

Prepare to Handle Post-fire Weed Explosion Within Two Years of a Fire

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The rangeland management specialists on the Helena National Forest don't play with fire, but they do use prescribed burns to supplement their invasive species management and learn more about fire's effects on weeds. Jay Winfield, rangeland specialist on the Helena and Lincoln Ranger Districts in Montana, says they know that fires promote weed growth and spread. Forbs usually come back first after a fire and most invasives are forbs. "We see a doubling in density of some species such as Dalmatian toadflax."

"You must be ready to handle this explosion and do the control work within two years of a fire because this window of opportunity is when your post-fire herbicide treatments are most effective." In recent trials, Helena range specialists treated Dalmatian toadflax in the fall with Tordon* 22K herbicide at rates from 0.25 lb per acre to

0.5 lb per acre. The following spring they burned the area and repeated the herbicide applications. "On shallow soils inhabited with blue bunch wheat grass, we achieved good control. Heavier soils vegetated with rough fescue displayed excellent control results," Winfield explains.

"The Cave Gulch fire burned during the summer of 2000 on the Helena National Forest. This fire burned with high intensity with lethal effect to most of the vegetation in the path of the fire. The Cave Gulch fire burned into this area that had been prescribed burned and chemically treated within the past two years. Once the fire perimeter reached the previously managed area, the fire burned with reduced intensity and at a much slower rate of spread. The fuel reduction area actually stopped the Cave Gulch fire in some areas, forcing the fire to burn around the previously treated area. So we look at prescribed fire and the wildfires as an opportunity to get ahead of weeds, but you have to be prepared to follow up with aggressive herbicide treatments following fire. And you must plan ahead to reduce the role fighting wildfires play in spreading invasives," he explains. Following are operational techniques that will minimize invasive species spread:

Pre-fire Planning:

1. Pre-establish base camp locations for each mountain range and coordinate these locations with the forest service, state

forests, private landowners, the Department of Agriculture, and Department of Natural Resources and treat these accordingly.

2. Pre-establish heli-bases and heli-landing staging areas before the fire season. In timber, these sites are limited, so they are easy to designate.

3. Monitor and manage invasive species infestations on these sites so they are weed-free before they are used to fight fires. "On the Boulder Hill fire this past summer, spotted knapweed was scattered throughout base camps on U.S. Forest Service and private properties," Winfield states. "All base camps power-wash equipment, but this is somewhat futile if you are washing in weedy areas."

4. Flag off high-infestation, high-risk areas on fire maps.

5. It's critical to conduct invasive species inventories by mountain range or geographic area, then monitor and treat these areas before they burn.

6. Target your education efforts to experienced fire fighters regarding weed ID and the weeds' effects so they don't spread species such as houndstongue on their clothing and packs. Direct these fire fighters to then inform supplemental crews about weeds.

During the Fire:

1. If possible, determine the intensity and duration of the fire. This helps predict where weeds might occur after a fire. Fires change the hydrophobic condition of the soils so they shed water more because the



organic bonding capability is reduced. After a fire, more sunlight reaches the soil and the litter component that aids in moisture retention is removed. These conditions predict high-risk areas for weeds after a fire.

2. Make fire management teams aware of where you have treated weeds, made biological releases, or performed other weed management. At times they can move fire lines away from and minimize soil disturbances in these areas if they are informed ahead of time.

Post-fire Management:

1. Verify your mapping and step up your monitoring after a fire so weed outbreaks are caught early and their management cost is covered in your budget.

2. Increase treatments if possible. The first two years are critical after a fire.

3. Re-vegetation work must go hand-in-hand with weed treatments.

4. If non-native grass species already exist on a site, they may be the best choice for initial re-vegetation work since they are

more competitive than many native species. Decisions should be made site by site after field inspection.

5. Monitor all treatments and plan for re-treatments as needed.

6. Minimize human disturbances such as ATVs, snowmobiling, and even non-motorized uses to lessen weed spread and introduction from the outside.

7. Educate the public to avoid recreating in burned areas so they don't undermine weed treatments and re-vegetation work.



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