

ATTACHMENT 1

Title: Great Plains Fire Science Exchange

Principal Investigator: Sherry A. Leis, Missouri State University and National Park Service partner

Federal Cooperator: Mike DeBacker, National Park Service, Heartland I&M Network

1. Statement of Need

Through the support of the Joint Fire Science Program (*JFSP Project 11-1-2-19*) we assessed the current state of fire science delivery and information needs in the Great Plains by partnering with the Eastern Tall Grass Prairie and Oak Savannah and the Midwest Oak Woodland and Forest planning consortia to conduct an online survey. The online survey instrument was intended primarily to assess information needs of agency fire practitioners and research scientists. A limited pool of private landowners and representatives of private landowner groups (e.g., prescribed burning associations) also were invited to participate in the survey.

Our contact list was constructed from personal knowledge of research scientists and land management agencies, a network of contacts developed from previous projects and those gathered at local and regional meetings (see details under Consortium Partners). The list included 515 federal and state agency staff members, 108 staff members with NGO's, 106 research scientists, and 45 other individuals. We also surveyed ranchers and other landowners by telephone since they were generally inaccessible by email. Interviews of those on our contact list followed a semi-structured design. The interviews were grouped by fire culture—those who have a tradition of burning and those who do not.

Survey and Interviews. The online survey was completed by 277 individuals which consisted of research 59 scientists, 197 practitioners, and 22 who did not indicate a category. Respondents were geographically dispersed across the states of the Great Plains with the greatest number from Kansas (59) and the least from Colorado (9). The survey found there to be widespread need and interest in a consortium. The following results served to inform this proposal, particularly in regard to target activities.

Twenty-four percent of practitioners surveyed were members of the Patch Burn Grazing Working Group (PBGWG) with an additional 38% non-members aware of the organization. Thus, the proposed consortium will expand its contacts by building off of this group to bring together research scientists and practitioners to discuss all aspects of fire management. The concentration of PBGWG members in only 5 states further indicates a need for expanded outreach of fire issues in the Great Plains.

Principal Conclusions from Survey: Practitioners and Landowners

- Landowners are interested in learning more about fire, but not equally interested in participating in all activities of the consortium.
- Most ranchers prefer demonstrations and short courses/workshops offered in their local area (not more than 50 to 100 miles distant) although they are receptive to a variety of science delivery methods—website, webinars, magazine articles, tours, etc.
- A majority of practitioners burn $\geq 25\%$ of the land they manage providing many excellent opportunities to develop a suite of demonstration sites.
- Practitioners view lack of research and information as rarely posing barriers to management
- Availability and expertise of personnel for fire operations are viewed by practitioners as primary influences on decisions (even greater than budget)

- A majority of practitioners view the scientific community as having small or no influence on management decisions with professional societies exerting even less influence. This irony (the need for personnel with expertise – previous bullet - but little reliance on research) demonstrates clearly the potential contribution of a boundary organization in the Great Plains. It might also, however, indicate that management-relevant research is needed in the region.
- While practitioners see science as having little influence on their work, they are less satisfied with their opportunities to actually interact with scientists. The contradictory nature of these data might suggest that practitioners do not recognize or are uncertain about their knowledge deficit. Providing local opportunities to visit demonstration sites where researchers are present may improve practitioners' view of science in their work.
- Practitioners (77%) said they are at least moderately interested in participating in the consortium which will provide more interaction with researchers.
- Most practitioners (90%) value online and hard copy research summaries and research briefs and, like ranchers, prefer participatory learning. Therefore, the consortium will use a variety of approaches to organize and disseminate regionally-relevant fire information including the following: 1) provide a web site (preferred by 91%) with research summaries (briefs and fact sheets) and with links to credible information sources and search engines, 2) a consortium newsletter (preferred by 76%), 3) work with partners to organize and host webinars (preferred by 45%), symposia at conferences, and workshops (preferred by 70%) to connect researchers and practitioners for discussing information needs and emerging research, and 4) develop a network of demonstration sites to provide examples of management approaches and resulting outcomes (field tours or presentations with fire practitioners and scientists preferred by 87%).

Principal Conclusions from Survey: Researchers

Survey respondents included 59 research scientists who devote time to a variety of fire related research topics. A summary of principal comments made by this group include:

- Research scientists reported that they interact at least some times with managers (90%)
- Research scientists indicated they have at least some opportunity to generate research questions through interacting with fire managers (83%).
- Most researchers desire more opportunity to interact with fire practitioners (61%), although almost 40% reported that practitioners do not share their research needs with them.
- Researchers want to interact with practitioners, but have barriers to doing so. We believe a small grants program will provide incentive to scientists to write syntheses and briefs more suitable to the practitioner audience.

2. Geographic Region

We delineated the boundaries of the Great Plains Fire Science Exchange (hereafter GPE) (Figure 1) by collaborating with adjacent consortia and planning consortia. The proposed GPE lies east of the Rocky Mountains and generally west of a line along eastern North Dakota south to central Texas. The GPE will focus uniquely on grassland in the U.S. that developed under a long history of fire and grazing.

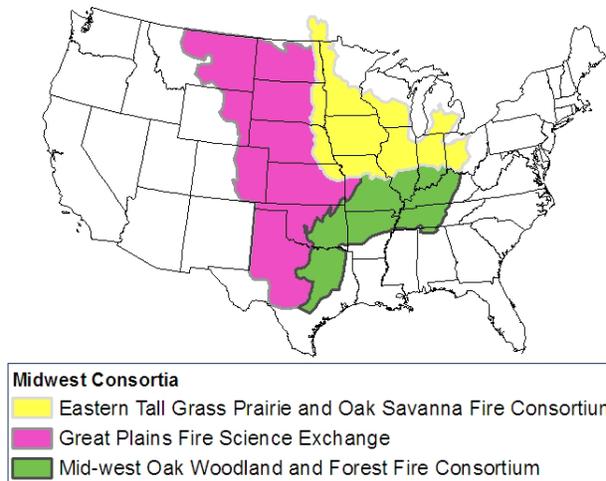


Figure. 1 Map of the boundaries of the proposed Great Plains Fire Science Exchange Consortium (GPE) with respect to two proposed consortia in the Central US. The GPE will focus on fire within grasslands that developed under a long history of fire and grazing and that lie within in the Great Plains physiographic region.

The GPE boundary mirrors TNC ecoregions (The Nature Conservancy 1999) that lie within the Great Plains physiographic region (Wishart 2004). Because of differences in dominant cover type (grassland rather than forest) and evolutionary processes (long history of fire and

grazing), overlap with adjacent consortia is minimal. Greater than 90% of the land area in the Great Plains is privately owned, so landscapes of the Great Plains can be described primarily as working lands, often ranches. These two features of the Great Plains combine to further differentiate the focus of the GPE from other consortia. For example, tallgrass prairie found within the Eastern Tall Grass and Oak Savanna planning consortia occurs mostly as geographically isolated, small prairie remnants or prairie reconstructions in which grazing is unusual.

3. Consortium Partners and Roles of Investigators

Prescribed burning and grazing organizations. We engaged a number of burning/grazing organizations both at conferences and in our survey. These included various prescribed burning associations, state prescribed fire councils, state Fire Marshals, and state Forestry agencies, as well as the Patch-Burn Grazing Working Group (PBGWG), the Great Plains Fire Learning Network, and the Sustainable Rangelands Roundtable. The GPE proposes to support the mission of these organizations while also expanding the audiences for science information transfer.

From the groups in which we engaged, the PBGWG will serve as a core since it is already organized to promote collaboration on fire science delivery among scientists and fire managers across the region. The group's interest encompasses a broad consideration of fire and grazing issues with managing grasslands. Sherry Leis (PI and coordinator of the proposed GPE) is co-founder of the PBGWG. Even though informally organized by volunteers, membership of the PBGWG stands at more than 100 participants from at least 11 states and includes staff from nine state and federal land management agencies, 10 universities, three non-governmental organizations (including seven state chapters of The Nature Conservancy), and several for-profit corporations. An email list serve, hosted at Kansas State University, is used to inform the membership of research developments, learning opportunities, and to encourage dialogue, especially between scientists and practitioners and ranchers. Furthermore, seven PBGWG members have agreed to contribute directly to the GPE by serving on the Board of Directors, Technical Committee or as paid staff (see Consortium Structure and Governance).

Universities. The Department of Natural Resource Ecology and Management, Oklahoma State University (OSU-NREM), has been a leader in fire science research and extension, collaborating with agencies and other institutions at research locations and research-demonstration areas across the Great Plains (Montana, Nebraska, Iowa, Missouri, and Oklahoma). OSU-NREM faculty and staff have

experience delivering fire science (see: <http://nrem.okstate.edu/Extension/pubs.html> and online information: <http://fireecology.okstate.edu/>). John Weir, OSU fire specialist involved in the state Prescribed Fire Council and outreach programs, has agreed to serve on the GPE Board of Directors. John is also affiliated with the Southern Fire Exchange and Midwestern Oak Woodland consortiums.

Missouri State University, Department of Biology assists the National Park Service in the study and execution of prescribed fire in Great Plains National Park Units. In doing so, faculty and staff interact with park managers to develop prescribed fire prescriptions that incorporate the best science while achieving specific park-unit goals. The work is carried out by a fire ecologist and lead monitor funded through a cooperative agreement between the NPS, Heartland Inventory and Monitoring Program (HTLN) and Missouri State University. Research summaries and education materials developed through this partnership provide another spring-board for expanding the scope and audience of the GPE. Leis, the PI for the GPE, currently serves as the fire ecologist at Missouri State University.

The governing boards of the GPE include staff and faculty from other universities in the region engaged in fire research and outreach, including: Kansas State University, University of Nebraska – Omaha and University of Nebraska - Lincoln.

State agency partners The Missouri Department of Conservation provided much of the initial impetus to form the PBGWG and it continues to play an important role in the demonstration of fire use. An early adopter of patch burning as a management practice on state-owned reserves, Missouri has been a model to neighboring states for fire science implementation. Other state wildlife and natural resource agencies, e.g., Kansas Parks and Wildlife, have supported the PBGWG and will continue to partner with GPE.

The Nature Conservancy, a key player in the PBGWG, provides research sites, demonstration areas, and leadership in adopting and disseminating fire information. Leaders at the Tallgrass Prairie Preserve in Oklahoma, the Tallgrass Prairie National Preserve in Kansas and other key core areas have facilitated important dialogue with both ranchers and agency partners to demonstrate effective fire management. Susanne Hickey, TNC Great Plains Fire Learning Network, has agreed to serve on the GPE governance board. We expect other TNC staff to fully engage as partners in the GPE (see support letters).

Federal agencies including the Natural Resource Conservation Service (NRCS), US Forest Service (National Grasslands), National Park Service (NPS), and U.S. Fish and Wildlife Service (FWS) have supported and participated in fire research and fire demonstration sites, especially as partners with the Land Grant Universities across the Great Plains. From these, we have support from several federal cooperators agreeing to serve on the Board of Governors.

The Heartland Inventory and Monitoring Network (HTLN) will serve as the federal cooperator for the GPE. The HTLN network has an established communication and outreach program that among other topics, addresses (among other topics) the use of prescribed fire in managing natural resources in parks. The HTLN envisions the partnership as helping expand these efforts. We anticipate Federal properties like National Parks to be important demonstration sites. The Central Great Plains Fire Ecology Team operates under the administrative umbrella of the HTLN (see Missouri State University above). Mike DeBacker, HTLN program coordinator, will serve as Agreements Technical Officer and board member for the GPE.

Private landowners also have participated meaningfully in the PBGWG but participation has been limited in number and geographic representation. Expanding rancher involvement will be a critical step to connecting fire science to private landowners, and therefore to larger landscapes, in the region.

Roles of Investigators.

Sherry Leis, Principal Investigator and Coordinator.

The coordinator will provide overall leadership and oversight for the consortium. Specific duties include: (1) organizes and presides at Advisory Board and Technical Committee meetings, (2) represents the consortium at conferences and consortia meetings, (3) leads web- and publication-based activities, (4) serves as first point of contact for fire researchers, (5) supervises contractors, (6) oversees maintenance of contact database, (7) directs content of GPE newsletter, (8) Coordinates social media projects, (9) arranges speakers and delivery of webinars, (10) oversees science-delivery publications and videos, (11) hosts and develops partners to host conferences and workshops, (12) solicits research-demonstration areas from researchers to add to network, (13) solicits scientist participation (facts sheets, syntheses, field tours, etc.), (14) manages incentives, and (15) assures completion of evaluation of effectiveness.

Carol Blocksome, Outreach Specialist

The Outreach Specialist will focus primarily on establishing collaborative relationships with agencies and producers within the Great Plains Fire Exchange Consortium region to increase the availability and application of fire science information for natural resource management. The Outreach Specialist also will especially solicit rancher and fire practitioner participation in consortium activities and help identify subject areas where education is lacking or where applied research on specific management issues is needed. The specialist will act as a conduit for the transmission of this information to the regional scientific community. The outreach specialist will organize, coordinate, and assist with the establishment of demonstration sites that will provide fire practitioners with the opportunity to see the results of differing fire and management practices, as well as being able to interpret this knowledge for application to their own managed landscapes. Additional activities planned in coordination with the PI, may include organization of webinars, field tours, presentations at conferences, and workshops. The Outreach Specialist reports to the PI

Mike DeBacker, Federal Cooperator

Federal Cooperator serves as the point of contact with the National Park Service for coordinating the dispersal of funds through the CESU. Mike will also serve on the Board of Directors.

Tom Bragg, Co-PI

The Co-PI has extensive experience with fire ecology research in the Great Plains and will lead the effort to develop research based synthesis products providing a connection between the scientific community and the end users.

4. Consortium Structure and Governance

Board of Directors (BOD): The Board made up of practitioners and researchers from the region is charged with oversight of the GPE. It provides guidance for the organizational and administrative functions of the GPE. Specifically, the BOD:

- Promotes accountability, fiscal responsibility, and effectiveness within the GPE.
- Oversees and prioritizes GPE-specific goals and objectives.
- Reviews annual work plans and budget.
- Ensures the program provides useful information that is relevant to issues being confronted by fire practitioners.
- Identifies strategies for leveraging funds, partnerships, and personnel to best accomplish GPE objectives.
- Serves as “ambassadors” for the consortium by soliciting feedback and ideas from ongoing interactions with the fire management and research communities.

BOD Membership and Structure: The Board will consist of seven well respected fire practitioners and researchers from the region as well as the Principal Investigator and the Federal Government Representative who will be ex-officio, voting members. The Principal Investigator will serve as the Chair of the Board. Inaugural members will serve two year terms, providing consistency through the start-up period. A future GPE charter will describe Board membership rotation over time. The Chair is responsible for signing documents on behalf of the Board of Directors as well as scheduling, planning, convening, and documenting Board meetings. If a member leaves the BOD during their term, he/she may nominate their successor for consideration of the remaining board members. If no successor is nominated, then the remaining board members will choose a new member.

BOD Procedures: The Board will meet at least once annually. Meetings will normally be scheduled in conjunction with meetings of the GPE Technical Committee. Any member who cannot attend or otherwise participate in a meeting of the Board may not designate an alternate.

The Board may convene by telephone conference at other times or circulate issues by electronic mail when urgent matters arise or travel is not practical. The Board may approve recommendations in writing by electronic mail. In such cases the Principal Investigator will be provided a copy of each voting member’s message indicating their vote on the matter.

Board decisions and recommendations will normally be reached through consensus following thorough discussions. If necessary, issues will be resolved by a vote carried by a simple majority with a quorum of 4 voting members of the Board required for a vote. All Board decisions will be documented and kept by the PI as official minutes to be distributed to all members within two weeks of each meeting.

Technical Committee (TC): The Technical Committee will consist of fire practitioners and researchers from the region representing a range of fire expertise. The TC is responsible for advising and assisting on specific scientific and technical aspects of GPE operations. Specifically, the TC:

- Develops and fosters partnerships with other agencies and organizations which support overall GPE objectives.
- Identifies a broad range of opportunities for science deliver and application.
- Identifies high priority research needs based on input from practitioners.
- Serves as Chairpersons on ad hoc working groups. In this capacity, TC members recruit and organize work group members to advise and assist with specific GPE activities.
- Serves as “ambassadors” for the consortium by soliciting feedback and ideas from ongoing projects.

TC Membership and Structure: The Principal Investigator is responsible for establishing the TC and serves as the TC Chair. The size of the committee may vary depending on the type of technical

assistance required at any given time, but is limited to 9. The duration of an appointment will typically be 2 years.

TC Procedures: Technical Committee decisions and recommendations will normally be reached through consensus, but if necessary, issues will be resolved by a vote carried by a simple majority. Another TC committee member neither serve as the alternate for an absent member, nor carry the proxy for the absent member.

Initial Board of Directors, Technical Committee, and Working Group Membership

Board of Directors (*Confirmed members):

*Sherry Leis (Chair) – *Missouri State University*, *Mike DeBacker – *DOI, NPS, Heartland I&M Network*, *John Weir – *Oklahoma State University*, *Susanne Hickey – *TNC, Fire Learning Network*, *Bill Waln – *DOI, FWS*, *James Stubbendieck, *University of Nebraska – Lincoln*, 1 other TBD.

Technical Committee:

Sherry Leis (Chair), *Amy Symstad – *USGS*, *Tom Bragg – *University of NE, Omaha*, Butch Taylor – *Texas A&M*, *Reggie Blackwell – *NRCS*, *Al Steuter-*Niobrara Valley Prescribed Fire Association*, Others.....

Working Group – Web development:

TC member (chair)
Sherry Leis (staff)
Others.....

Working Group – Demonstration Sites

TC member (chair)
Carol Blocksome (staff)
Others.....

Working Group – Science synthesis and summary

*Tom Bragg (chair)
Sherry Leis (staff)
Others.....

5. End-user Communities

End users are the individuals and communities represented in the proposed consortium partners/members which is to include research scientists, public and private reserved-land managers and fire practitioners, resource technical advisors, and private landowners. Our survey indicates a broad interest in the mission of the GPE from all areas of the fire community.

6. Planned Activities

Develop web page of value added information products. A quarterly newsletter, fact sheets, science briefs, research syntheses, and videos will be developed and delivered to practitioners and ranchers. Our survey data will direct the priority topics, and we will leverage information resources already available in some areas by developing location-specific materials for areas of the Great Plains that have few information resources. A GPE web page will be developed to make available this information source to fire practitioners and ranchers. The web page will include a list of events, a map (spatial catalog) of the research and management demonstration areas in the region, and contact information for persons seeking to speak with a specialist. The web page will be a priority action initiated upon receipt of proposal approval.

Sponsor and co-sponsor presentations and sessions at management and scientific conferences. The consortium will organize and host symposia and workshops at county, state, regional, and national conferences. We also will seek opportunities to promote fire science and fire science delivery at partner-sponsored events as well (e.g., the TNC regional workshop in February 2012, and the SRM annual meetings in 2012 and 2013).

Sponsor Travel for Program Personnel and Experts to Meetings and Field Tours. The budget includes support for a scholarship-type fund for key persons who wish to attend, host, or lead meetings and field tours, but who lack funds to do so. Travel grants typically will cover mileage and lodging. We have found that providing as little as \$200 encourages attendance of ranchers to attend out-of-state venues.

Formation of a network of demonstration research and management sites and sponsoring and co-sponsoring field tours. We will identify sites presently applying appropriate adaptive management as demonstration sites (e.g., Tallgrass Prairie Preserve, OK, Tallgrass Prairie National Preserve, KS, Texas A&M field station, R.M. Russell Wildlife Refuge, MT, and Konza LTER, KS). GPE staff members will sponsor tours of demonstration sites and advertise these events through the web page. Where geographical or topical gaps occur, GPE staff will work to establish additional demonstration sites. We plan to hold two workshops in the first year and three to five in the second year.

Host Webinars. Presenters have the opportunity to interact with an unlimited number of participants and to do so with minimal planning and monetary investment. Funding to attract presenters will help stimulate interest among researchers and experts in devoting time to develop and deliver webinars of interest. Among others, we will use networks established by the Cooperative Extension Service in each state to deliver content to local audiences, which will expand the reach of the GPE beyond our existing contact list. We plan to host at least two webinars in year 1 and four webinars in year two. Webinars may be developed in a collaborative way with other consortia.

7. Program Effectiveness

Formative evaluation of program effectiveness will occur during program and project design. The TC, or a review team assembled by the TC, will provide formative evaluation. Such an evaluation enables the team to assess whether products will reach their target goals, what constraints might be faced upon implementation, and whether products are targeted for the appropriate audience. The goal of formative evaluation is to detect ineffective strategies before beginning intensive efforts to complete project design. Summative evaluations will be performed both after specific events and after the two-year start-up period. Summative evaluation methods that we plan to use include post conference questionnaires, participation in field events and symposia. Web use will be assessed using standard metrics provided by Google Analytics®. Additionally, the JFSP surveys designed to assess effectiveness will be used as an assessment tool.

8. Budget and Funding Policy

The federal cooperator is Mike DeBacker of the Heartland Inventory and Monitoring Network, NPS. Funding will be awarded to the NPS then passed on to partner universities via cooperative agreements administered through the CESU network. The total proposed budget for this proposal is \$290,077.

9. Literature Cited

The Nature Conservancy (Jan Slaats). 1999. TNC ecoregions and divisions of the lower 48 United States. Viewed online at http://gis.tnc.org/data/MapbookWebsite/map_page.php?map_id=9.

Wishart, D. 2004. The Great Plains Region, pages xiii-xviii, In: Encyclopedia of the Great Plains. University of Nebraska Press.