

*International Association of Wildland Fire 4<sup>th</sup> Fire Behavior and Fuels Conference*  
**CROWN FIRE BEHAVIOR IN CONIFER FORESTS WORKSHOP**  
February 18, 2013 – Raleigh, NC

**AGENDA**

**0800 – 0820 h Introduction – Marty Alexander**

- JFSP Project Background and Websites
- Results To Date and Planned Products
- Workshop Objectives

**0820 – 0930 Workshop Icebreaker – Nicole Vaillant**

- Review & Discussion of Crown Fire Photos of Workshop Participants

**0930 – 1000 General Background Information on Crown Fires – Marty Alexander/Miguel Cruz**

- Significance
- Fire Behavior Fundamentals
- Nature, General Features and Classification
- Fire Environment Features

**1000 – 1030 Break**

**1030 – 1100 Crown Fire Initiation and Sustained Propagation – Miguel Cruz/Marty Alexander**

- Physical processes
- Existing models and theories

**1100 – 1130 Crown Fire Characteristics – Marty Alexander/Miguel Cruz**

- Crown Fire Rate of Spread and Intensity/Flame Size
- Crown Fire Spread Distance and Fire Size (Area and Perimeter)
- Other Crown Fire Phenomena

**1130 – 1200 Operational Prediction of Crown Fire Behavior – Miguel Cruz/Marty Alexander**

- Fire behavior prediction process, limitations and assumptions
- Canadian, American and Australia models, systems and modelling systems

**1200 – 1300 Lunch**

**1300 – 1330 Applications of Crown Fire Behavior Knowledge – Miguel Cruz/Marty Alexander**

- Assessing effectiveness of fuel treatments in reducing crown fire potential
- Modelling the impacts of fire behavior on serotinous cone opening

**1330 – 1400 Future Outlook to the Understanding and Prediction of Crown Fire Behavior – Marty Alexander/Miguel Cruz**

- Outstanding Research Needs/Knowledge Gaps
- The Solitudes to Model Development
- Conducting Experimental Fires and Operational Prescribed Fire Opportunities

**1400 – 1445 Thoughts on Wildfire Behavior Observation and Documentation – Nicole Vaillant**

- Adaptive Management Services Enterprise Team Experiences

**1445 – 1500 Closing Comments – Marty Alexander**

## WORKSHOP OBJECTIVE & DESCRIPTION

The goal of this workshop is provide participants with a summary of the results emanating from the Joint Fire Science Program sponsored project “Crown Fire Behavior Characteristics and Prediction in Conifer Forests: A State of Knowledge Synthesis” (JFSP 09-S-03-1) that began in October 2009.

The current state-of-knowledge with respect to crown fire initiation and propagation in relation to fuel complex characteristics and surface weather conditions will be described with time for questions and discussion. Workshop participants will also have the opportunity to share their experiences and observations regarding crown fires, including thoughts on future research needs and knowledge gaps. Participants will be asked to submit a color photo of a crown fire to be projected during the workshop and be prepared to orally provide a short description of the image. The instructors will elicit input on fuels and fire behavior characteristics that are unique to the southern United States in regards to crown fire behavior in conifer forests.

## WORKSHOP INSTRUCTORS

Dr. Marty Alexander is currently an adjunct professor of wildland fire science and management at the University of Alberta (and Utah State University) after having retired from a career in fire research with the Canadian Forest Service (1976-2010) in which he specialized in fire behavior with a particular emphasis on crown fires. Dr. Miguel Cruz is a senior bushfire research scientist with CSIRO in Canberra, Australia and has extensive field and modelling experience with crown fire behavior in both conifer forests and tall shrubland fuel complexes. Dr. Nicole Vaillant is a fire ecologist with the USDA Forest Service specializing in fuel treatment planning and fire behavior modelling.

Martin E. Alexander

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Nicole M. Vaillant

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## PROJECT WEBSITES

<http://www.fs.fed.us/wwetac/projects/alexander.html>

[http://www.firescience.gov/JFSP\\_advanced\\_search.cfm](http://www.firescience.gov/JFSP_advanced_search.cfm)

(select “Alexander, Martin E.” for Researcher Name, then select

“Crown Fire Behavior Characteristics and Prediction in Conifer Forests: A State of Knowledge Synthesis”)



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