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The effect of plumage coloration on nest-box competition between mountain bluebirds *Sialia currucoides* and tree swallows *Tachycineta bicolor*

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The effect of plumage coloration on nest-box
competition between mountain bluebirds
(*Sialia currucoides*) and tree swallows
(*Tachycineta bicolor*)

Jenna Millsap, Sara Berk, Creagh Breuner
University of Montana



Sexual Selection

- Male-male competition or female preference
- Ornamentation
- Limited critical resources
- Status signalling

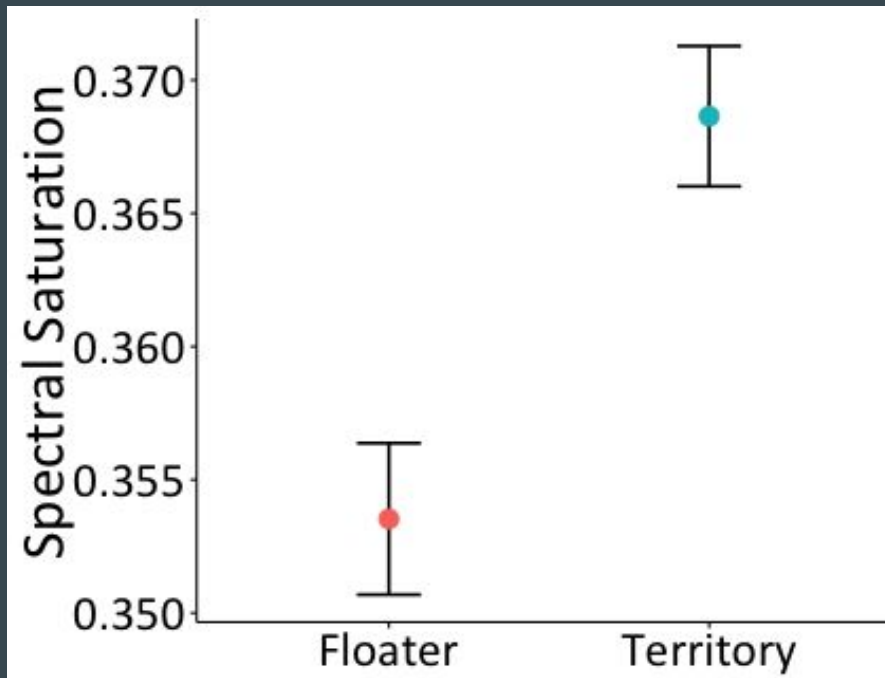
Berglund, et al. 1996
Badyaev, et al. 2002



<http://webissuer.com/blackest-plumage-nature-bird-paradise/>

Implications of Coloration

Ronan, Montana



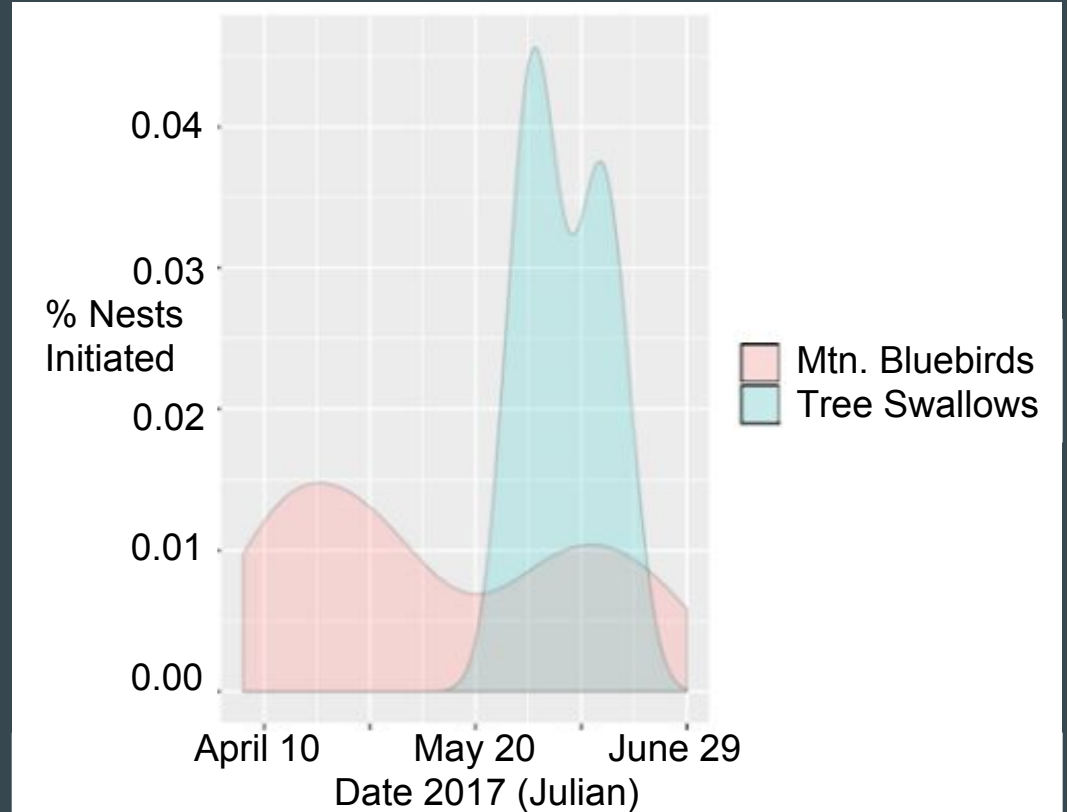
Mountain Bluebirds and Tree Swallows

- Secondary cavity nesters
- Different foraging strategies
- Tree swallows are more aggressive



Competition for nest boxes

- Mountain bluebirds lay mid-April
- Tree swallows lay mid-May
- Tree swallows usurp bluebird boxes



Questions

- Does male mountain bluebird coloration predict tree swallow intrusion frequency?
- What male mountain bluebird traits predict tree swallow and mountain bluebird behaviors?
 - Coloration
 - Body condition



Methods

- Observations (49)
 - Tree swallow intrusions
 - Mountain bluebird behavior



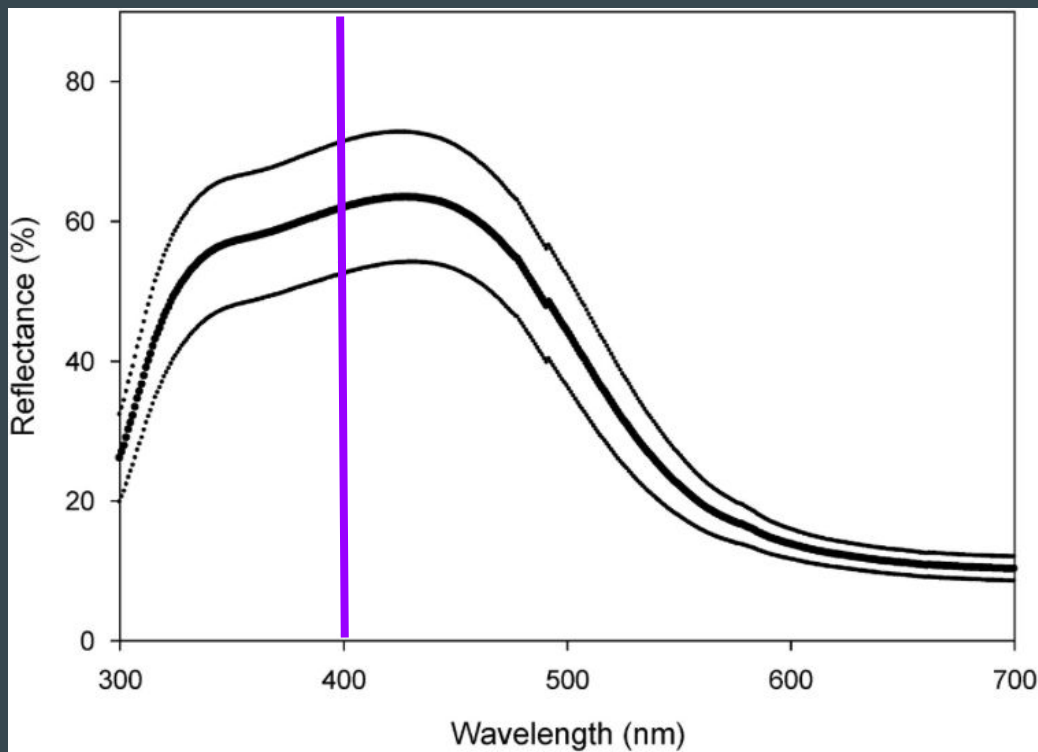
Methods

- Body condition
- Relative insect abundance



Methods

- Structural UV-blue plumage
- UV-chroma = Proportion of reflectance in UV wavelengths (300 ~ 400 nm)



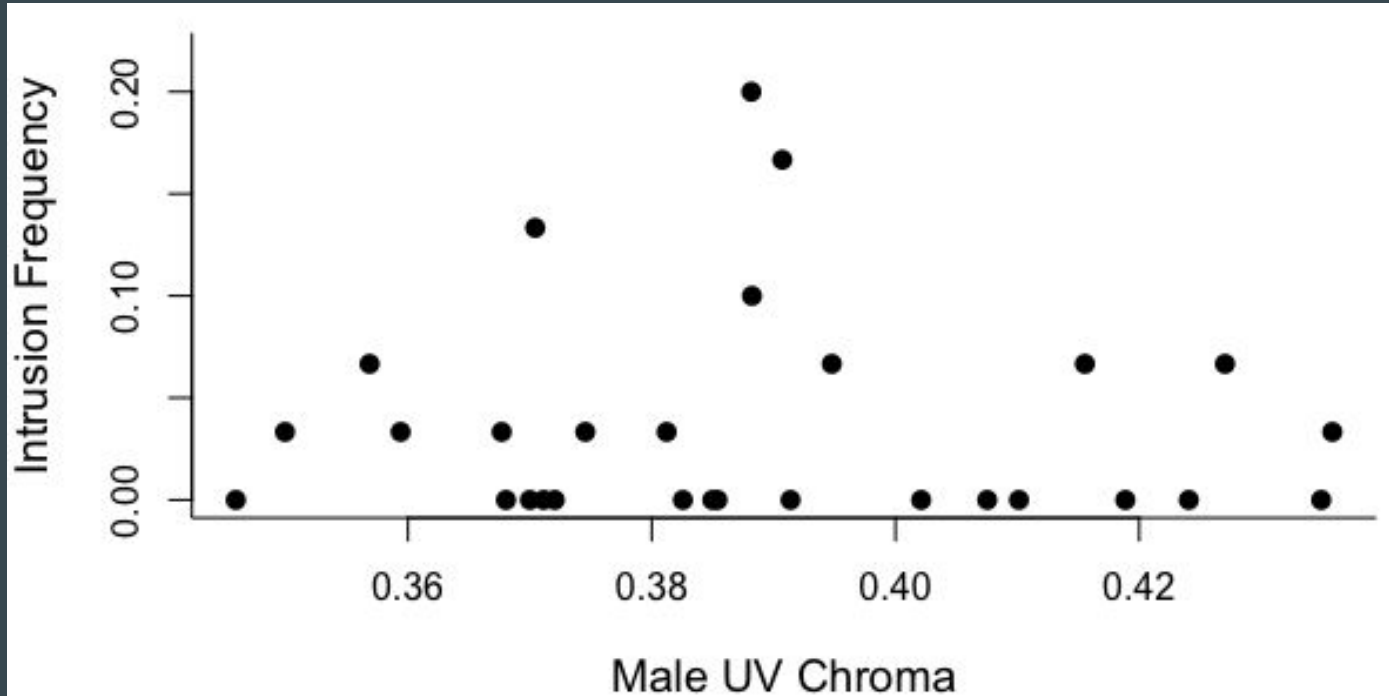
Results

- Does male mountain bluebird coloration predict tree swallow intrusion frequency?
- What male mountain bluebird traits predict tree swallow and mountain bluebird behaviors?
 - Coloration
 - Body condition



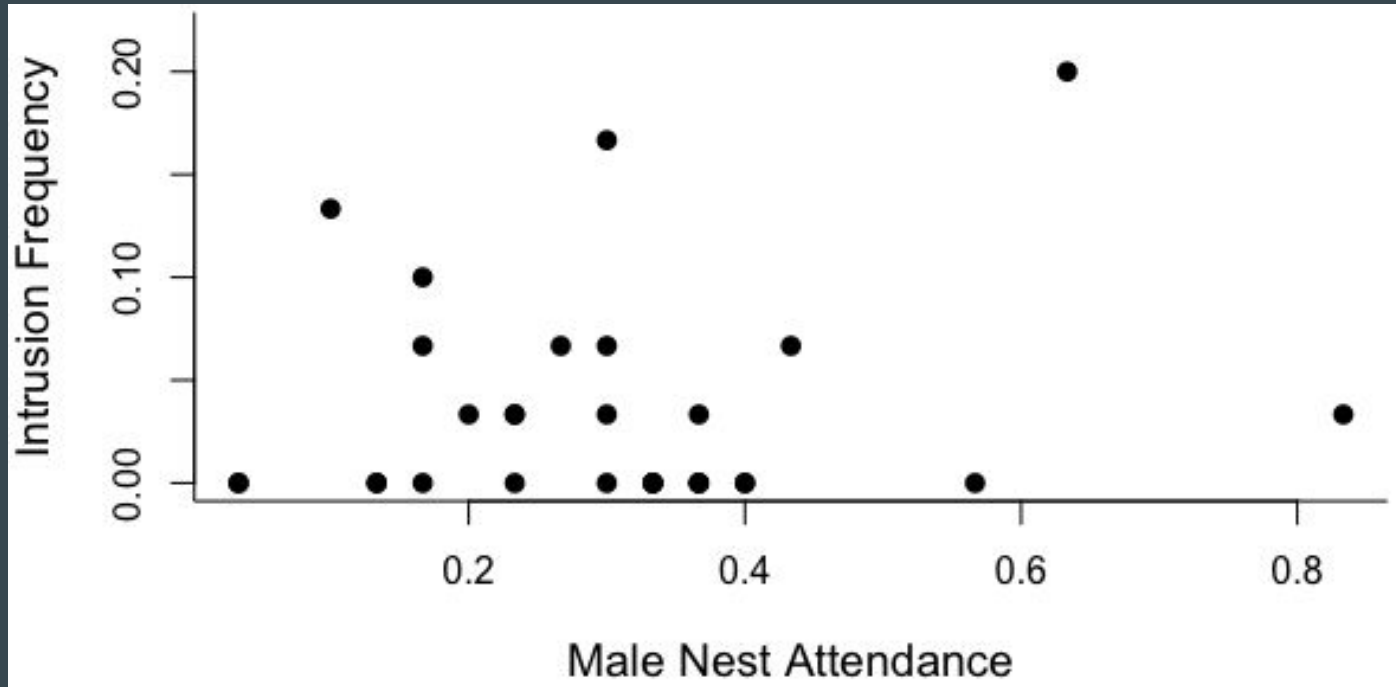
Results

Does male mountain bluebird UV-chroma predict tree swallow intrusion frequency?



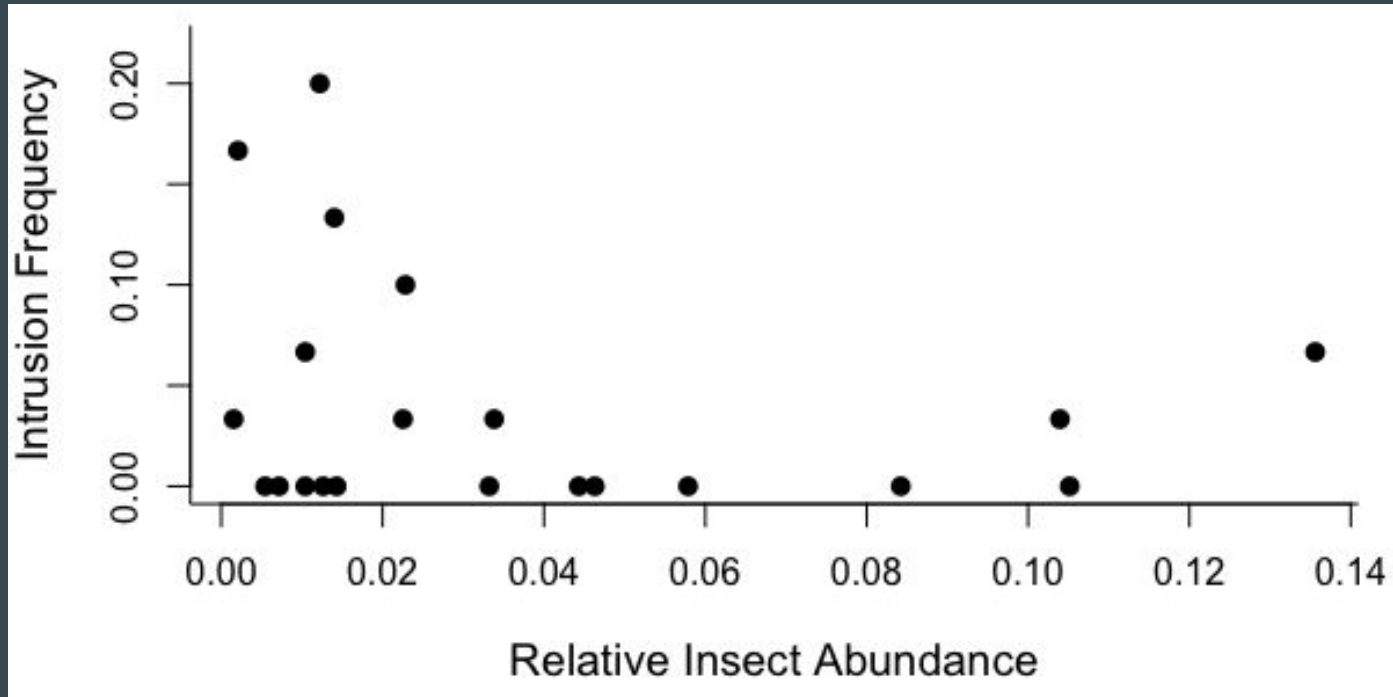
Results

Does male mountain bluebird nest attendance predict tree swallow intrusion frequency?



Results

Does relative insect abundance around a bluebird nest predict tree swallow intrusion frequency?



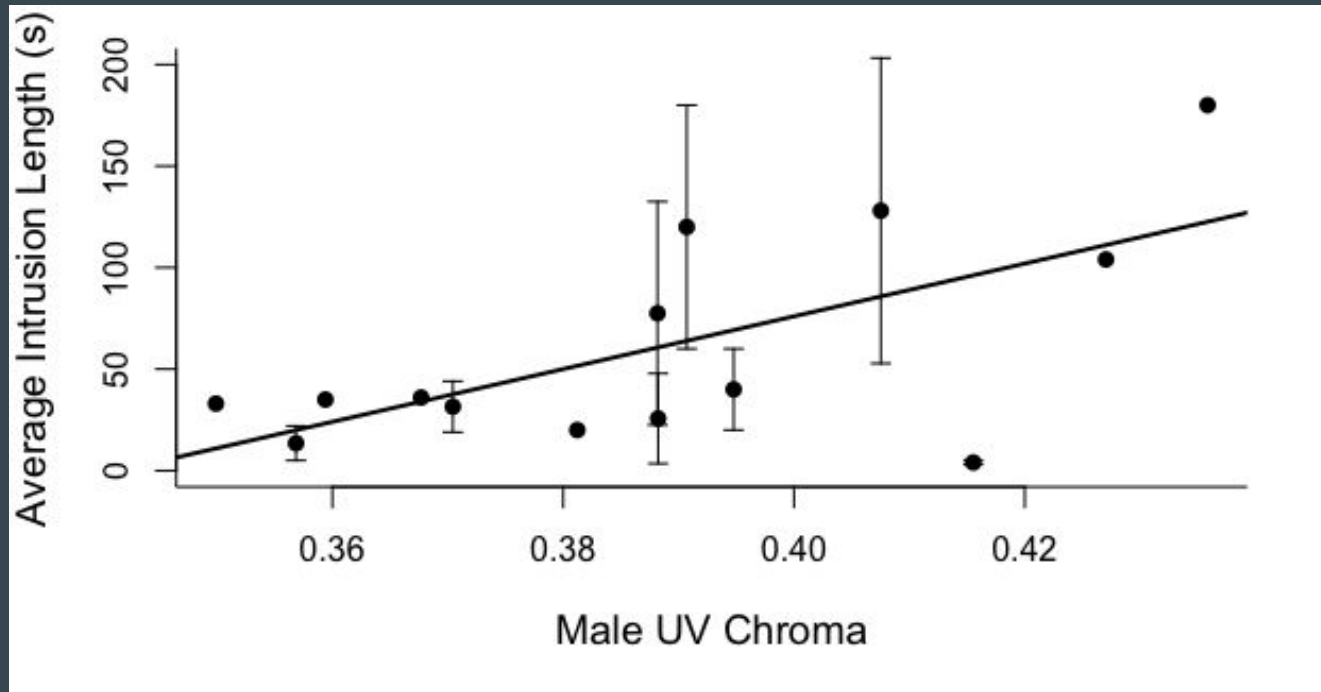
Results

- Does male mountain bluebird coloration predict tree swallow intrusion frequency?
- **What male mountain bluebird traits predict tree swallow and mountain bluebird behaviors?**
 - **Coloration**
 - **Body condition**



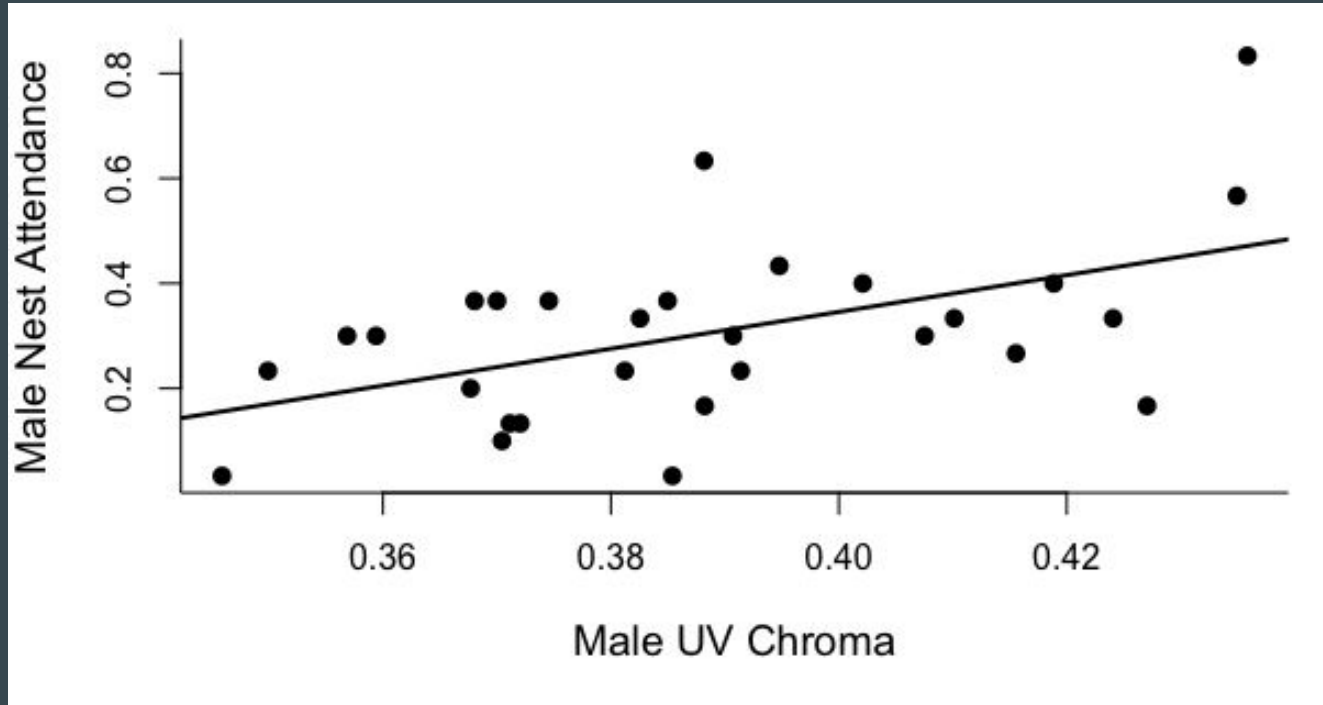
Results

Male mountain bluebird UV-chroma vs. average tree swallow intrusion length



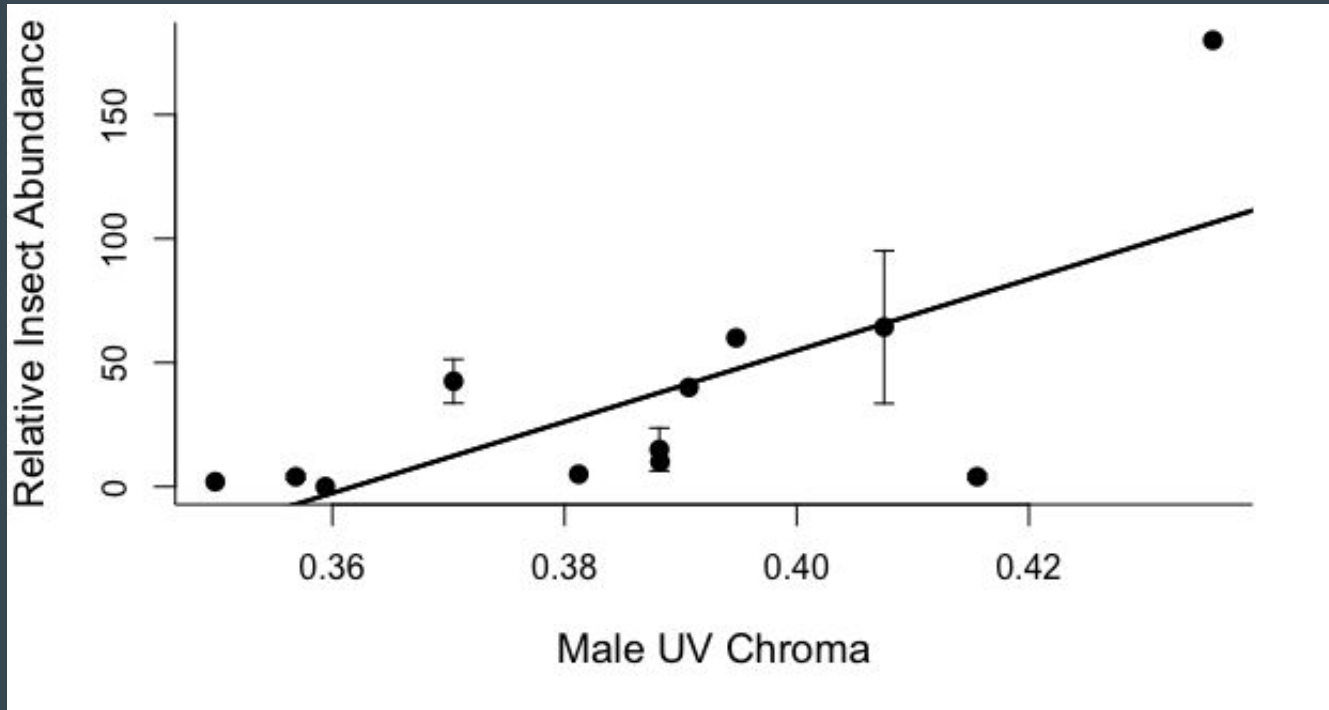
Results

Male mountain bluebird UV-chroma vs. male nest attendance



Results

Male mountain bluebird UV-chroma vs. relative insect abundance



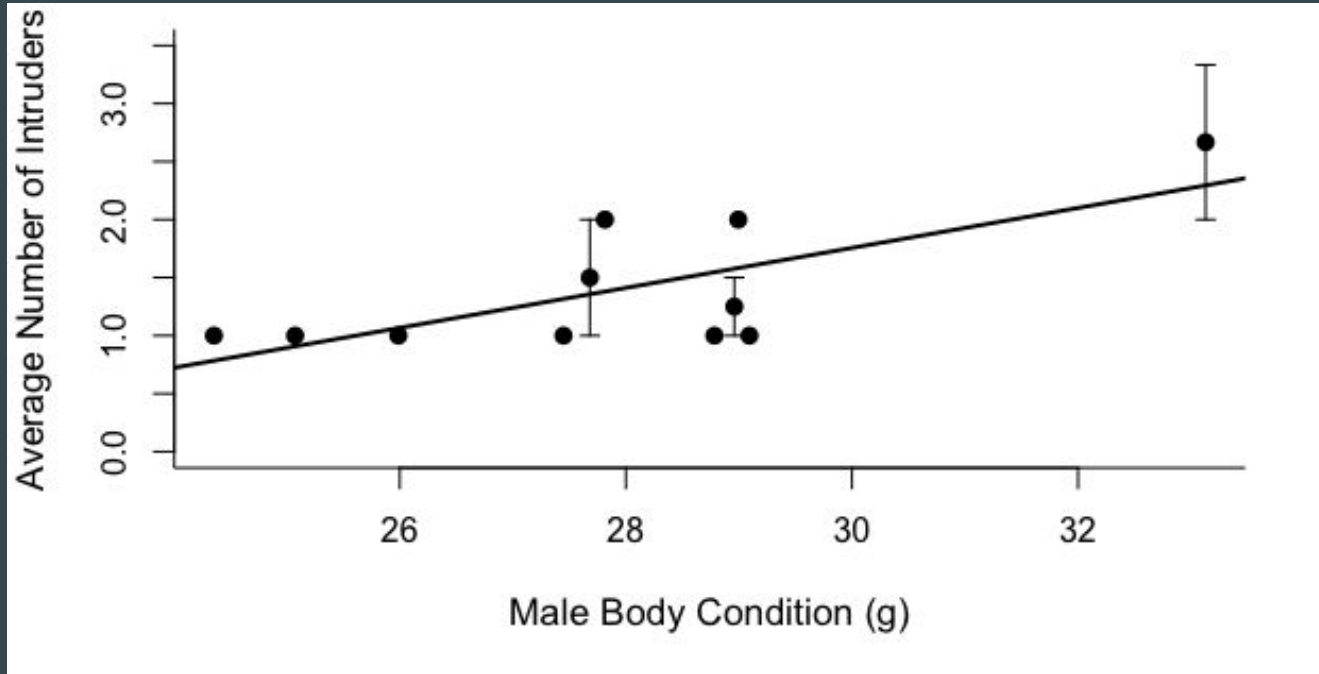
What male mountain bluebird traits predict tree swallow and mountain bluebird behaviors?

- UV Chroma
 - Tree swallow intrusion length
 - Male bluebird nest attendance
 - Relative insect abundance
- **Body Condition**



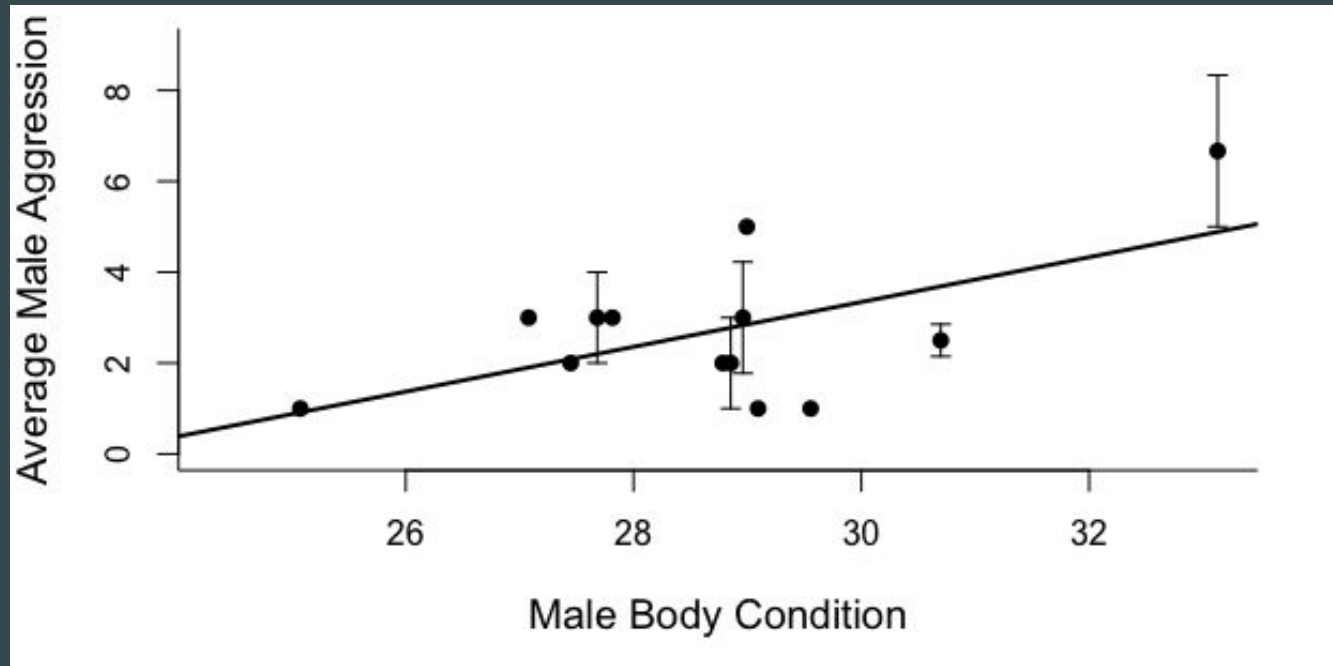
Results

Male mountain bluebird body condition vs. average number of tree swallow intruders



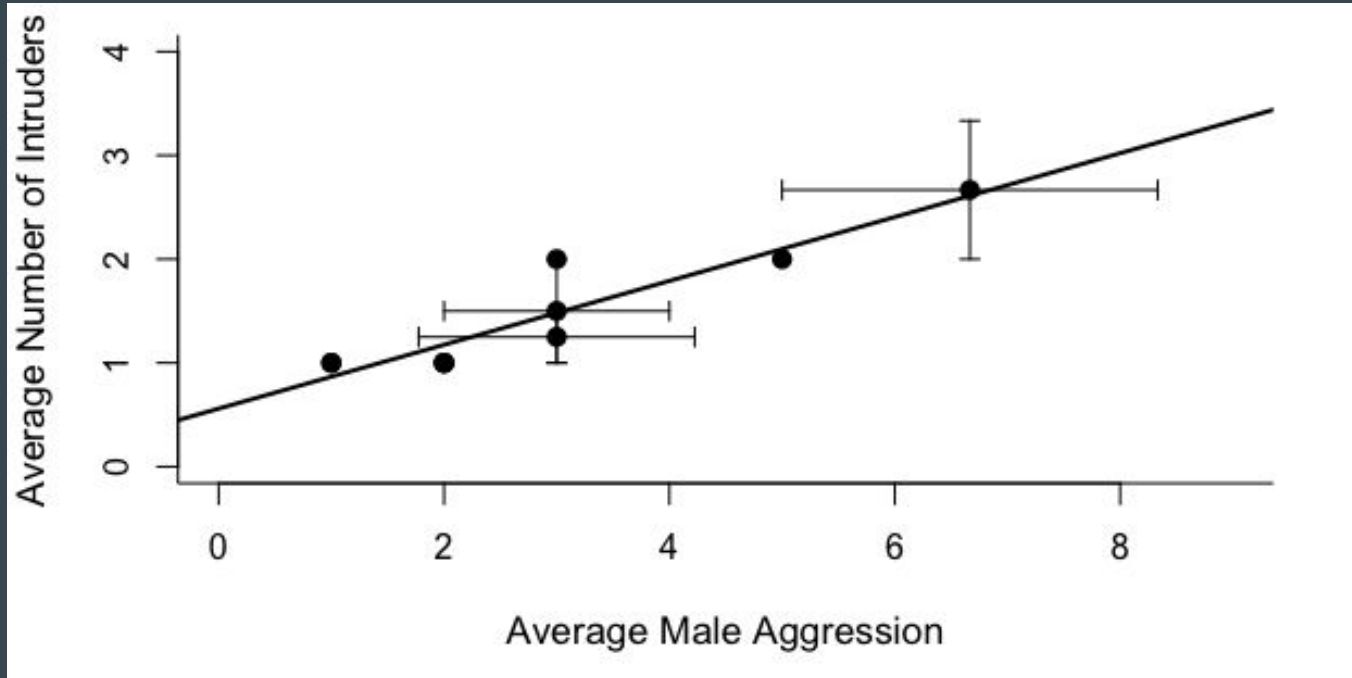
Results

Male mountain bluebird body condition vs. average aggression in response to tree swallow intrusion



Results

Average male mountain bluebird aggression vs. average number of tree swallow intruders.



What male mountain bluebird traits predict tree swallow and mountain bluebird behaviors?

- UV Chroma
 - Tree swallow intrusion length
 - Relative insect abundance
 - Male bluebird nest attendance
- Body Condition
 - Number of intruders
 - Male bluebird aggression



Discussion

- UV chroma predicts longer tree swallow intrusions
 - **Interspecific signalling?**
- Male body condition predicts more tree swallow intruders
 - **A result of aggression?**



Significance

- Conspecific status signalling
- **Interspecific signalling**



Acknowledgements

- Creagh Breuner, Sara Berk
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- Tribal Wildlife Management Program



Questions?

