

## **University of Wisconsin-Stevens Point Fire Crew: Approaching Tomorrow's**

### **Problems with Today's Education and Training**

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### **Introduction**

The University of Wisconsin-Stevens Point (UWSP) Fire Crew is a student organization and a wildland firefighting organization. Our membership includes a diverse group of UWSP students, with majors in a variety of disciplines but predominantly; Forest Management, Ecosystem Restoration and Management, Wildlife Ecology, and Wildland Fire Science. The purpose of our presentation is to showcase the interactive relationship between the Fire Crew, the Wildland Fire Science Program, Wisconsin Department of Natural Resources and other partners and stakeholders. We also provide details about training activities, in the field experiences and how integrating science and management equips students for the challenges we will face as wildland fire professionals. .

### **Fire Crew Organization**

The crew has a set of officer positions that include a Crew Leader and his or her Assistant, Secretary, Cache Manager, Public Information Officer, Fire Effects Officer, Treasurer, and two Faculty Co-advisors. The crew has other positions with task books, which include Squad Boss and Burn Boss for crew members. Though officers act as the leadership on the fire line, the task books are open to anyone on the crew who seeks to help with leadership. We do have set

requirements that must be met for member involvement on the fire line. Members who hope to burn with us must acquire their basic FFT2 certification, perform a shelter deployment, and complete an arduous level Pack Test. Currently we hold around 40+ members that can participate in operations. Our crew structure is set up to give students the maximum amount of experience that is available.

## **Activities**

UWSP Fire Crew provides multiple opportunities such as performing prescribed fire operations for private landowners and the Wisconsin Department of Natural Resources (WI DNR) and has participants in various fire related faculty research projects.

Other activities include, writing prescribed burn plans, performing said burns during spring and fall, going on educational trips during winter and Spring Breaks, hosting professional speakers, and other miscellaneous workshops. The Fire Crew holds workshops dedicated to teaching students how to write effective burn plans which are frequently utilized for private landowners and also on public land such as state parks or nature reserves. We write burn plans with specific objectives that have clear ecological purpose. The window for opportunity to burn in central Wisconsin is fairly short, as we may only have three months of the school year without snow. While most of the burns we perform are in Wisconsin, we also get a chance to burn in different states. We have an annual trip to Florida every winter break where we burn with the Gold head State Park in Longleaf pine (*Pinus palustris*) dominated ecosystems. We also make a trip every spring break to Pushmataha Wildlife Management Area in Oklahoma which provides academic credit to participating students. On this trip, students are asked to determine ignition patterns, measure fuel loads and consumption, monitor fire behavior, examine fire effects, make weather observations, and also write a reflection paper about their experiences. We also do trips to the Cook County Forest Preserve District in the Chicago area to assist in operations for the city during spring break. These trips give students the opportunity to network, gain experience before applying for fire jobs, and understand variations of prescribed fire within several fuel types. The Fire Crew also hosts professional speakers including those from private companies, government organizations, and non-profit organizations such as the Nature Conservancy.

Other activities held include radio operation workshops, chainsaw projects, scouting trips to future burn plots, boot care, packing essentials for the fire line, resume and USAJOBS workshops, sand table exercises, tool sharpening, and flag fires. The officer core and students are constantly coming up with creative activities to prepare our firefighters for the field and getting them ready to fill professional positions. We also offer the opportunity for students to expand their knowledge of fire management and ecology by attending conferences around the country each year.

### **Mutual Aid**

The Fire Crew has a mutual aid agreement with the Wisconsin DNR that provides us with federally certified instructors to enhance our training as students while they are receiving a local firefighting resource to assist them with wildfire suppression and prescribed burn operations. We provide basic fire certification training twice a year with student lead sections at our outdoor hands-on training sessions. The fall class allows for credit through the university and spans 16 weeks while the spring course is offered over two weekends of class work, totaling 80 hours. Once participants complete the course, the DNR can then benefit from their training by allowing them to work on wildfire suppression assignments and prescribed burns. The fire crew acts as a local dispatch center for the Whiting and other Ranger districts near Stevens Point that need extra staffing during high fire danger. Each crew member that works with the DNR must log their own mileage and time and fill out an activity log for all duties performed on shift. The Fire Crew also provides several other NWCG fire certification courses throughout the school year including; S - 212 Wildland Fire Chain Saw, S - 211 - Portable Pumps and Water Use, S-131-Firefighter Type 1 Training, S-133 Look Up, Look Down, Look Around, S-230 Crew Boss Training, S-219 Firing Operations, S-270 Air Operations, and S-290- Intermediate Wildland Fire Behavior. These courses allow students to have a competitive advantage in the field before they graduate.

We not only have an emphasis on technical training, but scientific training as well, by bringing the classroom to the field through hands on experiences such as fire effects monitoring using pre and post burn vegetation surveys, seed bank analysis, fire behavior monitoring including fuels measurements, fire intensity, flame lengths, and smoke impacts on fire fighters.

Similarly, we bring the field to the classroom by inviting professionals from the fire science community to present new research, techniques, and improvements at our weekly meetings.

## **Fire Ecology**

Combining the hands on experience acquired with field training, the Fire Science curriculum at UWSP is educating the future fire managers of America with a strong emphasis on ecology and restoration. Our program has recently been accredited by the Association of Fire Ecology (AFE) and therefore allows our graduates to become AFE certified fire managers and ecologists. The core courses of the Wildland Fire major listed below incorporate a strong understanding of the ecological role of fire within various ecosystems.

Courses\* such as;

- FOR224 - Fire Operations which is our basic certification course (S-130,S-190,L-180)
- FOR324 - Fire Management and Ecology - Phenomenon of fire; its physical and chemical effects and historical significance. Behavior and effect of wild and prescribed fire in temperate forests. Techniques for planning, conducting, and evaluating prescribed burns.
- FOR450 - Fire Policy Suppression and Use - History of wildland fire policy development in the U.S. and selected other countries. Fire suppression strategies, wildland fire use including smoke management, wildfire education strategies, and fire in the wildland urban interface. Use and limitation of computer models for fire danger information systems, suppression, and management.
- NRES454 - Fire Behavior and Fuels - Combustion process and physics of fire related to various fuels in the fire environment. Fire behavior, fuel measurement, and fuel modeling systems. Ecology of fuels, including moisture dynamics related to weather.
- NRES 455 - Advanced Fire Ecology - Fire as a fundamental ecological process emphasizing ecosystem dynamics in North American grasslands, shrublands, and forested systems with selected global examples from other ecosystems. Fire adaptations, regimes, seasonally and fire frequency effects on animal and plant communities, air, soils, and water and the role of fire in the environment.

- NRES 459 - Ecosystem Restoration and Management - Methods for managing and restoring ecosystems for biological diversity and sustainable use. Understanding the role of disturbance, such as fire, as an integral part of ecosystem health and function.

\*Class descriptions acquired from the UWSP course catalog

Outside of the classroom, UWSP Fire Crew has a dedicated fire effects officer (FEO) position to monitor and study the ecological impacts of prescribed burns performed by the Fire Crew. The duties of this position include collecting pre and post burn vegetation surveys, fuel consumption data, and monitoring fire behavior characteristics such as intensity, flame lengths, rate of spread, and smoke dispersal. Another responsibility of the FEO is to coordinate member attendance at fire ecology conferences, such as this one, through our student chapter of AFE, which awards travel grants to Fire Science students. When our members attend conferences the information learned will be shared with other students through a presentation given at our weekly meetings. This keeps us updated on new topics being introduced in the wildland fire community.

Another key responsibility of the FEO is to establish and coordinate various research projects with the help of interested students. He or she also must collaborate with other student organizations such as the Society of Ecological Restoration to assist in research goals and data collection. Research topics include effects of prescribed fire on: encroachment of woody vegetation into an oak savanna, habitat restoration for the federally endangered Karner Blue butterfly (*Lycaeides melissa*), and seed bank composition changes under varying treatments of prescribed fire. Experimental design is generated by students under the guidance of faculty advisors to create complete scientific reports with viable data to present at our undergraduate research symposium. Having this experience to produce professional research at this level is preparing students for a graduate level degree in fire ecology. Currently, there is also research being done by the chemistry department at UWSP on the risk of different levels of exposure to smoke on wildland firefighters.

The overall goal of the Fire Crew and the UWSP Wildland Fire Science program is to promote student education and training to become wildland fire professionals that lead by example and support fire management decisions with scientific data. This is being achieved by

students, faculty members, and current professionals working collaboratively to approach tomorrow's problems with today's education and training.

We are on the precipice of a dynamic future that will need fire managers and fire ecologists as much as firefighters and here at UWSP we are developing students of fire to approach upcoming issues in new and inventive ways.