Ecological Forecasting Initiative 2020 Virtual Workshop:
Coordinating the NEON-enabled forecasting challenge
May 12-13, 2020

Workshop objectives:

- Identify specific NEON data products to be used in the forecasting challenge.
- Present and discuss standards for archiving ecological forecasts for submission to the challenge.
- Develop a road map for a NEON forecasting challenge (evaluation, rules, partners, cyberinfrastructure needs, non-NEON data, etc.)
- Identify software, methodological, and educational needs to support the NEON Forecasting Challenge
- Identify partnerships with stakeholders and forecast end-users that can leverage NEON-enabled forecasting for decision support.

Tuesday May 12

[11:00 - 11:25 am EDT] 25 minutes
Welcome
- Welcome, Charge, and Logistics
    - Quinn Thomas - Virginia Tech
    - Jody Peters - University of Notre Dame

[11:25 - 12:15 pm EDT] 50 minutes
Session 1: The "supply side" of NEON-enabled applied ecological forecasting
- NEON Overview: Christine Laney (8 minutes)
- NEON Aquatics: Bobby Hensley (8 minutes)
- NEON Terrestrial observations: Eric Sokol (8 minutes)
- NEON Pathogens: Sara Paull (8 minutes)
- NEON Surface atmosphere exchange: David Durden (8 minutes)
- Plenary wide NEON Q&A: 10 minutes

[12:15 - 12:30 pm EDT] 15 minutes
Session 1: Breakouts
- Activity 1: Introductions
    - Ice breaker question: "What excites you about ecological forecasting?"[5 minutes]
- Activity 2: Based on the NEON presentations, what are the top 3 NEON products that you are most interested in forecasting or using forecasting of? [8 minutes]
- Activity 3: Add list to Poll Everywhere [2 minutes]

- Activity 4: Review Word Cloud in Plenary

[12:30 - 1:00 pm EDT] 30 minutes
Longer "Lunch" Break

[1:00 - 1:35 pm EDT] 35 minutes
Session 2: The "demand side" of NEON-enabled applied ecological forecasting
- Towards applied ecological forecasting: Jake Weltzin - USGS [15 minutes]
- Partner lightning Talks [5 x 2 minutes = 10 minutes]
  - Talk 1 - Stephen Wood, *The Nature Conservancy*
  - Talk 2 - Gyami Shrestha, *US Carbon Cycle Science Program*
  - Talk 3 - Stephanie Brodie, *NOAA*
  - Talk 4 - Woody Turner, *NASA*
  - Talk 5 - Deena Hannoun, *Southern Nevada Water Authority*
- Plenary wide Q&A and Breakout Charge: 10 minutes

[1:35 - 2:00 pm EDT] 25 minutes
Session 2: Breakouts
- Activity 1: Introductions
  - Ice breaker question: "What is your role or potential role in the ecological forecasting cycle?" [5 minutes]
- Activity 2: What products are needed for what decision or application by what end-user, and how could this be NEON-enabled? [10 minutes]
- Activity 3: Poll #1 - Add End-User products to Poll Everywhere [1 minutes], Poll #2 - Add Most related NEON data product to Poll Everywhere
- Activity 4: (in Plenary) Vote for 5 most useful NEON-enabled forecast applications [7 minutes]

[2:00 - 2:15 pm EDT] 15 minutes
Break

[2:15 - 2:55 pm EDT] 40 minutes
Session 3: Towards creating a NEON-enabled ecological forecasting challenge
- Data Science and Forecasting Competitions in Ecology: Ethan White - University of Florida [15 minutes]
- Ecological Forecasting Proposed standards: Mike Dietze - Boston University [15 minutes]
- Plenary wide Q&A [10 minutes]

[3:55 - 3:20 pm EDT] 20 minutes
Session 3: Breakouts
- Activity 1: Introductions

- ○ Ice breaker question: "What is the most exciting thing you have learned from the workshop thus far?" [5 minutes]
- Activity 2: What challenges are most important to overcome as we design a successful NEON forecasting competition? [10 minutes]
- Activity 3: Add list of challenges to Poll Everywhere [5 minutes]
- Activity 3: (in Plenary) Vote for 5 most important challenges to consider when designing a NEON forecasting competition [5 minutes]

[3:20 - 3:50 pm EDT] 30 minutes
Longer "lunch" break

[3:50 - 4:50 pm EDT] 1 hour
Session 4: Building a community practice in ecological forecasting: updates from the Ecological Forecasting Initiative
- Ecological Forecasting Initiative Overview [5 minutes]: Mike Dietze (Boston University)
- Social Science WG [5 minutes]: Jaime Ashander (Resources for the Future)
- Partners WG [5 minutes]: Kira Sullivan Wiley (Boston University)
- Education WG [5 minutes]: Jason McLachlan (University of Notre Dame) and Anna Sjodin (University of Idaho)
- Inclusion WG [5 minutes]: Diana Dalbotten (University of Minnesota)
- Methods/Cyberinfrastructure WG [10 minutes]: Jacob Zwart (USGS)
- Theory WG [5 minutes]: Peter Adler (Utah State University)
- Students Association [5 minutes]: Whitney Woelmer (Virginia Tech)
- Canadian Chapter [3 minutes]: Korryn Bodner, Carina Rauen Firkowski, Marie-Josée Fortin (University of Toronto)
- Plenary wide Q&A [12 minutes]

[5:00 - 5:15 pm EDT] 15 minutes
Charge for tomorrow

[5:15 - 5:45 pm EDT]
EFI-RCN Steering Committee meeting

Wednesday May 13

[11:00 - 11:20am EDT] 20 minutes
Welcome
- Welcome, Charge, Review of Day 1: Quinn Thomas - Virginia Tech
- High level vision for the NEON forecasting challenge: Quinn Thomas - Virginia Tech

[11:20 - 11:30 am EDT] 10 minutes
Session 1: Ecological Forecast Model Drivers

- NOAA weather and climate forecasts for use in ecological forecasting: Scott Handel - NOAA [10 minutes]

[11:30 - 12:30 pm EDT] 1 hr
Session 2: Developing the NEON Forecasting Challenge: identifying data products, rules/protocols, cyberinfrastructure requirements, non-NEON data needs, and partners.
- Participants will be divided into the following breakout groups. Individuals who are system agnostic will be distributed among the other non-social science breakouts to provide input for the different systems
  - Aquatics
  - Terrestrial
  - Biodiversity
  - Social Science
- Product: Google Document that describes proposed rules for a NEON forecasting competition using specific NEON data products.

[12:30 - 1:00 pm EDT] 30 minutes
Longer "Lunch" Break

[1:00 - 2:00 pm EDT] 1 hour
Session 3: Synthesis of Session 2
- Plenary and breakout groups

[2:00 - 2:15 pm EDT] 15 minutes
Break

[2:15- 3:15 pm EDT] 1 hour
Session 4: Identify software, methods, and educational material needs to support the NEON Forecasting Challenge
- Activity 1: Identify software, methodological, and educational material needs to support the NEON Forecasting Challenge [25 minutes]
- Activity 2: Envision a path towards addressing these needs [20 minutes]
- Activity 3: Add list of needs to Poll Everywhere [5 minutes]
- Activity 4: (in Plenary) Vote for 5 most important methods, software, educational needs to support the NEON [10 minutes]

[3:15 - 3:30 pm EDT]
Wrap-up