

Title: Where are the Weeds? Monitoring Weed Response Following the 2005 School Fire, Umatilla National Forest, WA

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Weeds are notorious for their response to disturbance, tend to sprout up everywhere, and outlast their welcome. Unintentional weed spread may occur via fire suppression and post-fire rehabilitation activities. Following the 2005 School Fire which burned ~ 50,000 acres across forest and grasslands, managers were particularly concerned with treating areas that were severely burned to control soil erosion and to mitigate weed spread. Pete Robichaud teamed up managers on the Umatilla National Forest (UNF) and the School Fire Burned Area Emergency Response (BAER) team to use this opportunity to address relevant management issues such as treatment effectiveness over time and weed response. According to Robichaud, “It is a great opportunity to apply our existing post-fire knowledge and experience to this particular fire”.

Robichaud is a Research Engineer at the Forest Service Rocky Mountain Research Station (RMRS) in Moscow, Idaho. This is not the first time that Robichaud has utilized support from the Joint Fire Sciences Program (JFSP) and teamed up with other scientists to rapidly respond to managers’ questions and to collect time-sensitive post-fire data. Robichaud is collaborating with Andy Hudak, Sarah Lewis, and Debbie Page-Dumroese, also at RMRS, and Penny Morgan and Leigh Lentile from the University of Idaho (UI) on the School Fire project. This interdisciplinary team is working with managers from the UNF and Washington Department of Natural Resources to take advantage of their collective expertise of pre-fire conditions and management history of these burned forests. This collaboration is essential to understand the post-fire soil and vegetation response, particularly of non-native and invasive weed species.

After the fire, various mulching and native seed treatments were implemented to control erosion and improve native re-vegetation. The native seed collection program on the UNF and subsequent application of ~ 30,000 pounds of seed on severely burned slopes was unprecedented, providing a unique opportunity to monitor native plant recovery, as well as weed spread. The research team is using a combination of field-based and remotely sensed techniques

to detect and monitor weed spread. The team partnered with the UNF to acquire high resolution (1-m), multi-spectral, Quickbird satellite imagery collected immediately and one-year after the fire. To date, the team has installed ~ 200 monitoring sites across a range of vegetation types and burn conditions on the School Fire.

This research, in addition to studies in other post-fire locations is addressing specific weed-related questions:

- 1) How do weeds respond to the severity of the burn?
- 2) How do weeds respond to the various post-fire treatments including native seed, straw mulch, wood straw, and hydromulch applications?
- 3) How do post-fire treatments affect soil biology such as the microbial activity, and will native plant recovery be affected?
- 4) How does salvage logging affect invasive weed response?

Last November, over 30 UI Fire Ecology and Management students visited with researchers and managers (e.g. Monte Fujishin, Pomeroy District Ranger) on the School Fire and adjacent Columbia Complex Fire. This field trip is one of many activities planned to increase awareness of fire-related management decisions. In addition to peer-reviewed publications, onsite managers' workshops are planned for the Umatilla National Forest, in Pomeroy, WA and Pendleton, OR. The goal of these workshops will be to keep forest managers up to date with the research team's progress, preliminary results, and planned activities on the Forest. These meetings will provide for quick dissemination of information to land managers and BAER teams related to invasive weed response and post-fire treatment decisions.