



Resource Bulletin

Fire and Invasive Weeds

Taking Advantage of Disturbance

Wildland fire is a natural process that often rejuvenates native plant communities. However, a downside can be the invasion of exotic plants. These invasive weeds are non-native plant species that reproduce quickly and are so aggressive that they can displace native plants even in intact native communities. The spread of invasives after a fire is a major concern for park botanists and fire managers.

Disturbance creates an ideal environment for invasive plants for several reasons. The most obvious is that they have less competition. Fire impacts the native plants, which are often slower to regenerate after a fire than the non-natives. The intruders are opportunistic species that can often grow faster and out-compete the native plants of an area. In addition, since none of the natural predators, pathogens, or diseases of an invasive is likely to be present in its new environment, it does not have the stresses that native plants have while trying to become re-established.

Fire often releases nutrients into the soil that encourages new plant growth. This “energy boost” favors species that respond most quickly. Also, many invasive weeds increase seed production after a fire. Some weeds reproduce from their roots. If the deep roots of weed species were already present before a fire and are undamaged, the plants will begin to grow again almost immediately, without even the need for seed production. Some species can resprout, flower, and set seeds within 6 weeks of a fire, while most native vegetation is dormant and does not produce seed until the following season. If invasive weeds man-



St. Johnswort is one of fourteen noxious weeds on the category 1 list for Montana. Besides competing with native plants, this invasive has toxic leaf oils that can cause anything from blisters to death to foraging animals.

age to become established before the native plants of an area have a chance to grow, they can take over the entire area. The more established weeds are allowed to become, the more difficult they are to get rid of at a later date.

Fire Fighting Carriers

While invasives already have several advantages over native plants after a fire, their advantage can be compounded by the fire-fighters themselves. Often, fires take place in areas previously uncontaminated by invasive weeds. However, fire fighters can bring seeds from invasive plants into these areas on their clothing, boots, vehicles, and equipment. The newly burned area is perfectly primed to receive these seeds.

When fires occur in places that already had a population of invasive weeds, there is most likely a viable seed bed. In this case, invasives may take over after a fire despite the efforts of even the most conscientious fire team.

Depending on the type of equipment a fire fighting team uses, the risk of bringing in invasive plant seeds can be large or small. There are also methods of decontaminating equipment and people before they enter and after they leave a burn site.

Glacier National Park employs methods to decontaminate equipment used during a fire and limits the kinds of equipment used by fire teams to reduce the risk of invasive weed infestations. Although fire crews most likely do



Glacier National Park has a native plant nursery to grow fragile native plants for transplanting within the park.

not have invasive weeds first in their minds, a careful crew can drastically reduce the spread of weeds after a fire.

Glacier's Management Strategy

There are many different strategies available to combat invasives after fires. Some advocate a great deal of interference in the natural regeneration of the area, by reintroducing native plants and other methods. Glacier National Park, following a general strategy of noninterference, does not use such a policy if at all possible. Often, if kept as clear as possible of invasive plant seeds, a recently burned area will begin to regenerate on its own, and native plants will become reestablished. However, if there is an infestation of weeds, appropriate measures must be taken.

Fires also allow an unusual opportunity for control of invasive weeds. Since the ground

is relatively bare and weeds usually begin to sprout faster than native plants, they can be easily controlled without as much concern for impacting natives. If there is an infestation, the weeds can be removed at an early stage by hand pulling or with the use of herbicides if there is a large infestation. Monitoring of recently burned areas is a very important step in weed control. Monitoring takes place in areas where noxious weed infestations occurred before a fire and where fire suppression activities took place.

Prevention is considered the most important and most effective method of stopping the spread of invasive plants in the park. By attempting to prevent seeds from being introduced into new areas and quickly managing any infestations that do arise, the much greater difficulty of attempting to remove large populations of invasive plants is avoided. While the task is still daunting, the spread of invasive weeds in the park is held back, even with sometimes frequent wildland fires.



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Resources for More Information

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Documents and web sites:

Reducing the Spread of Invasive Exotic Plants Following Fire in Western Forests, Deserts, and Grasslands: online abstract: http://jfsp.nifc.gov/invasive%20publications/trs_22pr_08_102_103_c.pdf

Center for Invasive Plant Management:
www.weedcenter.org USDA Forest Service Fire Effects Information System: <http://www.fs.fed.us/database/feis/>

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A park employee sets up a knapweed study plot.