

MEMORANDUM OF AGREEMENT (MOA)
BETWEEN THE
NORTHEASTERN STATES RESEARCH COOPERATIVE
AT THE
THE UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE
AND THE
USDA FOREST SERVICE NORTHERN RESEARCH STATION

This MEMORANDUM OF AGREEMENT (MOA) is hereby made and entered into by and between the University of Vermont and State Agricultural College for the benefit of the Northeastern States Research Cooperative, hereinafter referred to as “NSRC” and the United States Department of Agriculture (USDA), Forest Service, Northern Research Station, hereinafter referred to as the “U.S. Forest Service.”

WHEREAS, the U.S. Forest Service has a mission to provide science to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The broad goal for research in the northeastern US is to improve understanding and ability to manage northeastern forest ecosystems and the diversity of goods and services they provide to humans, their communities, and economies. The research is performed at multiple spatial scales and focuses on response to disturbances, threats, and stresses to ensure the sustainability of ecosystems through time. This is accomplished by:

1. Foster Ecosystem Resilience to Disturbance through Science-based Management.

- Expand Emphasis on Wildland and Prescribed Fire Management -- This focus area includes delivering sound research on fire history, ecology, behavior, management, tools, models, decision-making support, and research on how manager and landowner attitudes and values influence fire risk reduction behaviors and implementation of fire management practices. Studies include investigations into prescribed fire use, including physical fire science, fire ecology and effects, and restoration of fire-adapted ecosystems.
- Maintain and Restore Ecosystem Resilience – This focus area emphasizes development of tools and guidelines for managing ecosystems that are resilient to large-scale perturbations such as climate change and threats such as wildfire and invasive species. Important components include the development of risk assessments to predict the threat of invasive species, pests, and pathogens; landscape models to identify priority management areas and simulate future scenarios; willingness of landowners and managers to work collaboratively to reduce landscape-scale threats; the study of genetics, genomics, and tree breeding in climate adaptation; advanced silviculture practices to adapt to future needs

and conditions; and innovative management approaches for watershed protection at multiple scales.

- Advance Carbon Science and Science to Support Climate Adaptation, Mitigation, and Resilience – This focus area includes increasing understanding of climate impacts on forest conditions and functions, forest carbon trends, long-term distribution of natural resources, and interactions with other stressors (e.g., fire regimes and invasive species). This work will advance long-term climate change adaptation and mitigation to promote ecosystem and landscape resilience.

2. Deliver Research Supporting Management of Healthy Watersheds

- Conduct research to support the restoration and maintenance of healthy watersheds, lakes, and rivers for the myriad ecological and social benefits they support across urban to rural locales. This includes supporting sustainable forest, grassland, and wetland community management; improving the health and vitality of aquatic and riparian ecosystems for fish and wildlife habitat; and informing water quality and quantity metrics, and their drivers, in policymaking, management planning, implementation, and monitoring for adaptive management.
- Conduct research on complex ecological processes of soils, such as the interface between land use, management (especially ecosystem restoration), and soil organic carbon uptake and storage. Advance knowledge on soils and landforms as major drivers of species and ecosystem distributions across landscapes, how they influence ecosystem response to management, and how soils and climate interact to effect ecosystem change, health, productivity, and risk to threats to maintain resilient and productive ecosystems.

3. Enhance Nature's Benefits for Communities and Economies

- Provide research to help land managers and communities better understand how people connect to and value nature and how people's choices and behaviors influence ecosystem health and resilience. This may include science on how urban forests improve neighborhoods and resident health and wellbeing; research to inform equity and access to recreation opportunities and green space for diverse communities; and how threats such as climate change and invasive species affect the quality and quantity of goods, services and experiences that people desire from ecosystems and green space. This research can support efforts to define, quantify, and communicate the benefits forests and grasslands provide to the public beyond recreation, including clean air and water, conservation of native biodiversity and viable populations, recovery of threatened and endangered species, and resilient productive ecosystems, landscapes, and communities.
- Strengthen Science Application in Urban Environments -- advance basic and applied science relating to urban ecology and stewardship, urban wood utilization and markets, human health, and community well-being.

- Provide Silviculture Solutions -- research on silvicultural methods to restore and sustain our nation's forests and grasslands to support local economies, while ensuring that healthy, resilient forests and grassland ecosystems are there for future generations. Increase knowledge of sustainable silvicultural practices to achieve the diversity of desired outcomes, including studying the expanding market opportunities for wood products.
- Develop new products and technologies to utilize wood in development of sustainable biobased products and increase economic opportunities for rural communities.

4. Deliver Innovative and Accessible Science

- Develop capability in modeling, simulating, and condition assessment to inform land management planning and decision-making in site level projects, to landscape and watershed management plans, and regional assessments and policy development. Conduct long- and short-term trend analysis on forest health and quality/supply of products and services for forest decision-making. Guide and support monitoring at multiple scales to evaluate treatment effectiveness, assess achievement of management goals, and inform adaptive management.
- Leverage scalable products and state-of-the art technology to reach and engage diverse user groups. Improve scientific impact for policy and management decision-making. Communicate research findings to a broad range of users who learn, access, and apply information in different ways. coproduction of science; increase accessibility and diversity of information delivery channels, web product development and delivery; and leveraging partnerships.
- Provide Open and Accessible Science -- make research findings available across racial and socioeconomic lines. Engage with diverse groups to produce information and tools and deliver them in formats that meet the needs of an increasingly diverse population.

5. Increase Integrated Science Capacity, Delivery and Benefits through Diverse and Inclusive Partnerships

- Engage with Tribal Communities to incorporate traditional indigenous knowledge in research, to identify tribal priorities in science and to produce benefits to Tribal Communities in natural resource research and management that supports culturally important resources, restoration and sustainability of important terrestrial and aquatic species, habitats and ecosystems, and food sovereignty and security.
- Deliver science to minority and underserved rural and urban communities to improve access to nature connections and diverse recreational experiences, environmental quality, and economic opportunities from ecosystem goods and services.

WHEREAS, the NSRC mission is to sponsor research in the states of Maine, New Hampshire, Vermont, and New York to sustain the health and resilience of northern forest ecosystems and communities, develop new forest products and other goods and services including culturally important resources to expand tribal, local and regional economies and support cultural heritage, restore ecosystem state and function, conserve native biodiversity, and recover viable populations of threatened, endangered and conservation important species. The NSRC supports and disseminates cross-disciplinary, collaborative ecosystem management, socio-economic, forest product, urban, recreation, cultural, watershed, landscape, wildlife, climate, fire and inventory and monitoring research that benefits the unique landscapes and communities of the Northern Forest Region, through knowledge discovery, development of tools in decision making and management guidelines, demonstration of best management practices, and innovative technology transfer delivery to the diversity of science users.

WHEREAS, to continue to meet current and future demands placed on terrestrial and aquatic ecosystems in general, and specifically in the northeast, the U.S. Forest Service is partnering with Northeast States Research Cooperative (NSRC) to collaborate on initiatives and advance discoveries for sustainably managing northeast ecosystems for a diversity of goods and services, and long-term health and resilience.

WHEREAS, NSRC Shall:

- A. Follow a workflow process (Appendix A) mutually agreed to by the NSRC partners and the U.S. Forest Service, to accomplish the goals of the NSRC guided by U.S. Forest Service Strategic Framework and research and management priorities.
- B. Convene an NSRC Executive Committee and Management Committee including representatives from partner Universities and U.S. Forest Service to oversee the Cooperative and administer the competitive grant proposal process.
- C. Convene an NSRC External Advisory Committee (EAC) of regional stakeholders, including business, industry, state agency, and community thought leaders throughout the NSRC region to discuss and propose a set of research priorities to inform a competitive research RFP that will mutually address the NSRC and U.S. Forest Service Missions.
- D. Develop a request for proposed competitive, programmatic research (NSRC/CF in Appendix A) in collaboration with the Northern Research Station of the Forest Service that will be administrated through the University of Vermont. Evaluation criteria for proposals will promote research and science delivery in the NSRC area by leveraging capacity across the NSRC and the U.S. Forest Service.
- E. Convene an NSRC Tribal Advisory Committee including Tribal Leaders and Members from the NSRC area and surrounding lands and Tribes with ancestral claim to the NSRC area, and U.S. Forest Service Tribal Liaison staff to discuss and propose a program of work that will mutually address areas of shared research and science delivery that is of direct interest to tribal communities in the northern forest region.
- F. Develop a request for proposed competitive research to be supported by an Indigenous Forest Knowledge Fund (IFKF/CF in Appendix A) in close collaboration with the Northern Research Station of the Forest Service and alignment with the USDA Tribal Action Plan. The IFKF/CF will specifically address research on northern forest resources that are of direct interest to the tribal communities of this region.
- G. Organize separate technical and relevancy reviews from university, and U.S. Forest

Service scientists and other management experts from Forest Inventory and Analysis and Eastern Region 9 (National Forest Systems and State and Private Forestry) and external stakeholders for all full proposals submitted to the competitive programmatic NSRC/CF and IFKF/CF RFPs. All reviewers will be required to adhere to NSRC's Conflict of Interest Policy.

- H. Develop recommendations for a program of work to address priorities for investment of NSRC/CF and IFKF/CF funds across the NSRC region, in collaboration with the Northern Research Station that balances and complements prior years investments with innovative new initiatives.
- I. Provide administrative support for the proposals selected for awards from the programmatic NSRC/CF and IFKF/CF RFPs.
- J. Provide annual progress and financial reports on the projects supported by the programmatic NSRC/CF and IFKF/CF funds.
- K. Assist with developing dataset and data archive solutions, where appropriate, to ensure fully accessible data produced from programmatic NSRC/CF and IFKF/CF projects.
- L. Host or co-host (virtually or in-person) an annual meeting of NSRC/CF and IFKF/CF PIs and associated researchers to present and share research progress and outcomes.

WHEREAS, THE U.S. FOREST SERVICE Shall:

- A. Provide NSRC with U.S. Forest Service Strategic Framework Focus Areas and research priorities for consideration in the NSRC development of the RFP.
- B. Provide an Assistant Director of Research to represent the U.S. Forest Service priority areas and interests on the NSRC Executive Committee (EC); a Project Leader to serve on the NSRC Management Committee; Tribal Liaisons to serve on the NSRC Tribal (IFKF/CF) committee, and U.S. Forest Service scientists to serve on the NSRC Final Proposal (relevancy) Review Panel. At their sole discretion the U.S. Forest Service may elect to assign different individuals to each of these committees.
- C. Collaborate with the NSRC to ensure broad distribution and successful completion of the NSRC/CF and IFKF/CF RFPs.
- D. Collaborate with the NSRC EC to establish the annual sums to be allocated to the programmatic NSRC/CF and IFKF/CF funds from the total funds allocated by Congress.
- E. Provide funds from the annual Congressional appropriation to the NSRC to support the projects competitively selected through the programmatic NSRC/CF and IFKF/CF RFP processes.
- F. Provide funds not to exceed 20% (not exceed 15% in 2023) of the total annual Congressional appropriation to the NSRC to support operations of the programmatic NSRC/CF and IFKF/CF RFP review and selection process and subsequent award management and reporting.

Purpose: The purpose of this MOA is to document the cooperation between the parties to collaborate in research coordination and planning relative to research across the NSRC research area to address significant challenges to regional forests, watersheds, tribes, and communities.

Statement of Mutual Benefit and Interests: Given changing federal priorities and funding conduits, this memorandum of agreement establishes a formal agreement between the U.S.

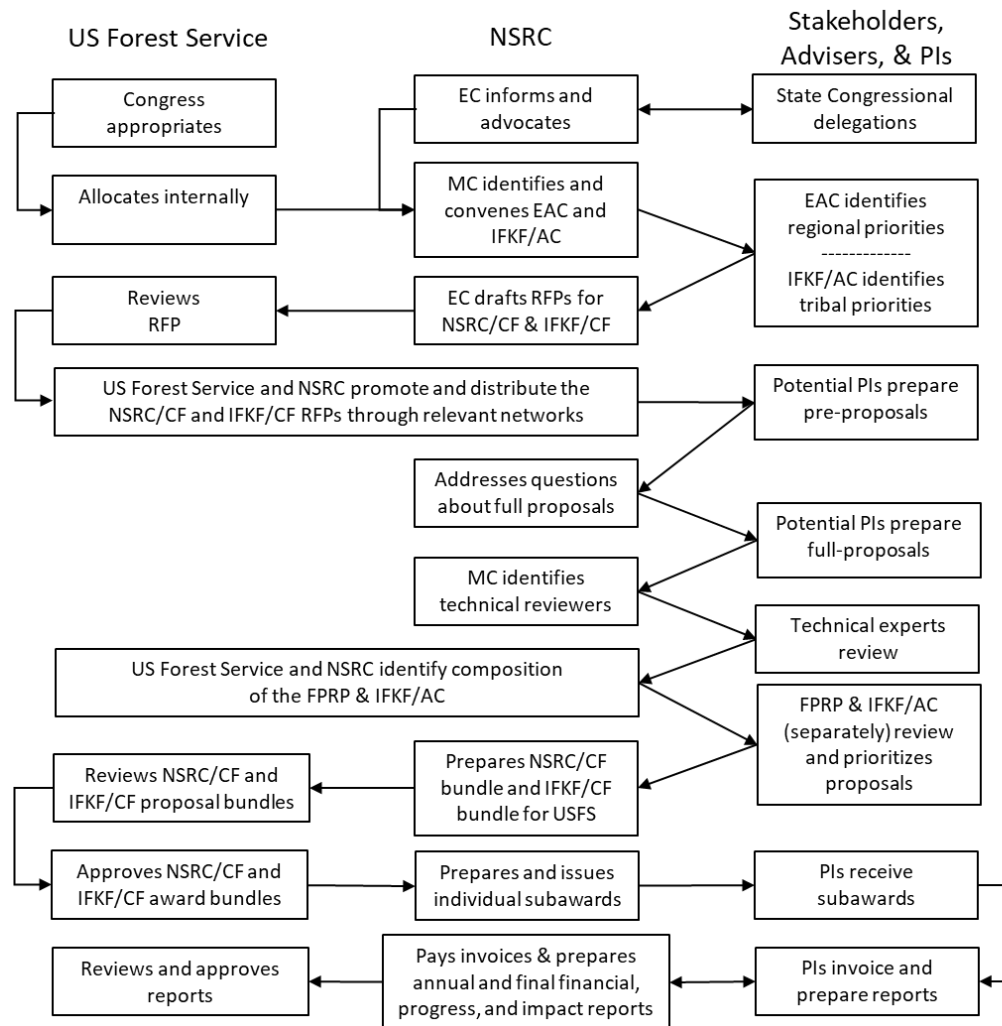
Forest Service and the NSRC. It is understood that U.S. Forest Service retains ultimate oversight, responsibility, and vested final decisions related to this award, as required by current federal regulations and can cancel this agreement at any time. The NSRC is an ideal partner for this agreement given the NSRC mission and as directed by the enabling Congressional legislation.

DURABILITY: This agreement will become null and void on midnight December 31, 2030.

SIGNATURES:

Cynthia West, Director Date Northern Research Station U.S. Forest Service One Gifford Pinchot Drive Madison, WI 53726-2366	Brian Prindle, Executive Director Date Research Administration & Integrity Office of the Vice President for Research University of Vermont Burlington, VT 05405 Allan Strong, Interim Dean Date Rubenstein School of Environment and Natural Resources University of Vermont Burlington, VT 05045
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Appendix A



Workflow model for 2023 MOA

Glossary

EC	NSRC Executive Committee (VT, NH, ME, NY, HBEF, & USFS)
EAC	External (Stakeholder) Advisory Committee
FPRP	Final Proposal Review Committee
HBRF	Hubbard Brook Research Foundation
IFKF	Indigenous Forest Knowledge Fund
IFKF/AC	IFKF Advisory Committee
IFKF/CF	IFKF competed funds
NSRC	Northeastern States Research Cooperative
NSRC/CF	NSRC competed funds
MC	NSRC Management Committee
PI	Principal Investigator
USFS	US Forest Service