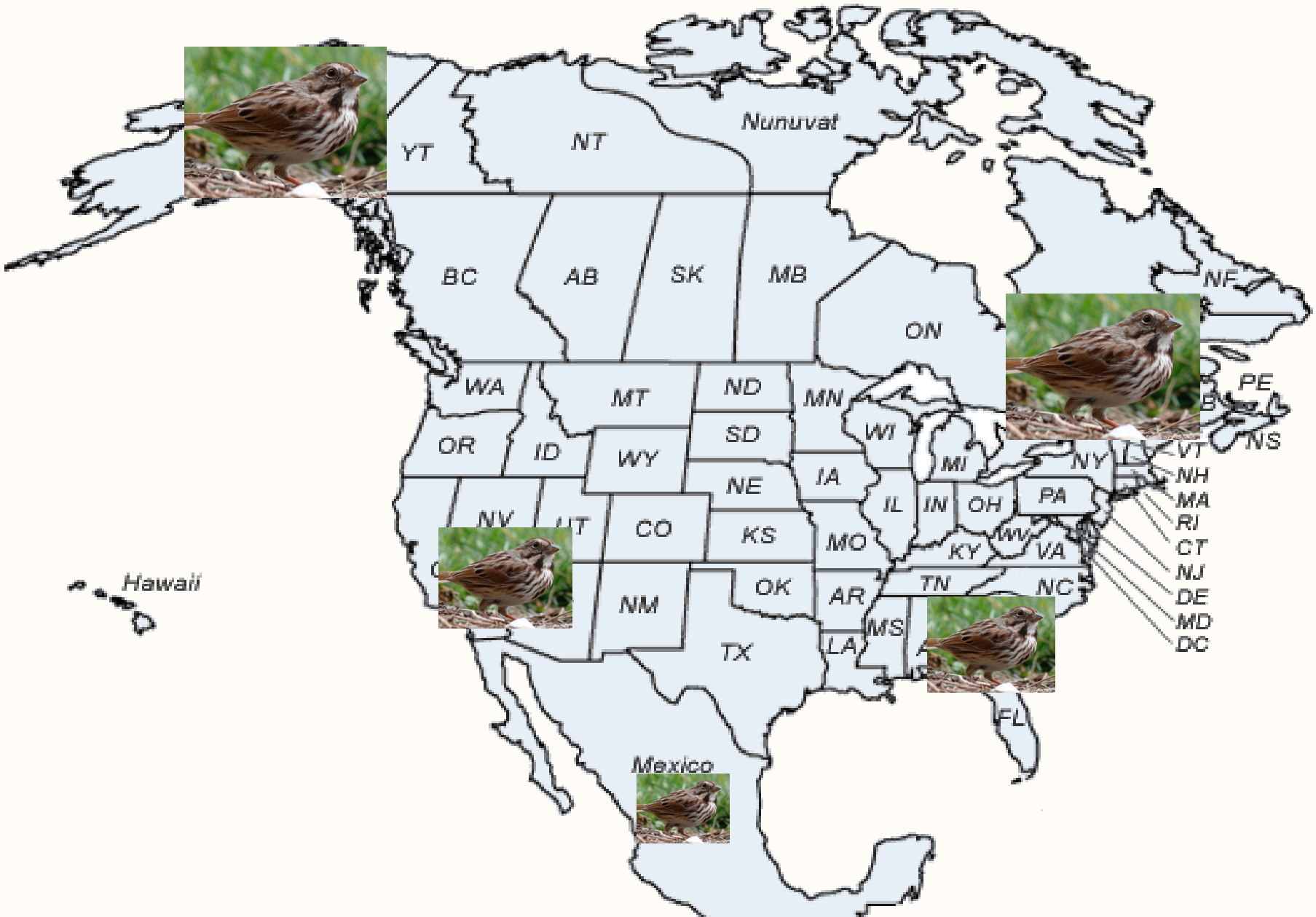
- Bergmann's Rule
- Allen's Rule
- Gloger’s Rule



Bergmann's Rule
Allan's Rule



What We Know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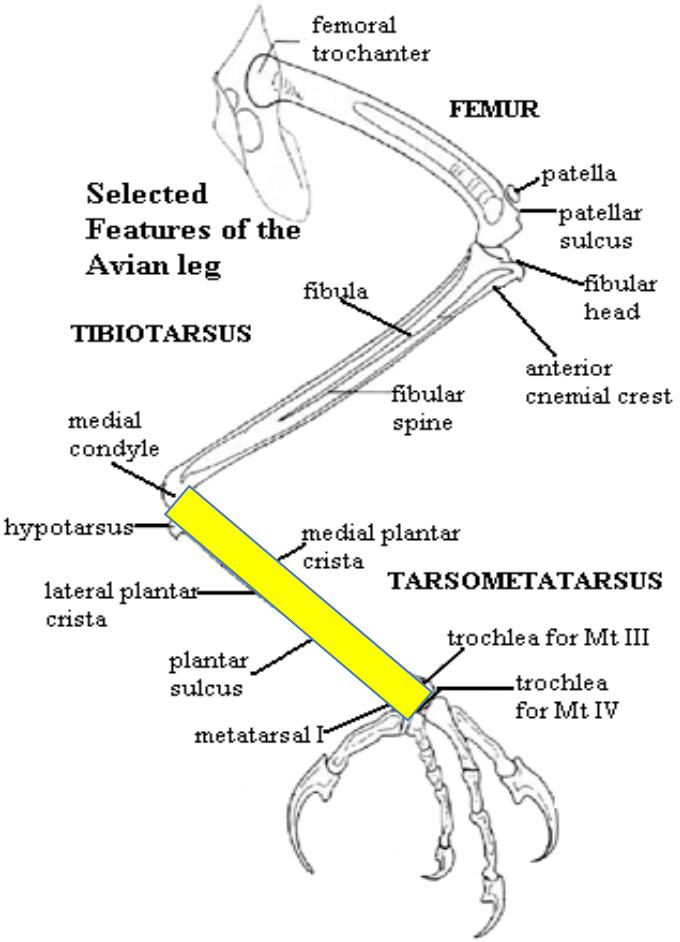
TN
NC
NM
OK
AR
MS
LA
TX
FL
Hawaii
Mexico

Why Not Altitude

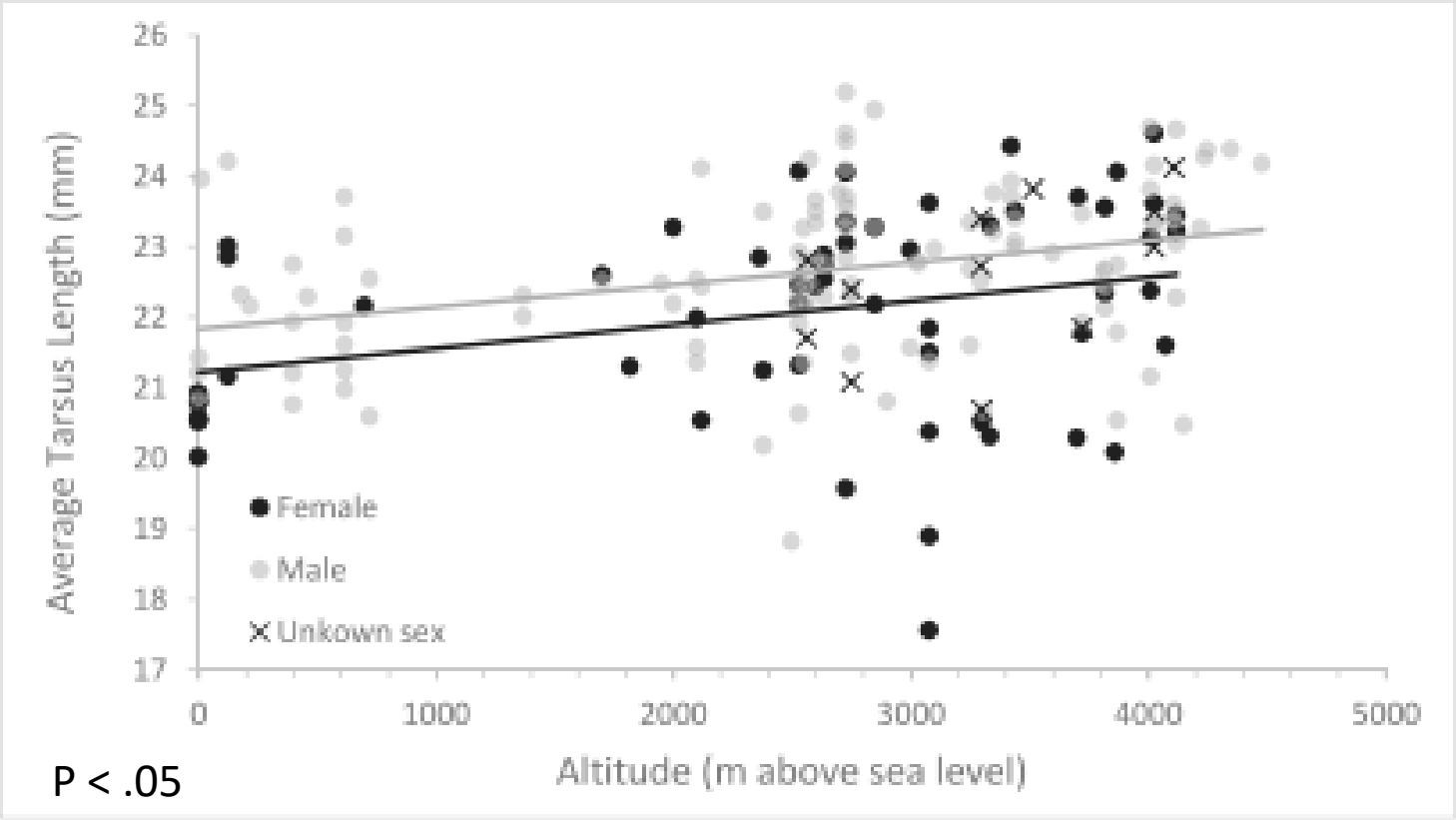
Why the Rufous-Collared Sparrow

Methods

- Tarsometatarsi (mm)
- Mass (g)
- 120 males
- 57 females
- 17 unknown



Bergmann's Rule



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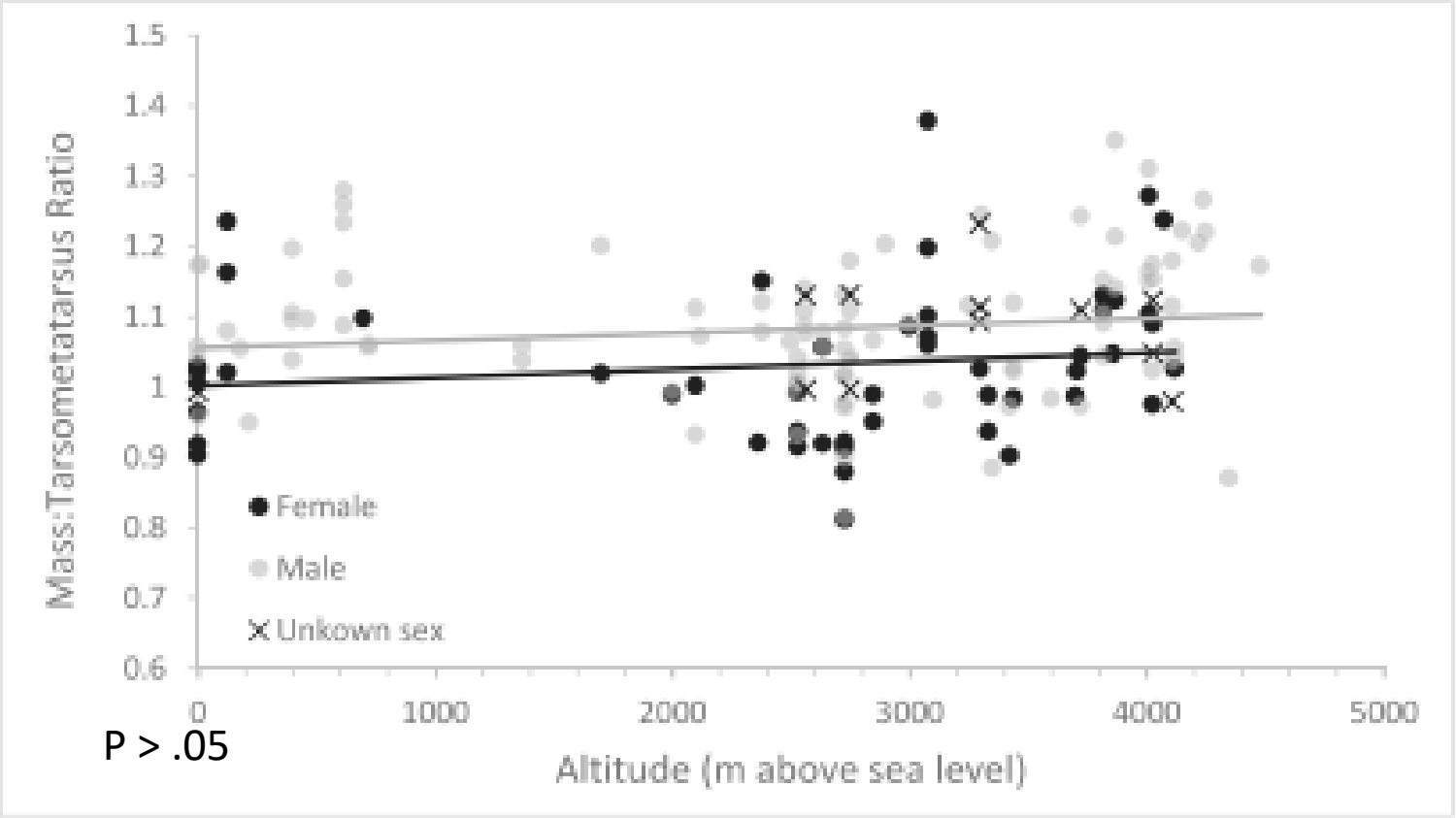
Allan's Rule



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Conclusion

- Size change = significant
- Appendage size change ≠ significant
- Males and females = same

Bergmann's rule

- Supports Geist 1987
- 0.33 mm per 1,000 m of altitude
- alternative strategies
  - Insulation
  - adjusting metabolic rate
- Suggestions
  - No migration
  - Temperature change

Allen's rule

- body weight unaffected by altitude
- Behavior
  - Double scratch
- Leg = heat sink
  - Put against body

Acknowledgment

- Dr. James Van Remsen
- Dr. Jed Burtt
- Dr. Ramon Carreno
- Dr. Dustin Reichard
- Louisiana State University Museum of Natural History
- Wilson Journal of Ornithology