



Example property shows

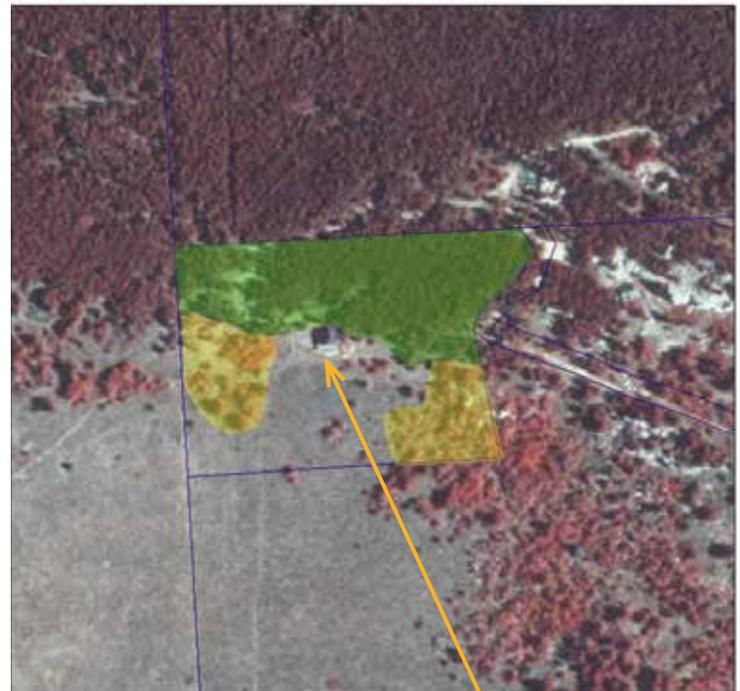
Preexisting vegetation, wildfire severity, erosion potential – all tie into choices you may make after a wildfire. This example wildfire property description shows how these factors interact.



Lodgepole pine forest before the fire

Before the wildfire:

The landowner's cabin was in the middle of the site. The mid- and southwest section of the property consisted of mixed sagebrush and grassland. Mature, dense, lodgepole pine, limber pine, and Douglas fir dominated the rest of the property. Sagebrush and conifers were encroaching into the two aspen stands. Canada thistle, an aggressive weed, was found in small, isolated patches. The soils and topography gave portions of the site a moderate to severe erosion hazard.



Legend

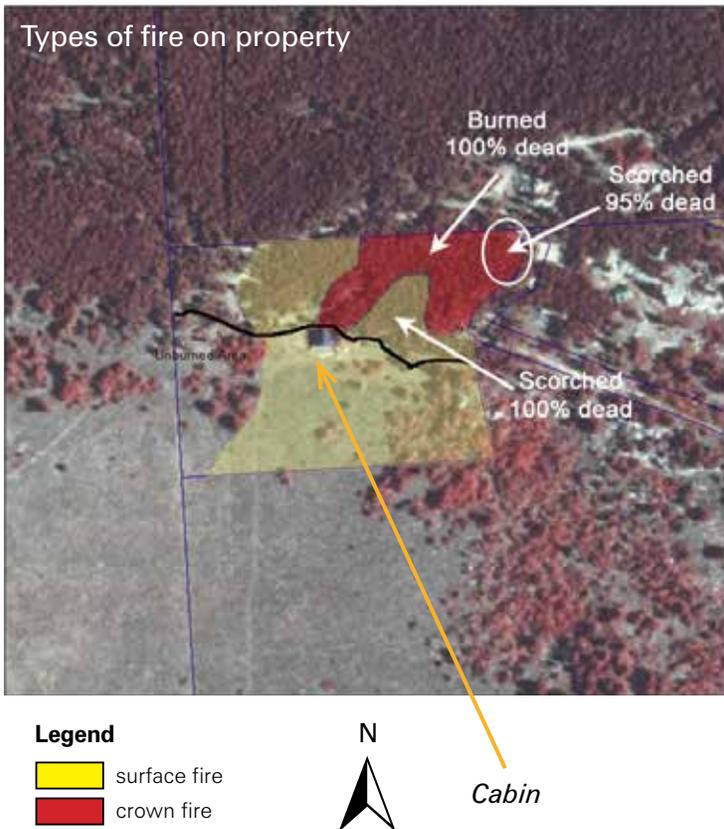
-  lodgepole pine
-  aspen



Cabin



CONSIDERATIONS FOLLOWING WILDFIRE



The Fire:

A fire occurred at the site in early April. All plants were dormant except for coniferous trees (lodgepole, limber pine, and Douglas fir). The southeastern aspen stand was consumed as were all of the grassland and sagebrush areas. Only a few trees were burned in the western aspen stand. A deep fire line was cut by firefighters in the southwestern corner of the property in the grassland area. The lodgepole pine forest was exposed to crown fire (fire that reaches the canopy of trees), which kills and consumes trees outright, and to surface fire (fire which does not burn the canopy but can scorch canopies and tree trunks). A heavy snowfall occurred after the fires. Since then, little precipitation has fallen. The landowner's cabin was destroyed.

After the Fire:

From the landowners' perspective, the wildfire was devastating – it consumed most of their trees and their cabin. From a natural resource perspective (depending on the goals for the property), the fire may be beneficial in the long-run due to the preexisting conditions. Each vegetation type (coniferous forest, aspen forest, and grassland) within the landscape appeared to be declining due to old age and/or encroachment from competing vegetation.

The forested (conifer and aspen) portion of the area was regenerated about 130 years ago as the result of a stand-replacing fire. The grassland portion of the area had not been regenerated for many years. Consequently, sagebrush had come to dominate the meadows.

Grassland

After the fire in that area, the grassland area quickly rebounded due to the nature of the fire, which did not destroy the roots of the grasses and forbs. The snowfall that followed the fire provided water that helped them re-sprout and grow quickly after temperatures warmed. The sagebrush plants were killed. This will free up resources (sunlight, nutrients, water) for the grasses and forbs. After consulting with the landowners on the goals for the property and viewing the regrowth two months after the fire, natural resource experts recommended that, for now, the landowners just monitor most of this area of the property. Unless the landowners start to see existing plant populations decline and significant erosion, no further action would be needed.

In the southwestern corner of the property, firefighters cut a deep fire line, which dug up all roots, and plant life was destroyed. A berm and other debris from creation of the fire line were also present after the fire. Based on the slope and nearby Canada thistle populations, erosion and weed invasion were concerns. The landowners were advised to scatter the dirt and other debris from the berm back into the fireline. This will help minimize the scar and reduce erosion. Because the slope was significant and the fireline was running almost parallel with it, the landowners were also advised to install waterbars to move runoff away from the fireline. These could be created with trees on the property that were killed in the fire and which the owner planned to remove. The trunks could be laid perpendicular to the slope and would function as waterbars/sediment traps.

Resource experts suggested reseeding before fall to stabilize the area and to help keep weeds out. They suggested using a hand-operated broadcast seeder for reseeding because the area is too rocky for a drill seeder. This area is not used for livestock grazing so forage production was not an issue. Therefore, a native seed mix was suggested at a rate of 10 to 20 pounds (lbs) of pure live seed (PLS) per acre. To calculate pounds of PLS, the percentage of PLS listed on the seed packet label was used. For example, for a 15-pound bag with a PLS percentage of 90, .9 times 15 equals 13.5 lbs of PLS in the bag.



This picture taken in May shows how quickly grass and forbs are returning to many parts of the burned area.

Below is a native species seed mix that could be used.

Common name	Cultivar	Lbs PLS/acre
Mountain brome grass	Bromar	8.0
Idaho fescue	Winchester	2.0
Green needlegrass	Lodorm	4.0
Slender wheatgrass	Pryor	3.0
Rocky Mountain penstemon	Penstemon strictus	2.0
		Total pounds per acre 19.0

The landowners were advised to rake the soil where possible after seeding to ensure good soil-to-seed contact and to exercise patience while waiting for germination. Many landowners become concerned and frustrated if the seed does not grow after the first growing season; however, three years may be needed to see results and for the seeding to become established.

The landowners were advised to treat the Canada thistle population on both sides of the fire line (burned and unburned areas). Canada thistle has an extensive root system and has a purple flower that readily releases wind-blown seeds. After consulting with local experts, several tactics were decided upon to prevent spread. The plants were to be treated before they reached maturity this year to decrease seed production and root growth. Chemical herbicides and physical damage are the most effective strategies for this. They were advised they could mow or cut plants but to avoid injury to the root system and crown, which would further spread new plants from



These aspen trees were killed as a result of trunk scorch; however, the root system was not killed



Aspen suckers (small glossy shoots) are emerging and prevalent in and around the burned aspen trees.

sprouting roots. They were also told biological controls (insects that harm Canada thistle) could be released. The biological controls would not completely eliminate the plants but would help control the spread in not easily accessible areas.

A combination of control tactics over several years would provide best results. They were also advised to watch for new populations of thistle developing in the fire-line area from root sections or seed present in the scattered soil from the berm.

Aspens

Although many of the aspen trees trunks and canopies perished in the fire, the root systems survived. A beneficial aspect of the timing of the fire was that it occurred before the aspens leafed out. Therefore, most of the aspens' stored food reserves were still in their root systems. These reserves were being mobilized, and aspen suckers had already begun to emerge by the time the property was examined two months later. The dead standing conifer and aspen trees could be harvested for firewood (if adequate safety precautions were complied with); however, the location of the stands made access by vehicle difficult. Based on these factors, foresters recommended the landowners just monitor the site.

Aspen suckers are often eaten by livestock and wildlife. The landowners were advised that, if they saw evidence of heavy browsing that would keep the suckers from growing, fencing or other alternatives, such as felling dead aspen and leaving them on site (the trunks and branches act as a barrier and deter browsing), could provide protection until the stand was older.

Lodgepole Forest

The lodgepole pine will not rebound as quickly as other vegetation types, although the prognosis was good for regeneration. Foresters found an abundance of pine seed on the forest floor. This meant that, if adequate moisture was received during the summer, seedlings could emerge as early as late summer; however, regeneration could be delayed up to three years if moisture is not received. If adequate regeneration did not take place within three years, foresters recommended that potted seedlings (lodgepole pine and Douglas fir) be planted.

The foresters recommended that all dead trees within the lodgepole pine stand be felled that summer or as soon as possible to improve conditions for natural regeneration. By removing the skeleton stand, more sunlight would reach the forest floor and aid in pine tree regeneration and development. Trees should be felled and marketable stems (for post and poles, and firewood) 4 inches in diameter and larger should be removed from the property. Trees smaller than 4 inches in diameter and treetops should be chipped back into the stand. The wood chips help stabilize the soil and improve soil moisture levels. Trees with 25-percent live crown or greater should be left standing and monitored for the next few years. They also recommended that scorched trees with red needles should be closely observed to see if green needles had started growing at the tips of the branches. If tips are green, they recommend those trees remain standing and be monitored over the next few years



The tops of these trees were consumed by a crown fire.



These trees have been scorched; however, the wood is still suitable for posts and poles or firewood.



Many small pine seed wings are visible laying on the thin layer of duff



These lodgepole pines suffered different degrees of scorch. Some may survive, but many more will perish.

The suggested work plan above would mean an increased amount of vehicle traffic in the area, and existing roads would have to be improved. The costs of these improvements and the timber harvesting activities would be significantly higher than any funds received from the wood products.

Erosion Control

Upon examination, a 100-foot by 500-foot area of shallow topsoil was beginning to erode in the northeastern portion of the property despite the site receiving minimal precipitation. The sediment was being carried into a small creek. Based on the site's moderate-to-severe erosion potential, the landowners were advised to fell some dead trees and lay them along the contour of the slope and scatter the branches and limbs to reduce erosion and sedimentation.

Cabin

The landowners were planning to rebuild. They were advised to make their cabin and its surroundings as fire-resistant as possible. They were also advised to build-in adequate water resources for future firefighting and to construct/alter roads to provide easy access and mobility for firefighters.

Summary

The effects of wildfire and the suggested strategies in recovering from wildfire vary according to the characteristics of the land, its vegetation, the climate, and landowner goals. If you have experienced wildfire on your land and would like assistance, the following can help depending upon the issues: the University of Wyoming Extension; conservation districts, weed and pest control districts; Wyoming State Forestry Division; and the USDA Natural Resources Conservation Service.