

Feeling the Chill: Decreasing Activity Levels in Squirrels

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As autumn moves towards winter, how do the activity levels of small mammals change over time?



Squirrels do not hibernate, but exhibit two types of dormancy:

1. Hibernation (cold season)
2. Estivation (hot season)

Dormant behaviors are more likely in adult squirrels who have built up the fat reserves to allow for extended periods of rest.



The Reed canyon hosts grey squirrels, fox squirrels, and a hybrid.

Reed College Canyon



Experimental Design

Hypothesis: As temperature decreases with the seasonal change from fall to winter, squirrel activity will also decrease.

Methods:

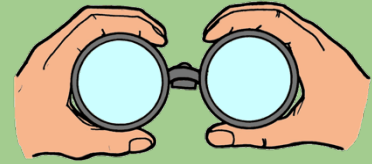
Bi-weekly observations at same location over 5 weeks

5 minute focal sampling per squirrel

Temperature, weather, and scan sampling of squirrel numbers were recorded



Using our Ethogram



Key Code	Behavior
c	chase
f	forage
g	groom
n	nibble
o	out of sight
p	pause
s	still
w	scramble

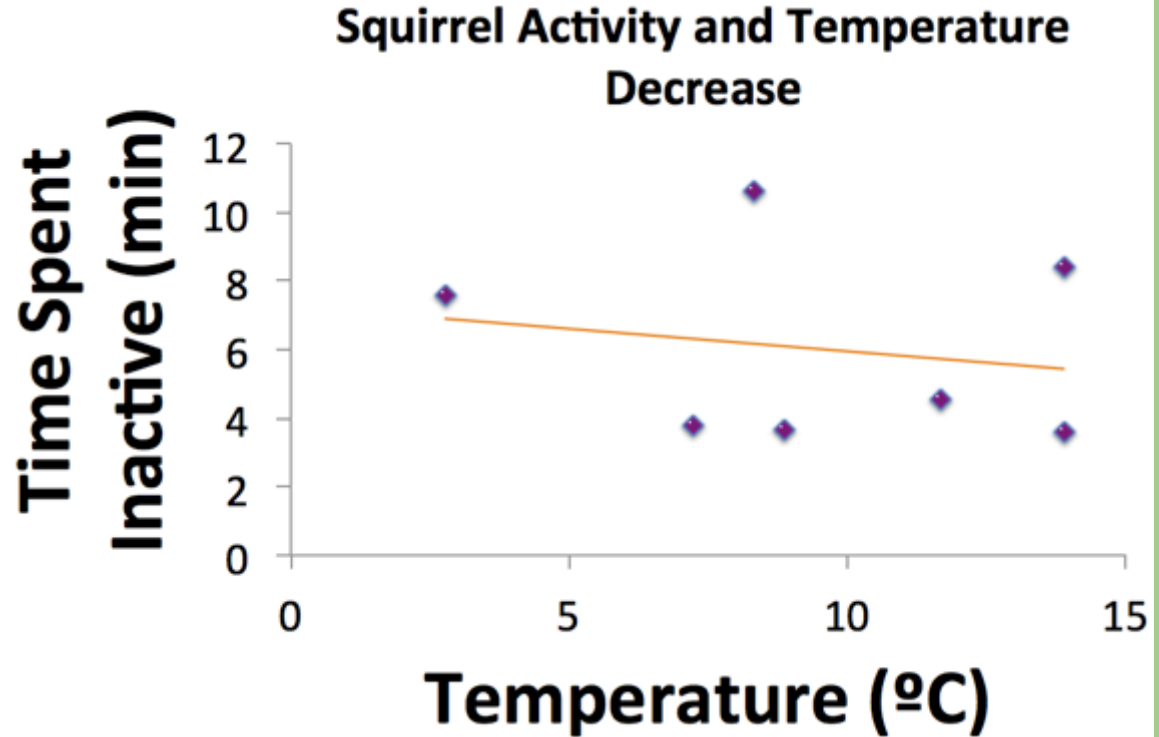


Results

Our data was not statistically significant ($P = 0.6913$), but does show an initial correlation.

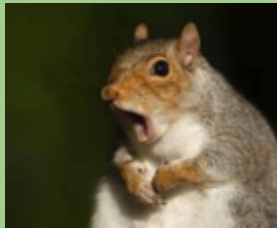


We could not refute our null hypothesis that temperature and squirrel activity are not at all connected.



Active behaviors: chase, forage, nibble, scramble

Inactive behaviors: groom, pause, still



Conclusions

The p-value shows that the data was not significant, though it shows a slight trend between temperature and activity: squirrels do become less active in the winter.

Past studies on squirrels have suggested a correlation between temperature and activity—as squirrels do not hibernate but decrease their activity over the winter, further research can be done to solidify the conclusion.

References:

http://ucanr.edu/sites/Ground_Squirrel_BMP/Biology/Hibernation/

<http://www.psu.edu/dept/nkbiology/naturetrail/speciespages/graysquirrel.htm>

<https://www.britannica.com/animal/ground-squirrel>

Future Research

- More trials for a longer period of time
- Focusing on certain species of squirrels and the differences between them
- Seeing if certain types of weather (rain, snow, different amounts of cloud cover, etc) influence squirrel activity
- Use the summer

