

## *Camp Wildness: Living With Fire* A Yellowstone National Park High School Field Camp

Yellowstone National Park, in partnership with Upward Bound and the US Forest Service, offered three *Living With Fire* high school field camps in 2004. Students enrolled in the University of Idaho's Upward Bound Math Science Program (UBMS) spent six weeks of their summer engaged in the park's fire research projects and community FireWise assessments. Serving as mentors, these students assisted other camp participants--UBMS students with the University of Montana-Billings and Upward Bound Education Talent Search (UBETS) students with Montana State University-Western.

### Planning and Development

Planning for the field camps began in earnest on February 17, 2004, in Bozeman, Montana, when the Yellowstone Formal Education staff met with Upward Bound program coordinators from the three regional universities. Park staff and partners asked Jim Beisel, Upward Bound Math and Science Coordinator at the University of Idaho, to take the lead among the universities in coordinating Upward Bound's activities within the *Camp Wildness* framework. In that and subsequent meetings, partners agreed ...

- Three *Living With Fire* camps would be offered. University of Idaho's UBMS students would participate throughout the six-week period of June 13 through July 24 and serve as mentors. The University of Montana UBMS students would conduct fire research June 27 and July 10. And Montana State University UBETS students would begin their work July 11 and end July 23.
- Nancy Orme, an UBMS Instructor, would be funded through a CESU agreement between the National Park Service and the University of Idaho. She would adapt the park's 2003 five-week fire ecology curriculum in order to accommodate students participating in the two-week camps. She would also serve as the lead instructor for all three fire camps. National Park Service employee MacNeil Lyons would assist Nancy as a second fire instructor during the first two weeks.
- Susan Orme, an UBMS Instructor, would provide math instruction and cook all meals throughout the six-week period.
- Joel Lambert, UBMS intern, would serve as a camp counselor for the six weeks.
- The University of Idaho would recruit ten high school students from the Northwest region and provide one 15-passenger van to transport students. The university would also provide meals, pre/post instruction, and supervision during evening recreational activities and week-end educational fieldtrips.
- Montana State University would recruit ten high school students from Montana and Wyoming and provide one 15-passenger van to transport students. The university would also provide pre/post instruction and supervision for two-weeks. Dan Bengue would be the contact and hire Jeanie Stukey and Jessica Erikson to serve as camp counselors.
- The University of Montana would recruit ten high school students from Montana and provide one 15-passenger van to transport students. The university would also provide pre/post instruction and supervision for two weeks. Brian Pilcher would be the contact and hire Dwight Dover and Rod Benson to serve as camp counselors.
- The two Montana universities would reimburse the University of Idaho for meals.

- Kari Vannice with the US Forest Service-Gallatin National Forest would provide Firewise training and facilitate assessments.
- The National Park Service would use WUI funds to provide lodging near the park's Northeast Entrance.
- The *Living with Fire* camps would run simultaneously with the park's microbiology field camps—*An Extreme Experience*, funded by the Thermal Biology Institute and the Yellowstone Association. Both the fire camps and the microbiology camps would be based at the same facility. The University of Idaho students would complete both the fire curriculum and the microbiology curriculum. Students from the two universities in Montana would register for either the two-week *Living with Fire* camp or the two-week *An Extreme Experience* camp. Regardless of their registrations, all students would be involved in formal and informal sessions designed to allow participants to share knowledge and experiences with one another.

### Some Highlights of the *Living With Fire* Camps

- Field camp instructors used the revised *Camp Wildness: Living With Fire* curriculum to teach students about fire behavior, fire ecology, fire management, the history of fire in Yellowstone National Park, and the concept of Firewise.
- Students toured the Yellowstone Fire Cache, met the fire crew, and learned about wildland fire operations. To produce a model for Douglas fir forests, students worked with the Fire Cache staff. Together, they established and monitored a dozen research plots in different areas of the park's Northern Range.
- Roy Renkin, Yellowstone's Vegetation Specialist, led the students on a tour of different successional stages found within the park and discussed different species of shrubs and trees that are found in each Lodgepole Pine (LP) stage.
- Kari Vannice, Education/Outreach Coordinator with the Gallatin National Forest, showed the students how to conduct Firewise assessments. Following her demonstration, students conducted 16 Firewise assessments on private properties in gateway communities. Residents appreciated the students' suggestions for improving fire-safety levels.
- Banging pots and pans awakened students at six o'clock one morning. Wearing the Nomex attire, students took the pack test in which they carried 45-pound packs half of a mile in less than seven minutes, thirty seconds. Afterwards, students established a fireline.
- On a field trip in the Bearthooth Mountains, students used a clinometer, compass, sling psychrometer, densitometer, etc. There they studied topography to determine how slope and aspect affects fire behavior.
- At various locations along the park's Northern Range, the students studied different tree species, fuel regimes, stages of succession for Lodgepole Pine, and climate changes over time. Students learned how to monitor moisture, how to set up a clip plot, and how to use a Go-NoGo meter.
- Students assisted a Whitebark Pine researcher in the field.
- Park Historian Lee Whittlesey shared with students his knowledge of the 1988 fires.
- During a hike up Republic Mountain, students studied a 300+ forest and examined the back-burn of 1988.
- On a hike to the Mr. Washburn Lookout, students focused on burns from previous years.
- *Camp Wildness* concluded on July 23 with the University of Idaho students hosting an Open House for community members at the Range Riders Lodge in Silver Gate, Montana. The students shared displays highlighting their research finding.

## Student Assessments/Feedback

A final examination, administered at the close of the second and third fire camps, yielded healthy scores. All students in the second camp passed the final exam with 77% or above accuracy. All students enrolled in the third camp scored 80% or higher on their final.

The Upward Bound Math and Science Director from the Billings campus wrote: *Overall the [UBMS] staff was very impressed with the camp, and the students really enjoyed the opportunity to learn in such a dynamic setting. The students returned energized and excited about what they had experienced. From their perspective, everything seemed to run very smoothly.... There was a very good balance between classroom instruction and field study... The experiences the students received are not going to be forgotten, and in some cases, may be life altering. I appreciate the opportunity to have my students involved in this project and would offer any input in the future.*

## Statistics

In 2004, 20 regional high school students completed the high school *Living With Fire* camp, and an additional 10 microbiology students engaged in numerous fire-related educational activities, for a total of 30 students. All participants served as *Volunteers In Parks*, and collectively they logged 9,600 volunteer hours—four times the Camp 2003 hours. Their volunteer hours included hours spent in fire studies/training, fire research work, and Firewise assessments. Thirteen (13) Yellowstone National Park employees provided a total of 240 hours of research/service/instruction facilitation. The CESU teacher provided an additional 240 hours of instruction, for a total of 480 instructional hours. Upward Bound coordinators at the three regional universities offered a total of six (6) camp counselors, one instructor (1), and one (1) cook. Several park neighbors offered their expertise at campfire programs.

## WUI Budget

The total WUI budget for *Camp Wildness* totaled \$15,000. Through the competitive bid process, \$8,000 was awarded to the Range Riders Lodge in Silver Gate, Montana, for lodging and classrooms. Through a CESU agreement between the National Park Service and the University of Idaho, the primary fire field camp instructor, Nancy Orme, was paid \$6,000. The university also received the standard 15% overhead charge—\$900. The remaining \$100 was earmarked for supplies.

## Contributions of Partners

The three university partners—the University of Idaho, the University of Montana, and Montana State Universities recruited regional high school students from the Northwest region and provided transportation, meals, pre/post instruction, campsites in Bozeman, and supervision during evening recreational activities and weekend educational fieldtrips. [\$64,029 Estimated Contribution]

The US Forest Service provided Firewise training and facilitation of assessments. [\$500 Contribution]

## Contributions of Yellowstone National Park

The park's Wildland Fire Branch, Formal Education Branch, and the Yellowstone Center for Resources provided instruction, research facilitation, and guidance for community service. In addition to Nancy Orme who was hired with WUI funds through a CESU agreement with the University of Idaho, the following Yellowstone staff were instrumental in making the fire field camps successful: Eric Miller, Sean McEldery, Becky Seifert, Shawn Jackson, and Emily Moss (Fire Effects Crew); Phil Perkins (Wildland Fire Manager); Roy Renkins (Vegetation Specialist); Michelle Olsen, MacNeil Lyons, Janet Ambrose, and Bob Fuhrmann (Formal Education Branch); Ron Black (Fire Lookout Mount Washburn), and Lee Whittlesey (Park Historian). [\$11,200 NPS Contribution]

## 2005 Outlook

Yellowstone National Park hopes to offer *Camp Wildness: Living With Fire* in the summer of 2005. However, not knowing whether or not the park will be awarded WUI funds in 2005 and not knowing if the award amount would be sufficient to cover lodging and instruction, the future of high school fire field camps is uncertain. Present concerns focus on the changes that occurred between the first and second pilot years. The 2004 camp WUI award was half the 2003 WUI funding level. Compounding the reduced WUI support, costs for outsourced lodging doubled in the second year. Also, in 2004 the park hired its primary fire instructor through a CESU agreement. The CESU arrangement, encouraged by the Regional Office, proved to be costly—both in terms of budget and personnel issues. The salary of the CESU-funded instructor was more than what it would have been had a seasonal GS-07 National Park Service employee been hired. And outsourcing the primary fire instructor created complications in terms of supervision and communications. Should the park not receive WUI funds in FY 2005 for *Camp Wildness*, a cost-recovery approach might be considered. However, program fees could cost the park its primary *Camp Wildness* partner—Upward Bound. Typically, Upward Bound programs serve students whose parents did not attend college and have low incomes.

2005 Update: In partnership with the Upward Bound Math and Science Program at the University of Montana-Western, Yellowstone National Park is offering *Camp Wildness: An Extreme Experience* during summer 2005. The primary instructors are National Park Service Education Technicians. The camp is made possible with grant funds received from the Thermal Biology Institute.