

## STUDENT WILDLAND FIRE GROUPS: COMMON CHALLENGES AND SHARED SOLUTIONS

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### ABSTRACT

Student fire groups, collegiate-level groups explicitly organized around topics related to wildland fire, are widespread across the country. Student fire groups are at times participants in wildland fire-oriented experiential education but are often limited by access to training, legal hurdles, and equipment costs. We assess these barriers and suggest practical ways to overcome them.

### RESUMEN

Grupos de estudiantes en el tema incendios, colegiados en organizaciones explícitamente vinculadas a temas relacionados a incendios naturales, se han extendido a través del país. Estos grupos de estudio muchas veces participan de experiencias educativas en incendios naturales, pero están limitados frecuentemente en el acceso al entrenamiento, por barreras legales y por costos en el equipamiento. Nosotros determinamos esas limitaciones y sugerimos maneras prácticas para superarlas.

*Keywords:* Fire management, SAFE, Student Association for Fire Ecology, students

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### INTRODUCTION

For many years, undergraduate and graduate students across the United States have shown clear interest in wildland fire topics by joining or organizing formal and informal groups dedicated to the pursuit of wildland fire-related knowledge; although these groups vary, we define “student fire groups” to be any organized collegiate-level group that explicitly organizes around a focus on topics related to wildland fire. Student groups focused on wildland fire have existed since at least 1984 (Uni-

versity of Wisconsin, Stevens Point [UWSP]), and may predate that considerably (K. Miller, UWSP, personal communication). The primary emphases among groups are diverse and adaptable to shifting member interests, but the groups are typically designed to provide relevant experience in fire management and ecology to members. For example, groups with a clear management focus may purposefully pattern themselves after professional wildland fire organizations. Alternatively, groups with a greater graduate student component may concentrate on expanding member knowledge of

research frontiers and enhancing academic networking. However, across all groups, member activities are inevitably shaped by the costs and risks associated with organizations engaging in prescribed fire and wildfire operations (e.g., financial outlays for equipment and training, exposure to legal liability and personal injury, etc.). Although the specific limitations may be situationally unique, sufficient commonalities exist that sharing of tools and techniques may help lower barriers to success.

Mitigating common barriers requires an infrastructure for communicating successes and challenges. One unifying tie is the national Student Association for Fire Ecology (SAFE), a section of the Association for Fire Ecology (AFE). SAFE was established in 2000 at the Davis and Berkeley campuses of the University of California to provide students opportunities to network, share research, and access fire ecology resources (L. Kobziar, University of Florida [UF], Gainesville, USA, personal communication). It has grown into a loose affiliation of individual chapters spread across the US, with the notable exception of the Northeastern states ( $n = 16$ , Figure 1).

SAFE is coordinated by national officers and linked through conference calls, social media, and face-to-face interactions at regional and national conferences. SAFE organizes communication among schools, allocates grants funded through AFE, links students and the professional fire community, and provides a unified voice for the students of fire ecology and management.

At local and national meetings, students have repeatedly expressed their desire for a balance between training, education, and applied experiences. In this paper we describe the self-identified challenges and impediments to achieving this desired balance and propose strategies to solve them based on case studies of successful approaches.

## METHODS

Members of individual SAFE chapters participated in an informal national survey created by the national officers, conducted online via SurveyMonkey, and promoted via e-mail, Facebook, and personal communication (Godwin and Ferrarese 2014). The survey was



**Figure 1.** Map of known SAFE chapters and relative sizes in number of members.

open for 14 days, opening on 9 Feb 2012. Participation was entirely voluntary, and participants were able to remain anonymous if desired. The survey was sent out once through a national e-mail to all members, and a second time through the national Student Association for Fire Ecology Facebook group. Known SAFE chapter presidents were also contacted and encouraged to send it along on their chapter-specific mailing lists.

The survey consisted of introductory questions to collect basic demographic data, career aspirations, and involvement in SAFE (Godwin and Ferrarese 2014). Respondents were asked to rank 14 various training and education opportunities that SAFE could (or does) provide in order of their importance. Rank values ranged from Most Important (1) to Least Important (9).

Survey data were used to inform a loosely structured workshop at the 5th International Fire Ecology and Management Conference in Portland, Oregon, USA, in December 2012. Within the broader framework of the survey results, the workshop focused on reports identifying specific examples of successes and challenges to students, and conversations regarding the circumstances surrounding each. Using a format familiar to most of the wildland fire community, the workshop was patterned on the principles of the After Action Review, which is designed to enable “firefighters to discover for themselves what happened, why it happened, and how to sustain strengths and improve on weaknesses” (Wildfire Lessons Learned Center 2013). We compiled the discussion responses from participants that attended the workshop (thirty students from eleven chapters) and identified themes in both categories (successes and challenges).

## RESULTS

### *Survey Results*

Thirty-one students completed the online survey. Approximately 70% of respondents

were in master’s or doctoral programs; ~30% were undergraduates. Forestry was the predominant course of study (50% of respondents); followed by Natural Resources (~17%); Fire Management, Biology, or Other (~8% each); and Fire Ecology, Fire Management, and Geography (~4% each).

Four out of the top five desired training and education survey items were related to prescribed fire and wildfire operations or monitoring. The two highest ranked desired outcomes were for access to local prescribed fires ( $\bar{x} = 3.1$ ,  $SD = 2.6$ ) and National Wildfire Coordinating Group (NWCG) coursework opportunities ( $\bar{x} = 3.7$ ,  $SD = 2.3$ ). University-level academic course opportunities (as differentiated from NWCG courses) were ranked third ( $\bar{x} = 3.8$ ,  $SD = 1.6$ ). A desire for fire ecology field opportunities was ranked fourth ( $\bar{x} = 3.9$ ,  $SD = 2.2$ ), and prescribed fire experience at other universities was ranked fifth ( $\bar{x} = 4.3$ ,  $SD = 2.5$ ). Access to equipment was ranked sixth ( $\bar{x} = 4.4$ ,  $SD = 3.0$ ).

### *Common Challenges*

The workshop at the 5th International Fire Ecology and Management Congress refined and expanded on the member desires and problems expressed in the survey. The key challenges were: 1) difficulty accessing fire training, 2) limited access to equipment, 3) little institutional support from both students’ colleges or universities and fire management agencies, and 4) difficulty finding funding for wildland fire training and equipment.

Liability was identified as a difficult area to address. Some groups reported reticence by their schools to support their involvement with wildland fire activities, citing in part unclear liability should an injury occur on the fireline or should a prescribed fire escape control. Similarly, some groups reported local fire management agencies exhibiting reticence about collaborating on prescribed fires or wildfires due to unclear liability within their agency. SAFE groups are rarely used for wildfire

suppression; however, two student fire groups (Stephen F. Austin State University [SFA], Nacogoches, Texas, USA; and UWSP) have established Memoranda of Understanding (MOU) with nearby agencies (USDA Forest Service and Wisconsin Department of Natural Resources, respectively) that allow students to be hired temporarily for suppression activities (B. Oswald, SFA, personal communication; K. Miller, personal communication).

### *Common Successes*

The focus group likewise identified a number of successes. Participants described efforts at organizing NWCG wildland fire training for students. Some groups worked with county, state, or federal fire resources for traditional classroom and field training. Others used blended online and field exercise training events that provide greater flexibility for students with full-time academic commitments.

SAFE groups also identified working with area partners (county, state, federal, and private) as a contributor to accessing wildland fire training and fireline opportunities. One example recognized as highly successful was prescribed fire training exchanges. These multi-agency events, often organized by The Nature Conservancy, provide prescribed fire experience and training opportunities for career fire professionals and students alike.

## **DISCUSSION**

### *Training Integration*

Access to NWCG training opportunities is critical to the careers and aspirations of many students of fire ecology and management (Kobziar *et al.* 2009). This access is highly geographically disparate, with some state agencies providing easy access to training for non-professionals and others excluding all but career firefighters. Agencies, whether state or federal, can work better to externally advertise the

NWCG trainings that are being taught; SAFE chapters can work better to develop relationships and lines of communication with desired trainers. Where possible, integrating NWCG training into university coursework (e.g., Missouri State University, Springfield, USA; Fox Valley Technical College, Appleton, Wisconsin, USA; and Hutchinson Community College, Kansas, USA) or hosting trainings at the university (e.g., UWSP, UF) can provide a sustainable and reliable training opportunity. This method, however, in some areas necessitates memoranda of understanding (MOUs) between the hosting institution and the certifying body.

### *Equipment and Funding*

Investment by student groups in wildland fire equipment (e.g., drip torches, handtools, chainsaws, pumps) is limited due to high upfront costs, storage requirements, and ongoing maintenance expenses. The Association for Fire Ecology has provided a line item in their budget for supporting SAFE chapter activities through small grants, which also encourages chapters to find matching funding. This program has successfully funded investment in personal protective equipment, radios, and travel for training opportunities.

One method for developing equipment caches for student groups is the transfer of excess or outdated property from agencies to student groups. Although this has occurred at a few universities, it remains limited by liability concerns, lack of established donation procedures, and reluctance to reduce potentially still-useful inventory. These concerns may be ameliorated by well written MOUs that both address liability and outline procedures for long-term loans of equipment. Ultimately, there are little to no incentives for agencies to transfer or loan equipment to student groups. Formally recognizing agencies for their valuable contributions to enabling student fire training and opportunities may encourage this behavior by providing positive media coverage.

Another limit to student involvement in wildland fire activities and trainings is the potential for significant travel expense often incurred during participation. Many student fire groups lack consistent funding, and costs can quickly become prohibitive. Student groups can research low-cost transportation options, and institutional partners can provide less expensive, alternative housing (non-hotel) or camping opportunities for students.

### *Institutional Support*

Many chapters lack support from their home college or university, hindering their efforts to successfully find and access funding sources, engage in training and career development, and build relationships with partner agencies.

Groups need support both externally and internally. Internally, faculty and administrative engagement can help maintain momentum and provide continuity as student populations change. Faculty advisors to these groups can provide leadership development opportunities for members, contextualize fire management activities, and enable networking within the greater fire community. Administrators and staff can assist in the development and implementation of any needed paperwork, such as MOUs, risk management policies, and liability releases, as well as house financial accounts for student groups, managing the combination of university-provided and external funds.

Externally, fire professionals in different roles can also engage with student fire groups. Professionals can help provide fireline opportunities, NWCG training, and, when possible, issue Red Cards (Interagency Incident Qualification Cards, required by all US agencies in the National Interagency Fire Center organization before deployment on a wildland fire incident). Professionals also provide exposure to research beyond the classroom (e.g., the Missoula Fire Sciences Laboratory, Missoula, Montana, USA) and practical applications of ecologically oriented fire management. Al-

though not universal, some students described some fire professionals as being reluctant to integrate students into their prescribed fire or wildfire operations, believing that this opens their agency to liability. This liability can be mitigated through well written MOUs or, in some instances, by simply registering all student participants as volunteers for the agency.

### *Filling the Gap—A Win-Win Situation*

Student fire groups can provide a willing, enthusiastic, and, perhaps most importantly, inexpensive resource for professional fire agencies. As budget cuts reduce fuels management programs more than suppression, incorporating students can potentially help offset operational expenses (US Office of Management and Budget 2015). School calendars often coincide with prescribed fire seasons, and prescribed fires provide a controlled environment for fire training opportunities. By integrating students into prescribed fire operations, agencies can bolster their prescribed fire capacity while students obtain valuable experience. Ultimately, this results in a synergistic, mutually beneficial outcome: both groups achieve benefits without incurring significant financial costs. Although liability remains an issue that must be addressed, we believe that, through cooperation and sharing of success stories, student fire groups and fire management agencies can overcome institutional barriers.

### *Conclusions*

Student fire groups identified a series of common and overlapping successes and challenges, principally those involving lack of institutional support and difficulty accessing training, equipment, and funding. These findings were consistent across diverse respondents. Integrating student fire groups and professional fire management agencies can produce mutually beneficial partnerships that meet both educational outcomes and management objectives.

Increased cooperation between professional fire managers, student groups, and the academic community can help achieve many aligned goals. Ultimately, improving the education and training of students may help improve short- and long-term wildland fire ca-

capacity by supporting a “pipeline” of well informed, well trained practitioners. Cooperation, communication, and collaboration can mutually benefit these various groups and can help lead to healthier and safer wildlands in the future.

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