1. EXPERT OPINION: The authors talk about how we either rely on quantitative synthesis or “expert opinion,” that we tend to remember positive and negative results, and we rely on ease to find sources in prominent journals.
   1. What are the issues with this?
   2. How could adopting a more met-analysis approach in interpreting literature help?
2. PVALUES v. EFFECT SIZE: In the field of ecology and evolution, our studies (and some by the nature of the field) tend to be low in power, have small effect sizes, test a bunch of relationships, don’t have “formalized” statistical approaches and are susceptible to data fishing, have several outcomes, the sexy topics have too many people testing the same thing and as a consequence of some of these factors, p-values can give a lot of false positives.
   1. So what’s a p-value anyway?
   2. It ignores the width and central location of the mean
   3. It’s only biologically meaningful when sample sizes are considered (and in our field, n tends to be small.
   4. What’s the benefit of using effect sizes instead of p-values?
   5. Can altering the way in which we share our outcomes alter the path of science? Funding? Publishing? How we design experiments? Ask research questions?
3. SPECIFIC v. GENERAL: The authors use the quote that specific studies are “amassing a catalogue of case studies.”
   1. Are specific studies beneficial and how are they beneficial?
   2. Can they really be used to compare and describe other studies? Systems? Taxa? Locations? Or is that like comparing apples to oranges?
   3. Since everything in the field is so variable and power is so low, are conflicting specific studies really conflicting? Or is the conflict just from sampling error?
   4. Should we move towards generalizing rather that trying to validate of refute a result like the authors suggest? What are some benefits of generalizing?
4. DISCUSSION SECTIONS: The authors suggest alterations to the discussion section—of discussing the accuracy of results, experimental design quality, and the extent to which it has been tested by others.
   1. Thoughts?
   2. What about their idea of including small meta-analyses estimating mean effect sizes of studies asking the same question? And graphing your data with theirs? The alternative (present practice) is vote-counting and significant/non-significant.
5. REPLICATION and QUASI-REPLICATION: The authors say basically that it is impossible to truly 100% replicate a study. They also bring to question whether it is better to expand studies based on a pilot study or if the study should be quasi-replicated?
   1. What are the pros and cons to this?
   2. Where does meta-analysis fall or how does it play a role in this quasi-replication?
   3. What should we be testing—right/wrong or the wider phenomenon?
   4. What’s the tradeoff in testing scrutiny versus the testing the general “rule?”
   5. What are the trade-offs between testing specificity and testing generality?
6. Thoughts on “The advantages of effective thinking” section?
7. Are our current approaches to science “wasting resources?”