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2008-1 Task Statements:

There are six areas of interest in this Announcement for Proposals:

a. Lifecycle Fuels – Task 1
b. Eastern Invasive Non-Native Species – Task 2
c. Deep Organic Soils – Task 3
d. 2007 Fires – Changing Strategies and Tactics – Task 4
e. 2007 Fires – Re-Measurement Opportunities – Task 5
f. Smoke and Emissions Models Evaluation – Task 6

a. Lifecycle Fuels – Task 1

The Joint Fire Science Program (JFSP) is interested in sponsoring research projects that investigate the longevity of fire and non-fire fuels treatments, and in comparing the effectiveness and economics of treatment regimes. The period of time over which fuel reduction remains effective depends upon the type and effectiveness of the fuel reduction treatment, the number of fuel layers involved, the rate of accumulation of fuels, fuel decomposition rates, and other factors. This may be a relatively short time for fuels with a simple structure such as grasslands, or take many years in more complex fuel types such as multi-storied coniferous forests. JFSP is also interested in better understanding the factors that influence treatment effectiveness over time such as climate change, successional status, and disturbances.

All proposals submitted under this task statement must directly address at least one the following questions:

- What is the length of time that fuel treatments are effective in reducing undesired fire effects? How does treatment effectiveness change over time, and how does that vary by treatment type?
- What re-treatment intervals are needed for various treatment types to maintain desired fire behavior? How does the potential for undesired fire effects change as a function of changes in retreatment intervals and treatment type?
- What are the costs associated with different treatment types and re-treatment intervals? What are least-cost re-treatment intervals to ensure fire behavior is within a desired range?
- What are the most efficient re-treatment intervals when considering both treatment costs and fire effects? How does this vary by treatment type?
- What are the key uncertainties associated with these analyses? How sensitive is the choice of retreatment interval to potential climate change and disturbances?

Proposals should address these questions for ecosystems where fuel treatments are widespread and the results will be broadly applicable (e.g.,

ponderosa pine or southern pine dominated systems). Many forms of science approaches could be suitable including syntheses, retrospective assessments, or modeling studies. To the extent possible, proposed work should build on existing experiments and treatments. New field experiments may also be applicable, although JFSP is not interested in initiating new long-term experiments.

b. Eastern Invasive Non-Native Plant Species – Task 2

The interaction of fire and invasive non-native plant species in the Eastern states is of high interest to JFSP. Accordingly, JFSP seeks proposals that will create knowledge that helps land managers better anticipate these interactions and plan for desired outcomes. The scope of inquiry of interest includes both the effects of invasive non-native plant species on fire behavior and fire regimes, and the effects of fire and fire management on the distribution of these species.

All proposals submitted under this task statement must directly address at least one the following questions:

- How do invasive non-native plant species alter fire frequency, severity, or behavior?
- How do invasive non-native plant species alter the effect of fire on species and ecological processes?
- Does the presence of invasive non-native plant species influence the selection of fire suppression strategies and tactics?
- How do fires and fire suppression strategies and tactics alter the susceptibility of a landscape to invasive non-native plant species?
- What information would help fire managers more effectively consider invasive non-native plant species when making decisions about fire suppression strategies and tactics?
- What are the effects of pre- and post-fire management actions on the post-fire spread of invasive non-native plant species?

The interaction of fire with other environmental or biological processes that mediate and regulate invasive non-native plant species is of particular interest to JFSP.

Proposals are sought that assess both forested and/or non-forested sites in the Eastern US (approximated by the 100th Meridian), and that assess both wildland fire and/or prescribed fire. Proposals should also address how information regarding the magnitude of the problem will be assessed.

c. Deep Organic Soils – Task 3

Federal and state agencies manage lands dominated by woody and herbaceous plants that occur on deep organic soils found in ecosystems such as wetlands, black spruce forests, and peat bogs. These deep organic soils form in settings where restricted drainage inhibits the decomposition of plant and animal remains, allowing organic materials to accumulate over time. As a result, deep organic soils contain large quantities of carbon, support unique species, and

play important roles in water quality and routing. The physical properties of these soils, along with seasonal and annual variations in water table depth typical of them, present unique and complex challenges to fire and fuels managers.

All proposals submitted under this task statement must directly address at least one of the following questions:

- What fuel characteristics (such as bulk density or moisture content) and climatic conditions (such as seasonal and long-term drought frequency and severity) are associated with transitions among varied combustion stages, i.e. from ignition, smoldering, flaming, back to smoldering and finally to extinction? How do these combustion phases change the physical, chemical and/or biotic properties of organic fuels and how do they influence post-fire recovery processes? What are practical means that managers can use to monitor and predict when these transitions will take place?
- How are key fire characteristics such as burn duration, depth of burn, fuel consumption, heat release, and smoke composition (chemical and physical properties) associated with varied combustion stages? What are practical means by which managers can better predict the likelihood and magnitude of these characteristics over time and space?
- What are the ecological effects (such as plant and animal responses, water quality, and carbon cycling) of fire in deep organic soils? How does thickness of peat and type of vegetation influence successional patterns following fires of different severities?

Proposals may focus on developing new knowledge, synthesizing existing knowledge, or validating existing research and field trials.

d. 2007 Fires - Changing Strategies and Tactics – Task 4

The 2007 fire season provides unique opportunities to better understand how evolving fire policy affected human and ecological communities. The 1995 Federal Wildland Fire Policy, updated in 2001, offers land and incident managers greater flexibility in managing wildland fire by supporting a wide range of incident responses that fit the unique circumstances of each fire, and consider the national level of fire activity and resource commitment. All strategies and tactics from intensive fire suppression aimed at early containment to extensive monitoring could be appropriate for any wildland fire incident depending on the situation. The intent of this policy is to provide for a flexible response to wildland fire to better meet the multiple objectives of protecting life, property and resources; reducing hazard fuels; and restoring ecosystems. In particular, one strategy used on several large fires in 2007 was based on point protection and monitoring rather than full containment or perimeter control.

All proposals submitted under this task statement must directly address at least one the following questions:

- What were the benefits obtained from incident response strategies and tactics that did not aim for full containment or perimeter control? Were there quantifiable fuel reduction, ecosystem restoration, or safety benefits?
- Did strategies and tactics that were not intended to result in full containment or perimeter control result in reduced suppression costs? How did they affect post-fire stabilization or rehabilitation costs?
- How did consideration of cost containment issues affect the strategies and tactics selected? How did the availability and use of decision support tools affect those choices?
- What were the smoke impacts of strategies and tactics that were not intended to result in full containment or perimeter control, and how did smoke considerations affect those choices?
- How did pre-fire fuel and commercial harvest treatments in both wildlands and the wildland/urban interface (WUI) affect incident management choices and costs? To what degree were communities prepared with defensible space or other structure protection measures?
- How did people react to decisions that did not aim for full perimeter control, and how did those reactions impact fire management decisions? How did these choices change public perceptions about federal fire policy?
- What are the factors that cause decisions regarding strategies and tactics that do not aim for full containment or perimeter control versus full perimeter control to differ from one incident to another? How does local or regional understanding or communication of policies, and local or regional social-economic-political environments shape these choices? How do these differences influence perceptions of risk and the willingness to take on short-term risks to meet long-term goals?
- Has the increased flexibility to implement incident response strategies and tactics that do not aim for full containment or perimeter control resulted in increased costs to state and local governments, and/or increased damage to nonfederal lands?

Proposals must be completed within 18 months of project award. Proposals should identify a mechanism to interact with land and fire managers to ensure the proposed work is well focused and will help answer important management questions.

e. 2007 Fires – Re-Measurement Opportunities – Task 5

The Governing Board is seeking proposals that focus on re-measurement and analysis of recently burned over experimental sites and other areas where extensive pre-fire data are available on fuel treatments, pre-fire stand structure, fuel characteristics, or other resource attributes.

Proposals for sites where reliable fire behavior observations exist are desired. Such sites can provide unique opportunities for post-fire studies to evaluate the effects of pre-fire condition on fire behavior, fire severity, and ecosystem

or resource impacts.

Proposals should not develop new techniques but should focus on previously developed measurement tools. Proposals that build on previous assessments in communities affected by wildfire are encouraged.

Proposals submitted under this task statement must address at least one of the following questions, and must involve post-fire measurements in an area burned by a 2007 fire that was well characterized by pre-fire data:

- What were the effects, effectiveness, and costs of post-fire stabilization or rehabilitation activities?
- What were the effects of previous land management activities (such as logging and mechanical treatments or prescribed burning fuel treatments) or disturbances (such as wildfire, insect or disease infestations, ice damage, and wind damage) on fire behavior, fire severity, or fire effects?
- What were the physical, biological, social, cultural, or economic effects of wildland fires?
- How effective were Firewise Community® programs and/or other defensible space treatments?

Proposals must describe the unique opportunity presented by the fire, and identify previous treatments or disturbances that were burned in the fire. In particular, proposals must clearly describe the extent and quality of the pre-fire data, describe any pre-fire experimental design or sampling design, and describe the analysis methodology in sufficient detail to allow for an independent assessment of your statistical methods.

f. Smoke and Emissions Models Evaluation – Task 6

Lack of quantitative information on the limitations of smoke and emissions models impedes the use of these tools for real-world applications. Model users have little or no information on model uncertainties, biases, or application limits and so cannot interpret and communicate the uncertainties in model outputs. Consequently, decision-makers and regulators are unsure of how to weigh analytical outputs and may place either too little or too much confidence in analytical results. JFSP is interested in obtaining scientific results that assess smoke and emissions model performance.

Work to be performed under this task could focus on any relevant process in the smoke life cycle including fuel loadings or consumption, smoke emissions, smoke transport/dispersion, or meteorology. Proposals could include detailed evaluation of an individual model, comparisons of multiple models with existing datasets, or involve collection of new data for use in model evaluation. Study results must include a quantitative evaluation of model(s) with a dataset not used in the model's development. Measurements should capture the spatial and temporal variation in the process being modeled in a way that provides statistical significance and demonstrates model robustness. Work will be most useful if it covers the entire spectrum of ecosystems considered to be within the model's domain.