



# Seminar Series

Date	Speaker - Affiliation	Seminar Title	Host	Video Recording
Feb 6	<a href="#">Kristy Pilgrim</a> Rocky Mountain Research Station	<a href="#">An Overview of wildlife genetic research conducted by the RMRS Wildlife Genetics Lab</a>	Heyerdahl	
Feb 13	<a href="#">Tyron Venn</a> University of Montana	<a href="#">Mandatory evacuation is the most economically efficient bushfire risk mitigation strategy for south east Australia</a>	Heyerdahl	<a href="#">View Recording</a>
Feb 21* <b>FRIDAY</b>	<a href="#">Ben Poulter</a> Montana State University	<a href="#">Interdisciplinary applications of global terrestrial carbon cycle models</a>	Hao	<a href="#">View Recording</a>
Feb 27	Ryan Leach National Weather Service	<a href="#">Weather forecast verification for fire behavior predictions</a>	Heyerdahl	<a href="#">View Recording</a>
Mar 6	<a href="#">Kelsey Jencso</a> University of Montana	<a href="#">Hydrology of the Tenderfoot Creek Experimental Forest</a>	Keane	<a href="#">View Recording</a>
Mar 13	<a href="#">Ray Callaway</a> University of Montana	<a href="#">Exotic invaders, community diversity, and ecosystem productivity</a>	Lee	<a href="#">View Recording</a>
Mar 20	Karen Short Rocky Mountain Research Station	<a href="#">Sources and implications of bias and uncertainty in a century of US wildfire activity data</a>	Lee	<a href="#">View Recording</a>
Mar 27	Jose Maria Fernandez Alonso (Chema), Forest Research Center of Lourizán (Pontevedra, Spain)	<a href="#">Susceptibility to crown fire of pine stands in Northwestern Spain</a>	Parsons	<a href="#">View Recording</a>

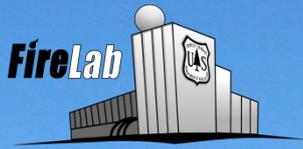
Please see page 2 for Seminars offered in April 2014



# Seminar Series

Date	Speaker - Affiliation	Seminar Title	Host	Video Recording
April 17	<a href="#">Sean Parks</a> <i>Rocky Mountain Research Station</i>	<a href="#">Wildfire as a fuel treatment, fire regime mapping, and other musings</a>	Heyerdahl	Not Available
April 24	<a href="#">Lisa Eby</a> <i>University of Montana</i>	<a href="#">Fire and Trout: Lessons from wildfires over the last two decades</a>	Holsinger	<a href="#">View Recording</a>





# Seminar Series



**Kristy Pilgrim,  
Rocky Mountain  
Research Station**

**Date: February 6, 2014**

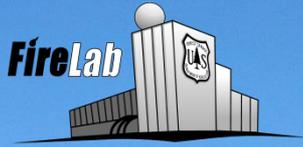
**Time: 11:00 AM-12:00 PM**

**Where: The Fire Science Lab  
5775 West U.S. HWY 10,  
Missoula, MT 59808.**

For more information, please contact  
[missoula\\_firelab\\_seminars@fs.fed.us](mailto:missoula_firelab_seminars@fs.fed.us) or  
visit [www.firelab.org](http://www.firelab.org)

## **An Overview of wildlife genetic research conducted by the RMRS Wildlife Genetics Lab**

This talk will provide an overview of some of the techniques used and applications of wildlife genetic research conducted by the Rocky Mountain Research Station's Wildlife Genetics Lab. The Wildlife Genetics Lab works on a variety of species whose management are incorporated into many Forest Plans and the lab provides information and supports research on many of these species including lynx, wolverine, black-backed woodpeckers, fisher and marten. A case study of cougars will be used to illustrate some of the genetic techniques used.



# Seminar Series



**Tyron Venn,**  
**University of Montana**

**Date: February 13, 2014**

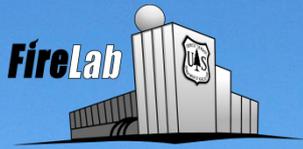
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## **Mandatory evacuation is the most economically efficient bushfire risk mitigation strategy for south east Australia**

Given the large and increasing bushfire threat to lives and property in Australia, there is a need for economic evaluation of risk mitigation strategies that can be implemented by governments and homeowners. Three broad strategies for existing at-risk communities are evaluated: expanded use of prescribed fire; treatment of fuels within the home ignition zone (HIZ); and early evacuation on extreme fire danger days. All three strategies are expected to substantially reduce expected annual bushfire fatalities, and prescribed fire and HIZ treatment are expected to substantially reduce expected annual house losses. However, no strategy is found to be economically efficient. Early evacuation is the least inefficient (best) strategy and is the most cost-effective at saving lives. When coupled with the fact that substantially more Australians have been killed by bushfires when not attempting to evacuate than when evacuating late, this analysis raises serious questions about the economic efficiency and cost-effectiveness of contemporary Australian bushfire policy that permits residents to stay and defend their homes.



# Seminar Series

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**Ben Poulter,**  
**Montana State**  
**University**

**Date: February 21, 2014**

**--Friday--**

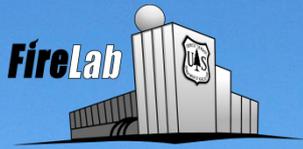
**Time: 11:00 AM-12:00 PM**

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## Interdisciplinary applications of global terrestrial carbon cycle models

Terrestrial carbon cycle models, or dynamic global vegetation models (DGVMs), have long been used to estimate biogeochemical and biophysical feedbacks to climate. At their core, DGVMs represent vegetation and landscape dynamics using process-based representations of photosynthesis, carbon allocation, stand dynamics, fire etc... Given the detailed level of ecological information, DGVMs can be applied to a wide range of environmental problems beyond the carbon cycle, including studies of species migration, hydrology, fire, grazing, land management, for example. I will present an overview of the principles of DGVM models, recent applications and why landscape-scale applications can provide a novel perspective to advance our understanding of the earth system at both local and global scales.



# Seminar Series

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**Ryan Leach,  
National Weather Service**

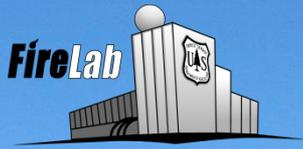
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**Date: February 27, 2014**  
**Time: 11:00 AM-12:00 PM**  
**Where: The Fire Science Lab**  
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## Weather forecast verification for fire behavior predictions

Interpret results from a verification study of the NDFD grids from the local Missoula Weather Forecast Office and the implications for fire behavior forecasts that use NDFD data. Afternoon temperature, minimum humidity, and winds are investigated specifically, and the effects on a fire behavior forecast are evaluated with BehavePlus. The results have implications for some fire behavior models run from WFDSS, especially those that use wind forecasts from the NDFD.



# Seminar Series

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**Kelsey Jensco,  
University of Montana**

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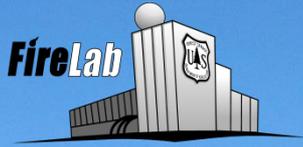
**Date: March 6, 2014**

**Time: 11:00 AM-12:00 PM**

**Where: The Fire Science Lab  
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**Hydrology of the Tenderfoot Creek Experimental  
Forest**



# Seminar Series

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**Ray Calloway,**  
**University of**  
**Montana**

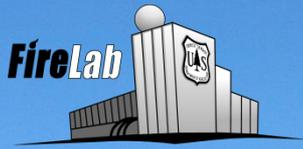
**Date: March 13, 2014**

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**Exotic invaders, community diversity, and  
ecosystem productivity**



# Seminar Series

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**Karen Short,  
Rocky Mountain  
Research Station**

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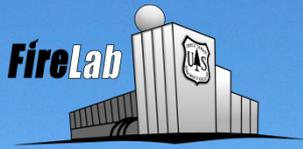
**Date: March 20, 2014**

**Time: 11:00 AM-12:00 PM**

**Where: The Fire Science Lab  
5775 West U.S. HWY 10,  
Missoula, MT 59808.**

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**Sources and implications of bias and uncertainty in  
a century of US wildfire activity data**



# Seminar Series

**Jose Maria Fernandez  
Alonso (Chema), Forest  
Research Center of  
Lourizán (Pontevedra,  
Spain)**

**Date: March 27, 2014**

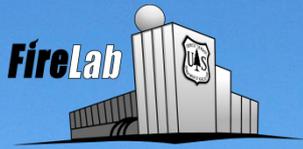
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## Susceptibility to crown fire of pine stands in Northwestern Spain

The objective of the seminar is to present Chema's PhD work, which is focused on conditions for crown fire initiation and spread in pine stands in Galicia (Northwestern Spain). This region is one of the areas where most fires occur in Europe. Between 1999 and 2008 8.5% of the tree covered area in the region was burned. More than one third of the tree-covered area in Galicia comprises pure and even-aged pine stands. This research work involves the characterization of fuel complex structure in pine stands, the validation and testing of available crown fire behavior models studying burned areas and carrying out small fire experiments, the analysis of the efficacy of fuel treatments to reduce the likelihood of crowning fire by means of simulation and the assessment of potential weather factors limiting the efficiency of fuel treatments.



# Seminar Series

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**Natalie Wagenbrenner,  
Rocky Mountain  
Research Station**

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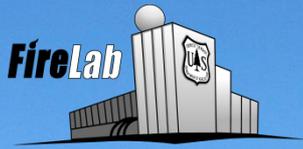
**Date: April 3, 2014**

**Time: 11:00 AM-12:00 PM**

**Where: The Fire Science Lab  
5775 West U.S. HWY 10,  
Missoula, MT 59808.**

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**Evaluation of a high-resolution wind model with  
near-surface wind observations from an isolated  
mountain and a steep river canyon**



# Seminar Series



**Sean Parks,  
Rocky Mountain  
Research Station**

**Date: April 17, 2014**

**Time: 11:00 AM-12:00 PM**

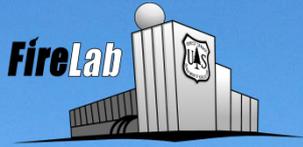
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## Wildfire as a fuel treatment, fire regime mapping, and other musings

Wildfire is arguably one of the most important and widespread natural disturbance agents in western U.S. forests. It has a substantial impact on ecosystem structure and function by influencing soils, nutrients, carbon budgets, wildlife habitat, and vegetation. Wildfires also influence fuel amount, type, and structure, potentially influencing the severity and size of subsequent wildfires through site- and landscape-level feedback mechanisms. Until relatively recently, the ability to quantitatively evaluate how these feedback mechanisms operate has not been feasible because of data limitations (i.e. there has not been enough wildfire). However, due to increased fire activity over the last ~25 years, there are a number of examples of wildfires “interacting” with subsequent fires, where a wildfire either burns within the perimeter of a previously burned area (i.e. it reburns) or burns up to (but not in to) a previously burned area. This recent surge in fire activity, along with increased availability of remotely sensed data, now makes it possible to evaluate how wildfires influence subsequent fire severity and size over large landscapes. Because some studies have suggested that extreme weather conditions may decrease the strength of the feedback mechanisms associated with interacting fires, evaluating the influence of weather on such relationships is increasingly important, especially given that climate change is expected to result in more extreme weather events.

This seminar is composed of three loosely-knit projects. The first quantifies how previous wildfire influences the severity of subsequent fires. For the second project, I develop and evaluate several approaches to estimate day-of-burning for each point within a fire perimeter using coarse-resolution MODIS fire detection data. Knowing the day-of-burning is essential in order to evaluate the influence of observed weather (e.g., from a nearby weather station) on observed fire-related effects, such as smoke production or the previously mentioned feedback mechanisms of fire. The third project evaluates the ability of wildfire to act as a fuel break by limiting the extent (i.e. size) of subsequent fire; I was also able to evaluate the influence of weather in weakening the strength of this feedback.



# Seminar Series



**Lisa Eby,**  
**University of Montana**

**Date: February 6, 2014**  
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## Fire and Trout: Lessons from wildfires over the last two decades

Wildfire often results in striking changes to the landscape and consequently we historically considered that it would have negative effects on and pose serious risk to trout populations in the West. But to date, empirical evidence of negative effects on fish populations from wildfire has been equivocal. The immediate effects of fire are variable and lethal events are localized and patchy. Typically these events are only problematic for fish populations that are already small and fragmented from anthropogenic habitat loss, such as the Gila trout in the southwestern US. Very few studies have examined the decadal scale effects of fire on fish populations, but severe fire can alter stream habitat for decades. Loss of vegetation can result in increased fine sediment loading, warmer water temperature associated with reduced riparian shading, as well as increased nutrient loading. Not surprisingly studies in Oregon and Idaho, US have demonstrated increased growth in young trout after fires. In several sites across the Rocky Mountain region, we see elevated water temperature 1-3°C persisting over a decade after the fire. This is concerning as trout species in this region exhibit temperature-dependent competition with nonnative species typically “winning” at warmer temperatures. To explore these concerns, we examined changes in the trout populations after extensive wildfires in the Bitterroot Basin, MT in sites with and without severe wildfire over the last 12 years. In the Bitterroot Basin, large wildfires in 2000 burned 1184 km<sup>2</sup> in a complex mosaic that varied in severity. Intense thunderstorms in late July 2001 triggered flash floods and debris flows in several burned drainages, resulting in substantial channel scouring, high sediment inputs, and localized fish kills. Post-fire native cutthroat trout density was negatively correlated with the proportion of basin area that burned at moderate to high severity, but recovery of cutthroat trout was generally rapid in severely affected reaches. Over a decade later cutthroat are abundant throughout the basin and more densely populated at sites that previously burned. Additionally, there was low to no impact on native bull trout associated with fire. Even though it appears bull trout are slowly declining, it is unrelated to fire. Exotic brook trout exhibited the most severe declines in reaches influenced by debris flow. In all but one of these populations, brook trout have yet to recover over a decade later. Thus, native fish in these connected ecosystems are resilient to wildfire.