Feb 27 Home range size and body size

Harestad, A. S., and F. L. Bunnell. 1979. Home range and body weight-A reevaluation. Ecology 60:389-402. Read all pages.

Huston, M. A., and S. Wolverton. 2011. Regulation of animal body size by eNPP, Bergmann’s rule, and related phenomena. Ecological Monographs 81:349-405. Read pgs 349-365 (down to “Non-latitudinal Variation in Body Size”), 388-393.

Summarizers:

Ryan and Sam – Harestad and Bunnell

Tor and Holly – Huston and Wolverton

Tips for Summarizers (10 min for each paper)

) Provide a high-level overview of the theme the paper

) Highlight the unique/important contribution of each reading

) Present your personal take on: what is valuable in the paper, questions that remain unresolved, interesting applications, and/or other topics you find interesting.

) Prepare one or two discussion questions that you think will help the class get to the next level

Discussion Questions for Class

1. Home range size and body size of a species are usually presented in ecology text books as relatively constant across habitat types. What is the general chain of logic suggesting that home range and body size within a species vary predictably among biomes?

2. Try to draw a box and arrow diagram on the linkages among home range size, body size, trophic level, basic metabolic rate, and habitat productivity, homeotherms, and endotherms.

3. What data and analyses could be used to test Bergmann’s Rule vs Huston and Wolverton’s ENPP hypothesis on controls on body size?

4. What are some implications for conservation if home range size and body size do in fact vary predictably with habitat productivity and thus differ among terrestrial biomes?

5. How do Huston and Wolverton define ecologically and evolutionarily relevant

NPP (eNPP) and how is eNPP distributed globally? Evaluate the argument of H&W that eNPP is more likely to explain patterns in body size than annual average NPP.

6. How well do the data on body sizes of various mammal species support the eNPP hypothesis vs the NPP hypothesis?

7. What are additional predictions of the eNPP vs NPP hypotheses that could be tested to distinguish among the two hypotheses?

8. H&W do not control for home range size or species abundance in their analyses (in contrast to Harestad and Bunnell). Would doing so change their results and conclusions?