DESCRIPTION OF NEW PROPOSAL:

GOAL / STRATEGY

The Recruitment and Retention Task force assembled by the Commissioner of Higher Education found that all campuses of the University of Montana System are having difficulties in recruiting and retaining faculty and staff, with substantial negative impact. Studies of salaries at comparator institutions confirmed that average salaries across the System are less than competitive and the goal of this proposal is to address this problem.

Strategy: Request a special base adjustment in State appropriation equal to 2% of total salaries each year to provide a pool of funds to address critical salary issues such as compression, inversion, equity and market in the form of base salary increases.

IMPACT

Positive impacts will include:
- Shorter average duration of position vacancies
- Larger and more competitive applicant pools
- Fewer failed searches
- Better retention of faculty and staff

Failure to implement the plan will result in continued difficulties in recruitment, retention and ultimately overall reduced quality in instruction and campus support.

ACTION PLAN

The Director of HRS will implement in consultation with Executive Officers in FY2010 and FY 2011.

HOW SUCCESS IS MEASURED:

ACCOUNTABILITY

Improvement in average salaries relative to comparative and benchmark salary data
Improved retention
**DESCRIPTION OF NEW PROPOSAL:**

**CRITICAL NEED GROUND WATER INVESTIGATION PROGRAM**
**MONTANA BUREAU OF MINES AND GEOLOGY**

The Water Policy Interim Committee (WPIC) of the Montana Legislature, created by the 60th Legislature (HB304 and HB831), has recommended that the Montana Bureau of Mines and Geology propose a new program that will conduct ground water investigations in critical-need areas in Montana. The WPIC is a joint, bipartisan committee authorized for the 2007-2008 biennium to conduct an interim study that includes ground water/surface water interaction, exempt wells, water quality, and other water related issues that the committee deems important to review and make recommendations to the 61st Legislature.

**Background / Problem statement**

The existing MBMG Ground Water Characterization Program provides baseline characterization on the multi-basin scale (28 projects state wide whose areas range from 1 to 5 counties each). Focused investigations of surface-water / ground-water interaction in sub-basins are not feasible under the funding and objectives of that program.

Current rules, based on HB831, require hydrogeologic assessment for each application for ground-water withdrawal in basins closed to additional surface water development. These investigations, funded by the applicant, are limited to the immediate vicinity of the proposed well and may not include cumulative effects on the entire sub-basin affected by the proposed development.

**Ground Water Investigation Program Structure**

The objective of the new sub-basin assessment program is to enable the MBMG to compile and collect geologic and hydrogeologic data in targeted sub-basins to provide the State and local government, current water-use applicants, and prospective water-use applicants with an evaluation of the potential impact of ground-water withdrawals on surface water and ground water.
An advisory committee comprised of DNRC, DEQ, MUS-Earth Sciences, Montana Department of Agriculture, and others will select project areas based on current and anticipated growth of agriculture, housing, and/or municipal/commercial activities. Permit applications, both submitted and pending, for subdivision, wells, treatment systems, and aquifer storage recovery, may be used as a basis for selecting project areas. Each project area would be a sub-basin of sufficient extent to represent the detailed hydrogeology of the area identified by the advisory committee.

Each ground water investigation study would include compilation of existing information, field studies, a detailed hydrogeologic assessment report for each sub-basin, and a monitoring plan:

- Compilation would include all available geology maps and reports published by State and Federal agencies, academia (theses, journals), and private groups; hydrogeologic assessments and aquifer test data submitted under HB831, past and pending; all available published and unpublished reports and data related to the hydrogeology of the basin or sub-basin. A specific project design would be prepared after compilation of existing data and a review of anticipated development activities.

- Field Studies would be conducted to provide information to assess the impact of the proposed development on ground-water and surface-water quality and quantity. Field activities may include new geologic mapping, aquifer testing and water quality sampling of existing wells, installation of new wells for aquifer testing or sampling, short-term monitoring of water levels and stream flow, surface water-quality sampling, and installation/monitoring of meteorologic stations.

- A detailed hydrogeologic assessment report, including ground-water flow models, for each sub-basin would be published by the MBMG and made available to the public through the MBMG publication website. The MBMG Ground Water Information Center database and website would provide access to all data compiled and collected for each report.

- Each sub-basin study would identify key wells for long-term monitoring and recommend the location of surface water gauging stations appropriate to evaluate the long-term impacts of water-quantity or quality regulation. These data would be used to evaluate net depletions and cumulative depletions, update and re-calibrate ground-water flow models for the area, and will be critical for making decisions related to additional development. The monitoring plan would take advantage of wells and surface water stations installed during the sub-basin assessment as well as those installed during the site hydrogeologic assessments.

The proposed funding level for the Ground Water Investigation Program is $300,000 per year ($600,000 per biennium) to conduct one (1) detailed ground-water investigation. The urgency and current demand for these studies warrant at least two (2) separate investigations per biennium for a total of $1,200,000 per biennium. The WPIC will continue its work through the biennium in anticipation of proposing legislation; the nature and scope of the new MBMG program will likely evolve as well. As proposed, this program will support 4 FTE per biennium; however, issues under consideration by the WPIC include water quality related to new subdivisions, an accelerated permitting process, and changes to the existing application process that may expand the GWIP as many as 4 additional FTE per biennium.

HOW SUCCESS IS MEASURED:
Successful completion of each ground water investigation will be marked by a published detailed report which may include ground-water flow models, a long-term ground-water and surface-water monitoring plan, and hydrogeologic, geologic, and chemistry data which will be available electronically.

The economy of Montana depends heavily on the development of ground water and surface water for energy, agriculture, housing, and recreation. The Ground Water Investigation Program will provide the data and reports that will help support decisions regarding the allocation of water resources in Montana.
DESCRIPTION OF NEW PROPOSAL:

PROPOSED PROJECT

Hiring of a State Climatologist and an Outreach Coordinator for the Montana Climate Office within the Montana Forest and Conservation Experiment Station

GOAL / STRATEGY

MUS—Economic Development—Assist in the expansion and improvement of the State’s economy through the development of high value jobs and the diversification of the economic base

• Workforce and research initiatives

UM Strategic Directions

• To strengthen and broaden graduate and research programs and increase graduate enrollments
• To contribute appropriately to the cultural and economic development of the State

IMPLEMENTATION RESPONSIBILITY

Director, MFCES

IMPACT

An enhancement of the MFCES in this area of climate and meteorology would have significant impact on land management and management research in Montana, enhancing on-going agricultural and resource management activities. With significant climate change effects in Montana, including rising temperatures and shorter winters, persistent summer drought, and changes in the resiliency of plant and animal communities, ranchers and farmers, foresters and range managers, cities and towns, and members of the tourism community are feeling effects of these changes. Montana has no capability to develop climate metrics and information and no ability to transfer needed information to all of the affected individuals, businesses, and regulatory agencies that need real-time and accurate information and maps. A PhD level biometeorologist coupled with an outreach specialist would be able to develop new climate metrics for the state, and update them regularly. They would be able to develop trustworthy state maps of growing seasons, heating and cooling degree days, energy forecasting, irrigation demand, solar loading, wind potential, averages and extremes of temperature and precipitation, and many other things, and get
this information into the hands of those who need the information.

These professionals would be able to build and keep current the Montana Climatology Office website, develop educational materials, and deliver needed information to stakeholders and constituents around the state. They would be able to assist state decision makers at all levels and in all sectors make smart decisions about response to weather and climate effects.

Given that the Montana Climate Office and the State Climatologist are already hosted by the MFCES, but unfunded by the State or anyone else, the MFCES is a natural place for this budget enhancement. Enhancement of the Office as proposed would provide the products and benefits described above and it would ensure the access to many other programs within the MFCES that bring data and information on climate to the State (e.g. NTSG) and programs that need meteorological information for their effective implementation (e.g. National Center for Landscape Fire Analysis). In addition to many users around the state, enhancement of the Montana Climate Office would positively effect graduate education and research in natural resources, business, and many other areas.

ACTION PLAN

- Initiate search for PhD level biometeorologist and MS level outreach coordinator; May 1, 2009; MFCES Director appoints search committees
- Hiring completed for biometeorologist by September 1, 2009 and for outreach coordinator by July 1, 2009; MFCES Director
- Development of products, web pages, etc. begins upon hiring and continues indefinitely; new staff.

HOW SUCCESS IS MEASURED:

- Hiring of people specified
- Development of an interactive web page and weekly updating of the page
- Development and distribution of map products
- Clients served through web page, distribution of map products and publications, individual and group training
MONTANA UNIVERSITY SYSTEM
2011 BIENNIAL BUDGET PLANNING – NEW PROPOSALS (JANUARY 2008)

UNIT/CAMPUS: MONTANA TECH – MBMG  UNIT PRIORITY: 4
NEW PROPOSAL NAME: MONTANA BUREAU OF MINES & GEOLOGY ENHANCED RESEARCH CAPABILITIES
BOARD OF REGENT STRATEGIC GOAL:  ___ACCESS  _X_ ECON DEV  _X_ EFFICIENCY ___ RECRUIT/RETAIN

TOTAL BIENNIAL COST: $616,714  FUNDING SOURCES: State Appropriation
FY 10 TOTAL COST: $303,800  FY 11 TOTAL COST: $312,914
FY 10 BASE FUNDING REQUESTED: $303,800  FY 11 BASE FUNDING REQUESTED: $9,114
FY 10 OTO FUNDING REQUESTED: $0  FY 11 OTO FUNDING REQUESTED: $0
ADDITIONAL STAFF IN FY10 (FTE): 3.10  ADDITIONAL STAFF IN FY11 (FTE): 0

DESCRIPTION OF NEW PROPOSAL:

This initiative requests increased State general funds to increase the number of currently budgeted FTE positions to authorized levels. In 1990, the MBMG budgeted 27.06 FTE from general funds. In FY2008, only 23.1 FTEs could be budgeted. Budgeted FTEs have slowly declined for several decades because of budget cuts, higher salaries required to replace vacant positions, and the need to increase salaries by counter-offers in order to retain critical staff being recruited by other organizations. Each action impacts the remaining pool available for staff salaries and the resulting deficit has not been backfilled in succeeding budgets. The net result is slow but sure erosion in the number of budgeted FTEs. The MBMG has coped with a tightening salary pool by not filling positions, and is increasingly dependent on grants and contracts to fund professional positions. This has resulted in a research staff with highly fragmented funding. For example in the Research Division's FY08 budget, 8.04 FTEs are split amount 14 individual researchers; the remaining salary for these individuals must come from soft dollars. This necessitates constantly shifting individuals and their responsibilities to projects where funding is available, rather than consistently maintaining individuals in positions that meet longer range programmatic goals.

The MBMG is currently authorized at 26.2 FTEs in the State general fund budget. This request is for funding that will allow filling an additional 3.1 FTEs, to bring us to authorized levels. Each FTE is estimated to cost -$98K (salary, benefits, and operations) for a total of $303,800.

The MBMG Director, Assistant Director, and Research Division Chief will collaborate on assignment of additional FTE funds within the existing staff in order to maximize benefits. Considerations will include providing individuals with stable funding to focus on a single programmatic area, decreasing the fragmentation of individual responsibilities, and prioritization of programs recognized as most critical for both long-range and short-term issues. High priority areas to be addressed include:

- Research to provide information for evaluation, exploration, and responsible development of Montana's natural resources - oil, gas, metallic and non-metallic minerals, and water.
- Research on alternative and "green" energy issues, including carbon sequestration, compressed air storage for peaking power, and in situ coal gasification
- Increased staff time for answering inquiries from the public, particularly in the area of
ground water concerns and information;
• Oversight for conversion of archived information to digital formats so that it can be made freely accessible via the internet;
• Public outreach and information dissemination, primarily through additional staffing in Montana Tech's Mineral Museum. (Currently there is no staff present much of the time that the Museum is open, and additional staffing will also enable presentation of more seminars, lectures, and workshops.)

HOW SUCCESS IS MEASURED:
Much of this initiative is devoted to increased generation and dissemination of information, and this is inherently difficult to measure. Measureable outcomes would include:
• Publications that provide regional data and interpretations to enhance evaluation, exploration, and responsible development of resources.
• Time devoted to responding to public inquiries, and also to presentations of project interpretations in public forums.
• Increased availability of archived data over the Internet.
• Increased outreach programs by the Mineral Museum, increased staffing during public hours, improved exhibits inside the Museum, more time for tours by school groups, and traveling exhibits that go to schools.
MONTANA UNIVERSITY SYSTEM
2011 BIENNIAL BUDGET PLANNING – NEW PROPOSALS (JANUARY 2008)

UNIT/CAMPUS: MONTANA FOREST AND CONSERVATION EXPERIMENT STATION
UNIT PRIORITY: 5
NEW PROPOSAL NAME: WILDLAND INTERFACE IN MONTANA
BOARD OF REGENT STRATEGIC GOAL: ___ACCESS  _X_ ECON DEV ___ EFFICIENCY _X_ RECRUIT/RETAI

TOTAL BIENNIAL COST: $60,000  FUNDING SOURCES: State Appropriation
FY 10 TOTAL COST: $0  FY 11 TOTAL COST: $60,000
FY 10 BASE FUNDING REQUESTED: $0  FY 11 BASE FUNDING REQUESTED: $60,000
FY 10 OTO FUNDING REQUESTED: $0  FY 11 OTO FUNDING REQUESTED: $5,000
ADDITIONAL STAFF IN FY10 (FTE): 0  ADDITIONAL STAFF IN FY11 (FTE): 1.00

DESCRIPTION OF NEW PROPOSAL:

PROPOSED PROJECT

Initiation of a forestry, wildland fire, and biofuels research program focused on the Wildland-Urban Interface in Montana.

Many Montana residents live within the “wildland-urban interface,” or WUI, where frequent wildfires present risk to their homes and infrastructure. There are numerous opportunities across the state to provide science-based, vegetation treatments in the WUI to help reduce this risk, while improving the vigor, productivity, and beauty of these forests and enhancing production of bio-fuels. Simultaneously, the revenue from these vegetation treatments can be utilized to restore watersheds and improve water quality. However, treatment design, maintenance needs, social and economic incentives, ecological impacts, and risk-reduction effectiveness can vary greatly based on specific resource conditions, and there is a need to develop, test, and communicate operational guidelines for treatments across the varied landscapes that comprise the WUI. Active applications of a range of treatment designs and thorough, science-based evaluations of these treatments would provide confidence to forest landowners that their diverse range of objectives could be fulfilled. These guidelines, backed by science tested protocols for monitoring, would allow timber operators to increase the number of treatments across Montana, creating additional jobs in the timber and wood products industries, and providing additional protection from wildfire risk to WUI residents. The active treatment of forests with high fuel loadings will also reduce the impacts of high intensity wildfires, allowing for the long term restoration of natural processes in Montana watersheds. The Montana Forest and Conservation Experiment Station at The University of Montana has the expertise and experience among its faculty, students, and partners to create and test the necessary guidelines and monitoring protocols for forest treatments and restoration operations in the WUI, and through outreach to its network of cooperators in the forestry profession, can disseminate this information to timber operators and the public.

A new MFCES scientist is needed to lead this program and this scientist will need to employ graduate and undergraduate students to implement the program. Requested is one MFCES faculty position, support for two graduate research assistants, and operating funds for the program.
GOAL / STRATEGY

MUS—Economic Development—Assist in the expansion and improvement of the State’s economy through the development of high value jobs and diversification of the economic base
  • Graduate education enhancement
  • Workforce and Research Initiatives

UM Strategic Directions
  • To strengthen and broaden graduate and research programs and increase graduate enrollments
  • To contribute appropriately to the cultural and economic development of the State

IMPLEMENTATION RESPONSIBILITY

Director, MFCES

IMPACT

Implementation of this proposal will initiate an aggressive development of a research and outreach effort focused on the critical wildland-urban interface. As research progresses and new protocols for management are designed for this critical geography, and delivered to management, regulatory, and safety organizations (through whom we currently are spending millions of dollars for protection), wildland fire activities should be reduced, biofuels production should increase, lives and property should be saved, and state costs of wildland fire suppression should be reduced. Employment will increase in the forestry sector, graduate and undergraduate students will be trained to deal with wildland-urban interface issues, home and town sites, recreational opportunities, wildlife habitats, and watersheds should be better protected.

There are many entities involved in issues of the WUI and this research and outreach program is just one piece of what is needed for effective WUI management, but without a dedicated and progressive research program we will continue muddling our way through WUI management, with the attendant costs of less than fully knowledgeable management protocols and planning.

ACTION PLAN

  • Initiate search for PhD level forest researcher to coordinate program; May 1, 2009; MFCES Director appoints search committee
  • Hiring completed for faculty leader by October 1, 2009; MFCES Director
  • Recruit graduate students for fall 2010 start; new faculty member
  • Initiate research and development management oriented products

HOW SUCCESS IS MEASURED:

  • Hiring of people specified
  • Number of active research and outreach projects
  • The number of acres treated among Montana landowners that restores vegetative conditions to lower levels of forest fuels and reduced wildfire risk;
  • The number of landowners participating in forest management activities in the WUI;
  • The additional number of forest management jobs created via WUI forest treatments;
  • The number of ancillary jobs in related fields such as trucking, marketing, sawmill operations, and financial services to landowners;
  • The number of acres where fire intensity remains in the low to medium intensity categories because of vegetative treatments in the WUI;
  • The dollar value of infrastructure protected by applying new treatments in the WUI.
MONTANA UNIVERSITY SYSTEM
2011 BIENNIAL BUDGET PLANNING – NEW PROPOSALS (JANUARY 2008)

<table>
<thead>
<tr>
<th>UNIT/CAMPUS: MONTANA FOREST AND CONSERVATION EXPERIMENT STATION</th>
<th>UNIT PRIORITY: 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW PROPOSAL NAME: APPLIED FOREST MANAGEMENT AND OUTREACH PROGRAM</td>
<td></td>
</tr>
<tr>
<td>BOARD OF REGENT STRATEGIC GOAL: ___ACCESS <em>X</em> ECON DEV ___ EFFICIENCY <em>X</em> RECRUIT/RETAINT</td>
<td></td>
</tr>
<tr>
<td>TOTAL BIENNIAL COST: $420,000</td>
<td>FUNDING SOURCES: State Appropriation</td>
</tr>
<tr>
<td>FY 10 TOTAL COST: $210,000</td>
<td>FY 11 TOTAL COST: $210,000</td>
</tr>
<tr>
<td>FY 10 BASE FUNDING REQUESTED: $210,000</td>
<td>FY 11 BASE FUNDING REQUESTED: 0</td>
</tr>
<tr>
<td>FY 10 OTO FUNDING REQUESTED: $10,000</td>
<td>FY 11 OTO FUNDING REQUESTED: 0</td>
</tr>
<tr>
<td>ADDITIONAL STAFF IN FY10 (FTE): 1.00</td>
<td>ADDITIONAL STAFF IN FY11 (FTE): 0</td>
</tr>
</tbody>
</table>

DESCRIPTION OF NEW PROPOSAL:

PROPOSED PROJECT

Enhance the Applied Forest Management and Outreach Program

Forests provide multiple benefits to the people of Montana, and as scientists, managers, and citizens have grown to realize their significance to our quality of life, there is a need for greater coordination and cooperation in management across Montana’s watersheds and landscapes to ensure forests provide the full range of uses and services. For many landowners, the implications of a single forest management activity are difficult to discern, and residents have few tools to visualize or understand how they could work with their neighbors for mutually desirable outcomes. Further, there are few places or settings where people can jointly deliberate about their expectations for our shared forest heritage and come to agreement about steps that can be taken to restore forested landscapes to healthy, fully functional conditions. The Montana Forest and Conservation Experiment Station at The University of Montana has established an Applied Forest Management Program as part of the Station to conduct research on issues of active management. What are needed to complement this research program are outreach services and visible demonstrations of effective actions. This program would provide citizens in the state a convenient site for participatory research, demonstration, education, and outreach regarding the active management of forests and rural properties. The outreach component of the Applied Forest Management Program would encourage innovative, multi-party exchanges among citizens, scientists, and practitioners for the planning, implementation and monitoring of projects, utilizing the knowledge and skills of residents to address multiple management needs. The Program would also serve as a clearinghouse for information on forest management opportunities for landowners, providing training and outreach on acquiring the latest research findings and tools to solve common problems. The Program would utilize the facilities of the Lubrecht Experimental Forest (meeting facilities and demonstration areas) to host landowners who are striving to work together, allowing them to observe examples of management practices, as well as converse and consider opportunities for coordinated efforts. Demonstration areas would highlight new techniques in forest operations, weed management, and biomass utilization. The Program would build on existing multi-party collaborative ventures, such as the Blackfoot Challenge, to encourage active land management.
Specifically needed is a research/outreach professor in the Applied Forest Management Program (AFMP) to conduct additional applied forestry research and to develop outreach and demonstration activities in cooperation with the Director of the AFMP. Requested is one MFCES faculty position, support for two graduate research assistants, and operating funds for the program.

GOAL / STRATEGY

MUS—Economic Development—Assist in the expansion and improvement of the State’s economy through the development of high value jobs and diversification of the economic base
- Graduate education enhancement
- Workforce and research initiatives

UM Strategic Directions
- To strengthen and broaden graduate and research programs and increase graduate enrollments
- To contribute appropriately to the cultural and economic development of the State

IMPLEMENTATION RESPONSIBILITY

Director, MFCES

IMPACT

The direct impact of implementation of this program will be increased knowledge about how to do on-the-ground forestry work that is ecologically responsible and socially acceptable. This would lead to increased forestry activities, including increases in employment in a variety of well paying jobs, increased bio-fuels availability, reduced susceptibility to catastrophic wildfires, enhanced wildlife habitat and watershed protection, and reduced costs for fire suppression. Employment will increase in the forestry sector, graduate and undergraduate students will be trained to deal with applied forest management issues, individuals and communities will have better information for implementing applied forest management, and forests, wildlife habitat, and watersheds should be better protected.

Without such a program we will miss opportunities to assist and interact with companies, groups, and government agencies that are working on applied forest management activities in areas such as stewardship contracting, community forestry, and sustainable resource management. We would miss getting the best information being developed through research into the hands of those who need it in a timely manner. We also would miss significant opportunities to positively affect policy and regulatory development and get lands back into ecologically sustainable condition and into responsible forest production for wood and biofuels products.

ACTION PLAN

Initiate search for a PhD level forest researcher/outreach specialist; May 1, 2009: MFCES Director appoints search committee
- Hiring completed for faculty member by October 1, 2009; MFCES Director
- Recruit graduate students for fall 2009 start; AFMP Director

Initiate new applied and outreach activities, including demonstrations

HOW SUCCESS IS MEASURED:
- Hiring of people specified;
- Number of active research and outreach projects;
- The number of landowners who are mobilized to adopt forest and range management innovations that support common objectives among all owners within a given landscape;
- The number of new demonstration areas and the number of requests for forest management information from the clearinghouse;
• The additional jobs and the amount of marketable commodities that are created by a more active approach to forest and range management;
• The number of acres restored to more fully functional, productive resource conditions.