



# **NEON Technical Working Groups**

## ***2021 Second Quarter Report***



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National Ecological Observatory Network (NEON) is a project sponsored by the National Science Foundation and proudly operated by Battelle.

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## Introduction

Since its inception, NEON has relied on expertise within the science, education, and engineering communities to advise on key areas impacting the design, construction, and maintenance of the observatory with the goal to optimize its operation. Currently, two types of external advisory bodies support staff and leadership in making key decisions that guide all of NEON's activities: the Science, Technology & Education Advisory Committee (STEAC) and Technical Working Groups (TWGs). Both bodies are comprised of experts nominated to serve in these roles who are selected by NEON staff following a rigorous selection process.

NEON currently relies upon input from 22 TWGs. These groups play an important role by providing input to NEON's data collection and processing methods and ensuring that NEON infrastructure, data, and programs are a valuable community resource. Working groups are participatory and advisory; they are often tasked with providing input on issues that have scientific, educational, engineering or operational implications. This document includes a summary of activities, recommendations, and NEON's response to those recommendations for each TWG during the second quarter of the 2021 funding year (February 2021-April 2021).

# Airborne Remote Sensing Data Quality TWG

The Airborne Remote Sensing Data Quality Technical Working Group provides expert input and advice regarding NEON's airborne sampling design, data collection requirements and constraints, campaign scheduling, data products and algorithms, and reported quality metrics.

## Summary of Activities

No TWG meeting was held this quarter.

## TWG Recommendations

N/A

## NEON Response

N/A

## Algal Taxonomy TWG

Taxonomic identification of algae is difficult. Organisms are typically microscopic, and nomenclature has been changing in recent years. Taxonomic consistency between individual taxonomists, as well as taxonomy labs, is crucial to data quality over the time span of the NEON program. The Algal Taxonomy Technical Working Group seeks to assemble a group of algal taxonomists with broad spatial representation both for soft algae and diatoms.

The Group will be called upon to plan the best way to 1) develop a method for consistent taxonomic identification for NEON contractors, across labs and over time, 2) develop taxonomic comparison or harmonization across NEON Domains, and 3) facilitate and support data quality. The Group may also be called upon to evaluate how best to allocate limited resources while maintaining the best possible science and data product delivery.

### Summary of Activities

1 meeting with whole group, 3 meetings with individuals or small groups (Pat K., Sarah S., Julianne H.). NEON worked on data optimization during this time to determine whether sampling 2 different habitats in streams is important to this analysis. Voucher proposal was also taken to the OPS-IPT, STEAC, and back to the OS-IPT during this time.

### TWG Recommendations

After feedback from STEAC that was not supportive of our initial plan, we held a March meeting and came up with a new plan forward: use existing images at ASU to kick off voucher collection, create voucher program in tandem with analysis, consider a newer approach than the 600 valve count at labs, consider different field sampling techniques to decrease the overall number of samples sent to a lab. Followed up at STEAC monthly meeting, they were supportive of new plan, as was a follow-up OS-IPT meeting.

### NEON Response

Steph and Eric worked on optimization of existing data during this time, along with additional literature and SOP review.

## Aquatic TWG

The Aquatic Technical Working Group provides expert knowledge across the fields of Aquatic Ecology, Biogeochemistry, and Ecohydrology. This group is broadly geared toward aquatic observational sampling and instrumentation along with associated data products, design and maintenance documents, protocols, and algorithms.

### Summary of Activities

We did not meet collectively in Q2. However, the TWG was sent several scenarios for feedback on. This included:

- 1) Changes to the multisonde sampling and wiping frequencies.
- 2) Use of USGS discharge measurements at the two Domain 08 river sites.

### TWG Recommendations

- 1) TWG recommended the wiping frequency of the multisonde remain 5 min, which following previous recommendations will be updated to also be 5 min in all sites (from 1 min in stream sites).
- 2) TSG recommended that NEON ingest and publish USGS discharge estimates rather than just direct users to the USGS website.

### NEON Response

We plan to move forward with the recommendations of the TWG.

# Atmospheric Stable Isotope TWG

This group provides guidance regarding sensor designs and assemblies, data products, and field and lab procedures and protocols to measure atmospheric stable isotopes of  $^{13}\text{C}$  in  $\text{CO}_2$  and  $^{18}\text{O}$  and  $2\text{H}$  in water vapor and precipitation water.

## Summary of Activities

The TWG held a kick-off meeting for 2021 in February, and then NEON provided an update on ongoing activities in April. During the kick-off meeting there were several discussion topics, including feedback on collaborating with NEON and using NEON data as well as thoughts for future work/directions.

## TWG Recommendations

- 1) Some data issues require collaborative troubleshooting with NEON. It is important to keep monitoring known issues (e.g., timestamp offset, reference gas metadata) and working towards resolution.
- 2) Atmospheric water isotope data quality is currently behind  $\text{CO}_2$  isotope data. Issues found in  $\text{CO}_2$  likely apply to water as well, but there will be additional issues related to things like syringe corrosion - may or may not be accounted for in our data quality checks. Memory related issues - calibration data as well as the ambient sampling data between measurement levels. Could be some memory in the  $\text{CO}_2$  isotope streams also. Solutions might be to cut more data after switching levels. Memory correction has not been implemented yet for water isotope calibration - science community code contributions can fast track resolutions.

## NEON Response

- 1) Existing monitoring tools were enhanced to better detect known issues in the atmospheric stable isotope data products, including auto-generated alerts.
- 2) NEON is working to encourage science community-based code development efforts.

## Biorepository TWG

The Biorepository Technical Working Group is comprised of curation, archival and museum collections experts as well as ecologists and others who would make use of the NEON Biorepository. The group advises NEON on curation best practices and discoverability of and ready access to biological samples and specimens for future scientific research. A particular focus is to broaden the availability and use of museum assets for regional to continental-scale ecological research.

### Summary of Activities

We did not meet collectively in Q2, but much progress was made to implement recommended upgrades to the Symbiota portal used to display specimen data.

### TWG Recommendations

In Q1, TWG recommended design upgrades to the NEON Biorepository portal - especially that all data transfers associated with samples be transmitted via an API and automatically updated to the Biorepository portal.

### NEON Response

In Q2 NEON completed upgrades to the sample API endpoint (<https://data.neonscience.org/data-api/endpoints/samples/>) which now will allow for transmitting collection location, collection date, collector, event id, identified by, taxonomy, identified date and other metadata of interest.



# Breeding Landbird TWG

The Breeding Landbird Technical Working Group provides expert input and advice regarding the science design and protocols related to NEON breeding landbirds sampling.

## Summary of Activities

The TWG discussed the acoustic recording unit proposal to NSF and co-location of Motus (<https://motus.org/>) bird tracking stations at NEON sites; NEON cannot provide financial support but can provide supporting information and receive requests via Assignable Assets program. NEON also solicited new feedback from the TWG about the bird protocol and NEON data usability.

## TWG Recommendations

- 1) The TWG suggested formalizing a process for soliciting feedback from bird subcontractors about the bird protocol.
- 2) The TWG suggested compiling a list of publications that have used NEON bird data, and if possible, a list of users that downloaded NEON bird data but didn't publish on it. This would help clarify when NEON bird data is or is not useful for external users.
- 3) NEON also asked the TWG to consider possible recommended changes to the bird protocol that could be incorporated into the next version of the protocol, and to convey any possible barriers to NEON bird data usage.

## NEON Response

- 1) NEON is working on a survey to solicit feedback from bird subcontractors.
- 2) NEON plans to compile information about NEON bird data usage and reach out to authors using NEON bird data.
- 3) NEON will review protocol and data usability feedback provided by the TWG in the coming months and at the next TWG meeting.

# Community Engagement TWG

The Community Engagement Technical Working Group (TWG) provides guidance on the ways in which NEON engages with its existing and potential user community. This includes scientists, educators, and students as well as organizations, agencies, institutions, and companies whose activities align with the mission and goals of the NEON program. Members serve as liaisons to the NEON user community while providing input on the program's strategic engagement plan and the activities and outcomes identified in that plan.

## Summary of Activities

The TWG held two meetings this quarter: March 11 and April 23. New TWG members were welcomed in March. NEON provided updates on engagement activities and co-chairs provided updates on diversity, equity, and inclusion recommendations from TWG members. Those who attended took time to view the new NEON website and make recommendations. Those attending were also asked to provide recommendations on effectively connecting our members to community groups to support our engagement as part of the Thriving Exchange Program. Updates were also provided at the April meeting and included information on projects that have been initiated through the Thriving Earth Exchange program. Most time was spent reviewing a draft of recommendations to send to leadership related to diversity, equity, and inclusion activities.

## TWG Recommendations

Detailed recommendations on website changes were captured in the notes and a spreadsheet and can be made available upon request. There was consensus that there were a lot of great resources on the site, but it would be useful to create entry points for different audience types. It was also noted that DEI information was hard to find and should be highlighted more on the site and that a widget be added to the home page to display tweets. Discussions around additional DEI recommendations are ongoing and will be shared once the TWG has finalized and approved them.

## NEON Response

Recommendations were captured in the meeting notes and shared with relevant staff. Specifically, the Thriving Earth Exchange Fellows were sent ideas on opportunities to connect with local communities. Recommended changes to the website were sent to the communications team who have incorporated them into their website plans.

## Data Standards TWG

The Data Standards Technical Working Group is tasked with making recommendations about effective ways to provide NEON's data products to the broader scientific, educational, and policy communities. Topics may include 1) principles, standards, and policies for open data and software, 2) data discovery, exploration, and delivery mechanisms, 3) improvement of data products to increase utility, and 4) monitoring impact of NEON data use on research.

### Summary of Activities

This TWG did not meet in Q2.

### TWG Recommendations

N/A

### NEON Response

N/A

# Ecological Forecasting TWG

The Ecological Forecasting TWG provides recommendations to NEON on how to best support ecological forecasting. This may include facilitating community discussions around forecasting needs, providing guidance for data product development, and identifying opportunities for NEON to engage with the forecasting community through workshops, educational materials, and code/data product development.

## Summary of Activities

The TWG held three meetings this quarter: Feb 11, Mar 11, and April 13. In Feb, the TWG identified priorities for the year, including putting together a NEON EFI RCN forecasting challenge webpage for the NEON website and a list of priority data products for shorter latency, and approved the charter for FY2021. In April, Dave Durden gave an overview of SAE data that are being gap filled and available with a shorter latency (5-day) by providing the URLs for the data objects in ECS. In April, the group further discussed the availability of the shorter latency data products (in SAE HDF5 files) and gap filled data, discussed the idea of a NEON site characteristic data set for the CLM modeling community, reviewed progress on the EFI NEON challenge webpage, and discussed the EFI NEON challenge in general.

## TWG Recommendations

- 1) Create a webpage with information for the EFI RCN NEON forecasting challenge.
- 2) Create a FAQ to post on the webpage for NEON related forecasting questions.
- 3) Priority data products for lower latency [https://docs.google.com/spreadsheets/d/1u9IreDQpy82-gbDkBD\\_478eOnLjGwz7qSFiqMYOnZrl/edit#gid=0](https://docs.google.com/spreadsheets/d/1u9IreDQpy82-gbDkBD_478eOnLjGwz7qSFiqMYOnZrl/edit#gid=0).
- 4) Add precip to SAE data bundle so it is available with reduced latency (5-day similar to other SAE variables in the data bundle).
- 5) Provide access to SAE data bundles (with 5-day latency) in daily S3 bucket in time for year 2 of the EFI RCN NEON forecasting challenge.

## NEON Response

- 1) With input from the TWG, Christine Laney created a draft website to iterate for content.
- 2) The TWG compiled a list of FAQs, but ultimately decided questions and answers could be added to the general NEON FAQ where/when appropriate, answers could be added as content to the NEON forecasting page (not in FAQ format), and some questions/answers were better addressed in the EFI RCN FAQ maintained by Quinn - thus, a forecasting specific FAQ was not created.

3) This prioritization largely aligns with the variables that the SAE team (led by Dave) have made available via the data bundles that will be published with a 5-day latency in S3 buckets. The remaining challenge is to communicate with the user community about how to access a list of the URLs for the data files in a predictable way.

4) This is a good idea and Dave is working to add precip to the data bundle

5) See 3, this will likely be completed in time for year 2 of the forecasting challenge.

## Fish TWG

The Fish Technical Working Group provides expert knowledge and support for the development of field-based protocols and strategies for standardization of sampling across NEON aquatic sites.

### Summary of Activities

This TWG did not meet in Q2.

### TWG Recommendations

N/A

### NEON Response

N/A

# Foliar Sampling TWG

The Foliar Sampling Technical Working Group provides expert input and advice related to sampling sunlit plant foliage, with a key goal of linking field measurements to remotely sensed observations of vegetation chemical and physical properties.

## Summary of Activities

Met to discuss crown polygon mapping with members to hear first impressions on using the data.

## TWG Recommendations

- 1) Crown polygon extents should be heavily weighted to lidar rasters since these have the highest accuracy.
- 2) Lidar CHM layer with local color scaling would be helpful in identifying crown polygons.
- 3) Adding a date of imagery acquisition to the foliar sampling data product would be helpful.

## NEON Response

- 1) Proposed raster layer, color scaled at the plot level was created for testing in the 2021 field season.
- 2) Algorithm for identifying imagery acquisition dates to add to foliar sampling data product is under consideration.

## Ground Beetle TWG

NEON collects ground beetle observations and archival samples at all terrestrial field sites to capture how ground beetles (*Carabidae*) communities change in different habitats and ecosystems over time. This TWG determines targets for sampling that generate data that can reveal significant changes in beetle abundance, diversity, and community composition.

### Summary of Activities

No activities to report this quarter.

### TWG Recommendations

N/A

### NEON Response

N/A



## LiDAR TWG

The LiDAR Technical Working Group assesses and recommends strategies for developing and implementing techniques for instrument calibration and data validation, operational instrument testing, and product data formatting for vegetation remote sensing.

### Summary of Activities

No activities to report this quarter.

### TWG Recommendations

N/A

### NEON Response

N/A

## Microbial TWG

The Microbial Ecology Sampling Program encompasses measurements of soil and aquatic microbial diversity, composition, and abundances that are deemed critical for understanding long-term changes in biodiversity and ecosystem function. The tools used for measuring microbial diversity in the environment develop and change rapidly. NEON relies on input and guidance from the Microbial Technical Working Group to advise on questions related to methods and analyses, as well as best practices for ensuring data quality, accessibility, and usability.

### Summary of Activities

TWG provided input on:

- 1) biocrust sampling,
- 2) PLFA sample storage,
- 3) continued low sequence output and sequence quality during ITS marker gene tests, and
- 4) positive extraction controls/reference standard for sequencing.

### TWG Recommendations

Recommendations:

- 1) Test better/more complete homogenization methods,
- 2) Need to freeze-dry samples ASAP after collection, not 15 days after analysis lab receipt,
- 3) Problems are likely with DNA extractions and sample clean-up steps resulting in too little remaining sample for sequencing, with potential for inconsistent lab methods to cause additional sample loss; need transparency with lab methods and revised workflow to get more usable samples,
- 4) May be better to use alternate supplier of standards, especially given the problems encountered due to the type of DNA extraction kits being used.

### NEON Response

TWG meeting scheduled June 9, 2021. Response to recommendations is ongoing.

## Mosquito TWG

The Mosquito Technical Working Group is comprised of researchers focused on topics including: mosquito surveillance, public health, disease ecology, and phenology. The group advises NEON on sampling approaches that will generate data that reveal significant changes in mosquito abundance, diversity and community composition. A focus of this group is to ensure compatibility of the mosquito dataset with other surveillance infrastructure used to monitor arboviruses in mosquito populations.

### Summary of Activities

No activities to report this quarter.

### TWG Recommendations

N/A

### NEON Response

N/A

## Small Mammals TWG

The Small Mammal Technical Working Group provides expert input and advice regarding the science design and protocols related to NEON small mammal abundance, diversity, and pathogen sampling.

### Summary of Activities

NEON scientist, Dr. Sara Paull, worked over email and held several short meetings with a smaller group of 3 TWG members to develop a list of small mammals to request from museums for generating an improved barcoding library to help improve the QA/QC capacity of the barcoding data.

### TWG Recommendations

The TWG indicated that the utility of the current and future barcoding data could be improved substantially by sending in an additional plate of samples from museums.

### NEON Response

NEON staff is actively working with the TWG members to determine the current status of small mammal barcoding data for various species in Barcode of Life Datasystems (BOLD). The TWG members then used literature sources to better understand where lack of BOLD data on a species or divergent lineages of small mammals could be making it difficult to identify existing NEON samples to species. Then we collectively developed a list of 95 individual museum specimens to fill a barcoding plate.

## Soil Sensor TWG

The Soil Sensor Technical Working Group (TWG) provides feedback on all aspects of sensor measurements made in the TIS soil plots, including soil temperature, soil moisture and salinity, soil CO<sub>2</sub> concentration, soil heat flux, throughfall, soil surface photosynthetically active radiation (PAR), net longwave radiation, and soil surface/litter/vegetation infrared temperature measurements. In addition, the Soil Sensor TWG provides recommendations on approving or disapproving requests for large amounts of soil from the NEON Megapit Soil Archive.

### Summary of Activities

The TWG provided input on two issues:

- 1) NEON soil temperature, moisture and salinity requirements; and
- 2) suggestions to improve the NEON soil moisture data product to inform discussions with US GEWEX.

### TWG Recommendations

The TWG recommended some changes to the NEON requirements, including allowing a temporary soil pit (up to 0.5 x 0.5 m) to install combined soil temperature, moisture, and EC sensors, changing the soil temperature accuracy requirement to <0.5 °C, and eliminating recalibration requirements for these sensors. Suggestions to improve the soil moisture data product included providing soil moisture percentiles, estimating soil water potential, and providing additional spatial context data to facilitate satellite, model, and forecast validation and land management decisions.

### NEON Response

Recommended changes to the soil temperature, moisture and salinity requirements are currently undergoing internal approval. Suggestions to improve the NEON soil moisture data product were discussed at a US GEWEX meeting. No action is being taken to implement these data product changes at present since they are beyond NEON's current scope, but they may be incorporated in future updates to the data product.

# Surface Atmosphere Exchange TWG

NEON measures the surface-atmosphere exchange of momentum, heat, and several climate-relevant trace gases. This Technical Working Group advises on the operation of NEON's surface-atmosphere exchange assets, development of novel, scale-aware data products, adaptive algorithms, and usability tools, and active contribution to network science. The Technical Working Group accomplishes these tasks by working closely with NEON's Surface-Atmosphere Exchange Group. This includes prioritizing quarterly developments, pre-reviewing new resources, and bringing forward community input.

## Summary of Activities

The TWG held a kick-off meeting for 2021 in February, then NEON provided an update on ongoing activities in April. The TWG also provided input on the issue of increasing forest canopy height relative to tower height. A sub-group of the TWG also discussed code development for implementing a data correction for measurement boom movement.

## TWG Recommendations

The TWG recommended that canopy height metadata be updated to reflect current values and advocated for a data-driven approach to detecting data quality issues at the more highly affected sites such as BLAN. They also indicated that data may still be unaffected when a tower does not meet the current NEON height requirement and advocated for a 'soft flag' approach when the requirement is not met with an additional 'hard flag' raised on data that pass a second requirement proposed by the group (e.g.,  $Z_m < d + 2(Z-d)$ ).

## NEON Response

Our plan going forward is to:

- Calculate footprint weighted canopy height at BLAN. Once we have this completed, we'll send around to this group for awareness and feedback. From preliminarily comparing the canopy height model to the wind rose, it appears that the tallest trees near the tower might be in a zone of lesser inflow frequency. - Update canopy height metadata according to the following strategies:

- 1) first, use the most recent AOP canopy model and calculate average canopy height in a certain radius around the tower as a function of effective measurement height and
- 2) then, implement annual reanalysis using the most recent AOP canopy height model and annual footprint climatology to obtain footprint-weighted values. - Use data-driven methods to assess the current situation at BLAN. Initially screen indicators that already exist in readily available NEON SAE HDF5 files, e.g. flux-variance similarity ( $\sigma(w) / u^*$ ) to get a sense of current data quality impacts. If this initial screen across current data holdings returns ambiguous results, consider evaluating spectra and coordinate rotation angles as a function of wind direction, stratification etc.

- As informed by the above data analysis, implement a soft flag at  $Z_m < d + 4(Z-d)$  and raise the final quality flag at a threshold of greater data quality impact (e.g.,  $Z_m < d + 2(Z-d)$ ).

## Terrestrial Biogeochemistry TWG

The Terrestrial Biogeochemistry Technical Working Group provides expert input and advice regarding the science design and protocols related to measurements of plant and soil biogeochemistry within the NEON Observational System (e.g., not sensors).

### Summary of Activities

No activities to report this quarter.

### TWG Recommendations

N/A

### NEON Response

N/A

## Terrestrial Instrument Data QA/QC TWG

The Terrestrial Instrument Data QA/QC Technical Working Group represents a diverse set of NEON data users and experts, in the relevant disciplines of biometeorology, soil science, ecology, and data science. The overarching goal of the TWG is to ensure that NEON delivers the highest quality data possible with the available resources and that quality information is adequately communicated to data users. The TWG broadly covers terrestrial instrument measurements, data processing, data monitoring, and data publication as they relate to quality.

### Summary of Activities

This TWG did not meet in Q2.

### TWG Recommendations

N/A

### NEON Response

N/A



## Terrestrial Plant Diversity and Phenology TWG

Membership of the Terrestrial Plant Diversity and Phenology Technical Working Group includes researchers and practitioners from universities, federal and regional government agencies, and coordinated research networks. This group represents the community of plant diversity and phenology data users that NEON aims to serve; members provide expert input and advice regarding the science design, protocols, and data quality issues related to NEON plant diversity and phenology sampling.

### Summary of Activities

The meeting covered multiple topics:

- 1) Recognition of TWG members publishing with NEON data, encouragement for more, collaborative publications amongst TWG members, and a recently funded TWG member proposal using NEON and National Phenology Network data.
- 2) Proper citations of NEON data and data release.
- 3) Data quality efforts including newer Science Team code to evaluate data.
- 4) TWG review of NEON protocols and timelines.
- 5) Plant taxon table updates to reflect local taxonomic expertise and reduce fuzzing of species.

### TWG Recommendations

The TWG generated recommendations for a subset of topics covered:

- 1) Data quality: It was suggested the space for the community to indicate data quality concerns be more visible, perhaps on the data portal. A specific check was also directed to plant diversity data: Be sure to evaluate data for species that show up one year and then not in following years as they are often related to botanist-specific identification errors.
- 2) The TWG liked the plan to move fuzzing of plant taxon table to the site-state level as opposed to the current site-domain level which fuzzes species to higher taxon ranks if they are listed with any designation within any state in the domain. It was also suggested that we review recent recommendations for a California consortium - including the CA Native Plant Society - that suggested species not be fuzzed at all as the scientific gains outweighed risk to poaching.

### NEON Response

NEON TWG leads have inquired with the data portal team about making a data comments form more visible, will incorporate recommended checks in QA/QC scripts, and will move forward with updating the taxon table and investigate the CA recommendations and consider taking this to the OS IPT. NEON asks that all data users reach out to program staff to notify us of any data quality concerns; staff can update the log of known issues accordingly.

# Terrestrial Plant Productivity and Biomass TWG

The Terrestrial Plant Productivity Technical Working Group advises which methods, protocols, and equipment are employed to create robust ground-based estimates of live and dead woody biomass, woody and herbaceous productivity, coarse downed wood volume and density, fine and coarse litterfall, belowground plant biomass, and leaf area index across a suite of different vegetation types. The TWG also considers optimal spatial and temporal integration of ground-based measurements with remote-sensing hyperspectral and LiDAR datasets (i.e., the NEON AOP system), and with data streams generated by the NEON Terrestrial Instrument System. Finally, the TWG is also deeply invested in determining how NEON Plant Biomass and Productivity data products can be optimized to enhance usability and value for the NEON end-user community.

## Summary of Activities

The NEON lead discussed TWG review of the Vegetation Structure protocol, data product, and supporting data product documentation. The group agreed to review the protocol by the end of June and review the data product and documentation by the end of September. The TWG also continued work on a Biomass Memo for the NSF, intended to make the case for creation of a community-driven Level-4 above-ground biomass product published via the NEON Data Portal. The TWG completed the memo in May and POC Meier delivered to Battelle leadership (Drs. Thibault and Mabee).

## TWG Recommendations

The TWG strongly recommended creation of a Level-4 derived aboveground biomass product using VST and HBP data.

## NEON Response

The NEON Observatory Director/Chief Scientist (Dr. Mabee) recommended that TWG members work with NSF program officers to secure additional funding required to create the product.

## Tick Sampling TWG

The Tick Technical Working Group provides expert input and advice regarding the science design and protocols related to NEON tick abundance, diversity, and pathogen sampling.

### Summary of Activities

We look forward to discussing the new rodent-pathogen data product on tick borne diseases in the next quarter but did not schedule a meeting this quarter as there were no pressing issues.

### TWG Recommendations

N/A

### NEON Response

N/A