

## **Overview**

***Provide a one paragraph description of the proposed program. Be specific about what degree, major, minor or option is sought.***

The National Center for Landscape Fire Analysis gives The University of Montana regional stature as an innovative hub of wildland fire research, application development, outreach, and education. The NCLFA promotes collaborative research, trains the next generation of fire managers, provides services to the fire management community, and develops applications and technologies that facilitate effective fire and natural resource management. A formal wildland fire center will allow The University of Montana to address specific knowledge gaps faced by fire and land managers, will strengthen the research and service the University provides to land managers and to the public, and will enhance educational and training opportunities for students. Research partnerships with the US Forest Service provide continuous funding for The UM's College of Forestry and Conservation to administer the NCLFA.

## **2. Need**

***a. To what specific need is the institution responding in developing the proposed program?***

Natural resource managers must balance an increasingly complex array of factors in order to effectively manage public lands. Wildfires are more frequent and larger, and fire seasons are longer, but managers must also reduce costs while protecting communities and resources. These managers need quality research and applications to guide their planning and operational decision-making in fire, fuels, and land management. National policies such as the National Fire Plan, Healthy Forests Initiative, and Joint Fire Science Program identify the need for interagency and academic entities to produce research and applications that can help streamline those fire and land management decisions. Other policy directives and agency partnerships indicate a need for science that supports effective land management decision making. Through the National Center for Landscape Fire Analysis, the University of Montana focuses service and scholarship on the critical issue of wildland fire and natural resource management.

The next generation of fire and land managers must have current scientific knowledge, training, and education in order to effectively manage this next generation of wildland fires. The National Center for Landscape Fire Analysis at The University of Montana provides this knowledge and training by offering a range of basic and applied research and service learning opportunities to students who will one day be managers. The NCLFA's unique blend of research, application and technology development, and its operational support for fire incidents puts relevant, applicable science into the hands of current and future managers.

With Center status, the NCLFA can build on its past success of providing service and research, educating students, and partnering with peer organizations and institutions. As a center, the NCLFA can respond nimbly to the changing needs of natural resource management and maintain research and service capabilities.

***b. How will students and any other affected constituencies be served by the proposed program?***

The National Center for Landscape Fire Analysis conducts research and teaching at both the undergraduate and graduate levels. The NCLFA's professors advise the work of several master's and PhD students annually. These graduate students are typically fire professionals seeking advanced degrees; in this way, the next generation of fire professionals learn how to use science

and technology to more efficiently and effectively manage natural resources. The NCLFA also will formalize an Undergraduate Research Opportunities Program to offer professional research project experience to qualified undergraduate students at UM-Missoula. Undergraduates can engage in long-term research projects under the supervision of NCLFA researchers. These unique undergraduate and graduate research positions will complement the College of Forestry and Conservation's fire curriculum – and the curriculum of other departments such as Geography and Computer Science – by giving students opportunities to conduct field-based and applied research.

**c. What is the anticipated demand for the program? How was this determined?**

In 2001, the Montana Congressional delegation saw the need for a University-based fire research program to complement fire research conducted at federal agencies. The National Center for Landscape Fire Analysis was formed as a program in UM's College of Forestry and Conservation to develop a research relationship between the University of Montana and the US Forest Service Rocky Mountain Research Station. Federal agencies have recognized that universities are well-suited to integrate science, technology transfer, and education and have access to research and people whose skills and ideas the agencies cannot match. The NCLFA was initially funded through Congressional appropriations through the Bureau of Land Management and the Forest Service; over the past eight years that funding has evolved and stabilized. In 2008, the National Center for Landscape Fire Analysis entered a new, long-term fiscal partnership with the USFS Rocky Mountain Research Station and the University of Idaho. This partnership provides stable, base programmatic funding for the NCLFA and positions the NCLFA as a significant contributor to national fire research.

The prospectus for this new partnership states:

*The Partnership's pursuit of improved wildland fire decision support–science interactions will allow its members to synergistically draw upon greater and more varied collective experience and will enhance long-term collaboration among the partners. Interaction with the wildland fire management community is critical to the delivery of knowledge and technologies to support their efforts. Active involvement with the wildland fire community has been a hallmark of the members of the Partnership and has improved the effectiveness of their past efforts.<sup>i</sup>*

This federal recognition of the NCLFA's contributions demonstrates the demand for university-based programs to address fire management's need for science and knowledge delivery.

Additionally, demand for the NCLFA's unique blend of research, development, and application is evidenced by its history of partnering with fire and land managers. Over the past eight years, the NCLFA has worked with a variety of partners to develop applications and technologies that allow the partners to more effectively manage natural resources. For example, the NCLFA worked with the Montana/Idaho Airshed Group to develop a management system for tracking and reporting prescribed burn activities in the two states. In 2003, USFS smokejumpers asked the NCLFA to help create a web-enabled, centralized database to track smokejumper resources more accurately and efficiently. While working on a fire in northern Washington in 2004, fire managers asked NCLFA personnel to help solve the problem of transmitting important data from remote backcountry fires back to the fire command post; this led the NCLFA to develop its remote communications networks, which have been deployed on active fires nearly a dozen times. These partners specifically seek the NCLFA's mix of innovation, technical and scientific expertise, and dedication to providing services to the land management community. The NCLFA will continue to work with strategic partners on projects where the NCLFA can develop and deliver products and services that enhance fire and land management.

Since 2001, the NCLFA has helped fifteen students earn their master's or PhD degrees and it will continue to facilitate more student research projects. Students, especially those with a wildland firefighting background, are drawn to the NCLFA's combination of research, operational engagement with fire, and mission to improve fire management.

### **3. Institutional and System Fit**

#### **a. What is the connection between the proposed program and existing programs at the institution?**

The National Center for Landscape Fire Analysis is unique from other research efforts at The University of Montana, in that it combines research, service, education, training, and application development. The NCLFA will serve as a focal point for fire research at the University of Montana and will allow the University to strengthen its contributions to land management.

#### **b. Will approval of the proposed program require changes to any existing programs at the institution? If so, please describe.**

No.

#### **c. Describe what differentiates this program from other, closely related programs at the institution (if appropriate).**

N/A

#### **d. How does the proposed program serve to advance the strategic goals of the institution?**

The University of Montana-Missoula's mission statement advocates for academic excellence; unique educational experiences that lead to informed, engaged, humane, and competent professionals; and the provision of basic and applied research and technology transfer that benefit the local community, region, state, nation, and world. The National Center for Landscape Fire Analysis contributes to these ideals by strengthening and broadening student research opportunities and by advancing innovative research and technology that benefits the natural resources of Montana, the Northern Rockies, and the United States. The NCLFA provides a competitive learning environment for undergraduate, graduate, and post-doctoral students.

The College of Forestry and Conservation is nationally respected for its natural resource programs. The College stresses hands-on experience to supplement academic work – students can conduct research at Lubrecht Experimental Forest, at UM's biological station on Flathead Lake, on the Bandy Experimental Ranch, on the Boone and Crockett Club's Theodore Roosevelt Memorial Ranch, on numerous federal land areas, on selected private lands, and on state lands of Montana. The NCLFA shares the College's commitment to excellence through academics, service, and experiential learning. Through its innovative research, delivery of products and services to managers, and its educational and training opportunities, the NCLFA demonstrates the College of Forestry and Conservation's commitment to addressing the complex and important issue of effective natural resource management.

- e. Describe the relationship between the proposed program and any similar programs within the Montana University System. In cases of substantial duplication, explain the need for the proposed program at an additional institution. Describe any efforts that were made to collaborate with these similar programs; and if no efforts were made, explain why. If articulation or transfer agreements have been developed for the substantially duplicated programs, please include the agreement(s) as part of the documentation.**

The National Center for Landscape Fire Analysis is the only program of its kind within the Montana University System. Other MUS faculty conduct research on topics related to wildfire and remote sensing, but no other department or faculty work in the nexus of research, learning, and service to improve fire management. Other faculty and programs within the MUS produce research on wildfire; however these efforts do not provide direct research and service for the unique needs of the fire and land manager. Also, no other program has developed a wildland fire research partnership with other major fire research entities such as the US Forest Service Rocky Mountain Research Station and the University of Idaho.

#### **4. Program Details**

- a. Provide a detailed description of the proposed curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications. NOTE: In the case of two-year degree programs and certificates of applied science, the curriculum should include enough detail to determine if the characteristics set out in Regents' Policy 301.12 have been met.**

The National Center for Landscape Fire Analysis does not propose any new curriculum. Rather, the NCLFA serves as a research and development center. It focuses on service and outreach, fire and fuels science, and geospatial technologies and the intersection of those three areas. The NCLFA's research staff and graduate students in each program area develop and implement several projects each year. These projects have resulted in tangible applications or science that benefit land managers, for example: a geodatabase of Montana's geographic data for fire mapping personnel to use during wildland fire incidents; development of laser altimetry technology for fine-grained measurements of forest properties; installation of a remote data and communications network on wildland fires; and an intersession class for College of Forestry and Conservation students to conduct prescribed burning for ecological benefits in the southeastern United States. The NCLFA also produces peer-reviewed academic research and publications in industry journals. It conducts a variety of trainings to teach fire professionals topics such as using GIS on a fire. The NCLFA staff participate in conferences through presentations and posters and produce a variety of other outreach materials such as factsheets, brochures, and technical papers about their work.

#### **5. Resources**

- a. Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.**

No additional faculty resources are required to staff the National Center for Landscape Fire Analysis.

**b. Are other, additional resources required to ensure the success of the proposed program? If yes, please describe the need and indicate the plan for meeting this need.**

No additional University resources are required as the Center has long-term, base programmatic federal funding that covers its budgetary needs. The Center will utilize the office space and infrastructure that it currently occupies in the Charles H. Clapp building on the UM campus. It will not require any new library holdings.

**6. Assessment.**

***How will the success of the program be measured?***

The Center's success will be measured by its relevance to fire management; the number of student firefighters involved; the number of useful management tools and applications created and fire assignments completed; and the quality of its work.

**7. Process Leading to Submission**

***Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc.***

The National Center for Landscape Fire Analysis was chartered as a program in the CFC in 2001 to improve fire and fuels management at the landscape scale. Working within the University's mission of outreach, service, and research, the NCLFA has conducted research and development activities, developed practical technologies and applications, and provided workforce development opportunities to meet this goal. Over the past nine years the NCLFA has built programmatic relationships with multiple partners within the fire management and fire research communities. These partnerships have allowed the NCLFA to develop products and services that are relevant and accessible to natural resource managers. Additionally, the NCLFA has worked closely with the dean of the College of Forestry and Conservation to ensure that its activities are relevant to and connected to the College and to the University. With base funding for the program secured through partnership with the US Forest Service Rocky Mountain Research Station, the NCLFA is prepared to become a Center of The University of Montana.

The following were involved in the development of this proposal:

- Perry Brown – Dean of College of Forestry and Conservation, Director of the Montana Forest and Conservation Experiment Station, and Interim Associate Provost of Graduate Studies
- Jim Burchfield – Interim Dean of College of Forestry and Conservation
- LLoyd Queen – Director of the National Center for Landscape Fire Analysis
- Leana Schelvan – Outreach and Communications Coordinator at the National Center for Landscape Fire Analysis

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<sup>i</sup> Wildland Fire Decision Support-Science Partnership. Prospectus. Final v4.3 02/27/08