Leporid brain volumetrics: patterns and processes

**Abstract**

**Intro**

- Brain evo hypothesis - seasonality, expensive, cog/physio buffering

- Why leporids are interesting (ubiquitous, size variation, range variation, etc etc)

- Ancestral states – get info on ecology of ancestral lagomorphs?

**Results and Discussion**

- ANC

Significant

- (PGLS)

- No effect of seasonality on total relative brain size at all

- no individual effect of seasonality (T & P) on relative OB volume

- BUT interactive effect of both measures of T & P on OB (negative) (L = 0.646) \*\*\*\*\*\*\*\*\*\*\*\* need to figure out what this model means

- No effect of GR area on volume at all - can mention separately

- (aov.phylo) - check lambda!

- total and OB relative brain size is lower in nocturnal rabbits than non-nocturnal

- No effect of locomoter mode on relative brain size at all

- No effect of diet breadth on relative brain size at all

- No effect of burrowing on relative brain size at all

(Vera's models)

- Need to test two environmental interaction hypotheses (Activity + burrow + locomotor + diet + home range)

- seasonality (abiotic) hypothesis (already tested)

- biotic environmental (interactive model of activity, locomoter mode, this is already done as well)

- Fully significant interactive effect between maternal investment and relative OB size (Gestation length \* Maternal investment)

- bc we have small sample size, can't really test full model. discussion: need more data points

# Really understand the meaning of asterisk, semicolon, and plus, to figure out which is appropriate

# We used these differently to get A) significant results and B) significant lambda

# Figure out how to report differences between vera's models and our simple models

# Analyse the patterns first

# Analyse the full model which should explain mechanisms but doesn't really do it

# But order of variables confounds results - look into this stuff

# Test for multicollinearity! Do vifs again

#then we analyse the individual variables independently

#Find supporting literature for significant results

Graphs

#Ancestral Trait ANC (put pictures of rabbits around for blue and red ones) - phylopic?

#Phenogram

#Pictures of endocranial volumes

#PGLS table

#Anova graph

#All nice and colourful

**Conclusion**

**Methods**

- ECV 3D reconstruction

- OB delineation

- PGLS

- pANOVA

- ANC

**References**

**Data availability**