April 19, 2021 Education Working Group Call

Attendees: Diana Dalbotten, Anna Sjodin, Jason McLachlan, Alyssa Willson, Jody Peters,Lisa Haber

Agenda/Notes:
1. Braiding Sweetgrass -
    a. Anna has the book. Jody is going to get it and then she and Anna can discuss ideas for how to split it up and how many weeks to host the book group.
    b. Alyssa shared a talk hosted by her undergrad with Robin Wall Kimmerer on May 27 that people can register to join by May 26.

2. Inclusive Pedagogy workshop update
    a. 10 people have applied.
    b. We encourage everyone in this group [to apply](#)
    c. Deadline is May 1

3. EFI-NEON video assessment by HSU students (Alyssa)
    a. Students are plugging along.
    b. Working through the hardest part of it (kalman filters/stats). It is a lot to follow even with background in stats
    c. Alyssa impressed with their ability to step back and look at the bigger picture
    d. Great to see that they recognize that uncertainty comes up. Transitioned from at first wondering why understanding uncertainty is important and now have a better grasp about that
    e. The students are starting to be interested in thinking about forecasting for their fields. One student interested in machine learning and eco applications for that
    f. Once students get past stats portion, they move to the social science portion (PROACT) which may be of more interest to the students
    g. One downside, students are not taking survey. But still a good learning experience.
        i. Survey had been made to formalize the knowledge they are taking away from the video series. E.g., Define ecological forecasting given what they have learned so far. Explain what they found most challenging and what was easiest to understand.
        ii. When students are meeting with Nievita. Could ask Nievita to encourage the students

4. Forecasting, Prediction, Projection Manuscript Update (Anna and Gretchen)
    a. Didn't have time to work on this yet
    b. Gretchen is working on finishing up her grad work so will get back to this when she has more time

5. Olivia's R infographic for students learning biostatistics with R Updates

a. Will check in with Olivia on the next call

6. RCN Education Workshop Update (Jason, Alyssa)

7. Document for Guidance Counselors and Instructors working with students interested in ecological forecasting
    a. Here is the draft. Here is the revised version sent to instructors et al
    b. Work on this starting at 1:30 when Lisa joins after her lab meeting
    c. Sharing:
        i. Ecolog
        ii. Career counselors - update from Jody from ND Career Counselors. Email was sent
        iii. QUBES community - update from Jody about the potential to put it in the QUBES monthly newsletter.
            ● Jody forgot to follow up. Will do so for the next call.
    d. Format: Summarize ecological forecasting (1 page), Suggested courses (1 page)
    e. Update from Jody with feedback from the Social, CI/Methods, Theory working, forecasting instructors.
        i. Sent to instructors: Carl Boettiger, Quinn Thomas, Cayelan Carey, Mike Dietze, Peter Adler, Ethan White
        ii. EFISA co-chairs: Whitney Woelmer, Millie Chapman, Dave Klinges
        iii. Social Science WG members: Jaime Ashander, Melissa Kenney, and previous draft to Kira Sullivan-Wiley
        iv. Theory co-chairs: Amanda Gallinat, Abby Lewis
        v. ND Career Advisors: Karen Manier, Ryan Willerton, ND Undergrad Advisor: Dom Chaloner
        vi. One thought that came up while I was emailing Karen and Ryan - can we add the type of careers/jobs/organizations people with ecological forecasting skills can have?
        vii. Courses - don't want to call any of them essential. Alyssa took 0 of these courses and is doing fine. In the note - take out the word "recommended" and put in "related". So even though you didn't take it in undergrad, but are thinking of going to grad school, here are some things you can take at that time. Or if you take summer short courses, these are the things that can be useful.
        viii. When Anna was an undergrad, only took what looked like fun. Her guidance counselor typically guided pre-med so let Anna lead, so she took what was fun instead of being pushed to take more challenging courses.
        ix. We are giving this to someone who is an undergrad who is interested in this. Call these "useful courses for future ecological forecasters". Assume the audience looking at this is looking for guidance about what to do. This is not an exhaustive list and it is not to say if you didn't take these course you cannot become an ecological forecaster. If you are picking this

document up it is because you are someone who wants to know what to do
- x. Add career options to the 1st page:
  - Have space and could add a short paragraph on the 1st page to give a list of career paths and links. The Forecast part of the website gives examples of higher ed and
- xi. Could make a table out of the bulleted list to cut down on space
  - Data and Computing, Math and Stats.
  - Graphics of a table look nicer and looks less intimidating
- xii. Can we cut down some of the words on the 1st page? Or can we bold or underline so people will know to look through
  - Anna offered to go through and edit for space and repetition
  - Think about formatting it into boxes with the figures. And can split up the figure with the top part with specific text (e.g., paragraph 1) and the bottom part with paragraph 3-ish.
  - Want to lean on the figure more
- xiii. Alyssa will add the career options to page 1.
- xiv. Jody will work on formatting a table on page 2 for the next call.
- xv. Suggestion that came in after the call from Environmental Science academic advisor at Notre Dame, Dom Chaloner:
  - Most immediately and off the top of my head, if you had a condensed version (such as what might be added to an email flyer with embedded links) for sure I would be happy to include it in our weekly newsletter to ES majors; other relevant majors/minors might also be willing to share with their students, such as in the Sustainability minor. The other thing would be to share this information with instructors of relevant courses, such as Stuart Jones 'Intro to Biocomputing', David Medvigys 'Intro to Dynamic Models in Biology' or General Ecology class.

8. Next call on May 10 -
   a. include prepping for inclusive pedagogy workshop.
   b. Jody will send a poll to find a time for the group to meet the week of June 16-22 (after the Inclusive Pedagogy workshop June 7 and before the Education meeting on June 28-29). This will let Alyssa, Jason summarize outputs from Pedagogy workshop and prep for Education meeting

9. Task for the future. Jody is leaving this on as a reminder.
   a. What kind of biostats do students need to know to set them up for being able to take a forecasting course?
      i. Jason - provide update on ideas from RCN Steering Committee Call
      ii. From Feb 2021 call: How do we make those materials available? Don't want to create a textbook, but could think about an AGU Monograph style resources. 10 chapters that build on each other.

iii. Go back to the notes from Feb 2021 call for details about this conversation.
iv. Elva Escobar is interested in participating on this project
v. Here are some ideas that came from a separate call with the RCN Steering Committee.
- Quinn is trying to think about how to put some of his course materials together. Thinking of perhaps a How To Guide for the forecasting challenge
- Has anyone seen the [Open Forecasting Textbook](#) (does exist as a [paperback](#) as well)
  - In the Preface this is for a 3rd year undergrad intro master's course
  - Interesting template. Success in part due to free online and R packages are nicely user friendly
  - This is a bookdown format where R code is integrated and is a living document
  - Wouldn't get the credit of an AGU Monograph, but would be more broadly available.
  - Could do something that are RMarkdowns that could be combined as a book
  - Loop John Zobitz into this. He is also writing a book for his courses. Mike has used some of his chapters in his 300 level course.
  - Do this in the context of NEON data and walking through all the steps of forecasting. Could get long, but would be a nice resource.
  - A self-contained book to walk through. Could reference other books.
- This sounds like a strong potential for a proposal for NSF Education Directorates, especially if we could bring in an education evaluator who evaluates the open source, collaborative textbook.
  - If we structured it well it could have a strong educational research component
vi. Disciplinary expertise - think we are downplaying the empirical researchers who are providing data/data collection. Don't want to leave those people out
- Ecological methods course
vii. Also don't to leave out people more interested in the social science/partners side of things. But this is where the note up at the top of page 2 will be important to convey that not all courses are necessary.