Special Edition

2016

Post Wildfire Recovery

COLVILLE CONFEDERATED TRIBES

Land Operations/Range

Post Wildfire Grazing; knowing when the range is ready

Perennial grasses are an important component of the rangeland plant communities on the Colville Reservation. Wildfire can kill or damage these important plants and the disturbance caused by fires can provide pathways for noxious weeds and undesirable annual plants to invade the site and out-compete the perennial grasses. Removal of plant cover from burn sites also increases the potential for surface and wind erosion that may negatively impact air and water quality. Grazing following wildfire should be carefully managed to reduce the potential to negatively impact the species composition, amount of forage available and air/water quality.

While fire consumes and injures plants, fire can be beneficial; it frees nutrients and minerals that were tied up in the organic material on the site and removes debris from the soil surface exposing mineral soil creating a favorable seed bed. If given adequate time to recover, burn sites often have a more desirable mix of forage plants and increased forage production following the burn. Recovery time needed for burn sites will vary based on weather, burn severity and the species involved. Recommendations usually call for waiting at least one full year before grazing is allowed and deferring grazing for several years is not uncommon.

How can you tell when a site is ready for grazing following a fire? Three things need to happen:

1. Beneficial vegetation needs to grow and reoccupy the site to provide protection from erosion.
2. Injured plant parts need to regenerate.
3. Perennial plants established from seed need to develop to maturity and become well established.

Plants that are damaged by fire and then have leaf surface area reduced by grazing often experience higher rates of plant mortality, lower plant productivity and lower rates of plant reproduction than plants that are exposed to fire alone. Following fires, perennial grasses allowed to grow to maturity without grazing will often produce heavy seed crops for the first 2 years following a fire. Protection of grasses during this time period is critical if fire has resulted in perennial grass mortality, or if increasing the perennial grass component is desired. Grazing of damaged plants further reduces the plants ability to store carbohydrates in the roots and stems that are necessary to remain alive during the winter and initiate growth the following spring. New plant growth that takes place on recently burned areas is highly palatable due to an increase in minerals and nutrients that have been added to the soil from organic materials consumed by the fire. If not controlled, livestock will collect in these areas, which will further damage existing plants and new plant seedlings.

Damage to plants caused by fire will vary by plant species. Idaho Fescue is less likely to be damaged by fire than some other bunchgrass species. Bluebunch wheatgrass seedlings are considered to be weak and re-establishment from seed is often unsuccessful. Large needle and thread grass plants are more susceptible to fire damage than small plants. Sandberg bluegrass is usually only slightly harmed by fire due to its small bunch size and sparse litter that when burned produces little heat transfer to buds in the soil. The number of Sandberg bluegrass plants tends to increase after a fire.

When vegetation is judged to have recovered enough to allow grazing, it is recommended that grazing be initiated after seed set has occurred (usually after July 1st). Grazing will need to be moderate the first season, leaving 4-6" of plant material. This plant material will help protect the plants growing points from which new plant growth emerges from being damaged. This first 3-4 inches of a perennial grass plant material is where the majority of the plants carbohydrates are stored, making it critical for successful plant growth the following year. Waiting to graze later in the season, after perennial grass seed set, will allow seeds to be pushed back into the soil by livestock hooves, resulting in better soil contact with the seed.

Many people assume that they must put seed down after a wildfire, it's better than not doing anything right? Not always the case, seeding in some areas can actually inhibit perennial plant growth. It is important to keep seeding to areas that have historically been weedy or in areas where perennial grass cover was limited. The rule of thumb to decide this: if there is less than 1 perennial grass plant in a 10 foot square block, then it might be worth putting some seed down.

When seeding, the seed mix used should contain at least three different types of plants and no more than six. Seeding in an area where the ash cover from the fire is still present can be successful prior to the first big rain. Once a big rain has occurred broadcast seeding will not be effective and the ground will need to be roughened so there is good seed to soil contact. Seeding early in spring when ground freezes and thaws can be effective as well.

If you need help deciding if your pasture or range area is ready to be grazed or would like grass seed recommendations please call our office at:509-634-2307

Impacts to Range Unit Grazing Permits in 2016 Following North Star and Tunk Wildfires

Following the Tunk and Northstar fires resource advisors put forth recommendations to close many of the range units impacted by the wildfires to grazing for the 2016 season to reduce the potential for further disturbance and allow vegetation time to recover. The fires burned all or most of the acres in 12 range units and partially burned 10 additional range units consuming approximately 215,000 range unit acres on the reservation. In addition, many leased and private properties have sustained an unknown amount of damage that will potentially impact grazing in the coming season. Many structures and improvements such as fences, cattle guards and water developments were damaged by the fires. Currently it is estimated there are 125 miles of range unit fence that needs replacement or repair.

Typically following wildfires resource specialists recommend that the areas burned be rested (not grazed). Sites with perennial grasses that have experienced wildfire are more susceptible to invasion of noxious weeds and undesirable annual plants. Grazing sites before perennial grasses have the opportunity to recover results in additional site disturbance and further increases the risk that desirable perennial grasses will be outcompeted and replaced by annuals and noxious weeds. Some plant species are more susceptible to damage and death from fire than others. In some cases perennial bunch grasses may need 3 or 4 years to recover.

Based on assessments and observation done to date we know that damage to plants on these burn areas ranges from very light (scorching or consumption of some leaves) to severe (all above ground plant parts are consumed and below ground root systems are killed or significantly damaged). Plants that had their above ground parts consumed will have less food reserves stored in their root systems and will be under more stress to survive the winter and initiate growth in the spring. In addition leaf litter and organic debris that typically covers the soil surface has been removed increasing the evaporation of moisture from the soil and making soils more prone to erosion by wind and water.

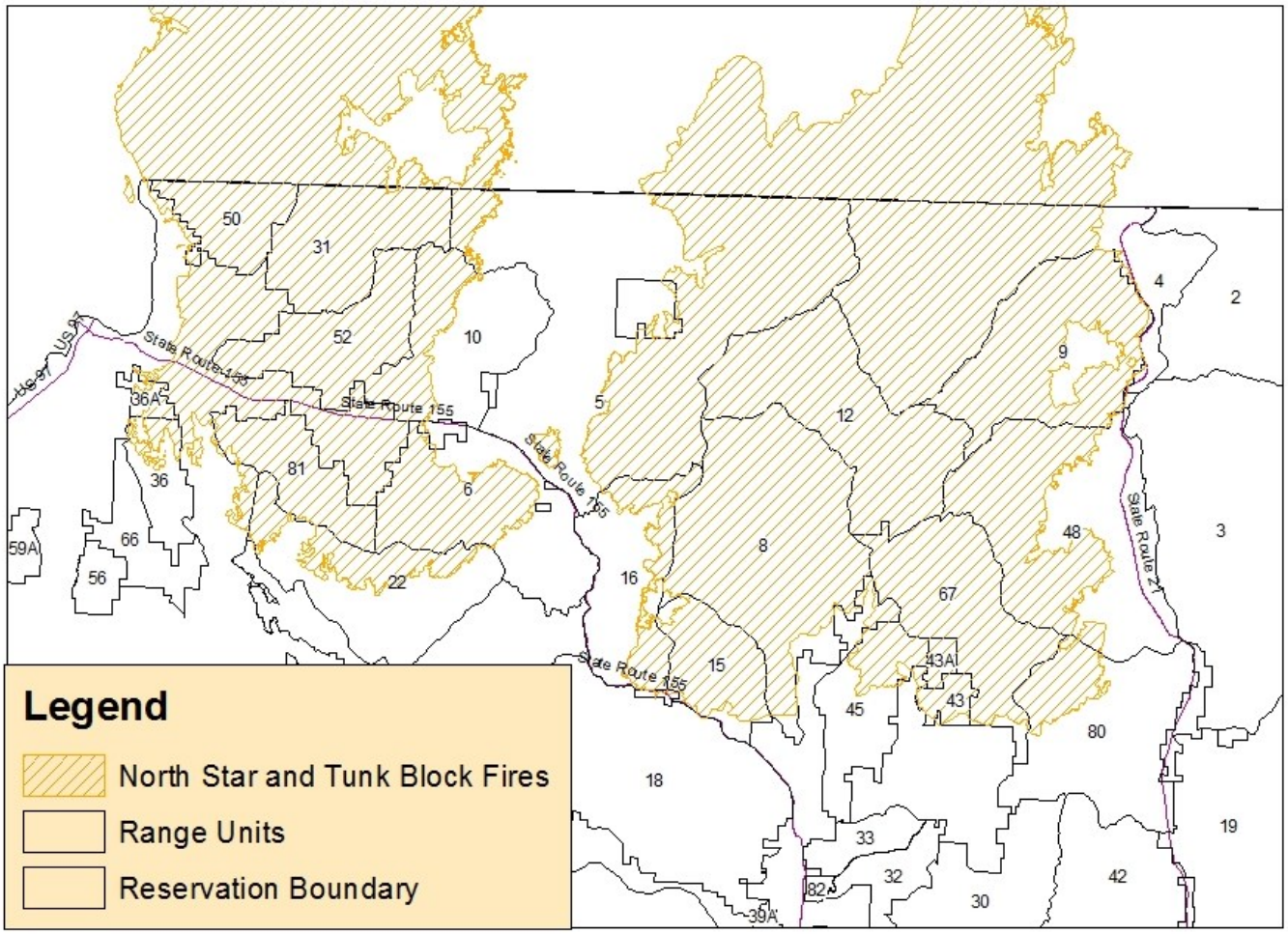
Grazing perennial grasses early, while the plant is actively growing will put the plants under additional stress by removing leaf surface area necessary to capture energy from the sun and convert it to plant tissue and store food in the root system. Grazing before the perennial grasses have recovered will slow the recovery of the plants and increases the potential for annuals and noxious weeds to outcompete them.

In November a permittee meeting was held to discuss the plans to close the 12 range units that had all or most of their acres burned during the fires. At this meeting the Superintendent agreed to postpone the decision to close the range units until spring 2016 at which time resource advisors would reassess the situation and based on their assessment make a decision to close the range unit or allow grazing. Permittees that run livestock in the 10 range units that were partially burned will be allowed to continue grazing in their range unit but must keep their livestock from grazing the burned portion of the range unit. In addition, the Superintendent requested that resource specialists from the Natural Resource Conservation Service (NRCS) be consulted to provide information and recommendations to be considered in the decision making process.

Based on input from local agency resource specialists and NRCS staff an assessment of range conditions on the 12 range units burned will be made sometime in June after the grasses are fully developed to determine if plants are healthy enough to allow grazing. If conditions are found to be favorable on these range units livestock turn out will be scheduled for mid-July. Range unit permittees who have been impacted by the wildfires have been offered the opportunity to move to another range unit while they wait for their traditional area to recover. Many of the permittees have made the decision to move for the 2016 grazing season.

The Range Department anticipates that it will deal with an increasing number of livestock control issues during the coming grazing season due to fire damage to fences and cattle guards. While range unit permittees are responsible for maintaining fences on their range units the scope and cost of the repair work that needs to be done is overwhelming. Funding to assist with the repair work will come from several sources over a period of several years. Federal money for fire rehabilitation will pay for some of the work on range unit boundary fences however; the money will come in over a period of 3-5 years. Some of the permittees and the Range Program have applied for funding through the Farm Service Agency which will cover up to 75% of the repair cost but Farm Service does not know how much money is available yet. The Tribes are waiting to hear if they will receive funding through FEMA. The Range Program anticipates hiring additional workers this season and will do its best to deal with the issues.

Range Units Impacted by the North Star & Tunk Block Fires



Management Plans Available for Public Review and Comment

The Tribes began the process of developing a new Integrated Resource Management Plan (IRMP) in 2013. The new IRMP is expected to be finalized next fall (2016). This new plan will guide natural resource management for the next 15 years and will provide overall resource management direction.

As part of the process, individual resource management plans have been updated to provide more specific management direction for individual resources. All these draft management plans are available for review on the tribal website. We encourage the public to review the documents and provide comments. On the Tribes' website, http://www.colvilletribes.com/ , click on the IRMP command in the Services and Departments menu to bring up the IRMP page. The IRMP page provides information and links to the planning documents for the IRMP, including the IRMP and the underlying management plans. These can be viewed online or saved to your computer.

Currently, a Draft Programmatic Environmental Impact Statement (DEIS) is being prepared that will assess the potential environmental effects of the IRMP. The DEIS will be made available for review by the community and government agencies and notices will be posted on the Tribes' website and news media. A formal comment period will be designated and the Final EIS will provide responses to the comments received.

Noxious Weed Management After Wildfires

One of the most significant economic impacts post-wildfire is the increase in invasive and aggressive weed species. Many native plants will thrive post-fire, but unfortunately so do weeds. These destructive weed species compete with desired native species for space and nutrients, as well as eliminating wildlife/livestock forage, increasing risks of wildfire and removing wildlife habitat.

Keep in mind that in addition to spreading by seed, some weed species can regenerate from roots and root fragments. For example; leafy spurge roots can penetrate up to 26 feet deep in the soil, once the vegetative material on the top of the soil burns, the roots are stimulated to produce more plant material. Typically most severe fires will only damage roots to a few inches below the soil, therefore noxious weeds, with their very deep root systems have an excellent chance of surviving.

So what can you do to help keep weeds from invading?

- Set up a weed monitoring program for your property. Take quick action on weed control, particularly when you see a species that has not been there before.
- Pay close attention to areas of your property that were severely burned or had a prior history of noxious weeds, these areas will need the most attention for weed control. Dependent upon the weed species, seeding in these areas might be an excellent first step in controlling the weeds.

Re-vegetation considerations:

- Use species adapted to the conditions on site.
- If the ash layer is absent, prepare the seedbed by lightly scarifying the soil.
- Add nitrogen fixing legumes to improve soil structure and ensure long-term revegetation success.
- Control noxious weeds prior to seeding.
- Use weed free hay/mulch to protect soil and seeds from erosion.

Pictured on page 2 and 3 are common noxious weeds that you may find on your property after a wildfire.

If you need any assistance in controlling noxious weeds, identifying weeds on your property or help coming up with a weed management plan, please call our office at 509-634-2338.

Hoary Alyssum

Pictured left: Hoary alyssum is a relatively new invader to the Colville Reservation. It can grow in both dry and somewhat moist conditions. It is a upright annual, biennial or short lived perennial. Leaves are covered in hairs giving it a silvery-gray color.

Both the fresh and dried material of this plant has toxic affects to horses. This plant will keep flowering up the stem throughout the course of the spring/ summer, creating many seeds.

Leafy Spurge

Leafy spurge pictured to the left, is not very common on the Colville Reservation. Sites that do exist are thought to have been brought by fire equipment during past fires. This plant is toxic to some animals and can reduce the rangeland by 20-50% once established. It reproduces by root fragments and by seed. Please notify the Land Operations/Range Program if you think you have found this plant on your property.

Scotch thistle

Pictured above: the rosette stage (initial growth) of Scotch thistle is the best time to control this aggressive weed.

Pictured left: Scotch thistle can grow more then 8 feet tall and 6 feet wide. Plants are a serious threat to rangeland, prohibiting access to both livestock and wildlife.

Dalmatian toadflax

Pictured right: Dalmatian toadflax is extremely competitive and will outcompete native plants. It grows 2-5 feet tall producing snapdragon like flowers. It is one of the first plants you will find growing after a wildfire.

Pictured above: Dalmatian toadflax in the rosette stage. An established patch of toadflax is extremely difficult to control due to its aggressive root system and high seed production.

Common St. Johnswort

Pictured above: A hillside infested with Common St. Johnswort. St. Johnswort spreads easily to new sites, via seeds and underground rhizomes and creeping stems. St. Johnswort is toxic to livestock.

Pictured above: flowers are yellow and star-like, with 5 petals. Each leaf contains spots with tiny translucent black spots, which are visible when held up to a light source, such as the sun.

10 Nez Perce St
Nespelem, WA 99155

Phone: 509-634-2319
Fax: 509-634-2325

Fire Prevention and Soil Resource Protection Strategies

"*An ounce of prevention is worth a pound of cure*." This statement holds true with natural resource management. Prevention of the degradation of soil resources will, in effect, reduce the impacts of fire to the soil. Reducing soil disturbance, using cover crops or vegetative cover to prevent bare soils, and proper land management, such as prevention of overgrazing and excessive tillage, will help soils recover after a burn. Soil that is already degraded before fire will take longer to recover post-fire.

Applying the use of fire-protection strategies, such as thinning of vegetation (trees, shrubs, weeds, etc.) within 130 ft of homes and other structures, the use of fire breaks in forested areas, and the thinning of vegetative growth are used to help prevent fires from spreading. Careful fire prevention, in general, will always be a good idea for natural resource protection and the prevention of property losses.

Pictured above: Crews load up the seed hopper for reseeding of dozer lines on the Tunk Block wildfire.

Effects of Fire on Soils

Fire has both positive and negative impacts on soil resources. Soils typically become more fertile after a fire, due to nutrients being released that were "locked up" in plants and organic matter. However, they also become markedly more erodible, which leads to a loss of soil through wind and water erosion. There is also a risk of mudslides and dryfalls, due to decreased permeability of the soil after a fire. Permeability is the ability to transmit or "take on" water. It occurs from an increase in hydrophobicity (repelling of water), due to the loss of soil organic matter, erosion, and the accumulation of a "waxy" layer from burned plant materials. This increases overland flow of water (runoff), which can erode significant amounts of soil during a rain event.

Fire Mitigations

Post-fire logging has both positive and negative potential impacts, the severity of which depends on the logging operations management. Post-fire logging of killed standing trees can provide income for the community and help to suppress insects and plant disease outbreaks. However, the disturbance of soil that occurs during logging can cause detrimental effects to the already sensitive soil environment post-fire, resulting in increased runoff and erosion, and degrading local watershed quality. There is also an increased risk of the spread of invasive species.

Land owners considering logging may benefit from the use of mulch. Straw mulching has been shown to reduce erosion after a fire. There are other methods for mitigation of soil that have been in practice for some time, such as constructing water bars, grass seeding trails, using "slash" from logging material on trails, hydromulching, hydroseeding, and application of polyacrylamide (PAM). However, straw mulching fire damaged soils has been shown to be most effective to reduce erosion rates. It is especially important to treat burned soils on slopes, due to gravitational erosion potential.

Pictured above: a logging truck removes salvaged timber from the North Star fire.

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