

Class Zoom Link:

<https://syracuseuniversity.zoom.us/j/6620094816?pwd=RVpCV3MvVGFibldKMEJoTFJURTgyZz09>

+16465588656,,6620094816

Class Website:

<https://www.esf.edu/for/yanai/publishing/>

Class schedule--2021

Date	Class	Assignments Due
Feb 8	Why Publish?	<i>Background presentation (5 minutes)</i>
Feb 10	Discuss <i>Getting Started</i>	<i>Getting Started Exercise</i>
Feb 15	Figures and Tables	<i>Tables and Figures</i>
Feb 17	Outline and Objectives	<i>Outline and Objectives with Abstract (revised)</i>
Feb 22	Results	<i>Draft of Results</i>
Feb 24	Choosing your Journal	<i>Knowing your Journal Exercise</i>
Mar 1	Materials and Methods	<i>Draft of Methods</i>
Mar 3	Writing exercise	Bring a difficult section
Mar 8	Last-chance informal reviews	<i>Rough draft for first review</i>
Mar 10	Preparation for peer review Editing and proofreading	Submit Results and Materials and Methods Sections with Abstract and Objectives (for First Peer Review)
Mar 15	Discussions (examples)	Bring examples from your field, include Conclusions and Summary if any
Mar 17	Drafts of Discussions	<i>Draft of Discussions</i>
Mar 22	Advice, Responses to Reviews	First Peer Review Due

Mar 24	Introductions (examples)	Bring examples from your field, annotate the paragraphs.
Mar 29	Drafts of Introductions	<i>Draft of Introductions</i>
Mar 31	Mid-semester feedback	<i>Anonymous feedback</i>
Apr 5	Last-chance informal reviews	<i>Rough full draft</i>
Apr 7	Ethics	Submit Rough Draft and Response to First Reviews
Apr 12	Authorship	<i>Authorship Exercise</i>
Apr 14	Proposals	Second Peer Review Due
Apr 19	Readings on Peer Review	Share some readings or resources
Apr 21	Wellness Day	Supervised Study Hall (optional)
Apr 26	Abstracts (examples)	Bring in copies of an example from your field
Apr 28	Abstract review	<i>2 copies double-spaced</i>
May 3	Last-chance informal reviews	<i>Your most difficult section</i>
May 5	Steps to Publication	Final Draft of Manuscript and Response to Second Reviews

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[R Code Tips & Repository Doc](#)

2/10	2/17	2/17 (2)	2/22	3/1	3/17	3/29	7/	Notes Here
Nate and Rod	Lalit a Rod	Rod Joe	Bri (6) Rod	Scot-T & Bri We are DONE	Ska, Nate, Lalita			
Scot t and Dyla n	Scot ty & Nate	Dyla n & Scoo ter	Nate 2 + tables and Dylan,	Lalita, Joe & Nate	Brianne Joe Dylan	Scotia, nate, Lalita		
Lalit a , Joe, Bria nne	Joe Dyla n	Lalita Nate	Skawt y (3 pages) , Joe, Lalita 2	Rod & Dylan (Halfway)		Dylan Bri Joe		

- I expect after a few sessions it will be inevitable that we will have repeated pairs

Link to Individual Papers:

[Scott's Outline/Draft/Working Doc](#)

[Joe's Paper](#)

[Rod's Paper - Google Docs](#)

[Brianne's Outline](#)

[Nate's Paper google doc](#)

[Lalita's Paper](#)

[Dylan's paper](#) and double spaced version

May 5: Steps to Publication

For 10 points (submit with final draft): Paragraph/page detailing **all** the requirements for your journal.

Go to the journal website and start a submission (just for practice)!

Joe: I am meeting with Franklin tonight. Still hoping to be done 5/7, but might be closer to 5/10

Bri: Hoping for May 10th submission. I don't want another incomplete

Nate: I'm taking an incomplete - waiting on my coauthor but I'm still working on it this week after exams...

Lalita: May 11th probably.

Scott: Probably by May 12th. Meeting with coauthors to show them a draft I'm pretty proud of first and then revising from there: do not want to make them revise TOO much.

After we try this approach to “Steps to Publication” you can help me decide whether to dismantle the slides and put up sections on the web site under different categories, or what. There are some key slides that don’t fit the categories.

1 outline from CJFR of all the steps. This slide recurs in the deck to keep track of where we are.

2-26 J of Forestry submission screenshots **A➤ Nate**

47-50 Biogeochemistry, incomplete? **A➤ Nate**

In addition, on the [class web site](#), there are screen shots of submissions to various journals, plus the steps compiled by previous students for this class. **A➤ Nate**

-different directions for each journal

-individual boxes for keywords, abstract, etc.

-receive a temporary MS Number after submission

Invitations to review 54-57 **B➤ Joe Scott**

63 Ecosphere history of rejections <—how long it can take to get enough reviewers for the AE to make a decision

C➤ Scott Joe

- How long should it take for reviews?
- Between Jan 3 and mar 24 went through 9 reviewers (1 review submitted)
- 1 accepted to review Feb 13th and submitted mar 6th

64-70 reviewer submitting a review to SSSAJ **B➤ Joe Scott**

- Someone reaches out to you, you get paid a “small token”
- All: if you can’t, nominate someone who can
- Be aware that things are slow, and how long should you wait to hear back from the journal? Monitor progress on the journal web site

71 reviewer sees the result (same paper as 54-57)

72 reviewer sees the result

74-79 Examples of accept/reject/revise decisions (author’s point of view) **D➤ Brianne**

- Email that gives status of manuscript: accept, accept with major revision, minor revision, etc.
 - Will see reviews in same email, sometimes 5 - 10 page email.
- Still get review comments after rejection. No need for response document.
- “Revise and resubmit” - if it takes a year to review it, it’s bad on turnaround stats. So they’ll consider it a new submission instead.
 - Will still want the response doc.
 - Do not feel rejected, they want to stop the clock!
- “No journal will ever take your manuscript as is” - Ruth (until after you revise it)

80-98 Saga of a special issue, authors point of view NAFSC FEM **C➤ Scott Joe**

- Asking for more time -- write to the journal and ask
 - Adding more samples to results
 - Submission dates are not always firm
- Special issues may become available immediately now that they are digital
- If you care about how soon your paper is available to people, take this into

consideration. There may be some delays!

Production 100-109 Uncertainty in Ecosphere [E](#)➡

Production 110128 NAFSC FEM [E](#)➡

Proofs 130-140 Nutrient Uptake [E](#)➡ [Lalita](#)

- A manuscript copy is sent to you for review. At which time you'll do a final review to determine if corrections are needed.
- Usually given 48 hours to correct, now probably online (formerly on paper, then pdf)
- CHECK EQUATIONS! color problems, name corrections, years not matching, metadata, tables,

There are examples of page proofs from multiple journals on the class web site, as pdfs. [F](#)➡ [Dylan Lalita](#)

- Do not change style or text that would impact the meaning. Attention should be on fixing errors

The ones I responded to last week are still linked [here](#) but you can't edit them. So I made a zoom recording of the functionality, before clicking the "submit" button. That video is on the web site. [F](#)➡ [Dylan Nate](#)

Hey, that paper was the result of a grad student seminar two years ago. All the junior authors were students at the time.

Okay, see you Wednesday. I feel like we should do something special for the last day of class. Wear a funny hat and get yourself some food or beverage!

Advice for delivering Steps to Publication:

Scott: It's better to make it more active for students. We call this "jigsaw" activities where everyone gets a segment to be a master of in the education world, ask Nora about it!

Brianne: It was an interesting class, I think if everyone briefly reviewed their sections before class, it'd go a bit more smoothly

Joe: I didn't ever really feel like Ruth was "lecturing" to us -- which I thoroughly enjoyed. This class was very collaborative, and super helpful. I'm sure the mycorrhizal paper would not be anywhere near as "ready" as it is without the deadlines in this class!

Dylan: Yeah, this was better than being read each of the chapters by the same person for sure. Maybe even more exciting would have been to run through a mock example of these steps with some of our own content, though not sure how that would have worked exactly. Ruth: try that on your journal's web site!

Lalita: Great Interaction with involvement of each. I enjoyed the class.

Nate: Enjoyed all the screenshots, they gave some good perspective on the submission ordeal and also how long the review process takes. Glad there was no homework too.

Ruth: Now I remember I said you could review the materials in advance if you wanted to--so I stayed up Monday night to prepare them! They're there forever if you want to study more later, as you go through the process.

Exit Cards for today:

Joe: It seems like waiting to get page proofs would be pretty stressful. I'm sure I would be camping the weekend I am supposed to edit them!

Brianne: Writing a publication is stressful in general, I can't imagine what my revisions will be but I pray to the science lords that it will say "favorable".

Nate: ^^ me too about camping, I would hopefully get past the submission and just need a break from my computer. Would definitely need a break after submitting this paper.

Scott: I was OUT of it after my intellectually stimulating conversation with the postdoc about research and getting my second shot, but I 'still found value in learning about what happens to get published. There seems to be lots of emails involved and it makes me more empathetic towards profs.

Lalita: Over all class today was good. 5 min to read was abit not sufficient

Dylan: Yeah 5 mins was a little hard to get a grasp on my step.

I agree that the whole 48 hour thing seems nuts. It feels like some new obstacle in a reality tv show, like: now the scientists have 2 days to juggle their responsibilities with hours of new edits to make. Let's see who can get them in and who will be eliminated!... like why not just let us know ahead of time so we can prepare?

Exit Cards for the semester, have a good life!

Joe: Although I still feel like I have a lot of bad habits when it comes to writing, I am more aware of them now. I hope this opens the door for me getting my first publication!

Brianne: Great class! I definitely feel more confident in my writing ability and the deadlines made me commit to the paper. I learned a lot of dos and don'ts. I feel well prepared to start actual grad school haha!

Nate: This class has significantly improved my writing, but more so that I can develop a project up to the point of being submitted as a ms, something I didn't even think was what I wanted to get out of this course. The first day I remember just saying I'm just doing it for my degree, and now I am sorta proud of how well this whole semester went. Even though I know I'm not ready to submit yet.

- Scott: lets go get a coffee when the semester starts! We're vaccinated now and I'm gonna be let loose in a major city after getting outta this RANCH!!!! - For Sure! When do you come up to cuse?? Steal my number from the notes haha and then i should be there in approx 2 months
 - Yeah i got them digits homie imma be there maybe in August 19 after our field season lets go to that hipster vegan coffee place - theres two pretty good ones ill show youuuuu
 - Yo bet lets get that coffee bean fam - big facts

Scott: Taking a critical look at what makes each part of a scientific paper valuable and how to write each section (like making each section understandable if readers did not read previous sections) is something very valuable in the scientific world. I learned a lot about writing results (which I have little experience in) and about how to make my writing approachable to all disciplines. We adapted nicely to the virtual setting.

Lalita: I was not aware about all the processes a paper passes through. Not only while writing a paper in future, but I can also think of what any paper that I am and will be reading.

Dylan: Definitely one of the most practically useful classes I've taken at ESF. My career track is not academic, and I'm not sure how many more scientific papers I will contribute in my life. But regardless I think my writing overall is better, so can't ask for much better than that.

Ruth: Exit cards are so helpful! I will keep doing this even when we are not remote.

Ruth: Thank you all for stepping up to make this class work during the COVID-19 pandemic. I was anxious about it but you were GREAT!!! And I learned new things to make it better in the future.

Jigsaw...

May 3: Last-chance informal reviews

Scott-AYEEEE will likely not be here today, his power at the Ranch cut out and with that comes no internet, running water, and AC. He is contemplating life right now.

Joe: Discussion

Vertical differentiation may also be driven among particular species of ectomycorrhizal fungi by competitive avoidance (Mujic et al. 2016). Competition for nutrients or substrates drive species of mycorrhizae to occupy various soil depths to effectively acquire nutrients based on species specific adaptations. Mycorrhizae that are closely related may experience greater competition than species with differing substrate or microsite adaptations (Mujic et al. 2016). Fungi were catalogued in Alaska and found that the shallow and deep soils were often colonized by different species within the same genus (Taylor et al. 2014). Ectomycorrhizal species have multiple methods of hyphal exploration so the species included in a sample will influence the results of root colonization (Agerer 2001). *Suillus* is an example of an ectomycorrhizal species with long hyphal exploration type (Rosling et al. 2003). Differences in hyphal exploration may facilitate the varying distribution of mycorrhizal hyphae throughout the soil profile. If niche partitioning by depth were happening within particular ectomycorrhizal or arbuscular mycorrhizal species it would be undetectable by our methodology.

Competition between ectomycorrhizal and saprotrophic fungal communities may also result in differences in vertical differentiation (Carteron et al. 2020). Vertical differentiation of ectomycorrhizae below arbuscular mycorrhizae could be explained by the lack of competition with saprotrophic fungi in deep soil (Carteron et al. 2020). Ectomycorrhizae have a more limited

ability to decompose organic matter than saprotrophs, but are specifically tuned for N liberation (Lindhal and Tunlid 2015). Ectomycorrhizae obtain carbon (C) from their host plant but saprotrophs require the C they derive from decomposing organic matter, limiting saprotrophic communities to organic soils with a high C:N (Lindahl et al. 2007). Competition between ectomycorrhizal and saprotrophic fungi may drive ectomycorrhizae deeper into the soil profile where they are able to liberate nitrogen from organic matter with low C.

Brianne: Results, does it make sense, can you see the relationship in my figures/tables

Nate: Objectives

Vector analysis and the monitoring of tree growth in response to different nutrient treatments would indicate which nutrient treatments would have the most positive effect on tree vigor. Identifying the effects of Multiple Element Limitation on Northern Hardwood Ecosystems (MELNHE) is the primary research objective of the MELNHE research group that has established sites with Bartlett. A screening trial conducted in the Adirondacks on SUNY-ESF property is a satellite project of the MELNHE project that would compare its findings of MELNHE in a different location to that of the original sites, and to identify limitations of Adirondack hardwood ecosystem with different site histories.

We expect to identify limiting nutrients (e.g. N, P, K, Ca, B, Mg etc.) and nutrient combinations that could be supplemental to forest growth in this northern hardwood ecosystem. The differences in American beech (*Fagus grandifolia* Ehrh.) and sugar maple (*Acer saccharum* Marsh.) response to the nutrients being added may indicate other differences in nutrient uptake and usage. We expect to find changes in diameter growth rates to reflect the same changes that were associated with the sizes of leaves or the nutrient concentrations in leaves.

Lalita: Results

Dylan: Statistical Analyses

Statistical Analyses

Linear regression

Two linear regressions were conducted: the first used overall invasiveness as the predictor variable and mean invasion rate index as the response variable for all terrestrial plant species

that had fully assessed invasiveness scores (n= 187 species). A second regression used phylogenetic diversity of the species' region of origin as the predictor variable and mean invasion rate index as the response variable (n= 272 species).

ANOVA

Single-Factor ANOVAs were conducted on the remaining predictor variables: the first used source of spread as the predictor variable and mean invasion rate index as the response variable (n= 162 species). The second used each of the dispersal mechanisms as the predictor variable and mean invasion rate index as the response variable (n= 158 species). There were only 4 animal-dispersed species, so these were removed prior to the analysis. In a separate ANOVA, I divided dispersal mechanisms into sub-groups based on their source of spread (ex: Bird-dispersed human-intentional and Bird-dispersed naturalized). mean invasion rate indices were compared between all subgroups having at least 10 species (n= 137 species) and a Tukey test was run to determine which sub-groups had significantly different means.

A final set of ANOVAs was conducted with growth habit as the predictor variable and mean invasion rate index as the response variable (n= 287 species). An additional ANOVA was conducted with the response variable using mean invasion rate indices that were calculated only from 21st century observations, even if the species may have been introduced prior to the 21st century (n= 264 species). Extracting these 21st century mean invasion rate indices was intended to determine if vines showed an increased spread rate during a period of heightened CO₂ emissions and warming temperatures.

The distribution of residuals in all analyses was heavily skewed to the right, so a logarithmic transformation was applied to the mean invasion rate indices to generate a normal distribution of residuals. Log of mean invasion rate indices ranged between -0.92 and 2.45. All analyses which used mean invasion rate index as a response variable used this logarithmic transformation of the variable. All the following analyses were performed in Minitab 19.2020.1.

Mixed model

24 possible models

Let statistics tell us which is the best model

Looks at all the possible combinations of models

Look for the best r^2

AIC

Please practice improving these anonymous examples:

Write about your study topic, not about other researchers

Ectomycorrhizal fungi were found occupying soil horizons above arbuscular mycorrhizae in a boreal aspen (*Populus tremuloides* Michx.) clearcut (Neville et al. 2002). Ectomycorrhizal species have also been found to vertically differentiate in a red pine (*Pinus Resinosa* Sol.) plantation (Dickie et al. 2002) and in a mixed coniferous forest in Sweden (Rosling et al. 2003).

Azad et al. (2021) studied litterfall and climatic factor to determine its pattern in *Heritiera fomes*, *Xylocarpus mekongensis* and *Bruguiera sexangular* in Sundarban, Bangladesh. Similarly, among the mangrove species on the west coast of India, Rani et al. (2016) showed spatial variability, seasonality, and environmental variables associated with litterfall. Cuevas and Lugo (1998) explained tropical tree species differed according to the amount of N and P resorption before leaf fall.

Don't ask us to learn unnecessary acronyms

Cattle are regularly rotated throughout these pastures, with improved pastures generally having a higher grazing intensity (1.3 ha per animal unit [AU]) than seminative pastures (2.1 ha/AU) (Swain et al. 2013).

“Which” is nonrestrictive, “that” is restrictive

There were 12 samples that had a range from 4-23 segments.

In this study I examined factors which may affect the rate non-native terrestrial plant species spread.

How many digits to report?

Meanwhile, NP treatment in Redmaple significantly reduces leaf fall (p-value 0.0095).

Therefore, the interactions between species and treatments only show a trend for N and K content (P=0.1407 for N, P=0.4743 for P, and P=0.0793 for K) as a result of potential differences in the responses to treatment for each species.

An ANOVA test did not show any significant results in pasture type (p= 0.204), location (p= 0.703), or the interaction between the two (p= 0.949).

Cite Figures and Tables parenthetically

Lastly, in Figure 4 we can see that data groupings with small mesh, correspond to higher values of K (rate of decay).

Each line graph in Figure 1 shows the pattern of a share of retained leaf in trees (Y-axis) against trips (X-axis).

Write about your study system, provide statistics parenthetically

The ANOVA for the linear mixed effect model (Table 2) showed that the application of nitrogen alone, phosphorus alone, leaf litter mix, and young/old stand age made no significant impact on the rate of decomposition over the two year time period.

There is a trend in the effect that treatments had in increasing the mass of foliage in response to nutrient additions ($P=0.0533$).

An ANOVA showed that dispersal mechanism did not significantly affect invasion rate, $F(4, 157) = 2.13, p = 0.08$.

We need to know the direction and magnitude of effects, not just significance

Species fixed effect: Beech ($p\text{-value} < .0001$) and Sugar Maple ($p\text{-value} 0.0031$) are significant.

Interaction of age with species (Beech and Sugar maple) is significant.

Exit Cards:

Brianne: Great review of how confusing my figures really are. I feel like I need a figure day just to make new ones (Sorry Alex Young).

Joe: This was wonderful, very helpful! The end of the semester came quick.

Lalita: Good to have Brianne as my breakout room partner, it was helpful.

Nate: Yeah, definitely got a lot out of this session! Thanks Ruth, Joe, and Dylan!

Dylan: Glad I'm getting this mixed model stuff figured out. This class is ending too quickly!

Ruth: It's true it was too quick! The class started 3 weeks late, lost a spring break and one week and a Wellness Day. So I'm glad you all got through the second draft and I hope you feel okay about taking incompletes if it helps you produce a better paper.

Ruth: Is it way more effective for you to practice with improving "anonymous" examples from this class, or can I just have a canned set from previous years that you practice on earlier? Because it's challenging to pull together examples from the current year.

Joe: From a can works great. I think the idea of what should be corrected is more important than the actual content.

Nate: I liked improving examples that were my own because I got feedback if I was doing

it right when I was correcting something.

Ruth: well, that's an improvement over doing it on paper. I think we have to keep some parts of this course electronic, even post-pandemic.

April 28: Abstracts

ETA for final drafts? Grades are due May 20. Incompletes don't affect your GPA until 2 semesters later, when they turn into an F. Then when you get a grade it turns into a grade.

Brianne: May 10

Joe: May 7 I hope

Lalita: May 12

Nate: IDK yet I'm waiting for the reviews - I'd love it if it was next week. If I get more time I'll try to finish another paper first. :/ I could do next friday if i got review back today

Dylan: Next friday?

Late Scotty: Let's try May 7. I'm getting to a point in my stats where I can confidently write my discussion and results.

The review process

Joe: You said you felt good about my paper but the comments made me feel negative.

Dylan: Bookend with positive comments! But yes, most are negative

Nate: Definitely felt the limited time

How to review abstracts. Breakout rooms of 2 or 3? Or 10 minutes per person in the large group?

10 mins these are short and shouldn't take too long

Exit cards

Joe: This was a super helpful session, lots of comments in a short period of time.

Brianne: Great abstract session! It's always perfect in your head until it gets reviewed but then it's even better. Glad I can remove the insignificant variables.

Nate: One of our best sessions, I think everyone got a lot out of it.

Dylan: This was very useful. We found the best possible section to review as a group. Abstract was just short enough to make it possible to cover the whole thing in a ten min section. World class timekeeping by Scotter Libby was the icing on the cake

Scott: The speed session was tiring, but I think it was worthwhile. There was much to learn from other's abstracts.

Lalita: concise and great abstracts, lots of very useful comments, great session overall.

Ruth: If we could do this for all the parts of your paper, they would all be perfect by now! I really liked commenting and editing with 6 other reviewers. I like collective action. Go, Team!

April 26: Examples of Abstracts Dill-inn keeps

Dylan passed his defense! Expect to be poked full of holes. He feels very good overall as a human being.

Scott had a meeting with the post-doc about the analysis, final data is in, so the answers may change.

Brianne got her reviews, is updating graphs

Lalita is still not sure about her statistical analysis, waiting for our reviews

Nate reviewed Scotts, sent us his draft last week, Joe is almost done reviewing it.

Joe has both reviews, things are going okay. Franklin (who did the work) is hard to get.

What we expect to find in an Abstract

Problem statement (Why it's important)

Objectives

Methods (if unusual)

Results

Implications for management, other impacts

Suggestions for future study

Conclusions

Things we discovered about Abstracts

Brianne: Litter metaanalysis paper:

- General vibe: it's good, but has too much detail almost.
- Dylan: so much info that it's hard to distill it to the most important ideas, and it's hard to figure out what the takeaway: goes from big idea to big idea.
 - Bri: We don't know what the author is trying to get to.
- Ruth: This is a metaanalysis, weakness is about other 101 other experiments, not about their own study. Audience is for scientists, not managers.
- Importance: did not answer "why"
- Methods -- done.
- Results -- present
- Verdict: Too long to be an effective abstract.
 - Brianne: biased, contradicts existing results >((((

Dylan:

- Could use more detail on overall liana importance...maybe
- A little too much method information if it repeats itself in the results. Standard methods don't need to be explained but the fact that it's 45 years of data should have been explained.
- Methods are very misleading, it's not a full 45-year dataset. Only two points in time.
- Hard to draw concrete conclusions from two datasets.

Joe

- The bulleted approach is required by some journals. Divided into problem statement, objective, methods, results, makes it easy to search through the abstract for key information
- The results sentence is confusing though
- Methods are worth mentioning cause they're cool
- No need for that 'conversely' to be there

Lalita

- Sections with titles rather than bullets, presumably set by the journal
- No background -- starts w/ objectives
- Not stoked on the conclusion -- sounds more like results
- Great problem, but no room for a problem statement. We would have liked to see more background/justification for this.

Nate

- Could be more concise.
- Hard to understand what the treatments are!
- No consideration for future studies.
- Objective and method mixed up.
- Could have added things they have measured but not all the things they could have measured.
- Conclusion has nothing to do with problem statement,(it does not address problem statement)

Scotty

- Very dense, describing application regime and results
- Added a lot that makes it complicated and hard to pull out the objectives
- Last sentences could be conclusion
- Has a p value that may have just been the alpha value
- Pretty horrible- Ruth
- Said nitrogen 3 times when they could have said it once
- Could have said complicated stuff in a more concise way
- Worried that they are mistaking a difference in significance with a difference in effect size (contrasting 24 months of N to 36 months of K - yikes
<https://www.nature.com/articles/d41586-019-00857-9>)

What are your length limits? 150-250, 200, 300, 300, 400 words divided by sections ('Questions', 'Location', 'Methods', 'Results', and 'Conclusions')

- The abstract should not contain any undefined abbreviations or unspecified references.

[Graphical abstracts](#)? These don't seem to be catching on, since we don't notice them. Ruth had to do one in PNAS

<https://pubs.acs.org/doi/pdf/10.1021/es4025723>

Exit Cards

Brianne: Great background on abstracts and what not to do. I will try my best to keep fluff out of my first abstract draft but we'll see how that goes. At least my journal has section headers.

Scotty-P: This format worked better for looking at abstracts, as they were quick to read, unlike the time we did intros. Transparent boxes were a revelation.

Nate: Pretty solid examples of good and bad things to have and include in abstracts. Seemed to finish off our discussions like this nicely. Probably won't use a graphical abstract. Bullets seemed like the way to go if we had options.

Joe: I dig the bulleted abstract system or at least titles to break it up into sections. I think it would be great if this became more widespread.

Dylan: Easy to do this type of review with abstracts cause they're much shorter than other sections. I kinda wished we had found some ridiculously terrible examples to make it a more lively critique session.

Lalita: Scott abstract was just hard to grasp, Good to know about what we should not do while writing our abstract.

Ruth: I feel so relaxed going to class knowing that someone is going to keep us on time. Thanks, Dylan!

Rating

4/5

4/5

4/5

3/5

3/5

April 19: Bring something relevant to peer review

Scottish: [Who's Afraid of Peer Review?](#)

A spoof paper concocted by *Science* reveals little or no scrutiny at many open-access journals.

& [The state of the art in peer review](#) *** (Scott)

- Model presented for “open peer review”
 - There’s lots of research done on making science more transparent, but nothing much has been done on this.
- No way to assess peer review quality.

Ruth: This is not common but I’m starting to see it. Soon there will be studies as to whether this improves the peer-review process and the papers that result.

The only time I submitted a paper to a journal that did this, we didn’t get any volunteer reviews.

Brianne: [Cambridge Guide to Peer Reviewing](#) (Bri)**

- Demonstrate your expertise for grants

Ruth: My annual report asks what journals I have reviewed for. But this information does not get used for my productivity (for allocation of merit raises, GA support).

- Post-publication peer review?? They both get published?
- Is the contribution significant & a good fit for the journal
- Is there enough evidence to support the article’s claims. What if it’s brand new research?
- Single blind, double blind, open, post publication

Ruth: This is exciting, it takes advantage of electronic access. It used to be hard to find later commentary on the

[Elsevier’s What is Peer Review](#): explains single, double, triple blind reviews

Lalita: [Research fraud: the temptation to lie \(DF\)](#) ****

- Academic fraud is hard to detect, especially because reviewers don’t have access to the raw data
- But it is widespread- 2/3 of retracted papers attributed to misconduct
- Survey showed 13% of researchers knew about colleagues falsifying data

Ruth: This is PubMed? I believe that the rate is low among ecologists, but I don’t know.

- Fraudsters may be motivated by desire for publication, money, notoriety, culture that overlooks negative results

-

[Meta-research: Why research on research matters](#)

Joe: [Ten tips for a truly terrible peer review \(Elsevier\) \(Joe\)](#)****

7. “Clarification is important as editors and authors cannot read your mind; they can only read your review.”

10. “apply the golden rule: do not do that to authors which you would not care to receive from reviewers yourself.”

Removing bias from reviews can be done through double blind situations

[eLife Peer Review Collection](#) a series of articles

Decisions, Decisions: about avoiding bias

Dylan: [Think you're your own harshest critic?- try peer review](#)(Lalita)****

- Remember, this is not YOUR paper: The job is not to sculpt it into a paper you could have written.
- Changing the framing, but not the predictions
- Ensuring all the information is there for future readers: Read the paper like you are a naive reader, and make sure there are enough information to judge the paper
- Digging and showing off
- "Don't dig for dirt in order to pad the review or show how brainy you are."
- Honesty about your expertise

Nate: [The elements of productive peer review](#) blog post (Nate) (2%)

- Lots of emphasis on what is an issue that needs to be addressed and what is just a reviewers pet peeves, and then just going from most important and larger issues to smaller details
- A good review can be a bad review for an author - meaning if you only say that it was good it is hard for an author to improve the paper



Exit Cards

Scott: we have a wellness day??? What???? Some papers were a bit opaque to me (like my paper) so more direction to the types of resources you want us to find would be appreciated.

Brianne: Great review of what not to do in a peer review. It's definitely hard not to add bias.

Horton always ended his statements with "...but I'm biased".

Joe: Best way to learn is to hear about mistakes, I enjoyed the reading today

Lalita: Fun class! Every topics were interesting.

Nate: Interesting topics, glad we have a light week after working on the papers alot this past week.

Dylan: Learned some cool stuff about fraud. Liked being able to present on it.

Ruth: Thank you for outsourcing examples for advice on responses to review, and thank you for providing all the readings for today's class. And keeping the time! This is easy, what's not to like?

Ruth: Sorry I forgot about the Wellness Day! Enjoy the High Peaks!

April 14: Proposals

Dylan: Ideally, I would have had your review before the defense copy, but I'll still use them.

Joe will submit his 2nd draft tonight (for real this time)

Brianne will submit her 2nd draft tonight as well, it's almost done.

Scottesean submitted the draft. He feels pretty okay--like, meh. Like all caps ROUGH. Better rough than never. He will still be working on more sophisticated stuff and is happy that after that we'll have a more concrete direction of where to go.

Nate: Same as above (probs tonight), I found the proposal for my paper, and I got in contact with Elizabeth Murphy butttt she's still going to be in the acknowledgements... Perfect is the enemy of done.

Lalita will send what she has.

Proposals

Yanai Horton - Joe (10)

USDA NIFA AFRI -

QUEST RCN - Lalita(15 min)

Mecury NSRC- Dylan (15)

MELNHE NSF - Brianne (15 mins)

Nanaphid NSF Instrumentation -

Patch burn grazing NIFA - Scott (15 min)

Mc-Stennis -

Vector (study plan) - Nate 10

Comments:

Scott: NSF will ask about how how the research will benefit society (e.g. high school students) same for NIFA, no wait all of them do.

- A clear plan should be developed as well with timelines (2019 root ingrowth will be inserted, then in 2020 they will be removed... etc.)
- Show your successes, let them know they can give fresh stacks of cash to you
 - Previous Work, Present Outlook, and Future Prospects sections
- More of a lit review that really dials in that these ideas are substantiated (reads like a Ch. 1 to me?)
- Hypothesis and objectives are more explicit than in an intro to a paper. Each section is developed with lots of papers. Methods/procedures sections are very similar to a

publication.

- Very objectives focused, with clear headers/signposting on which objective is being addressed (e.g. Data Analysis for objective 1 is...).

Joe: What can the proposal add to other proposals, will there be collaboration?

Broader impacts, budget justification and timetable

Future plans

Nate: Basic first draft of a proposal. I can tell this wasn't submitted but more of a plan. It has a flushed out plan that could be adjusted. What's weird is that I'm reading the proposal for my study and it's predicting something I'm not sure how I will be able to explain.... What do you do if you have a proposal and you find out that the objective of the study wasn't met as planned.

Grant: It's fine if you don't get a single answer that you propose. Nobody is going to go back and read your proposal and say you didn't do what you said you were going to do.

Contract: A contract has deliverable results. If you don't get them you need to make a change.

Brianne: The typical layout of a proposal seems to be background on the principal investigators, proposed funding needed, what the proposed project. When introducing the project it looks very similar to a publication where you state background data, problems with past studies, and why this project will fill all these gaps. Large amount of in-depth background with MEL model and the equations behind it. Last is the proposal cost sheet that outlines where each portion of the budget will be spent. Interesting section on how past NSF funding accomplished prior research goals. Do you need to list out the facility location and equipment that each school contains?

Lalita:

- Showing that your team is qualified enough to carry out the project.
- There was form that was to be submitted with the proposal, I don't get line: "*DO NOT INCLUDE THIS FORM WITH ANY OF THE OTHER COPIES OF YOUR PROPOSAL AS THIS MAY COMPROMISE THE CONFIDENTIALITY OF THE INFORMATION*" completely.
- Background
- Objective and broad impact
- Working group (who they are, what they are related to)
- Communication (How you are going to communicate results among the group and outside the group.
- Timeline and Product (what to complete, by when)
- Resources team already has to conduct a project.
-

Questions

Scott: are proposals reviewed the same as a manuscript?

What are the stages to a proposal (pre-approved, approved, pre-proposal... etc.?)

Nate: Do you have to backtrack from a study to its proposal to be consistent - especially if it is grant funded?

Exit Cardz:

Brianne: Great in-depth background on proposals. The amount of detailed information is insane! I hope I never have to write one in my career but I feel like I will eventually.

Nate: I think I got a better understanding of my own project that I didn't do by pulling up this proposal. Glad we didn't neglect this topic this semester. (4/5)

Lalita: Great class!

Scott-teazy: Liked the candid takes on proposals and how this works. Something I heard about but never delved deep into it.

Dylan: Blew my mind that reviewers don't read the whole thing. Makes me want to return to my paper with that in mind. Overall proposal writing isn't that exciting to me but good to have some more background on it.

Joe: This was helpful to get a better idea of what is involved in the proposal process, it seems like a stressful time.

Ruth: I love having a timekeeper! I realized that it doesn't really matter whether we get through an agenda of topics. I did feel responsible for getting around the room to give an equal number of topics to each person.

For next time (on the topic of peer review)

Default: we will have a little time for reading, then report out on what you learned +

Alternative proposals. If you like being in breakout rooms... ?

Corollaries:

Rating:

4.5/5

4/5

4/5

3.5/5

4.5/5

April 12: Authorship Exercise (Scott timekeepers, and will be fashionably late)

[Authorship Exercise](#)

[Link to Paper Referred to in Question 1](#)

Author Updates

Dylan worked overtime and got his thesis to his committee (and us) on Friday
 Scottch is doing a last read-through, the draft is **far** from the final one. By tonight (Monday)!!!!!!
 Joe is hoping for tomorrow, doesn't want it to be a complete mess. He has been reorganizing
 and making new figures, so checking for obvious things wrong with them.
 Lalita was thinking today but there are still lots of things to fix. Tomorrow!
 Brianne knows it's going to be Wednesday.
 Nate has a meeting with his co-author on Tuesday morning, so he is also predicting
 Wednesday.

Discussion of the Authorship Exercise

Scott: In field ecology, there can be a lot of labor involved. Is it fair to give only 20 points for execution? Is mention in the Acknowledgements good enough?

This point system makes it impossible to gain authorship for contributing in only one area. You might include someone who only contributed in execution if what they did was really important.

Identifying your authors means that you can ask them to contribute more!

Sometimes people contribute with an expectation that they will be compensated with authorship--especially if they aren't getting paid.

Joe: It can be hard to judge the contributions of people from the past.

It is easy to be biased towards the more recent contributions

Nate: The planning and execution happened early, before I picked this up and before this course started through the steps of preparing the manuscript. Calling Elizabeth Murphy will be huge. If he can't reach her, she can't be an author--the journal won't allow it. No, the journal does not fact check this. (The story of the dog on the author list.)

Lalita: Author order: What if two people have the same number of points? Authors will continue to contribute, order is subject to change (tell them that so they don't get offended later).

Is the last author the least important author? In some systems, the head of the lab goes last. In Asia, being last counts as much as first--last and corresponding is assumed to be the person in charge.

Aim for fairness across multiple papers (if applicable)

Bri: Whom to have review?

Ruth: Experts in the field often agree to review student work in this class. Let me know if you want me to reach out on your behalf.

Dylan: Committee members as authors?

Some may expect to be authors even if they didn't contribute much!

Scott:

1. Points system (as of now, subject to change)

	Dr Professor Master Scott	Dr. Elizabeth Boughton	Dr. Gregory Sonnier
--	------------------------------	------------------------	---------------------

Planning	20	20	20
Executing	20	0	5
Analyzing	15	0	15
Interpreting	15	5	15
Writing	20	0	5
Total	90	25	70

2. Not entirely. Executing a field ecology experiment would automatically put individuals that do fieldwork at 20 percent, but doing the manual labor does not guarantee authorship in this profession. Weighting everything evenly to 20% isn't the full story either it would seem. Also, in the case of authorship for researchers that collected data, planned out the experiment, and executed it but did not write up the paper, this system would mean that the person writing up the paper might not get authorship (i.e. Joe, Brianne, and Lalita's paper).

3. Author order:

Scott Dai, Gregory Sonnier, Elizabeth Boughton

4. Does your list agree with any objective point system?

Somewhat does, yes. But the other factors were that Dr. Boughton (AKA Betsey) is the head of the lab and helped a lot in the planning stages with Greg. By convention, she would be at the end of the authorship list.

5. **Amartya Saha (he helped with HOBOLogger stuff).**

6. Identify two or three internal reviewers:

Betsey and Greg would be. Other members of the Ranch lab would too.

Joe

1. Use the point system described by Carlos Galindo-Leal in Ecology 101 (Bulletin of the Ecological Society of America, October 1996). Make a column for each of the possible authors of your paper, and assign points for your various contributions. Include yourself!

	Joe Nash	Franklin Diggs	Shiyi Li	Tom Horton	Ruth Yanai
Planning	0	15	0	15	20

Executing	0	20	0	0	5
Analyzing	20	20	20	0	5
Interpreting	20	20	5	10	5
Writing	20	10	0	0	5
Total	60	85	25	25	60

2. Do the five categories of contributions suggested by Galindo-Leal seem appropriate for your project? If you prefer, try applying a point system with different categories, such as those suggested by Hunt or Dickson and Conner.

Yes, the Galindo-Leal seems appropriate.

3. Name your authors, in the order you propose to list them on your publication.

Franklin Diggs, Joe Nash, Ruth Yanai, Tom Horton, Shiyi Li

4. Does your list agree with any objective point system? If not, what were the other factors that influenced your decision?

It does agree, though I will have to talk more with Franklin to make sure I am not missing anyone. Also want to make sure that Shiyi should be included as an author rather than just in Acknowledgements.

5. Who will you list in your Acknowledgements section?

Franklin listed Jeremy Hayward and Craig See in his thesis acknowledgements, likely will include them? I will also talk to Franklin to make sure that there is no one else I should include.

6. Identify two or three internal reviewers who might be willing to read your manuscript before it is sent out to a journal (or to this class for peer review). The fewer authors you have reading your paper, the more you need "friendly" reviewers.

1. Tom Horton
2. Franklin
3. Shiyi

Nate:

Authorship Exercise

1. Use the point system described by Carlos Galindo-Leal in Ecology 101 (Bulletin of the Ecological Society of America, October 1996). Make a column for each of the possible authors of your paper, and assign points for your various contributions. Include yourself!

	Nathan Tyler	Dr. Mariann Johnston	Elizabeth Murphy
Planning	5	20	?
Executing	5	15	20

Analyzing	20	5	?
Interpreting	20	5	0
Writing	20	5	0
Total	70	50	

2. Do the five categories of contributions suggested by Galindo-Leal seem appropriate for your project? If you prefer, try applying a point system with different categories, such as those suggested by Hunt or Dickson and Conner.

Yeah, they seem self-explanatory but not all-encompassing. This course makes the writing process a learning experience so the students in this course may have to do more work as authors figuring things out for the first time.

3. Name your authors, in the order you propose to list them on your publication.

Nathan Tyler, Dr. Mariann Johnston

4. Does your list agree with any objective point system? If not, what were the other factors that influenced your decision?

Yes, although I'm writing this paper for this class even though I only collected a portion of the data. Pulling it together, writing, and doing analysis seem like the major tasks at the moment.

5. Who will you list in your Acknowledgements section?

Elizabeth Murphy for the vector analysis results. Field work crew.

6. Identify two or three internal reviewers who might be willing to read your manuscript before it is sent out to a journal (or to this class for peer review). The fewer authors you have read your paper, the more you need "friendly" reviewers.

Dr. J, Dr. Vanessa Rojas, Juliana Ofalt? Vic Timmer????

Lalita

1. Use the point system described by Carlos Galindo-Leal in Ecology 101 (Bulletin of the Ecological Society of America, October 1996). Make a column for each of the possible authors of your paper, and assign points for your various contributions. Include yourself!

	Madison Shaye Morley	Jenna Michelle Zukswert	Lalita Adhikari	Dr. Ruth D. Yanai
Planning	15	0	0	10
Executing	15	0	0	10

Analyzing	10	15	10	5
Interpreting	10	15	15	10
Writing	10	10	15	10
Total	60	40	40	45

2. Do the five categories of contributions suggested by Galindo-Leal seem appropriate for your project? If you prefer, try applying a point system with different categories, such as those suggested by Hunt or Dickson and Conner.

Yes.

3. Name your authors, in the order you propose to list them on your publication.

Madison Shaye Morley, Dr. Ruth D. Yanai, Jenna Michelle Zukswert and Lalita Adhikari

4. Does your list agree with any objective point system? If not, what were the other factors that influenced your decision?

No, my list does not agree with the result from the table. Lalita and Jenna got the same points however Jenna was listed first.

5. Who will you list in your Acknowledgements section?

Griffin Walsh. Have to discuss with other authors if we are missing any one important thing.

6. Identify two or three internal reviewers who might be willing to read your manuscript before it is sent out to a journal (or to this class for peer review). The fewer authors you have reading your paper, the more you need "friendly" reviewers.

Dr Steve Stehman

Dylan

Authorship Exercise

1. Use the point system described by Carlos Galindo-Leal in Ecology 101 (Bulletin of the Ecological Society of America, October 1996). Make a column for each of the possible authors of your paper, and assign points for your various contributions. Include yourself!

Dylan Jenn Martin

Planning 20 5 5

Executing 20

Analyzing 20

Interpreting 20 5

Writing 20

2. Do the five categories of contributions suggested by Galindo-Leal seem appropriate for your project? If you prefer, try applying a point system with different categories, such as those suggested by Hunt or Dickson and Conner.

Yes these are appropriate

3. Name your authors, in the order you propose to list them on your publication.

Dylan Finley, Jennifer Dean, Martin Dovciak.

4. Does your list agree with any objective point system? If not, what were the other factors that influenced your decision?

Time spent working on the project. Jenn spent 4x more time mentoring me than Martin.

5. Who will you list in your Acknowledgements section?

Eddie Bevilacqua (committee), Dylan Parry (examining committee), Jose Giner (defense chair), John Marino (coworker who helped me with GIS), Meg Wilkinson (boss' boss who helped with project management), the iMap team in general, Jen Price-Tack (gave data on dispersal, bounced a lotta ideas off her), Jason Fridley (region of origin PD)

6. Identify two or three internal reviewers who might be willing to read your manuscript before it is sent out to a journal (or to this class for peer review). The fewer authors you have reading your paper, the more you need "friendly" reviewers.

Jen Price-Tack, Jason Fridley, Bethany Bradley,

Brianne

1. Use the point system described by Carlos Galindo-Leal in Ecology 101 (Bulletin of the Ecological Society of America, October 1996). Make a column for each of the possible authors of your paper, and assign points for your various contributions. Include yourself!

	Brianne	Ruth Yanai	Alexander Young	Rick Biche
Planning	0	10	0	20
Executing	0	10	0	20
Analyzing	20	5	20	10
Interpreting	20	5	20	0
Writing	20	5	0	0
Total	60	35	40	50

2. Do the five categories of contributions suggested by Galindo-Leal seem appropriate for your project? If you prefer, try applying a point system with different categories, such as those suggested by Hunt or Dickson and Conner.

I think this outline works for me.

3. Name your authors, in the order you propose to list them on your publication.

Brianne Innusa, Rick Biche, Alexander Young, Ruth Yanai

4. Does your list agree with any objective point system? If not, what were the other factors that influenced your decision?

This list agrees with the objective point system

It's strange to be a lead author even though I didn't run or design any of the experiment..

5. Who will you list in your Acknowledgements section?

Jenna Zukswert

The 2011 and 2012 class of A. Crosby Kennett Middle School, NH
Thomas Mann and Joseph Nash for helping me navigate and learn R

6. Identify two or three internal reviewers who might be willing to read your manuscript before it is sent out to a journal (or to this class for peer review). The fewer authors you have reading your paper, the more you need "friendly" reviewers.

Alexander Young but he is usually busy now
Perhaps Joe? :)

Exit Cards:

Brianne: Good information to know when creating the author list. I'll be sure to get a hold of Rick when the final draft is completed. I am now sure Alex Young should be an author.

Scott: The stories were nice to know about to see how this was done in the real world. I think restructuring this to scenarios you faced and asking the class what they think could be cool to see in future classes. However, this works as is too.

Dylan: This is a thing that has been stressing me out a little bit. It is still stressing me out but now I know more.

Nate: This was not what I expected but I did get a lot out of this session. I think this was better than one by one.

Ruth: Was this better than going one by one through your Authorship results, or did we miss out by not doing that? I'm responding to your previous comments that it's repetitive to go through everyone's exercise

- Think it was. Everyone seemed to be in agreement with some points (like that Galindo had a good rating by others)

Joe: This was better than going 1 by 1 through every step of each other's exercise. It was also helpful to gain an understanding of how to approach authorship. Ruth's stories are great, and definitely my favorite part.

Lalita: Good to know where I can put myself in author list order.

April 7: Ethics

Author updates (how's it going?)

Lalita: Monday

Brianne: Hoping for Friday, definitely by Monday.

Joe: Things are going okay now, it started off well then tanked, and now we're okay again :) I had done a lot of re-organizing, and I now have new data that I did not have previously. I hope to have it ready by Monday. I have to drive to MI tomorrow, I will have time to work on it this weekend.

Nate: Should be good by Wednesday Morning, I want to meet with my co-author and go through some of my other reviews a bit more. Had some more changes in results which changed the whole paper.

Dylan: Have to have the whole thesis submitted by Friday. So that will be the day I have my paper ready for second review!

Scottisha: Things are going... I thought I'd have more time to do more with my draft yesterday, but having to drive 50 mins to Walmart #666 in Sebring to get vaccinated put a halt on my plans (rural life babyyy). Will need Friday for a draft that I'll be happy with, but if I could do later then I'll have a draft that's even better. -Bri: Vaccination buddies --Scott: *ESKETIT*

Ethics Discussion

Outlier: 139

Conflicts of interest: 142 industrial, 144 competition - Nate Joe Room 2

- Money divides, but research should be collaborative
- How often are conflicts of interest supervised by a third party and actions are taken rather than just acknowledging the COI?
- Potential of profits often fuels research so it's more that firms or corporations have conflicts, not that the actual researchers do (note most of the examples were students not long time researchers)
- Sharing of resource data/techniques/equipment should help collaboration, but it may not if there is a conflict of interest

Allocation of credit: 145 -Brianne, Dylan Room 1

Notes

- Its important to share credit either in citations, acknowledgements, or the list of authors.
- Those that give credit where it's due, will hopefully build a better reputation as a scientist and not be "black listed" for not citing or stealing work.
- Having a good reputation can help you obtain funding, fellowships, grants, etc.
- not being properly credited may make you less likely to share information about your research with others in your field out of paranoia
- how accountable are you for misallocation of credit if the work you are basing part of your study on has not been published yet?
- What's the best way to obtain credit once someone has used your research without acknowledging your contribution? Confrontation? Contact the editor of publication?
-

Authorship (credit): (146,) 147, Scottasha - Lalita Room 3

Notes:

- Authorship is a collaborative process... deciding order is actually very important
Determining who gets to be an author not only is a conversation for the lab, but also has ethical considerations for science as a whole
I.e. do you put someone's name last if they did data analysis for one section? Do you not do it? These are the questions to answer.
- Some conventions exist for authorship, but they're not set in stone. Sometimes the PI will be last by convention.
- Honorary authors- sometimes papers end up listing the name of the people who have nothing to do with the content of the paper. Some journal only allow to list those author who made contribution in the paper.

Would a male graduate student (in 1967) have been given more credit? Nobel prize decisions have been criticized for overlooking [women](#) and [scientists in developing countries](#).

Misconduct: 148, 149, 150

<http://retractionwatch.com/>

Reviewer Assignments

Review Selection here: <https://forms.gle/hsCyxZUh3nacSqYv5> Thanks, Nate!

Let me know if I made a mistake but I think this should work:

Lalita reads Joe who reads Nate who reads Scott who reads Dylan who reads Brianne who reads Lalita's.

Exit Cards

Brianne: The article was a good read. It really made you think of real world situations you may encounter as a scientist one day. It's good to know most ecologists are very friendly collaborative people, and more than likely, won't steal your work.

Joe: This was great, I enjoyed thinking about the aspects of science and research that are less talked about

Lalita: Great discussion! The exercise also seems interesting.

Scottkenzie: I liked hearing more about your experiences as a seasoned environmental scientist. Would not have thought there could be snakes or rivals in the real world... let me know if anyone wants the details on the Buck Island Ranch TV Reality Show, "Ranch of Our Lives" --I predict your summer field crew friends will learn to recognize the main characters--change the names to protect the innocent (and the villains) --- Scottin': will do

Nate: This was good to hear these things about writing I wasn't expecting, and I am looking forward to part 2 of the authorship series.

Dylan: I really liked my topic- credit allocation. Didn't realize there could be such shady actors amongst us! Glad our field isn't quite so murky as others.

Ruth: It took me a while to get in, but I enjoyed eavesdropping on the breakout rooms. But having 3 of me in the main room before I went in was a little disconcerting. Most of them weren't looking at me!

April 5: Last-chance informal review - Bring what you need most help with (Joe the timekeeper)

Each author gets 9 minutes of group attention.

Escott: Introduction bookclub

Lalita: 3:44

Exit Cards

Brianne: Good feedback on a section I was hoping was done. The paper can always be improved and I still have a long way to go. I think I like the small groups better though, more

time to read and give in-depth feedback.

Dylan: Got useful feedback on my discussion. Had a hard time providing feedback in this setup because I usually need to sit with a paper longer to understand it well enough to provide intelligent thoughts. The sections that were less than a page were easier to wrap my head around.

- Scott: Yeah ditto, something like my thing (“Read this entire intro please”) is not feasible.

Nate: Yeah I think I have a better idea on how to display the new and improved results of my paper. I picked something thinking I only had 10-15 mins anyways so that may have been why I thought I got a lot out of it. I will probably need some time before I submit for my second review but I also have a meeting with my co-author which should help. Glad that I can keep getting feedback on portions we have previously done (because I don’t think mine is done). I’m always anxious right before I go, but the feedback is actually always good and I feel like I’m going to improve my paper afterwards.

Lalita: Getting feedback is always helpful. I should focus more on species.

Escott: I liked the feedback of a short section, I think that I should’ve made sure it was doable in 10 mins... reading an intro takes time. I struggled with giving feedback too.

Joe: Intros are always difficult for me, this was very helpful!

Ruth: It sounds like this format would be most effective if people have something that can be grasped quickly-- a figure or table or a paragraph or two, not a full section.

One option we have not discussed is something in between a class session (no homework) and a formal peer review (major homework), which would be to commit a half an hour to reading someone’s work in advance of class. To be considered!

March 31: Mid Semester Feedback

(dylan keeps time)

[Link to the form](#)

[Link to responses](#)

Things to discuss

Giving more of a background on typical english grammar for writing

- What was helpful about the writing session we had? 2 people said it was great, but maybe for different reasons.

Determining what are journals that we can reasonably aspire to publish in.

- Use your co-authors! And IF gives a clue.

How does writing a commentary piece or a meta analysis differ from experimental studies?

- Do not need to go too much into detail on this, just like a day to look at structural differences, tone, etc. I’d imagine most people taking this class do experimental studies.

Remote learning: Reaction Game?

Party games (statistical and objectives): is it the concept that’s helpful, or should we play them?

Expectations of a “Draft”

How many drafts before submission? Is one draft of a section before a peer review sufficient?
Or is more needed?

Breakout groups, self selected okay?

Improvements for the future (early in the semester)

Figures and Tables: Identify who uses which software so they can communicate outside of class
Sequence of early class activities: Outline before Figures and Tables?

Journals: Am I aiming too high? Acceptance

The “game” of the reviewer attempting to reiterate what an author did in their experiment is a very helpful technique - use this in all your breakout groups, active listening!

Time estimate for the survey (Does google Forms provide this information?)

- Add to the instructions! Give the scope and the advice that

Things we could do

“Repeat back to me” paraphrasing exercises for methods (maybe for other sections too). This is a good teaching technique in general to see if someone understands directions (which is basically your methods section).

Be more punctual with class time :) Set an alarm or assign a timekeeper? 5 minutes for exit cards, also plan for group discussion if appropriate (

Making exit cards anonymous (optional).

Other ideas about feedback

- Incorporating a rating can get immediate feedback on how the participant feels about the activity.
- Use a google form: How did you feel about the activity, what would you rate it, any improvements for future classes?

Enable “raise hand” function to get attention (for when we’re done with a paper)

- Oh wait, it's under reactions. There's a way to put this at the bottom
- Ruth: If chatting doesn't get my attention, shout at me!

More on writing?

Backyard BBQ

- If we have this in between the end of semester and our field season, I can treat everyone to some gourmet mealz. Also i'd love to see more than just the upper half of everyone

For introduction, discussion and some other related sections I would prefer to have an example from Ruth as well, like what a very good example would look like.

Other types of papers (like the proposal session)

Objectives game

Exit Cards (optionally anonymous)

Brianne: Good feedback class today. A lot of good suggestions for the remainder of this class and future classes to come. Excited about going over some writing material. Ever since that class, I second guess everything I write.

Anon: I like Lalita's shirt today!

While in this course my writing has improved, I still don't enjoy writing - Anon. :)

Nate: Solid performance by the timekeeper today, also I'm ready to knock out some imperfections in my paper this weekend.

Scott-land: Was joking about the shirt Lalita. It's a good color. I appreciated this candid and productive session - everyone's ideas were heard and we were able to come to a group agreement. Also holler at me if you need any help y'all. And good on Ruth for being adaptive this semester.

Lalita- giving anonymous suggestions in google form was fun and keeping time track was helpful. Thank you for the shirt comment.

Dylan: Being timekeeper kept me on my toes. I think we coulda spent a lot less time reading the survey feedback but that mighta been my fault because I started the trend of saying I was done reading in the chat and Ruth couldn't see that! ← I followed suit so I am just as guilty (Joe) Also Lalita's shirt rocks. Nova Scottia doesn't know what he's talking about

Joe: Today was very helpful in understanding how to best proceed, I feel great about how the course will continue (and has been).

Ruth: I feel bad every time we run late, and I felt bad about feedback about it (even though I say we can all handle criticism, no problem) and I LOVE that I will be getting help from a Timekeeper! You Rock! This is a great class. I can't believe I was anxious about how this semester was going to go, having never done it remotely.

Ruth: We didn't actually get to the part about deciding about future sessions. I'll look at the schedule and see where we can do that.

March 29: Drafts of Introductions

How's it going?

Scott: General building blocks are there. Needs more expansion in some aspects. Also jealous of people getting vaccinated - Teach classes in person and you can get one :) -- I got one more week before vaccinations open for my age range, and im in a rural part of florida - should be solid- Sweettttt (**1 single spaced**)

Nate: It's okay, it's not done. Seeing other examples helped me. Also, I realized how writing the introduction had a different tone, trying to work on Subject-Verb-Object and then the red flag phrases were key to putting emphasis on what I want to highlight in the intro. (**1 single**)

Joe: I feel like I'm kind of rambling. Do I need this information and do I explain why it's needed. (**1.5 double**)

Bri: It's a good first draft. I read it the next day and realized what I needed to fix, it didn't make sense. I don't know if I need more information per topic. (**3 double**)

Dylan: I'm pretty happy with it, it's well organized and I have good information. I'm not sure how much to explain my hypotheses. There is one section where I'm struggling with how to set up my analyses. (**4 pages doubled spaced**)

Lalita: I think it's good but I need to remove some parts and add other information. (2)(**2 page-double spaced**)

Three general lessons:

1. The opposite of a red flag is a red herring--alerting readers to a direction that you don't want to go
2. Party game idea: We should be able to guess your objectives from the topics in your Introduction
3. Hypotheses are not mandatory. Don't use them unless they add something. We should be able to guess them from your Introduction!

Exit Cards:

Brianne: Very good advice given. I re-read it this morning and thought it didn't make sense, but Joe and Dylan understood the direction so that was encouraging. Ch 1 sections need to be removed or shortened and I do need more intro background on insignificant variables.

Joe: It helps me tremendously to have someone else read my intro and tell me what does not make sense...this was great! I struggle with knowing what I am missing or did not adequately explain.

Nate: I think it was good to really take time to slow down and make sure it is set up in a good organization, and how it leads towards the importance. It was good to be able to tell you when we were discussing and when to come back. Better time management for all, I didn't feel rushed and got some solid feedback in.

Scott: So I thought I did more work on this draft, but then I looked at the draft right before people got to mine and it turns out I didn't (I thought I wrote out sections I was supposed to during the weekend). But it was good to see other drafts.

Dylan: Got good feedback on how to rephrase something I had trouble explaining. Hard to figure out when to put things in discussion vs intro. But also hard to figure out when to put certain things in methods vs intro. I want to explain/ justify certain things in my methodology and have been doing that in intro.

Ruth: I liked being able to see into the breakout rooms! I hear my name; we need a signaling system for when you really want me. I liked it better than sitting in the main room all by myself.

Lalita: I get lots of valuable comments and I like it.

March 24: Statistical Party Game

[Taken from a review of a manuscript] The statistical analysis is incompletely described. This is a common flaw. To my students, I have proposed a party game: Write your description of your statistical analysis. Pass to the right. From the description of the person on your left, write a statistical model in the language of your choice. If the person on your right didn't get your model right, your description was inadequate. The statistical analysis section of this paper has a very low chance of winning at this game.

Dylan is going to read **Joe's**, who reads **Brianne's**, who reads **Nate's**, who reads **Lalita's**, who reads **Dylan's**

Problem: What if you use a statistical package that uses menus instead of code? How can you participate in this game?

Paste your Data Analysis section here.

SCOTTTTT (chilling in the field with the bae):

Sorry, Scot-T, you got left out of the party game! Thanks for the pix.



All data were categorized based on location type (e.g. ditch or land plot), observation type (e.g. seed rain or aboveground percent cover observation), distance from wetland (e.g. 0, 20, or 40 m away from wetland edge) and pasture type (e.g. seminative or improved). Native and nonnative statuses of each species were obtained from the Florida Plant Atlas (<https://florida.plantatlas.usf.edu/>). Plant species were also classified into wetland indicator status assignments as seen in Lichvar 2014. Assignments were also obtained from the Florida Plant Atlas (<https://florida.plantatlas.usf.edu/>). For the purposes of this study, species were divided into obligate wetland (OBL, 99% occurrence in wetlands) and facultative wetland (FACW, 67-99% occurrence in wetlands) categories, as there were no facultative (i.e. occur in both wetlands and land) or obligate upland (i.e. only occur on land) species recorded in this study. Dispersal was initially considered in our analyses, but was omitted from this study due to a lack of information on dispersal mode.

R version 4.0.3 was used for all statistical analyses. All tables were created using the *stargazer* package, and all plots were created with *ggplot2*.

To determine whether aboveground species composition differs from seed rain communities, a PERMANOVA in the *vegan* package was conducted on the combined aboveground and seed rain dataset to determine if differences in seed rain and aboveground communities were based on plot location or pasture type. A non-metric

multidimensional scaling (NMDS) ordination plot was used to visualize differences in seed rain and aboveground communities. Species abundance and percent cover data were converted into a dissimilarity matrix using Bray-Curtis. Linear mixed models in the Poisson family were conducted to determine if pasture type, plot location, or observation type accounted for differences between aboveground and seed rain communities. The most informative model was selected through a corrected Akaike information criterion (AICc) test for small sample sizes, where the model with the lowest AICc value is considered the most parsimonious and plausible model that accounts for our results (Burnham and Anderson 2001). Linear mixed models were also validated through ANOVA tests.

To determine if seed rain communities differed based on location or pasture type, seed rain community data was analyzed independently of aboveground data. The same analyses outlined above were conducted, but for generalized linear mixed models, the five most abundant species were evaluated separately to determine if location or pasture type create differences in species abundance. The same protocols were followed as above to determine the most plausible and parsimonious model.

To determine the native and nonnative species that can be distributed by ditches, seed rain species richness and abundances were grouped by pasture type and location. A generalized linear model was used to assess whether **ditches or pasture type** accounted for differences in native or nonnative species richness and abundances.

Finally, to determine if ditches distribute seeds downstream, transects located in ditches were grouped by distances from the wetland edge. These distances were 0, 20, and 40 m away from the wetland edge. An ANOVA test was used to assess if significant interactions existed between distance and species richness or abundance, and a Tukey's range test was conducted to test for significance between all distance combinations.

Maybe your model: `lm(seed species ~pasture type*plot location*observation type, data = aboveground/seed rain community species)`

`lm(locations ~Species1 + Species2 + Species3 + Species4, data = community data)`

`lm(species status ~pasture type*location type, data = species richness/abundances)`

Brianne:

All data analysis was conducted in R software version 4.0.3 using the packages `ggplot`, `dplyr`, `nlme`, `multcomp`, and `emmeans`. The rate of decay for each set of litterbags was calculated by examining the percent mass lost over the two year time span (0, 7, 12, 24 months) for each set of litter bags. This was accomplished by running a loop to loop

in R, using the log of percent mass lost against months to find the coefficients indicating the rate of decay. To examine if there were any significant differences in the rate of decay (k-values) between nutrient treatments, stand age, mesh size, and litter mix, another linear mixed effect regression model was used. This model was used with an analysis of variance (ANOVA) (Table 2), followed by a Tukey's Test post-hoc analysis, to determine which variables resulted in significantly different rates of decomposition. The linear mixed effect model used, individually tested the effects of mesh, mix, and stand age on the rate of litter decomposition. This model also evaluated nitrogen and phosphorous as an interaction with the levels of comparison being no nutrients, nitrogen alone, phosphorus alone, and nitrogen with phosphorous (Table 1). The most parsimonious model was selected after examining the Akaike information criterion (AIC), the residual graph, and the Shapiro-Wilk value. Graphs depicting these significant differences, were created in ggplot and base R.

```
Bri <- lme(data = decomp, k ~ ntrmt * ptrmt * standage * mesh * mix +(1stand/plot/subplot))
```

NATE:

Statistical Analysis

Growth responses and nutrient concentration between species and treatments were determined based on a least squares means model created in Statistical Analysis Software. It was used to determine if the treatments affected the **diameter growth as a response to the nutrient applications**. Changes in growth were also compared periodically to identify delayed responses to the treatments. Since these responses are accounted for by using percent growth of the initial diameter or a prior measurement diameter, then differences that are detected will be based on the **species response to treatment**.

is

```
LSmeans(Diameter Growth (%) *Nutrients*Tree Species)
```

Initial diameter was a covariate!

JOE:

Statistical Methods

All statistical analysis was conducted in R with the packages nlme, ggplot, dplyr, and emmeans (R Core Team 2020). We compared the ratio of colonization by both mycorrhizal groups (EcM/AM) between soil depth and soil type. A linear mixed-effect model was used with the ratio of EcMF/AMF colonization as the dependent variable, followed by post-hoc analysis to determine differences between shallow and deep soil colonization. Depth (shallow or deep) was treated as a fixed effect with stand, plot (nested within stand), and subplot (nested within plot) as random effects.

Dylan: Do you have what you need to implement this in Minitab?

Dylan Finley

Predictor Variables Analyses

All the following analyses were performed in Minitab 19.2020.1.

The distribution of residuals in all tests was heavily skewed to the right, so a logarithmic transformation was applied to the invasion rates to generate a normal distribution which ranged between -2.5 and 1.5. All analyses which used invasion rate as a response variable used this logarithmic transformation of the variable. Ecological Impact Score

A regression was conducted using ecological impact as the predictor variable and invasion rate as the response variable for all terrestrial plant species that had fully assessed ecological scores (n= 185).

Dispersal Mechanism

A single-factor ANOVA was conducted with each of the mechanisms as the predictor variable and invasion rate as the response variable using 154 species. There were only two animal-dispersed species, so these were removed prior to the analysis.

Source of Spread

A single-factor ANOVA used type of introduction as the predictor variable and invasion rate as the response variable using 154 species.

Region of Origin

A simple linear regression was performed with PD max as the predictor variable and invasion rate as the response variable using 276 species.

Growth Habit

A single-factor ANOVA was conducted with growth habit as the predictor variable and invasion rate spanning the entire invasion histories of all terrestrial plants as the response variable using 290 species. A second single-factor ANOVA was conducted with the response variable including invasion rates that were calculated using only *observations* from the 21st century, even if the *species* may have been introduced prior to the 21st century.

MODEL Invasion rate = sourcespread regionoforigin Growthhabit /CLB STB RSQUARE ADJRSQ

RMSE PRESS AIC BIC;

Lalita

Data Analysis:

For both the community-level and species-level analyses, we investigated the influence of N and P addition, stand age, and site on the cumulative proportion of litter (all litter or litter of one particular species) that fell in a treatment plot by the collection date. To analyze our data at the plot level—the unit of replication for the fertilizer addition treatments — we added the litter mass from all baskets within each treatment plot at each collection date. We divided the mass of litter collected within a plot at each collection date by the total mass of litter that had fallen in that plot during the study to obtain the proportion of litter mass that had fallen from the previous collection date to that current date. We repeated these calculations for each of the six species that were found in our species-level analysis of a subset of stands: these six species are white birch, yellow birch, red maple, sugar maple, beech, and pin cherry. We used the cumulative proportion of litter that had fallen by each collection date in our analyses.

We performed logistic regression models for each collection date in R (version 3.6.2) using the ‘glm’ function in the ‘lme4’ package (CITATION), with cumulative proportion of litter than had fallen as the response variable in all models. Categorical variables in these models included N addition (yes or no), P addition (yes or no), N and P interaction, stand age (“young”, “mid-aged”, and “mature”), and site (Bartlett Experimental Forest, Hubbard Brook, or Jeffers Brook). Models for Trip 3 (October 22 – 24) did not include site as a variable, as we were only able to collect litter from Bartlett.

Model ProportionLitter, N addition, P addition, age, site, species; by date

How to handle discussion of Introductions

In the same [Google Slide deck](#) that we used for Discussions, share an Introduction with paragraphs annotated as to the role they serve.

What are the categories of work that a paragraph in an Introduction might do?

Problem to be solved (as broad as possible).
Why this research is important or useful
Orient the reader to what the topic is about. (Background)
Highlight gaps that your research will fill
General Objectives
 Specific Hypothesis and questions

Do not: Provide a literature review that shows you are well-versed in the research study’s topic.

Red Flags that direct the reader’s attention:

“It was not clear whether...”
“Controversial conclusions...”
“A general understanding is hampered by...”
“It is necessary...”
“Most previous studies, however...”

“Key determinant...”

“Rarely documented...”

“Unfortunately...”

“But their collective results have not yet been summarized statistically...”

“Making it difficult...”

“Clearly there is a need for...”

“However they do not reveal...”

Exit Cards

Ruth: Thank you for testing the party game. Was this a useful exercise?

Ruth: The Google Sheet version of the Introductions was nice because we could all see additional annotations. Posting Red Flags is something I will do again! Never did that before.

Brianne: Introduction exercise was helpful. Really outlined what words we should use to signal “Hey, this is what my study will cover.” Model game was great! Good to know my model is somewhat understandable.

Nate: Intro section was good, learned that red flags are key to understanding the parts of the introduction, the party game would have been better maybe if understood statistics better, I was only confused because I hadn’t done the analysis. Maybe if there was a correct answer then I could have been like - “oh that doesn’t describe what your model is supposed to be.” Good for me to do that to my own stat analysis section.

Joe: After reading introductions, it seems that it is important to know what the rules or conventions of writing are, so that you know when you can break them (or how to best bend them to fit your paper). It rarely seems that folks actually follow the “rules”. The party game was useful, I think it points out things that otherwise we may not pick up on that we should or should not include.

Lalita: ‘Only mention those gaps if your research is going to address it’ is one of the important lessons I learn from today’s class.

Dylan: Intro exercise went better than the discussion review! Liked the emphasis on the red flags. Wish I could have been a better party guest...

March 22: Response to Reviews

Scheduling class at a different time

Good with 10:30-12: Joe, Lalita, Nate, Brianne, Dylan

Not good: Scott (pending, will not be present this Wednesday though)

Are all the reviews in, both to me and to the authors? (then share reviews all around)

Lalita will review Dylan, since Rod dropped out.

How did it go, being a reviewer?

Nate: I didn't hate it. I understood the content, and Lalita and I are in a similar situation having to write up something we didn't do--from the same study.

Scott: Finding out why I thought something was all right or needed improvement was hard to articulate. Ruth--Having to explain how you knew something could be improved is going to improve your writing.

- Also writing too much - need to make this process faster since time is \$\$\$\$

Brianne: I was interested in Scott's topic. It helped to slow down and read it out loud. I realized that I was writing too much in my review, I see now that it could be more concise.

Joe: I want to give good advice and not burden the author, which makes me anxious.

Nate: It has helpful to refer to the guide we wrote on what to include in a review

How to write a response to reviews

See examples here: <https://www.esf.edu/for/yanai/publishing/review.htm>

You can start by thanking the AE and the reviewers.

Your response is addressed to the AE. Your goal is for the AE to be able to read this document without going back to the reviews or your manuscript and make the decision to accept.

You need to address every comment (this is a reason to avoid listing trivial changes in a review). Copy them verbatim.

If the review comment is not clear, you may need to explain it. You may want to copy the sentence in question.

Document your changes.

If you don't agree, you don't have to do what they ask, but you have to explain why.

If the reviewer misunderstood, make a change to prevent other readers from having the same misunderstanding. The change may be in an earlier part of the paper.

A reviewer may ask for something you already tried. If so, show them what you tried and why it didn't work.

If a reviewer asks you for something that won't work, it's best if you can show that you tried it and that it doesn't work. Otherwise, it could look like you are being lazy or defensive.

If the two reviewers disagree, you will need to cross-reference the comments.

What if two reviewers ask for the same thing? Do you provide it twice, or cross-reference it?

Do whatever is least annoying to the AE. How long and how memorable is the response.

Try not to be defensive. Don't explain why you did something wrong--it will sound like you are refusing to make a change. Just let us know how you are going to make it better.

Advice on responding to reviews

Write the response document as you make your revisions.

Make sure you have the version with the line numbers that the reviewers saw.

If you start at the bottom, the line numbers will not change for the comments you have yet to respond to.

You may be required to submit a tracked-changes version. You can use “compare documents” to generate this version--[Google Docs has this](#), as does Word.

Advice on response docs: **Anonymous examples of what not to do**

Show what you did.

- 93 Was this an automated search?

I did this manually.

(was there a change to the manuscript?)

•The Methods section should start with the site description and then chronologically describe what was done. Litter collection, bag assembly, bag deployment, etc.

I have reorder the methods to match your recommendations in the marked PDF. Let me know what you think. (Should I paste the sections into the review?)

- Don't repeat yourself by first describing what you did and then showing what you did.

48 You don't need the exact coordinates, and I don't think we would even want to give the exact coordinates out. 44N and 71W is close enough. Same with the HB lab described later.

Got it! ~~I corrected the coordinates to be more vague. It probably wouldn't be great to disclose the exact coordinates.~~ “Leaf litter was collected and studied from four tree stands from the White Mountains of New Hampshire within Bartlett Experimental Forest (44°N 71°W) (Figure 1).”

Show what you replaced. You want the AE to accept your paper without going back to the document to understand your improvements.

-If I'm right about your best results, then you should put more emphasis, in your Introduction and Objectives, on the question of how species differ in the timing of leaf senescence. I don't know the literature on this topic and can't be sure that this contribution is unique (the N x P addition is unique for this forest type). I think there are tropical studies that sort litterfall at regular intervals year round, which would have a similar approach to ours at characterizing litterfall by species. In seasonally deciduous forest types like ours, it's common to collect litterfall for mass just once a year. Check for papers by Jared DeForest, he has a P addition experiment in Ohio that might be relevant.

*In regard to your review, I added some points focusing on the species level analysis in Introduction and Objectives. I found the information on N*P was limited (have some papers*

cited for N, P, C but not the interactions). Also, there are few findings related to species and environmental variables, mostly in tropical regions. Those provide us evidence that there is something to analyze.

Jared's Paper: Yes, I looked through his recent 3 papers and cited one which suggests P action can increase the availability nitrogen-like elements.

90 Why not continuous samples? Are you potentially missing any valuable information by not having data between depths of 10-30 cm?

Added

“Shallow cores were collected September 22 and October 10, 2010 using a 2” diameter polyvinyl chloride core hammered 10 cm into the soil after removing the Oi (litter layer). Deep cores were measured 30-50 cm from the top of the mineral soil, as is conventional; this does not correspond to the depths reported for shallow cores.”

In some cases, this means that you have to explain what the reviewer's comment was about.

If the reviewer makes multiple points that require multiple answers, put your comments after each of the points.

Did not break up larger comment into multiple points:

How did you identify germinants? I bet this is hard and deserves some description. Were you able to identify all of them? Can you address the error rate is in identifying germinants? This would be easy to test genetically. I don't know how else to test it. We are describing error rate in species ID in FIA by comparing the results of the field crews to the QC crews. Did you have expert guidance?

In combination with an expert's guidance, we also had a photo library of seed germinants compiled by a former intern. This is how most germinants were identified. ~~In case that we were unable to identify germinants at the sapling phase, we let them grow until we could ID based on inflorescences, making the error rate slim as we are able to key on adult plants.~~ I have made it more clear in the methods section on how plants were identified in the shadehouse. The new section reads:

Improve on these bad responses

L307: Higher than what? This may not be the best way to describe these data.

Revision: L307: it was revised.

L377: How is “resettlement” of microbes different from re-colonization?

Responses: They were two invasion types of cellulose decomposing microbes and basidiomycetes.

171 maybe the problem here is just the definite article. It sounds as though we are supposed to know what these freshly cut profile walls are. Explaining chronologically what you did usually works. Response:

1) The more detailed information for method of soil samples were added.

2) We conducted field work from May to October 2010.

I don't think “output” is a verb. “Put out” is the source of the noun “output.”

Response: We believe that “output” is commonly used as a verb, but we do find after reviewing this comment that its use as a verb is deprecated in formal writing. We have revised the instances of its use as a verb accordingly (e.g., “Catchments with large, flat and intermittently wet topographic features generated less NO_3^- and ammonium (NH_4^+) output but more dissolved organic nitrogen (DON) output than catchments with little or no wetlands”).

Exit cards

Brianne: This was very helpful to know how to respond to reviews. Unfortunately I already made Joe's changes, so I'll have to hunt down to line references for Ruth. Best response I saw to “do you have a citation?” “Sure, and I get a science citation out of it (Yanai 1998).”

Scottopherson: I appreciate the extra insight to how this is done in the real world.

Dylan: I like critiquing examples of bad writing. In this case, bad responses to reviewers. The whole review process was previously a mystery to me so it's been enlightening to see how it all goes down.

Lalita:

Nate: This was super informative on how we should be reviewing our own revisions and when we review each other's rough drafts for each section. Getting a lot out of these reviews.

Joe: The review process has been largely a mystery to me, I'm glad to get a better understanding of how this process works. I'm sure this will help me become a much better reviewer.

Ruth: I forgot that we had to make time today to get a jump on Introductions. I thought we were

ahead of schedule at 4:51 and then we ran over! I apologize.

March 17: Your Discussion

Inventory: Content

Scott: All my plants are growing, so my results aren't final. Organization, literature review
-help me

Joe: I struggle with whether I'm including irrelevant information.

Brianne: I'm happy that it's started! I got through 2 pages on mesh, is it well organized. It wasn't as bad as I expected.

Nate: Mines not as bad because I got additional results yesterday. It's not done yet but I'm more confident of my mission.

Dylan: It's going okay. There are multiple analyses and I have to figure out how to organize them. I cut out two-thirds of my Introduction and I need to figure out how much of that goes in my Discussion.

The Introduction and Discussion need to be considered together because there is some material that could legitimately go in either place.

Lalita: Once I started reading, I was more confident about what to write. I have more to read.

Inventory: How to review?

Dylan: 5 pages (double spaced)

Nate (1ish so far Double sp.); Id want everyones opinions but i'm ok with trips

Bri: 2 pages (double spaced)

Scott: 2 pages single spaced

Joe: 2 pages

Lalita: 2 pages (double spaced)

Exit cards

Lalita: I feel like I learn more about which information should go where, while reading other person papers.

Scott: Triples were good for a first evaluation. Will need to discuss timelines each group can use to manage time. Have a time keeper!

Nate: Triplets worked great, I like when we can bounce off each other and get that descriptive feedback that we're dying to get at this stage. - maybe we just always come back at 4:55??

Joe: The university should take all the money we students give them, and hook up all the faculty with wonderful at home set-ups with great wifi connection.

Brianne: I liked having the three person breakout room. Then each person got a more indepth review than if the whole class was together. Definitely need to establish the order first. Happy St. Patrick's Day!

Ruth: Is there a way for you to help me know where to direct my attention to be most helpful?

Ideally, you want me to pass through your paper after your peer reviewers have had a go at it, to see if I see anything that they missed.

March 15: Example of Discussion

[Discussion](#) Examples

What should we find in a discussion

Background/re-iteration of introduction
Summarize findings (consider moving these to Results)
Interpretation of results in light of objectives
Explain unexpected results
Comparison to previous findings
Limitations of this approach
Implications (for management or future research)
Identify new understanding provided by this study
Conclusions

Your examples

Joe

1. Why this paper--looks at decomposition rates. Likes the paper and the discussion section is good.
2. First paragraph states most important findings.
3. Interpretation of results compared to previous findings, unique aspects interpretation of findings.
4. Looks at fungal inoculation explaining the results and compares to similar research
5. Paragraph 5 talks about results of other studies and why this study is different.
6. Para 6 is about temperature.
 - a. The discussion does not talk about implications
7. All points in outline are addressed except implications
8. Para 7&8 go together
9. Well organized with sub-section headings
10. Conclusions has its own section

Dylan

1. 1st half is Background/re-iteration of introduction, setting up rest of discussion. 2nd half is summary of results. Comparison to previous findings
2. Interpretation of results/context
3. More interpretation of results/context
4. Implications for management

5. Implications for research

Do you like the way this ends?

Dylan: I do because they take an even bigger step back to think from a broad perspective about plant assemblages.

What we did not see:

Limitations of their approach

Did we like it?

Yes we did

Scott

1. Summary of significant findings- a hotspot. Reiteration of results.
2. Limitations of the approach (small sample size) and comparison to recent species
3. Interpretation of results in light of the objectives.
4. Similarities to other studies. How findings relate to objectives
5. Explaining unexpected results
6. Looks at previous literature and analyses results through this lens
7. Potential implications of the findings, new understanding

8-10 Implications of results for theory

11-13 Implications of results for management

Do you like the way this ends?

Gives a clear answer to the question

What we did not see:

Comparisons to other studies (NEVERMIND! T'was just a test)

Did we like it?

Not bad

Nate

Not horrible, but not great either.

Paragraphs

1. Baseline of what they found: summarized results. Restatement of methods and results.
 - a. Nate: Thinks that restatement of this is a personal choice; do they know people will go to discussion?
 - b. Ruth: Find a way to justify this para in the discussion - use of transition words (surprisingly, in line with, etc.).
2. Contrast their results: they didn't find anything about nutrient concentrations.
3. Interpretation of results of leaf mass.
 - a. Bad transition from nutrient concentrations to leaf mass: need to read between the lines to see that they are also taking leaf mass into consideration.
 - b. Assumes that we know vector analysis; provide some hints to what this does without defining it so people can understand what this is without reading your methods. People won't read your whole paper, so make sure all sections tell a good story.

4. Establishing baseline understandings of the study; interpretations and needs for future research.
5. Good example of limitations for looking at fascicle dry weight.
 - a. But opposed to WHAT? Are fascicles different from leaf dry weight?
6. Rest of their implications. Also a call to future research, and their reasoning for vector analysis

Do you like the way this ends?

Bummer finding, not the best note they could've ended on. Didn't really like the way it ended - should have spun it to sound better.

What we did not see:

Comparison between other studies: no such thing here. Very poorly referenced. References to own findings.

Did we like it?

Lalita

1. Results and Discussions together? Interpretations and comparisons
2. Significant results explained with some comparison to other papers, why they may have some unexpected results
3. Results - interpreting why they have some insignificant results
- 3.5. More results

Skip to 6

Do you like the way this ends?

Not the end but there is still conclusion -

What we did not see:

Did we like it?

Results with discussion - eh some bits convenient for immediately interpreting results with explanation but not much else

Rod

1. Comparisons: Lot of comparison to other papers and result/ clue words to direct the readers towards what they are going to get..
2. Lots of limitations
3. Very long but good discussion
4. Reference in figures and tables.
5. Unexpected Results
6. Implications for mgmt: Result from historical data to for future implication.

Exit Cards:

Joe: I thought I was going to dread taking notes, but I actually kind of enjoyed it. I felt more engaged.

Nate: I like bringing in the bad examples because that's how I can hopefully improve my writing.

- Ruth: we always learn the most from bad examples! Please bring bad Introductions.

Scott: I did like the diverse examples of discussions, but I felt that some of the points got repetitive quickly. I feel that having existing discussions you assign (one good, one meh, one bad) would be good, then having us come together to define vocabulary after we read in pairs, by ourselves, etc.

Lalita: I think both good and bad discussions examples help me learn what my discussion should be like.

Dylan: I think this woulda been better as an exercise we did before class and then quickly reviewed at the start of class. I got pretty weary of reading the discussions over and over for a while.

Rod: Definitely provided good structure on how to write the discussion section of paper.

Ruth: Thank you, scribes and authors, my only stress was on managing the time, can I crowd-source that, too? Thanks, crowd, for suggestions on how to better study Introductions next week!

March 10: Rough Draft Submission and Peer Review Prep

[Link to instructions to reviewers](#)

[Line Numbers Extension for Google Docs](#)

Later

Is the abstract sufficiently informative, especially when read in isolation?

Is conjecture distinguished from fact? [relevant to interpretation]

Is the topic of broad interest not only to the narrow specialization?

Is the scope of the topic suitable for this journal?

Is the conclusion supported by the results but not exceeding the results?

Is the relevant literature adequately covered? Are all cited references pertinent or helpful? Are all citations referenced? Are they providing citation of every facts that are not from their research

Content

Is the description of materials and methods **sufficiently** informative to allow the replication of the experiment.

Are the details of the materials and methods limited to what scientists need to understand the design of the study and judge the validity of its findings? (**necessary?**)

Are the statistical methods correct?

Is the length appropriate to the content? What portion of the paper should be expanded and

which should be shortened? Be specific!

Can you suggest improvements to the writing (e.g., could it be more concise)?

Is the meaning clear?

Should data be displayed in a table that is discussed in the text? Is there data in a graph that is ineffectively displayed and should rather be in a table or text?

Is there repetition of information across figures, tables, or text?

Is the manuscript sufficiently illustrated? Are the illustrations and/or photographs of high quality?

Are some superfluous? Are others needed?

Does the paper adequately follow the guidelines to authors?

Presentation

Be candid, but don't be a dick. Assess what's on the paper only, not the scientist.

Be thorough and explicit with what you are recommending

- Say "why" you feel something needs improvement.

How to write a review

Your review to the AE should focus on the big issues. Detailed suggestions are helpful, some are "not worthy of a response." Don't create busy work for the required response to reviews.

You can provide those details on the manuscript itself (don't expect the AE to see these).

Start with a summary of the paper. This helps build trust and lets them know you're qualified to be the reviewer.

Say what you liked about the paper; it's easy to focus on all the negatives.

Referencing specific line numbers is helpful. There's a plugin for this called "Line numbers"

Distinguish between fact and opinion

Try to be nice: Use positive constructions: Instead of "the paper is too long" "the paper could be shorter." Humor can be good.

Advising the author what kind of data might make their paper more effective or trustworthy.

The author should be able to take what you say and know what to keep as well as what to change.

Usually, you have the option to remain anonymous. If you want to be known to the authors, you can give your name in the review, sign the review, or check a box in an electronic menu.

You may (in real life, but not in this class) recuse yourself from a review if you feel you can't be objective.

Pick papers for wednesday [here](#)

Ill post assignments Wednesday Morning - Nate =]

Assignments Thanks Nate!

Dylan is going to read **Joe's**, who reads **Brianne's**, who reads **Scott's**, who reads **Nate's**, who reads **Lalita's**, who reads **Rod's**, who reads **Dylan's** - And then if you finish wicked early just

move on to the person who was after you just read. For example if Joe finishes Brianne's then he can switch over to start with Scott's.

Scottathan: I felt good until I read published papers and I could see what I was missing. The perfectionist in me said, "Man, I have some work to do." It was the best I could now and it will get better.

Brianne: I feel okay with my methods. I reorganized and took out the bulk weather data I had. My results will change over time but I feel good that my paragraphs match my figures and my figures point the readers to the interactions.

Joe: ~~I want to make sure my discussion is clear, I felt like it was difficult to express my ideas clearly.~~ I will be meeting with the other authors to discuss the results, which I hope will make me feel better about that section.

Dylan: I've been working on making things more concise, that exercise was helpful. So now I'm thinking about it in my Introduction, too. Addressing things that were confusing to people.

Nate: The additional review session was helpful, seeing my mistakes and everyone else's. I had a pretty good list of things to improve!

Lalita: I was having confusion in writing discussion but last time having conversation with Scott gave me some idea about what section in method or result section could go on discussion and that was helpful while editing draft this morning.

Rod will be caught up by Monday. He is about halfway through the comments that have been made.

Exit cards

Brianne: It was helpful to get an understanding of what a review is and see examples of them. Now I know how to dissect Scottathanielton.

Scottathanielton: Getting the insider's detail on how this process works out is nice, as it prepares you what higher academia is like.

Nate: Is everyone ok with the google form to reviewer pairings? I tried to make everyone get their first or second choice for something.

- Scottany: Yeah it's cool. Just be careful with leaking out info on who was rated highest/lowest, you have all the information - it will change by the next time anyways and it's just based on topic interest anyways <- truth brotherrrr
- Bri: Pairings were great, thank you!

Joe - I was under the impression that all reviews had to be anonymous, I am kind of happy to see that you can give personalized comments

Dylan= never seen reviews before. Exciting to see what that process is actually like.

Rod Learning alot about the academic world, First look at what a review is. Good class. Glad we reviewed grading and what is expected.

- Ruth: My bad! It's always good to share the performance criteria before the performance. I'm glad to give you extra time as long as you're willing to give me extra time. I have one (Brianne) in to review already, just keep them coming!

Lalita: very different from the previous classes and was interesting.

Ruth: I was worried about how to do this electronically but it went great. Thanks Nate for the reviewer assignments, Joe for the line numbers, and everyone for the instructions for writing a

review.

March 8: Writing Resources & Rough Draft

Bring one gift to the class that might help you or anyone else with writing.

Joe - [The Science of Scientific Writing](#)

Rod English Grammar Boot Camp. Professor Anne Curzan. University of Michigan. Available on audiobooks. This is something to listen to on a long car, plane, bus ride.

Nate: Google Docs > Tools > Voice Typing (Free but also requires more editing, probably good for rough draft stuff and outlines) Nutrient management plans

Scott - [Purdue Writing Lab](#)

Lalita- [Handbook for Writing Research Paper](#)

Dylan- <https://selfcontrolapp.com/> for Macs

<https://chrome.google.com/webstore/detail/self-control/ncaaipdfhdijmfdmfmeoagmogddhkfdec?hl=en> an extension for chrome

Is it worthwhile to learn to diagram a sentence? (or any other remedial English instruction)

Rod: Yes but I can work on that myself if other people don't agree.

What do you want help with? (First drafts)

Brianne: Site description in methods and shortening my abstract

Scott: Please help with other info that I should have in my sections (site desc, any graphs, etc.)

Joe: Abstract, clarity of discussion

Lalita: I want to write more concisely

Dylan: How to use more active voice, methods section is largely passive voice.

Nate: transitions, results laundry list > organized thoughts

Exit Cards:

Brianne: I felt like the large group was helpful. More feedback all at once and people could learn from my layout mistakes.

Scott: Reason for choosing the breakout room on my end was to give and get more substantial feedback to/from another person (10 mins a paper feels too fast to me to tailor feedback to a specific author). I do think the large group does bring forth more opinions from others - this approach might be better for when it's not peer review time. Will need to devise a system for getting others to review work from those in breakouts or maybe not getting feedback from everyone else is an understood tradeoff for choosing a breakout room.

Lalita: I like being in the breakout room(my comfort zone and also get valuable

suggestions from in depth reading).

Joe: I like group review, I feel that it brings up many things that I have a habit of glossing over in my own writing.

Dylan: good to have the group input. It was fun going rapid fire through everyone's papers.

Ruth: Thank you for crowd-sourcing writing resources. Also the STAY FOCUSED resource

March 3: Writing

Your relationship to your writing

Brianne: I enjoy it once I get into the flow but sometimes it's hard to get started. Issues with flow.

Rod: My biggest issue is with distractions. The internet doesn't help.

Joe: I get distracted reading things that seem interesting but might not be necessary.

Dylan uses a plug-in called SelfControl, it works on the Mac but not on the phone. Putting the phone on a shelf for a few hours helps but it's hard. (Bri: it looks like chrome has a selfcontrol plug in)

Nate: I hate literally everything about writing. Mostly when I have to write something and submit it to the void. I would rather give a presentation to facilitate it to a group of people and answer their questions on the fly. I would rather have a voice that seems like it's my personality but not my writing voice, I can emphasize things better talking about them instead of writing them. Which is why facetime is better than texting.

Lalita: I like writing introduction, reading relevant articles.

Scott: Editing my own work, reading it out loud helps getting to coherence.

Dylan: Scientific writing is challenging, where is the voice, humor, or the story? It's less satisfying than more creative writing outlets.

Rod: Issue has to do with the science of grammar. Less is more. It takes work to make it concise. At least we don't have to retype the whole thing!

To avoid writing material that we aren't going to use in the end, use an outline.

Storytelling in the scientific realm: [Yanai, Currie, Goodale \(2003\)](#)
[Yanai et al. 2005 Journal of Forestry](#). Also JoF 2012? [Uncertainty](#).

Smith and Brown

Brown's Version

In the first experiment of the series using mice it was discovered that total removal of the adrenal glands effects reduction of aggressiveness and that aggressiveness in adrenalectomized mice is restorable to the level of intact mice by treatment with corticosterone. These results point to the indispensability of the adrenals for the full expression of aggression. Nevertheless, since adrenalectomy is followed by an increase in the release of adrenocorticotrophic hormone (ACTH), and since ACTH has been reported (*Brain*, 1972) to decrease the aggressiveness of intact mice, it is possible that the effects of adrenalectomy on aggressiveness are a function of the concurrent increased levels of ACTH. However, high levels of ACTH, in addition to causing increases in glucocorticoids (which possibly account for the depression of aggression in intact mice by ACTH), also result in decreased androgen levels. In view of the fact that animals with low androgen levels are characterized by decreased aggressiveness the possibility exists that adrenalectomy, rather than affecting aggression directly, has the effect of reducing aggressiveness by producing an ACTH-mediated condition of decreased androgen levels.

Smith's Version

The first experiment in our series with mice showed that the total removal of the adrenal glands reduces aggressiveness. Moreover, when treated with corticosterone, mice that had their adrenals taken out became as aggressive as intact animals again. These findings suggest that the adrenals are necessary for animals to show full aggressiveness.

But removal of the adrenals raises the levels of adrenocorticotrophic hormone (ACTH), and *Brain* (1972) found that ACTH lowers the aggressiveness of intact mice. Thus the reduction of aggressiveness after this operation might be due to the higher levels of ACTH which accompany it.

However, high levels of ACTH have two effects. First, the levels of glucocorticoids rise, which might account for *Brain's* results. Second, the levels of androgen fall. Since animals with lower levels of androgen are less aggressive, it is possible that removal of the adrenals reduces aggressiveness only indirectly: by raising the levels of ACTH it causes androgen levels to drop.¹

What makes Smith better?

Flow was easier to follow. The sentences are easier to understand. But why?

Short sentences are better. One idea per sentence is usually the right number.

Paragraph breaks are helpful.

Transitional words, logical connectors,

Active voice is more compelling than passive voice.

Parentheses should be used for unimportant material and sparingly

Numbered parts are a sign of an overly complicated sentence.

Let's see some examples of our own writing.

Rod: **Producers** (of southern pine stumpage) **are faced** with three product alternatives: pulpwood, chip-n-saw or sawtimber.

Rod: A third **possibility** (of stumpage price behavior) **is** that previous prices cannot be used (to predict future prices).

Joe: **The ratio** (of colonization by EcM and AM fungi), expressed (as EcM/AM), **is** significantly different (with increases in soil depth), showing a higher EcM colonization (in deep soils) than AM (p-value = 0.003) (Figure 1)

EcM **colonization** was **higher** than AM colonization (in deep soils) (p-value = 0.003) (Figure 1).

Nate: Similarly, no P **response** **was detected** (at the lower level), but at the higher level, **we saw** luxury P uptake when comparing N2P2 to N2, and a P deficiency response when K and B were included in the treatment.

Nate Part 2: **Leaves** **were collected** (in July and August) (of 2010), (by shooting down the end of a limb from the upper canopy with a shotgun).

Lalita: In the same context, **this research** **examined** the relation (between **nitrogen** and **phosphorous** treatment **impact**) (on autumn **leaf retention**) (of Northern Hardwood Forest).

Second sentence: (As **long** as the auxin level remains high in the leaf and a sufficient amount of the hormone is transported across the petiole), **both senescence and abscission** are **delayed**.

Dylan: (part 1) While the **results** of this analysis **demonstrate** a strong difference (in average spread rates) between plant species originally introduced for ornamental purposes and those originally introduced by accident, this analysis should not be interpreted as suggesting that naturalized ornamental plants deserve anything less than careful consideration when determining management priorities.

(part 2) This **analysis** **demonstrated** a significant difference (in average spread rates) between plant species originally introduced for ornamental purposes and those accidentally introduced. However, **this should** not be interpreted as suggesting that naturalized ornamental plants deserve anything less than careful consideration when determining management priorities.

Ska-hot: (Through AICc tests for model selection), the additive **effects** of location, pasture type, and occurrence of species in aboveground percent cover plots or in seed rain best **explained** differences seen in species richness in combined seed rain and aboveground percent cover data (AICc = 458.69), with fewer species found in seed rain than aboveground (Table 1).

The AICc (AICc = 458.69) showed the additive effects [of location, pasture type, and occurrence (of species)] accounted (for differences (in aboveground and seed rain data)): fewer species were found in seed rain than aboveground (Table 1).

Brianne: Nutrient turnover rates (in forest ecosystems) vary depending (on the region) the forest is present and the soil macrofauna (in the area),(among other factors).

Exit cards

Brianne: I now realize that I know absolutely nothing about basic english grammar.

Learned it in middle school, now it's gone. I need to look into grammarly more.

Joe: Talking about sentence structure is helpful, because I do not actively think about this as I am writing. Though I am trying to do this more...

Lalita: it was more interacting for me, helping me understand more grammar.

Nate: Anyone know of a good dictation service so I don't have to write anymore????

Also, I can't believe I'm in my first year of graduate school and still can't find the subject of a sentence. <- Word to this

Ska-hawt: I just came to this solution, but if you need to share Smith and Brown electronically again, you can maybe put the image on google slides and then we can draw directly on the slides (highlight specific parts, add text, etc.)

Dylan: nice to take a break from the editing and reviewing of papers. This was a fun exercise.and I hope there's more like it. --Ruth: Think of more ways to make our learning into games!

Rod: Thumbs up to grammar. Very helpful

Ruth: Panic when my computer doesn't do what I want it to and it's my only way to communicate with you!

Ruth: I appreciate the suggestions you bring for how to work together (and the help implementing them).

March 1: Methods

Tell us about your methods section

Brianne: It's okay. Some of it I inherited from the previous researchers. Can I have photographs of the mesh bags? It's unconventional, maybe because photographs used to be expensive to reproduce. (4 pages, includes 2 tables and 2 figures)

Rod: Same issues, I did three tests, nonparametric, regression, ANOVA. My advisor did a price analysis using the regression approach, so I need to leave that in but also add an analysis of variation. (Number of pages 3)

Nate: (1.5 pages, 1 table) My methods are boring, and I don't know which parts to explain and which parts to breeze over.

Scott-E (like 3 pages text, 5 with figures and such): Site description if multiple publications have

already been done: can I just take that para with author's approval? Also, if my methods make sense to other readers.

Dylan: (3 pages of single spaced text). I've tried a few different analyses, and I'm not sure what to include. This decision may depend on the results. Try to give a clue in the Methods as to the outcome that led to these decisions. Dialectic!

Joe: This was hard because I wasn't the one who did the study. It's a co-authored document, and it's not your thesis, so it's okay for the other authors to contribute entire sections of the paper. (~2 pages)

Lalita: Talked with Jenna this morning, will go with the previous adopted methods for data analysis too (I can't change the method of data collection). I will probably add some graphic image now, to site description and data collection.(2 pages)

Advice

How much information to include?

1. Another researcher should be able to replicate your study.
2. The ordinary reader needs to understand your study.

Photo points were marked in the NE corner with a yellow pin. **TMI**

Samples were digested in nitric acid. **TLI**

Samples were digested in nitric acid (Bickelhaupt 1970). **TLI**

Chronological is a good organizing principle.

If you have a choice, and the material is not interesting, put it in the Methods.

Exit cards

Brianne: It was good to read someone else's methods. It helped me catch things in my data analysis section that I need. Still unsure if the physical model code itself should go in the methods or the results. I need a clearer picture of the litter bags, hard to see in the current pictures.

Joe: Reading other methods section is helpful for me to find the balance - enough info but not too much. I prefer to edit sections with many things I can change (grammatical errors) so that I feel I have something to offer...sometimes it is difficult to come up with a better way to say things, though I may recognize that it sounds wrong. Thanks for the editing practice!

Dylan: Explaining things out loud helps me write them better. Always interesting to see what is hard for other people to understand about my paper since the main people who read it, my advisors, are so familiar with the content.

Nate: Reading other peoples comments helps me identify issues with my own paper. What the issues are and how they can be better corrected. Site description, how to interpret other people's work as original written methods.

Rod: main thing is to learn the science of what other students are doing. It helps to then make comments on the papers. Recreating methods of some student would be difficult for a non-scientist.

Lalita: Reading other people's site descriptions and other contents makes me realize that I should include those things in my paper too.

Scott: other papers were nice to see in terms of what approaches work best for each section, and what I was missing from mine. Good to get insight from other people's as knowing what your audience thinks is better for the publication.

Ruth: I failed to get all the way around the classroom! I want everyone to get good feedback and it's nice to know that you aren't dependent just on me, as you are getting good feedback from each other. Thanks for all the hard work.

Feb 24: Choose a Journal (journal exercise)

Factors to consider (and how to evaluate them)

Audience: Journal's stated aims and scope, or search the journal for similar papers,

Timing of the peer review process: Statistics on the journal website, crowd-sourced data, reviews in Research Gate,

Time to publication (after acceptance)

Edited by Inez Y. Fung, University of California, Berkeley, CA, and approved January 30, 2015 (received for review August 8, 2014)

Open access options, on journal web site

Acceptance Rate: Journals track this but may not share it on their web sites. You can email the journal to find out.

Reputation: Impact Factor (average citations per paper). Check Beall's list of predatory journals.

Cost: Journal website. Commercial publishers will not charge the authors, they charge the readers.

Consistency with previous papers, or diversity of audience? Maybe journal choice doesn't matter as much, when all journals can be searched in any database.

Cost of publication

I was assigned this question for our next VPR: Publication page charges often come due after a grant is closed. Do you support a role for ORP in helping faculty cover them and if so how would you effect it? (Ruth)

Frontiers: Forest and Global Change = \$1,150 (open access)

Springer, Mycorrhiza: Article processing charge = \$3280(open-access)

Springer, Plant and Soil: \$3,860(open-access)

Springer, Biological Invasions: \$3280 (open access)

Forest Ecology and Management, Science direct: \$3360

Oxford University Press and SAF, Forest Science: \$3,766 - Open access

Wiley, *Applied Vegetation Science*: \$3800 "hybrid open access" (chump change)

Elsevier: Ecological Indicators = \$2500

Forest Policy and Economics (Elsevier) offers open source option (\$3,350) or subscriber paid which is free to the author.

Journals you chose

Scotty: 1st choice - Applied Vegetation Science, 2nd - Plant Ecology (not discussed w/ coauthors yet)

Nate: Forest Science or Plant and Soil, but like idk haha (me and my advisor talked and we changed to Canadian journal of forest research which was on my list).

Joe: Mycorrhiza, Plant and Soil

Brianne: (1st) Frontiers: Forest and Global Change, (2) Elsevier: Ecological Indicators

Dylan: Biological Invasions (suggested by advisors)

Rod: *Forest Policy and Economics (my first choice)*, Forest Products Journal, Forest Science

Lalita: I was thinking Forest Ecology and Management, and 'Forests' is my second choice

Before All Else Fails: Read the Instructions

Journal	Abstract length	Text length	Figs and Tables	Required sections	Highlights or graphical abstract?
Mycorrhiza	150-250 words	None specified	No amount specified, color is free (digital)	Title, Abstract, Keywords, Intro, Methods, Results, Discussion, References	
Biological Invasions	150 to 250 word	App. 8,000 words	Must be numbered using arabic numerals Cite previously published work using reference at end of caption	-	-
Applied Vegetation Science	300 words , divided by sections ('Questions', 'Location', 'Methods', 'Results', and 'Conclusions')	None specified, encourages concision though	No amount specified, can be in color free of charge	Introduction, Methods, Results, Discussion, (Optional) Conclusion	Can have photos in print or online.
Forest Science	200 words	7,000words	No limit but specifications	-	Tables and Figures upload separately
Forest Ecology	400 words		No limit but		

and Management					
Forest and Global Change	No limit given, indicates conciseness	12,000 Words Max	15 Tables/Figures max	Abstract, Intro, Materials and Methods, Results, Discussion	-
Forest Policy and Economics	No limit provided	8,000 words max	Specific format instructions provided in pdf file	Title, Abstract, Intro, Methods, Results, Discussion, References. Numbered sections and subsections	None in abstract

Bibliographic management software.

Just in case you get rejected and have to reformat your citations! And even if you don't, this helps avoid mistakes in citation.

Mendeley: Scott -> also has a word plugin that allows you to paste an entire bibliography in doc.

Zotero: Dylan, Joe,

PowerNotes: Nate (Not my favorite for citations but good for going through lots of documents)

Let us know whether Moon Library is offering trainings on these!

Exit cards:

Nate: I had not thought about the journal at this level of detail and that was helpful in considering future publishing. Glad we did this before it was too late. Maybe a session on how to know what you're doing wrong in your writing, especially when you keep reading things you write, removing redundancy, make the writing a bit more understandable to people who didn't do your project. Ruth: Okay, let's do writing next Wednesday!

Dylan: Very helpful to start thinking about formatting, organizing my thesis so it can fit as easily as possible into my journal's rules

Joe: This was a helpful activity to decide where to look. I'm open to advice on how to put imposter syndrome to the side.

Scott: ~~Therapy. Lots and lots of therapy.~~ Using your imposter syndrome as motivation to keep improving at what you do, and that it's alright to feel this way sometimes - it shows you care about your job. Also, how many people do you know that are fired for being fraudulent at their job? Like, none. And you're enrolled in the Harvard of environmental science (Bri: Oakie for life!)

Addendum : the whole first sentence is kinda eh. Doesn't help with your own

self-confidence in the present. This is why I'm not a therapist

Bri: Imposter syndrome can sometimes be anti-motivation though, it can be harder to start something if you feel like you're not qualified (this paper haha)

Ruth: Very glad that we can talk about this, in exit cards if not for a full class topic. Ask GSA to take it up as a topic? If you had a room full of people who could all admit that they were afraid they didn't belong, would that help? Or would you feel like you were the only one who really didn't belong?

Bri: I would love if that was a zoom session topic (GSA or just for fun). Grads saying they don't belong when we actually do because we're putting so much work into this.

Brianne: It was good to start looking at publishers and formatting to understand how I should be writing. I need to reach out to the original data collectors. The methods are coming...I need to correct my results.

Imposter syndrome: <http://www.campustimes.org/2021/02/21/voting-out-the-imposter-within/>

Lalita: I've never thought about selecting publication before paper is done but this was really helpful.

Scott: Use of the single doc for this time worked out nicely. I would want to hear some more about Ruth's experiences in publishing, stories, etc. to get an even better idea of how the process actually is like. Maybe have a mid-semester therapy session

Rod very good information. I will tell my advisor which journal I selected and ask his thoughts. He might reject that journal. Need to get more from my committee on what they expect from me at the end of this semester and what is needed to finish degree. Ruth: yes, that's good advice for everyone!

Feb 22: Results

[Dylan's paper](#)

[Brianne's Results Draft](#) (6)

[Scott's Outline/Draft/Working Doc](#)

How do you feel about your results/what do you need help with?

Scott: Figuring out the whole scope was difficult -> not "concrete results", how much is too much?

Dylan: Tried to analyze the data a few different ways to see if changing things made the results more significant. Unsure how many of these analyses to include.

Joe: Trouble with separating results from discussion -> it's hard to just say the numbers and facts 2 pages

Nate: My results seem like a long laundry list and I don't know how they could seem like more important results to discuss over others. It seems that it is an efficient way to show the results but also it gets boring and I hate it. I just want the answer to be cut and dry, simple and to the point. I probably will have a bit more to add to make it seem like it's not a long list.

Brianne: Ditto to Joe, but with Methods

Rod is questioning his methods (approach to data analysis). Run ANOVA on the data. 5 pages of results with tables or 3 ish without tables

Lalita: I am seeing the same result (with new approaches to data analysis), which is not statistically significant for any of the treatments.

Lessons Learned

Describe your study system, supported by statistics.

Focus more on explaining result directions than the models you used

The ANOVA comparing invasion rates across 11 mechanisms of dispersal showed a significant difference between the means.

The rate of litter decomposition was significantly affected by the size of the mesh the litter was placed in as stated by the results of the one-way anova for the linear mixed effects model of $\text{lme}(k \sim \text{Mix} * \text{Ntrmt} * \text{Ptrmt} * \text{Stand_Age} * \text{Mesh}, \text{random} = \sim 1 | \text{Stand/Plot}, \text{data} = f)$ and shown in Table 1 with a P-value of $<.0001$ against an alpha of 0.05.

with less species found in seed rain than aboveground (Table 4).

mineral and organic portions of the shallow soil cores for EcM or AM fungi (mineral p-values = 0.97 and 0.90, respectively).

Plot location (PERMANOVA: $df = 1, F = 10.01, p = 0.001$) and pasture type (PERMANOVA: $df = 1, F = 4.98, p = 0.001$) independently contributed to differences between seed rain and aboveground species composition.

Exit Cards

Joe: Writing to me is perpetual editing, how do you decide that enough is enough?

Dylan: I like emphasizing the actual useful result in my topic sentences, rather than talking about what the statistical analysis did. Also didn't know about respectively lol

Rod: the first time i've heard somebody else doesn't like "respectively". Think about how to present results using some figures

Lalita: I got some good advice for figures.

Nate: I think just trying to explain the graphs and tables to someone else verbally helped me understand what was important in describing their interpretations. I weirdly like describing and explaining the research or data but for some reason I hate writing it. I would rather just give a presentation and answer peoples questions.

Brianne: Today made me realize I need to be more concrete on my models mean and I should write it out in words rather than paste the code in.

Scott: Good to get another pair of eyes on my writing; I'm the most familiar with my work so things can be weird to read to other people.

Ruth: I will try to be on time for class! If not, start without me.

Feb 17: Outlines (w/ full statement of Objectives)

What are we hoping for from an outline?

- Do the parts go together and make sense?
- Can you suggest any improvements to the organization
- Were each of the objectives addressed?
- Are there any answers for which an objective is missing?
- Are the relevant methods described?
- Is there anything extraneous?
- What is the most important background to include in the introduction?

Nate: Because I didn't start the project, some parts make sense to me and other parts don't.

Joe is in the same boat. The Discussion is challenging: Why is this important?

Lalita: I have a previous analysis, but I might get different answers if I redo it.

Scott: It's hard to make a story with the Intro and Discussion, as concisely as possible - making things as clear as possible to a broad audience and then getting specific is hard to me.

Dylan: I looked at 3 variables; only one was significant. The most interesting finding is one I wasn't looking for.

Rod: I'm worried about my chart, since our last class meeting. The methods were approved, can I change them now? I have 3 statistical tests, but there might be a better way.

Lessons to Share

Introduction:

Problem statement (big)

What is known and unknown about your topic? Literature review.

Good to lay out the knowledge gap explicitly.

Avoid raising questions you can't answer.

Justification for the hypotheses belongs in the Intro

objectives should be simple and follow logically from the background.

Problem statement can be broad. Objectives focus in on what you can answer in your particular study.

Results

Example of a "Laundry List" (this is a good way to see what you have, but can you tell us what we should get out of it)

Beech:

- N2P2KB: KB in addition to N2P2 resulted in mild N toxicity compared to N2P2 only.
- N1P1 showed luxury uptake of K and P compared to control and to N1.
- N2P2KB showed luxury P uptake compared to N2P2. This could be a KB effect; did K and/or B improve the ability to take up (though not apparently utilize) P.
- N2P2KB showed excess K uptake compared to N2P2.

Better Results: Beech didn't really do well with any of the fertilization treatments; responses ranged from none to luxury (P in N2P2KB did seem to make it into the tree, even though no growth response occurred), to excess K in the N2P2KB treatment.

Discussion

Conclusions Refer back to problem statement

Exit Cards

Brianne: I am not able to attend class today due to a family gathering but the outline did show which areas I need major improvement. I will need more literature review to put together a discussion of my results. I'm also still unclear who this publication will benefit, land managers could use this for stand management but I think literature review will provide more insight. See you all Monday with the results draft!

Nate: Solid pairings, slowly understanding my paper more, hopefully results get interesting next week. I think looking at other people's stuff is really helping me. Glad I'm not doing this alone.

Ruth: Pairs were nice, today (sorry, Brianne); does anyone want to invite a friend to write a paper this semester? So we can have an even number. Rather than booting someone off the island.

Scott: Google docs was a lot easier with links to docs. Might need a form of timing to keep groups on track. --How about notes in Nate's chart?

Rod: so glad I learned how to use google docs. I really like having individual docs. Easier to focus on each person.

Lalita: I got some cool suggestions and comments from Ruth and Nate, having 2 people in the breakout room helps to get more information about their research.

Dylan: Switching up the breakout rooms is keeping things interesting. Hopefully I will soon get to a working understanding of everyone's paper.

Joe: Talking through decisions with someone else is very helpful. I wish I could go to Japan with Ruth (Brianne: I miss one class and Ruth is going to Japan??! --Spring 2022)

-Take me with you Ruth

- You are all welcome to come visit!

Thanks Nate for the chart to keep track of who is in what room (Welcome =] - Nate)

Ruth: This is going well, I was anxious about how to teach this class remotely! THANKS!!

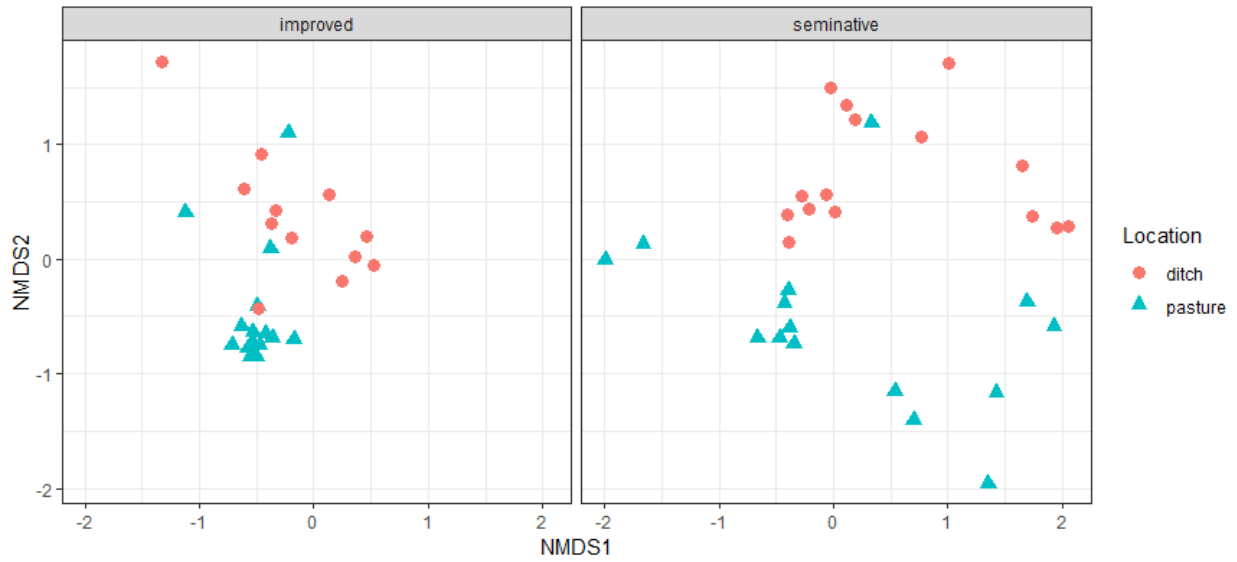
Feb 15: Figures & Tables (Including alt. versions)

Joe, Scott and Brianne's [Figures and Tables Slides doc](#)

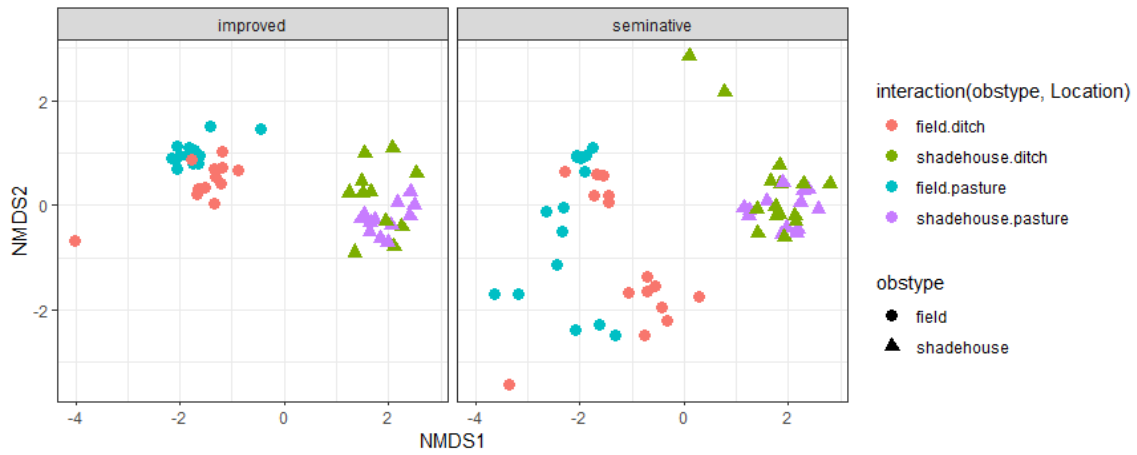
Scott:

Dylan:

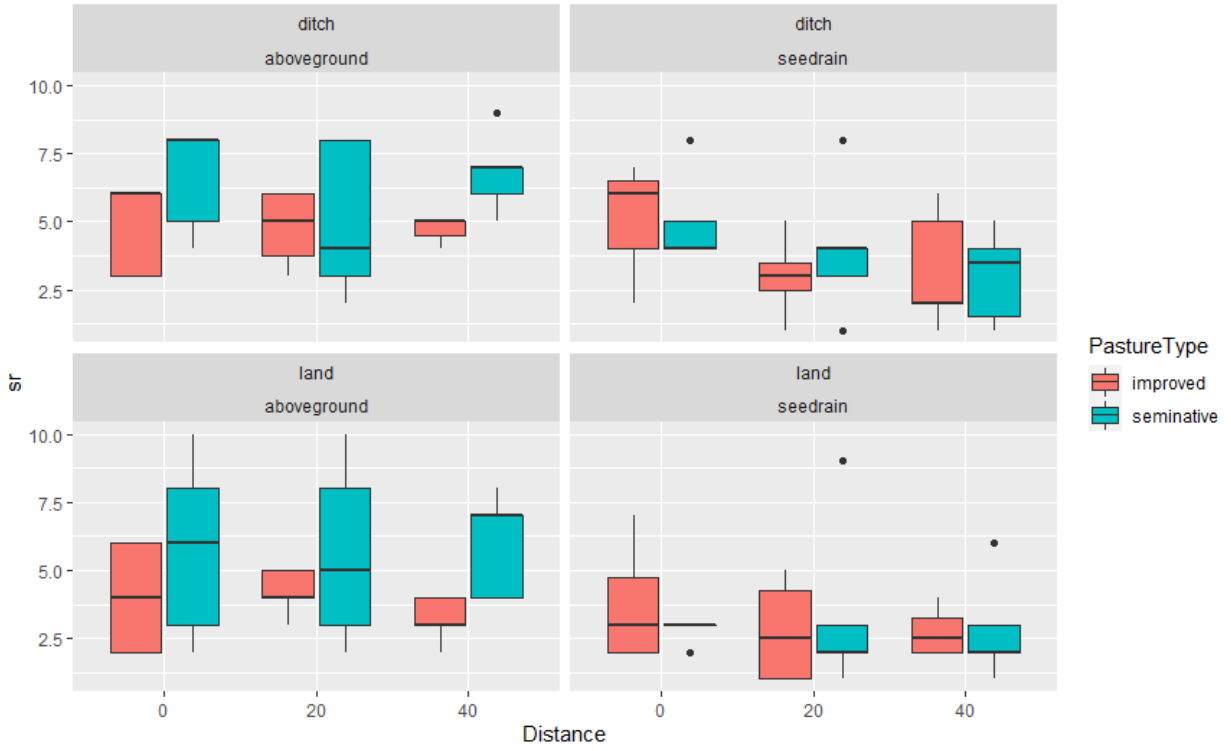
Aboveground Percent Cover NMDS Plot



Seed Rain v. Aboveground Vegetative Cover NMDS Plot



Species Richness by Distance from Wetland



<i>Dependent variable:</i>			
	(1)	sr (2)	(3)
Pasture Type	1.027** (0.415)		1.002** (0.412)
Plot Location (Ditch or Land)		-0.686 (0.420)	-0.648 (0.411)
Pasture x Location	3.804*** (0.304)	4.704*** (0.300)	4.147*** (0.372)
Observations	110	110	110
R ²	0.054	0.024	0.075
Adjusted R ²	0.045	0.015	0.058
Residual Std. Error	2.170 (df = 108)	2.203 (df = 108)	2.155 (df = 107)
F Statistic	6.125** (df = 1; 108)	2.664 (df = 1; 108)	4.346** (df = 2; 107)
<i>Note:</i>			* ** *** p<0.01

Dylan:

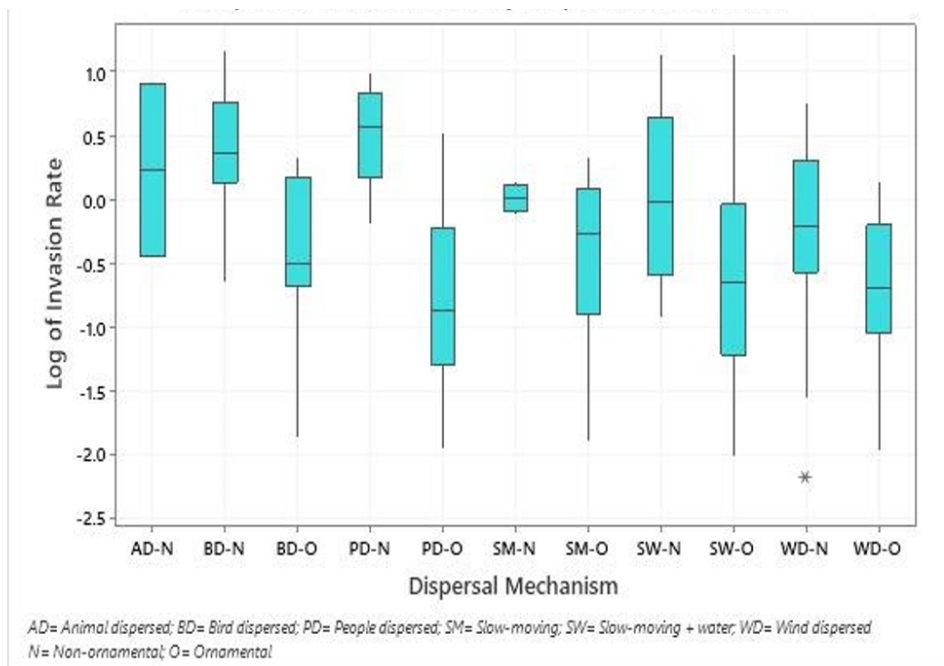


Figure 7: Boxplot of Invasion Rate by Dispersal Mechanism

Dispersal code	N	Mean	Grouping
PD-N	5	0.516	A B C D E
BD-N	21	0.386	A
AD-N	2	0.235	A B C D E F
SW-N	5	0.017	A B C D E F
SM-N	4	0.0139	A B C D E F
WD-N	22	-0.281	E F
BD-O	27	-0.426	D E F
SM-O	23	-0.431	C D E F
SW-O	6	-0.591	B C D E F
WD-O	18	-0.701	F
PD-O	23	-0.789	F

Figure 8: Grouping Information Using the Tukey Method and 95% Confidence. Means that do not share a letter are significantly different.

The boxplot shows clearly which dispersal mechanisms have the highest and lowest average invasion rates and allows you to neatly see their outliers and quartiles. The table does a good job of describing the groupings of dispersal mechanisms, and clearly shows which dispersal mechanisms are significantly different from each other. There are advantages to describing the data with either the boxplot or table approach, and I am wondering if it makes sense to include both, or if that would be too redundant. As for describing the data in the text, I think it makes sense to highlight the dispersal mechanisms that are significantly different from each other in

the text, but it is important to keep the table/graph for reference.

- Need to know if Biological Invasions prints in color or not. **They do**
- The IQR range is not useful for this diagram, especially for some species that may only have a few species
- Rod likes both table and diagram
- Scatterplot for categorical variable with individual dots for each observation
 - `Geom_jitter` in `r`
- Put letters directly with label with groupings and color code by dispersal groups
- Take it out of logarithmic scale, just show it in the tick marks

Nate: I put the Tables and Figures in this google doc because they are super long. But it's an open document anyone can edit.

<https://docs.google.com/document/d/1OXs8hf05tHWyQ7lpg6E0CbAXL7NhqR5VjmZL30RDN3M/edit?usp=sharing>

Rod Garrett

Figures and Tables assignment

2/15/2021

Shown by screen share

Figure 1 – Quarterly real stumpage price per green ton of pulp, chip n saw and sawtimber in the state of Alabama.

The above figure depicts three data series of real quarterly prices of pulp chip n saw and sawtimber in Alabama. Each product contains 94 data points for a total of 276. Showing the data in table format takes up too much space and requires more work for the reader to understand the price differences for each product over time. Therefore, the figure is a better way to present the information.

This line plot was chosen so the reader could easily compare price movements relative to the other two products.

The 276 data points require a large table that is not practical to put into the text of a journal article.

Exit cards

Ruth: How to organize documents: Google Slides is a good way to share figures. Having everyone in one document is smart for a class session. At some point, you will want to have a document for all the parts of your paper.

Scott: Have a class folder with other folders for assignments, everyone submits their assignment there (i.e. for Figures and Results, make a folder called “Figures and Results”, and everyone

puts a slides presentation in there. Make another folder for Results Drafts, Abstract Outline, etc.)

Brianne: A folder or dropbox for each assignment, labeled with our names would be helpful for organization.

Lalita: Google doc for each of us paper and link to those paper in main google doc.

Dylan: Google slides was good for figures. Still figuring out where the best place to take notes is

Rod: Good first view of how to present data in figure. Good idea to learn friggen google docs.

Nate: I liked the google slides, I just hate how things change from word to google docs. I'm considering just adding the file to the zoom as a word doc and then taking my own notes? Its better with text tho.

Joe: I like to use folders in google to organize my documents (1 folder with the class with folders for each assignment)

Feb 10: Getting Started Exercise

What's hard about your paper? How can we help you?

Dylan: I looked at 3 variables, and 1 is most important. The background is unpublished.

Brianne: The introduction will be hard because I don't have background in this topic.

Scott: I'm still getting my data together for my project, just playing around in stats a bit. Still trying to connect everything to make my story.

Nate: I am just transitioning to this new topic so hopefully by next week I will be well versed in this project, the results and some of the other research that could be important. No sweat tho

Lalita: I have trouble with the conclusion, because my results are inclusive.

Rod: Explaining the statistics. In some ways it seems simple, but the details are complicated.

Joe: I have trouble with "why do we care?"

Room assignments

1: Rod and Nate

2: Brianne and Joe and Lalita

3: Scott, Dylan,

Getting Started Exercise

1. Give a background statement that orients your audience to your research problem or goal, and briefly explain why your work is important. What is it and to whom does it matter? Make your statements appeal to the broadest possible audience.

2. Objectives: What question(s) will you answer with your research?

3. Describe the results of your work, in a small number of bulleted phrases. Include only results that are

relevant to your conclusions. These results should answer the question you posed in part 2, above. If they do not, change your question so that they do.

4. Write the conclusions to your paper. The conclusions should relate to the general motivation for the paper that you describe in part 1. If you accidentally write about Results, move those statements to the Results. You may want to revise your answer to part 1 to match the answer you give here.

Joe:

1. Background Statement:

Forest productivity depends on the ability of mycorrhizal fungi to mobilize nutrients that would otherwise be unavailable to plant roots. Northern hardwood forests are dominated by trees that show an affinity towards colonization by ectomycorrhizal (EM) and arbuscular mycorrhizal (AM) fungi, though little is known regarding how these two groups of fungi partition within the soil profile. Differences with depth and percent of total root colonization by EM and AM fungi may confirm current understandings of how these two mycorrhizal groups interact within the soil profile.

2. Objectives:

- Do Ectomycorrhizal (EM) and arbuscular mycorrhizal (AM) fungi exhibit vertical partitioning of root colonization in northern hardwood forest soils?
- Does the type of soil (organic or mineral) affect root colonization by EM or AM fungi?

3. Results:

- EM and AM colonization more complete in shallow soils
- EM/AM significant with soil depth --- EM colonization is higher than AM in deep soils
- No significant difference between EM/AM colonization in organic/mineral portions of shallow soils

4. Conclusions:

Current theory suggests that EM would proliferate in organic soils with AM communities found below in the mineral soil. Vertical partitioning of EM below AM could be explained by species specific traits, as well as the lack of competition in deep soil for EM fungi with saprotrophic fungal communities that persist in shallow soils with a high C:N ratio. Forest productivity hinges on the ability of mycorrhizal communities to supply limiting nutrients to trees, but there is a lack of understanding regarding how different mycorrhizal groups may interact in various forest types. Maintaining mycorrhizal communities is certainly in the best interest of forest managers but without an adequate understanding of how EM and AM fungi partition in the soil profile, any management aimed at maintaining mycorrhizal communities may actually be targeting certain species rather than preserving diversity.

Scott:

1. Background:

- Seed rain (i.e. the dispersal of seeds to a given area) is critical to understanding disturbed ecosystem restoration.
- Anthropogenic processes such as extensive creation of ditches have ecological ramifications towards seed dispersal patterns - further understanding on how seeds establish after dispersing into an area through seed rain can elucidate the ecological filters that create different aboveground/seed rain communities. Further understanding of

this topic is beneficial to both conservation ecologists and ranchers, as ecologists will be able to use metaecological principles to understand the extent to which waterways play a role in plant community assembly dynamics in disturbed and restored areas, and ranchers will be able to understand if palatable or unpalatable plant species can arrive to a specific area.

2. Objectives:

- How does seed rain vary across selected wetlands, ditches, and pastures at Buck Island Ranch?
- To what extent do drainage ditches differ between pastures, wetlands, and ditch transects seed rain in 1) seed abundance and 2) species richness?
- Which non-native and native wetland species can be distributed into improved and semi-native pastures through ditches?

3. Results:

- Seed rain on land and in ditches do not differ significantly (similar species comp)
- Seed rain species richness decreases as distance from wetland decreases: there are more seeds observed in ditches than land transects.
- More native than nonnative species are present across both agricultural drainage ditches and land transects.

4. Conclusions:

- Anthropomorphically-created dispersal pathways may not have as detrimental of an effect on plant dispersal, and should be considered along with natural dispersal patterns in restoration efforts.

Brianne

1. Background Statements

- The process of litter decomposition is important for site fertility and productivity. If litter is decomposing quickly, we know nutrients are quickly re-entering the ecosystem. The rate of litter decomposition is directly related to nutrient cycling we can have a better idea of the productivity of a site. If the site productivity/fertility is low, we want to know which nutrients will increase decomposition. This could be important for forest management operations.
- The rate of decay under different nutrient treatments, can tell us which nutrient or nutrients are limiting in that forest system. Faster rates of decay could lead to more nutrient availability. Nutrient availability and productivity can vary per species. By knowing the limiting nutrient, forest managers can adjust for maximum productivity depending on the species in the area.
- By experimenting with different mesh sizes and excluding certain organisms, we can determine which soil macrofauna are playing major roles in decomposition (microbes, fungi, detritivores, plant roots, and other organisms). By knowing which organisms are taking part in decomposition, scientists can make inferences about the fate of the nutrients from litter decomposition.

2. Objective Questions

- How does the mesh size of litter bags affect the rate of litter decomposition?
- Did the fertilization of old and young tree stands affect the rate of decomposition? How?
- Do rates of decomposition overall vary depending on the age of stand?
- Does the source of litter mix and species in the litterbags, affect the rate of decomposition?

3. Results

- Mesh size significantly affects the rate of decomposition, with small mesh resulting in litter decomposing faster than large mesh.
- The treatment of Nitrogen with Phosphorus, results in faster rates of decomposition in old aged

stands

- The control group showed the fastest rate of decomposition in old aged stands compared to young aged stands
- Litter mix is interacting significantly with stand age, mesh, and N+P. More to come on that.

4. Conclusions

- By examining the rate of decomposition in different aged stands with different nutrient treatments, scientists and land managers can make inferences about the productivity of the area, the effect of fertilizer in different aged stands, and the fate of nutrients from litter decomposition depending on the soil macrofauna in the area.
- From these results alone, it can be seen that stand age greatly determines how a site will respond to the nutrient treatments. In some cases, no fertilization can result in the fastest decomposition rates and therefore create greater nutrient availability. A factor land managers should take into consideration.
- Decomposition rates can vary among species, and the species in a site should be taken into consideration during land management fertilizer operations.

Nate:

1 Background statements

- Screening trials in the different applications of nutrients for northern hardwood trees can be used to improve the management of northern hardwood forests for both ecological and timber management.

2 Objectives

- How have applications of nutrients resulted in improved growth of sugar maple (*Acer saccharum*) and American Beech (*Fagus grandifolia*) over 10 years?
- What changes are apparent between each treatment group in regards to the rate of growth and the production of foliage?
- Have nutrient applications been effective in reducing beech bark disease growth of either the scale or the fungal portion of the disease?

3 Results

- There was a difference between the treatments of the screening trials, where the growth was increased as a result of the application of supplemental nutrients.
- There was an increase in foliage growth in some of the treatments with the application of supplemental nutrients.
- There was a reduction in fungal development in some of the treatments with the application of supplemental nutrients while there did not seem to be a significant difference in the amount of the scales developing on the beech trees.

4 Conclusions

- Analysis of the impact that these screening trials have on the growth and development of these forests show that supplemental nutrient applications can be utilized in generating more productive forests with sugar maple and American beech and forests that would be more resistant to beech bark disease.

Dylan

1. Introduction.

All else being equal, the faster an invasive species spreads, the more urgent its management should be. Determining predictors of spread rate may be a valuable tool for invasive species managers to prioritize managing certain emerging non-native species over others. Three variables that may influence the spread rate of non-native terrestrial plants are seed dispersal mechanism (people, animal, bird, wind, slow-moving, and slow moving with the possibility of water), phylogenetic diversity (PD) of a species region of origin, and species growth habit (herb/forb, grass, shrub, non-woody vine, woody vine). The relationships between each of these variables and species spread rate will be assessed.

2. Objectives

Do non-native species with certain seed dispersal mechanisms spread at faster rates?

Do non-native species that come from regions of higher PD spread at faster rates?

Do non-native lianas spread at faster rates than non-native species of other growth habits? Is this more discernible during the 21st century?

3. Results

An ANOVA showed a significant difference between certain dispersal mechanisms, with people-dispersed species exhibiting the highest average spread rate.

A simple linear regression showed a strong relationship between PD and spread rate, but with little variation explained by the variable.

There was no significant difference in spread rates between plants of different growth habits.

Of the three variables assessed, dispersal mechanism had the strongest relationship to spread rate

4. Conclusion

Based on the results of this study, invasive species managers should use dispersal mechanism as a criterion for assigning management priority to non-native species. Non-ornamental species primarily dispersed by people should be given first priority. The other variables analyzed do not exhibit a strong enough relationship to spread rate to be used as criteria for prioritization decisions.

Lalita:

1. INTRODUCTION/ BACKGROUND

Changing climate has altered many biogeochemical cycles on earth, which are crucial for

accessibility of nutrients to plants/ trees. As nutrient availability is one of the factors that can impact growth of trees by altering different phenological events, the subject of nutrient availability and its relationship with phenological events, to modify forest productivity, should be well studied.

In the same context, this research examined the relation between nitrogen and phosphorous treatment impact on leaf abscission of Northern Hardwood Forest.

2. OBJECTIVES

- How does leaf abscission alter with fertilizer treatment in different age groups of plants?
- Which fertilizer treatment can be applied for delaying leaf abscission in different plant species?
- Do leaf abscission differ with fertilizer treatment at the community level?

3. RESULTS

No statistically significant difference in leaf retention was found with fertilizer treatment in different age groups of plants but faster leaf fall was seen during the second trip of I.

Phosphorus fertilization increased autumn leaf retention in four of six hardwood species while nitrogen fertilizer increases leaf retention in one of the species.

No statistically significant effect of the site was seen.

4. CONCLUSION

This research shows leaves fall faster in a young stand in the second trip among five trips for leaves collection but contradicting to this result of the research another research by Biggs and Leopold (1957) suggest that young stand can retain more leaf in the presence of light than the old tree. Also, they concluded that when kept in dark, every age showed the same impact irrespective of ages.

Rod

1. Introduction

Producers of southern pine stumpage are faced with three product alternatives: pulpwood, chip-n-saw or sawtimber. If suppliers are acting rationally, market prices should adjust to reflect the incremental opportunity costs (reflected by time and measured by the discount rate) associated with growing larger timber. Focusing on supply economics, prices should change in response to changing opportunity costs. If relative opportunity costs are stable amongst the three products, then relative prices should also be stable. For the purposes of this study, stability is described in terms of a statistical relationship among pulpwood, chip-n-saw, and sawtimber stumpage prices over time.

2. Objectives:
 - A. Are time series price spreads (differences) between Southern Pine pulp, chip n saw and sawtimber stochastic?
3. Describe the results of your work,
 - a. Ho: same intercepts. Critical value of F distribution with 95% confidence and 2 degrees of freedom in the numerator is 3.00 . A test score of 79.14 means the null hypothesis is rejected. The three-price series have different intercepts.
 - b. Ho: same slopes. Critical value of F distribution with 95% confidence and 2 degrees of freedom in the numerator is 3.00. With test score of 2.39 the null hypothesis fails to be rejected. The three-price series have similar slopes
4. Conclusion
 - a. The three product price spreads within Georgia and Alabama are not stochastic.

Discussion

Lessons learned:

Nick: The objectives should be specific and directional in nature. For example, rather than “is there a difference among soil horizons?” ask whether you can see greater evidence of microbial processing at greater depth.

Null hypotheses are dull hypotheses!

Ruth: Ask the question, “What’s difficult about it?” (Helpful hint for job talks.)

Exit Cards

Nate: Just make a chart with planned break out groups and then we can keep track or have it planned out for the next session. Or just pre assigned partners that change each class - we spend lots of time picking partners that we could be using for discussion.

Dylan: liking the google doc, but will we have to scroll further down the doc every class to get to the most current date? Might be cumbersome. Maybe better to have most recent date at the top?

Scott: Figure out how breakouts work.... Why us? Is there a software that can automatically assign groups by numbers?

-For organizing assignments, create google folders organized by assignments and then have everyone create a new doc? Maybe make a convention to put your name first in the doc title: this could help with finding past assignments as well. For tables and figures, might be better to use google slides rather than word doc to better see figures.

Ruth: Saved by zoom default

Joe: I value the breakout groups even to think through an idea with others around “group brainstorming”

Lalita: It was interesting and I learned to write conclusions or realize that we can write conclusions even if there is no significant result.

Rod: I think there is interest in mycorrhizal with management implications

Brianne: I'm glad to have some clarification on why litter decomposition matters. Perhaps to pick group assignments, we randomly select numbers in the beginning of class or do the "1,2,3" option (1's go together, 2's go together..).

Feb 8: Why Publish?

Why Publish?

Dylan: Claim intellectual territory: Get my idea out first.

Brianne: Publishing is a right of passage to become a scientist

Scott: Publish or perish: for a researcher, productivity is measured in units of publications (or citations). AKA get some street cred

Lalita: Share what I learned in the way that most of them understand it and to make it validate

Nate: Get it over with. It's required to get my degree.

Joe: I value everyone's input to the research community, so I should do my share.

Dylan: I put a lot into it and I should get something out of it.

Ruth: Meet the expectations of my funding sources.

Rod?

Presentations

<https://drive.google.com/drive/folders/0BxXuVrpNGuD9U1pwQVZhdnJRamM>

Dylan: Invasive species management should be easiest early in the invasion curve. The NY Natural Heritage Program came up with 4 tiers, which have been subjectively assigned. Since they are being used to prioritize resources, we want them to be transparent and easy to understand. Dylan is organizing data and also getting expert input. Working on two chapters that could be publishable. Also how plant attributes contribute to their success at invasion.

Scott: Buck Island Ranch, Florida. Cattle and restoration of subtropical savannas. Projects on seed rain and the soil seed bank. Role of ditches, wetlands, "improved" pasture and semi-native restoration, seed input rates. Also seeds sprouting from soil ("seed bank")

Nate: The potential for main tailings sites to be reforested for carbon sequestration. Benson Mines left a lot of open pit waste, sand-sized. 1998. Soil amendments from a paper mill. 20 years later, which treatments were most effective. Different species planted in different combinations. But the paper for this semester is beech and maple response to 6 different levels of nutrient additions.

Rod: Price stability of southern pine, Georgia and Alabama. Whether growers should cut for pulpwood, let it grow to chip-n-saw, or let it grow to sawtimber. The "price spread" for these three products fluctuates over time, which makes these decisions risky. Forest products are

worth \$300B/year, and 80% of our lumber and pulp comes from the Southeast.

Joe: Tree species associate with either EM or AM fungi. Do roots differ in the rates of colonization by EM vs. AM fungi as a function of soil depth? Two forest stands in New Hampshire, 4 replicate plots per stand, and 2 depths of soil cores. (No nutrient treatments yet--later

Brianne is also publishing previously collected data. Rates of litter decomposition with N and P additions, with litter bags of two different mesh sizes, collected after 6, 12, and 24 months. Also ages of the forest, and species composition of

Lalita is working on a survey about uncertainty in carbon accounting for payments to countries reducing tropical deforestation rates.

Intro to Getting Started

Autumn: If I gave myself only 10 minutes it would have been better earlier.

Shuai: I could divide my study into 2, based on data resolution. Ruth: Then do the GSE twice! It's easy compared to drafting the paper two different ways.

Exit cards

Insights, Questions, Suggestions?

Ruth: When we are seated around a table, everyone knows whose turn is next.

Dylan: Alphabetical. Super, we'll try that. Scott: Or change it up, birthdays, heights - possibilities are endless!

Ruth: Or by preference? Put your names in your preferred order...

Joe: I'm happy to have a schedule/routine again. I'm excited to learn how to write as if I do not have imposter syndrome...

Lalita: Dylan's presentation was really nice. Thanks Lalita, good job putting together a presentation on the fly :) (dylan)

Scott: It's good that I'm not the only outsider in this class, and lots to learn from here!

-Scott thoughts at 8pm: Seems that theres a way to organize the table of contents by student if you underline your name - could this be a potential way to make jumping around responses easier, if we go with a mass google doc?

Rod: Looking forward to others research on soils

Nate: I was dreading this class and now not so much. Glad we all have similar fields of interest.

Brianne: I'm happy to have a set order of speaking now. Even if it changes per class, less ambiguity = less anxiety.

Ruth: I'm excited about the first day of school!