



NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 19-031

Dear Colleague Letter: Research Coordination Networks (RCNs) for driving convergent science with the National Ecological Observatory Network (NEON)

December 17, 2018

Dear Colleagues:

With this Dear Colleague Letter (DCL), the National Science Foundation's (NSF) Division of Biological Infrastructure (DBI) and Division of Environmental Biology (DEB) within the Directorate for Biological Sciences (BIO) announce an intent to support Research Coordination Networks (RCNs, [NSF 17-594](#)) to coordinate new and existing groups of scientists conducting research enabled by the [National Ecological Observatory Network \(NEON\)](#). Now entering its first year of full operations, NEON is a continental-scale network of standardized field instruments, sensors, and manual biological sampling that will enable reproducible research over the next 30 years.

Solutions for the most persistent challenges facing the ecological sciences today are hindered by our limited understanding of the complex interactions between living and non-living systems operating over large spatial and temporal scales. Because many environmental controls, responses, and feedbacks operate over regional to continental scales, they cannot be investigated mechanistically by disconnected studies of individual ecosystems over short periods of observation. Understanding ecological processes at continental scale has been impeded by a lack of distributed ecological research infrastructure that would enable the research needed to address complex issues at the necessary spatiotemporal scales. NEON is a major facility for studying the biosphere synoptically at regional to continental scales and for supporting ecological forecasts in North America with openly accessible methods and high precision data products.

These RCN awards will provide collaborative opportunities for NEON-enabled science communities to communicate their research and to synthesize investigations of key ecological problems, ideas, and practices. Successful RCNs will conduct inclusive conferences, in-person and/or virtual meetings, and other structured activities to establish new collaborations

and enhance cooperation among NEON-enabled science research communities. RCN awards will address most of the following five science priorities: (1) identify and prioritize research topics; (2) enable synthesis activities that establish a basis for new NEON-enabled science; (3) define questions and evaluations of NEON data products that resolve methodological challenges and offer new or improved algorithms; (4) establish mechanisms to coordinate ongoing or planned collaborative research activities; and (5) develop best practices for data management that promote open sharing of information. Proposals that emphasize training and educational activities to build the next generation of scientists involved in NEON-enabled science are also encouraged. All RCN awards must communicate information and ideas to the public and the broader community of scientists and plan to fully include women, underrepresented minority groups, veterans, and persons with disabilities, and promote a respectful, inclusive, and collaborative environment.

Coordination efforts should enable a collaborative enterprise to tackle major, longstanding ecological and environmental problems at regional to continental scales that are addressable with NEON data and infrastructure, but which neither short-term nor single-discipline efforts can solve. The RCN program facilitates networking and knowledge sharing and establishment of the directions for new scientific endeavors. RCN awards do not support new primary data collection but can be used to support synthesis activities where existing data, infrastructure, and collaboration are used to advance knowledge in disciplinary and cross-disciplinary areas of science, engineering, and education. Proposals should offer novel and integrated conceptual frameworks; those strictly for development of tools or algorithms, or those that are only indirectly applicable to NEON, may be more appropriate for core programs within DBI that support informatics research and cyberinfrastructure development:

[Infrastructure Capacity for Biology](#) and [Infrastructure Innovation for Biological Research](#).

Potential NEON RCN Principal Investigators (PIs) are strongly encouraged to consult with the Program Officers listed below to determine whether their idea fits the objective of this DCL. Proposals must follow the format and submission procedures established in the most recent RCN solicitation (currently [NSF 17-594](#)). NEON RCN proposals that are submitted in response to this DCL are due by the [Macrosystems Biology and NEON-Enabled Science \(MSB-NES\) Program](#) deadline. Proposers will submit to the RCN solicitation and identify the Macrosystems Biology and NEON-Enabled Science program on the proposal Cover Sheet in the space "For Consideration by NSF Organizational Unit(s)." Proposal titles should begin with "NEON RCN:" followed by a substantive title. NEON RCN proposals can request support for up to five years and proposal budgets may request support for up to \$500,000. The [MSB-NES program](#) also invites Conference proposals for NEON conferences and other shorter-term activities that feature a subset of the objectives listed above. These proposals may be submitted at any time after consultation with cognizant program officers. See Chapter II.E.7 of the ***NSF Proposal & Award Policies & Procedures Guide*** for guidance on the preparation and submission of Conference proposals. Funding for this NEON RCN DCL is subject to the availability of funds.

As stipulated in the RCN solicitation, eligibility is limited to institutions of higher education and non-profit, non-academic organizations. Proposals involving early-career investigators are especially encouraged. The Research Coordination Networks are expected to be multi-organizational; a single organization must serve as the lead and all other organizations are identified as subawardees.

As indicated above, PIs are strongly advised to contact the Program Officers listed below about proposal ideas before submitting a NEON RCN proposal:

- Matthew Kane (mkane@nsf.gov)
- Daniel Gruner (dgruner@nsf.gov)
- Roland Roberts (rolrober@nsf.gov)

Sincerely,

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