Biodiversity Guide
Central Rockies Landowners

Biodiversity is the variety of organisms in an ecosystem and the processes that support them. As a forest landowner, you have a special opportunity in conserving and enhancing biodiversity on your property. Thoughtful planning, beginning with identifying your goals and objectives, will lay down a solid base for all activities that may take place on your forested acres. Included may be a consideration for providing varied habitats for plants and animals within the capability of your forest land. You may also want to consider the surrounding landscape and how it interfaces with your property.

Vegetation Layers & Species Diversity

Different wildlife species require a variety of habitats for food and shelter. Vertical diversity in forest stands increases habitat types available for a wider array of animals. It is best to have varied age classes, which includes seedlings, saplings, poles, and mature trees. Forest opening provide edge effect preferred by many species. Hardwoods such as aspen and birch enhance tree species diversity and increase browse. Mast producing trees and shrubs, such as oak, provide food for many different animals.

Riparian Areas and Wetlands

Perhaps more than any other habitat, riparian zones (the areas along watercourses) and wetlands provide quality habitat for a wide amount of wildlife species, especially songbirds, reptiles, and amphibians. Riparian areas are important travel corridors for many wildlife species. Establish Streamside Management Zones (SMZ) by limiting activity in the zone. See your state's Best Management Practices manual for recommendations.

Snags and Downed Wood

Standing dead trees and course woody debris play an important part in species diversity. They supply foraging sites as well as nesting and denning locations. Home to many invertebrates, they also are important foraging locations to many species of birds and small mammals.

FECV's and Hotspots

Areas of particular significance are sometimes termed hotspots. They can be ecological, cultural, geological, or historical. Some of the ecological hotspots are termed Forests of Exceptional Conservation Value, or FECV's. FECV's support plants or animals that are classified as globally imperiled (G2) or globally critically imperiled (G1). Each state maintains a Natural Heritage Program where you can access information and status of state threatened and endangered species as well as FECV's. The Heritage programs are valuable for obtaining habitat information for enhancing biodiversity on your property. Other good sources of information on biodiversity are The Nature Conservancy, World Resources Institute, as well as state forest wildlife action plans and assessments.

Forestry Best Management Practices

Forest management activities have the potential to move soil off site and into water bodies. Known as nonpoint source pollution, this soil movement degrades the forest site as well as the water and its ecosystem. Any activity that exposes mineral soil can begin the process of erosion. Most generally this includes road construction and maintenance, log skidding, and log hauling. By employing the use of Best Management Practices (BMP's), the potential for damage can be greatly reduced or even eliminated.

Examples of Best Management Practices include:

- Adequate pre-planning by identifying high risk areas. Planning will assure that you prepare for them.
- Locating roads and skid trails properly.
- Identifying streamside management zones (SMZ's) and insuring their integrity by restricting heavy equipment use. SMZ's should be at least 50' wide. Steeper terrain necessitates a wider SMZ.
- The use of water control measures on roads and skid trails such as broad-based rolling dips and water bars.
- Limiting operations during times of heavy precipitation.
- Reseeding of skid trails and log landings after use with a proper seed mixture. Not only does this prevent soil movement, but it also provides wildlife habitat and helps limit the spread of noxious weeds.
- Operating on frozen and/or snow covered soils.
- Proper use and disposal of hazardous chemicals including diesel fuel, oils, and lubricants.

Each state publishes a guide for BMP's. For more information consult this guide, your forester, or your state's forest service.

Colorado State Forest Service: https://csfs.colostate.edu/
Wyoming State Forestry Division: http://wsfd.wyo.gov/
Utah Division of Forestry, Fire & State Lands: https://ffsl.utah.gov/
New Mexico State Forestry Division: http://www.emnrd.state.nm.us/SFD/

State Forestry Best Management Practices:
Colorado: https://static.colostate.edu/client-files/csfs/pdfs/ForestryBMP-CO-2010.pdf
Wyoming: http://wsfd.wyo.gov/forest-management/bmp-s
Utah: https://extension.usu.edu/waterquality/protectyourwater/howtoprotectwaterquality/bmps/index
New Mexico: https://extension.usu.edu/waterquality/bmps/bmp_guidance

Insect Enemies of the Rocky Mountains

Although there are many insects that cause damage to forests in Colorado, there are two that are of main concern for forest landowners. The first is the mountain pine beetle (MPB), which targets lodgepole pine and ponderosa pine. The MPB is a native insect that has periodic severe outbreaks which cause large mortality in forest stands. Fire suppression and lack of timber harvesting in much of western lodgepole pine forests has led to an abundance of overmature and overstocked stands that are perfect for large scale outbreaks of MPB. There are two strategies in fighting mountain pine beetle. The first strategy is called direct control, which includes finding infested trees and then either removing the infested trees from the forest before the beetles fly, or killing the beetle larvae in the tree. Removing the trees through commercial harvesting and then processing them into lumber is the most efficient means of reducing the mountain pine beetle populations. If commercial harvesting is not an option, the trees should be cut down in the fall and then the infested portion of the tree bucked into 18" sections with the bark scored on two sides to allow the cambium to dry out over the winter. The drying will kill about 80% of the larvae. You may also completely remove the bark or split the sections to facilitate drying. Cutting and burning or cutting and chipping is also effective.

The second strategy, which is probably the most effective over the long term, is called indirect control which involves reducing the number of trees per acre through proper spacing. The key to combating the MPB is to reduce stocking levels to around 50-60 square feet of basal area or less over large contiguous areas through forest thinning and other silvicultural practices. A healthy managed forest is the most important factor in combatting the MPB. Healthy trees have a much greater chance in rejecting attacks from this aggressive insect.

The second forest pest is the spruce beetle. The spruce beetle is the most significant natural mortality agent of mature spruce. When populations increase to high levels in downed trees, beetles may enter susceptible, large-diameter standing trees. Stands are highly susceptible if they have more than 65% spruce in canopy, have an average diameter at breast height (DBH) of 16-inches or more, and have a basal area greater than 150 square feet per acre. The susceptibility of spruce stands to beetle infestations can be reduced by removing trees with a DBH of 16-inches or more, and thinning the stand to a basal area of less than 150 square feet per acre. Infested and susceptible trees should be removed to encourage regeneration. Trap trees are green trees with a DBH greater than 12-inches that are felled before beetle flight. Trap trees can absorb up to 10 times the number of spruce beetles that a standing tree will absorb. Trap trees must be removed once infested with spruce beetles. Slash should be exposed to direct sunlight or burned to kill inhabiting larvae.

INVASIVE SPECIES

An invasive species is any species that is non-native to a given ecosystem and whose introduction has the potential to cause damage. Because they seldom have any natural enemies in their new home, invasive species have the potential to proliferate and spread. They can be as small as pathogens which cause tree disease such as Chestnut Blight, as well as plants like Canadian Thistle and Leafy Spurge. Other examples that have caused great damage are the Emerald Ash Borer and Kudzu.

Leafy Spurge

Bull Thistle

Common Mullein

Most invasive species are introduced by the activities of people. Many invasive species hitched a ride to their new homes on products or plants that were shipped from overseas or carried by traveler's vehicles. Even activities by sportsmen can transport very noxious species like Didymo, aka rock snot. This species is carried from one watershed to another by clinging to waders and watercraft of fisherman.

Canadian Thistle

Common Tansy

The best control of invasive species is to prevent its arrival in the first place. After that, early detection and quick eradication are essential to preventing the spread of the species. Take frequent walks through your forestland and look for unusual plants or groups of unhealthy trees. Maintaining a healthy forest by sound forest management is a good way control invasive species. Any ground disturbances should be revegetated as quickly as possible with native species. This will help keep non-native noxious plant species from getting a hold.

For further information:
Colorado: https://www.invasivespeciesinfo.gov/us/colorado
Wyoming: https://www.invasivespeciesinfo.gov/us/wyoming
Utah: https://www.invasivespeciesinfo.gov/us/utah
New Mexico: https://www.invasivespeciesinfo.gov/us/new-mexico

Logging Aesthetics

Many forest landowners have a concern about adversely impacting the natural beauty of their property when considering a timber harvest. Removing trees imparts a sudden change to a scene that people have become accustomed to observing. However, integrating some proven techniques and following Best Management Practices (BMP's) will soften the visual effects of harvesting a forest stand.

The following are some considerations that should be addressed when planning and implementing a harvest:

- Try to minimize straight lines in the harvest boundary. Curves and uneven edges are softer and more pleasing to the eyes. Consider the topography when laying out the sale. Ridge tops are seen from a longer distance and should be cut conservatively. Steep slopes need careful planning. Consider leaving heavily limbed trees along the edges of cutting units to provide some screening or increase the intensity of harvesting from the outside to the inside of the stand.
- Haul roads, skid trails, and log landings are highly visible and should be kept to a minimum as practical for the situation. Use BMP's to protect water quality.
- Consider a visual buffer along travel corridors. This will also provide additional edge habitat for various wildlife species.
- Reseed disturbed areas of exposed mineral soil with recommended seed mixtures. This will limit the establishment of noxious invasive species as well as provide additional wildlife habitat.
- Treat logging slash as appropriate.
- Discuss expectations with your qualified resource professional and qualified logging professional.
- Block public access to logging roads to prevent unlawful entry that often results in unsightly damaged roads and trash dumping.

Management of Harvest Residues

The management of logging slash after timber harvest is an important consideration in the Rocky Mountain region. Logging slash is the material that remains after harvesting and includes tops, limbs, and other non-merchantable parts of a tree such as cull logs. This material, if left untreated, increases the damaging effects of a wildfire if one should occur in the harvested stand. Also, untreated slash is unsightly and can restrict access to the site.

Generally, logging slash can be treated in three different ways. The first is by lopping and scattering the slash over the logging site. Lopping refers to reducing the size of the logging slash and can be accomplished either manually with chainsaws or mechanically. This method is employed where the top and branches are cut off where the tree is felled in hand cutting or using the cut to length harvesting system. Lopping the material to a maximum depth of 24 inches is recommended. This will significantly reduce the effects of a wildfire; provide protection to the site after harvest, as well as recycling nutrients back to the forest soil. The material may also be used to close skid trails and log landings in order to provide erosion control. Lopping and scattering also may be more aesthetically pleasing.

When whole tree logging involves skidding the entire tree, including the branches and top to the landing. The branches, top, and any unmerchantable portion of the tree are cut off and piled, while the main bole of the tree is cut into merchantable log lengths. This process reduces the fuel loading in the forest and concentrates the slash material at a landing. This type of slash treatment also generally increases the forage growth and improves access to the forest. It is also generally more aesthetically pleasing to the landowner especially after the slash pile has been burned and the landing site reclaimed. The slash is typically burned in place after allowing the pile to dry for a period of at least one full summer. While drying, the piles provide habitat for small mammals, which attract other animals, such as raptors. It should be emphasized that you should manage the burning process with heavy equipment. During the burn, push the slash up and then scatter ashes after burning is complete. Do not allow the piles to smolder unattended. After burning, the exposed soil needs to be seeded with a recommended seed mixture in order to limit the invasion of invasive, noxious weeds on the site.

The third slash treatment is piling the slash in the woods by either hand or machine to be burned or otherwise disposed of at a later time.

Further information can be obtained from your forester.

Managing for Forage

Rocky Mountain region forests provide an abundance of multiple uses which can be mutually beneficial. Two of these are timberland management for both timber production and animal grazing. Some of the same practices that enhance tree growth, health, and vigor also can produce increased forage. This allows a forest landowner to increase economic benefits between timber sales from his own herd or by grazing leases.

Generally speaking, crown cover of less than 50% is needed to support forage. Many forests in the Rocky Mountain region are overstocked making forest thinning very beneficial to forage production, as the increased light and moisture that reaches the forest floor results in a more favorable habitat. As you decrease crown cover, there is a subsequent increase in forage (see chart). In “dog hair” stands, pre-commercial thinning (PCT) will be needed to begin opening the stand for forage production. Cost sharing programs may be available to help cover the cost of the treatment.

Aspect, slope, and elevation are important factors when planning for management treatments for forage. You may want to utilize heavier stocking on southern aspects, where the sun intensity is higher. Increased crown cover on these aspects provide protection and increased forage. Concurrently, northern aspects and lower elevation zones, such as the bottom of draws, can be thinned heavier as there is less direct sunlight and usually better moister conditions.

Aspen stands can contain significantly higher levels of forage than conifer stands. However, care should be taken to ensure that overgrazing, between both wild and domestic animals, does not occur. Overgrazing can deplete an aspen stand of aspen suckers, decreasing the age diversity and resilience of the aspen stand. If you currently have pure aspen stands or mixed aspen/pine stands, you may want to consider managing these to maintain or enhance the aspen. Aspen can be regenerated by harvesting small clearcut areas throughout an aspen stand. However, in older aspen stands care needs to be taken as they may not regenerate as well and a less aggressive method may be needed. Removing conifers from a mixed-stands will reduce competition and enhance forage production. In addition, remove stock until new aspen regeneration is tall enough to survive browsing.

Added benefits of a thoughtful vegetation management plan is a reduction of wildfire risk, damage from insect pests, and a broader variety of wildlife species.

Managing for Sawlog Production

Forestland has a certain capacity for growing wood fiber. The actual amount is influence by many factors that are relevant to a particular forest stand. These factors include soil characteristics, aspect, elevation, and available precipitation. Generally speaking, northwest to northeast facing aspects are going to be more productive than south and west facing aspects or ridge tops. Areas with deeper soils are also going to be more productive than rocky or clay type soils. Learning where your more productive soils are is important in determining where you want to focus your management activities. If one of your primary landowner objectives is to produce fiber, you may want to concentrate your efforts on the better sites, especially for sawlog production.

In spruce-fir stands, periodic thinning to control stand density will maintain growth rates and increase yield. Trees compete for available soil nutrients, moisture, and sunlight. When a forest stand is too dense, individual trees are suppressed. Silvicultural decisions will be dictated by the condition, stocking level, and stand class of your forest. Your forester will conduct a stand inspection, or cruise, to determine a recommendation for any number of treatments, ranging from pre-commercial thinning (PCT) or commercial thinning (CT) to a regeneration harvest.

A PCT treatment is recommended for a young forested stand comprised of advanced regeneration-to-sapling sized trees. A PCT treatment "*releases*" the non-thinned trees and allows them to grow with less competition and more resources. The tallest and best formed trees are typically left during a PCT, as they have the best chance to grow into a healthy and vibrant stand of commercial trees. Younger stands comprised of advanced regeneration and saplings are typically thinned to about 600 trees per acre (TPA) or about 8.5-feet spacing. As these young trees grow into the sapling-to-pole size class, a second PCT should be conducted to space the trees to about 10 to 14-feet spacing. Cost share money may be available through your county Natural Resources Conservation Service for these types of timber stands improvement projects.

A CT is recommended for forested stands with pole sized (6" to 8" DBH) trees and/or various saw timber (>9" DBH) sized trees. A CT can consist of a series of entries with a goal of maintaining a stocking level of 60-80 square feet of basal area per acre. As the residual forested stand grows the basal area per acre would increase to 100-120 square feet per acre, slowing the growth of the individual trees. At this point another CT entry should be considered to bring the stocking level back down and the stand back to optimum growing conditions. Spacing of the leave trees is based on the diameter of the leave trees; larger diameter trees require greater spacing and smaller diameter trees require lesser spacing.

Once a stand has reached maturity, a regeneration harvest should be considered. The recommended practice is to have 1 to 3 CT entries followed by a regeneration shelterwood harvest to start the cycle over again. This entire process can take decades.

Cost sharing for PCT treatments may be available through your local
USDA Natural Resources Conservation Service office:
https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/

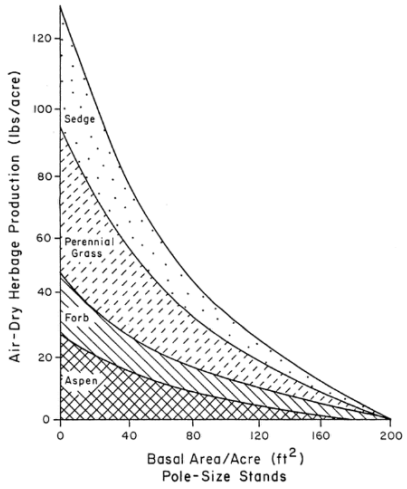
Managing for Water

It is generally understood that forest management activities can have an effect on both water quantity and quality. Research conducted throughout the United States in various forest types and watersheds have clearly indicated that forest management has a direct impact on water yield. Removing tree cover has two direct effects. The first is that there is an increase in the amount of precipitation that reaches the forest floor. In a coniferous forest that has a 70% closed canopy, only about 10% of precipitation reaches the forest floor. The remaining 90% is captured by the foliage and is lost to the atmosphere. Once the forest canopy is opened, more precipitation finds its way into the forest soil. The second effect of reducing forest cover, i.e. lowering stocking level, is that there are fewer trees that are removing moisture from the soil through transpiration. Trees in a forested watershed amount to thousands of water pumps that are pumping water into the atmosphere every day that they are growing. By lowering the stocking level of the trees through thinning, more water is available to reach area water features and aquifers.

The actual increase in water yield from forest management activities is hard to predict. There are a number of variables that will affect the hydrologic process, such as aspect, soil type, precipitation rate, and reduction in the stocking level. Increase in annual water yields and peak flows has been associated with a persistent increase in the snowpack after thinning activities and a reduction in summer evapotranspiration which generally results in wetter soils through the growing season.

For further information contact your local National Conservation Resource Service office.

Cost sharing for PCT treatments may be available through your local USDA Natural Resources Conservation Service office: https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/



Relationship between production of understory vegetation and basal area in the Black Hills (after Pase and Hurd, 1957).

Managing for Wildlife Habitat

Forest management for timber production and wildlife habitat, both game and non-game species, are very compatible. Forested ecosystems in the Rocky Mountain region can range from the low elevation, open ponderosa pine forests to the high elevation, dense Engelmann spruce/subalpine fir forests. The forested ecosystems of the Rocky Mountains provide a wide range of habitats for various wildlife species.

When planning your timber management, assess your property for suitable wildlife habitat and then incorporate your wildlife goals into a workable forest management plan. Generally, a wide range of habitats will attract and support a diverse and healthy species mix. If possible, your management activities should provide a mixture of tree species and age classes including regeneration, poles, and saw timber. Other valuable features may include forest openings and planted shrubs and food plots. Also, be sure to leave a scatting of snags and dense trees throughout the property as these are important for food and cover for many species.

Edges between harvested areas and other land use areas can provide a valuable transition zone as many wildlife species use the forest edge as protective cover and a food source. An irregular shaped timber harvest not only creates additional edge, but also softens the visual impacts of the harvest. Riparian corridors and streamside management zones create travel routes and aquatic protection.

For more information, contact your state's wildlife division:

Colorado Parks and Wildlife: https://cpw.state.co.us/
Wyoming Game and Fish Department: https://wgfd.wyo.gov/
Utah Division of Wildlife Resources: https://wildlife.utah.gov/
New Mexico Department of Game and Fish: http://www.wildlife.state.nm.us/

Cost sharing for wildlife habitat treatments may be available through your local USDA Natural Resources Conservation Service office:
https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/

Reforestation

Regeneration of the forest after harvest is a basic building block of sustainable forestry. Trees of the Rocky Mountain region have the ability to naturally regenerate without requiring re-planting. The species of trees on your property will determine which silvicultural system is most effective to promote regeneration.

Engelmann spruce and subalpine fir are shade tolerant species. Seedlings have the ability to survive in low-light conditions. The respond to disturbances such as: insects, fire, and windthrow to become established in the stand. Logging mimics the natural disturbances by creating small openings, allowing sunlight to hit the forest floor, and by exposing the mineral soil which acts as a seedbed. This method is called "*Shelterwood"*. Versions of the shelterwood system are also effective in Douglas-fir and ponderosa pine.

Lodgepole pine is a shade intolerant species. It requires full sunlight to regenerate. The cones are serotinous, meaning they need heat to open and release the seed. It is one of the first tree species to appear after major disturbance, such as fire. The primary method to establish regeneration is large shelterwood cuts, or clearcuts. The opening created has to be large enough to allow sunlight to open the cones in the absence of fire. Regeneration after fire is often very dense, and can result in stagnant, small trees.

Your forester will guide you through the reforestation process and can offer further information.

Principles of Sustainable Forestry
2015-2019 SFI Standard

1. Sustainable Forestry

To practice *sustainable forestry* to meet the needs of the present without compromising the ability of future generations to meet their own needs by practicing a land stewardship ethic that integrates *reforestation* and the managing, growing, nurturing and harvesting of trees for useful products and *ecosystem services* such as the *conservation* of soil, air and water quality, carbon, *biological diversity, wildlife* and *aquatic habitats,* recreation and aesthetics.

2. Forest Productivity and Health

To provide for regeneration after harvest and maintain the productive capacity of the forest land base, and to protect and maintain *long-term* forest and soil *productivity.* In addition, to protect forests from economically or environmentally undesirable levels of wildfire, pests, diseases, *invasive exotic plants and animals,* and other damaging agents and thus maintain and improve *long-term forest health* and *productivity.*

3. Protection of Water Resources

To protect water bodies and *riparian areas* and to conform with forestry *best management practices* to protect water quality.

4. Protection of Biological Diversity

To manage forests in ways that protect and promote *biological diversity,* including animal and plant species, *wildlife habitats*, and ecological or natural community types

5. Aesthetics and Recreation

To manage the visual impacts of forest operations, and to provide recreational opportunities for the public.

6. Protection of Special Sites

To manage lands that are ecologically, geologically or *culturally important* in a manner that takes into account their unique qualities.

7. Responsible Fiber Sourcing Practices in North America

To use and promote among other forest landowners *sustainable forestry* practices that are both scientifically credible and economically, environmentally and socially responsible.

8. Legal Compliance

To comply with applicable federal, provincial, state, and local *forestry* and related environmental laws, statutes, and regulations.

9. Research

To support advances in sustainable forest management through *forestry* research, science and technology.

10. Training and Education

To improve the practice of *sustainable forestry* through training and education *programs.*

11. Community Involvement and Social Responsibility

To broaden the practice of *sustainable forestry* on all lands through community involvement, socially responsible practices, and through recognition and respect of *Indigenous Peoples*' rights and *traditional forest-related knowledge.*

12. Transparency

To broaden the understanding of forest certification to the *SFI 2015-2019 Fiber Sourcing* Standard by documenting certification audits and making the findings publicly available.

13. Continual Improvement

To continually improve the practice of forest management, and to monitor, measure and report performance in achieving the commitment to *sustainable forestry.*

14. Avoidance of Controversial Sources including Illegal Logging in Offshore Fiber Sourcing

To avoid wood fiber from *illegally logged* forests when procuring fiber outside of North America, and to avoid sourcing *fiber from countries without effective social laws.*

Species and Communities of Concern

As a successful steward of forest land, you should be aware of the variety of animals, plants, and ecological communities that may be found on your property, particularly, those that are designated as "imperiled, critically imperiled, threatened or endangered." Critically imperiled (G1) or imperiled (G2) species (or ecological communities) are globally rare, or because of some factor(s) especially vulnerable to extinction. They are designated as imperiled or critically imperiled by non-government organizations such as NatureServe (and its constituent Natural Heritage programs) or the IUCN (the World Conservation Organization). Threatened and endangered species are listed by government agencies under the U.S. Endangered Species Act and also may be listed under state laws; yet they may not be listed as critically imperiled or imperiled, globally.

It is important that as a forest landowner you understand how your forest management activities may impact these species. Each state has a Natural Heritage Program that provides information and a data base of imperiled, threatened, and endangered species within the state:

Colorado Natural Heritage Program: https://cnhp.colostate.edu/
Wyoming Natural Diversity Database: http://www.uwyo.edu/wyndd/index.html
Utah Conservation Data Center: https://dwrcdc.nr.utah.gov/ucdc/
New Mexico's Conservation Information and Research Center: https://nhnm.unm.edu/
NatureServe: http://www.natureserve.org/conservation-tools/map-risk-species-county-and-watershed

Special Sites

Also, you should be aware of any special sites that may
located on your property. These may be sites with biological, aesthetic, cultural, or historical significance. Examples include caves, cemeteries, old home sites, and Native American sites. If you should have any special sites on your property, we will take all necessary precautions to preserve and protect the site.

History Colorado: https://www.historycolorado.org/
Wyoming State Historical Society: https://www.wyshs.org/
Utah State Historical Society: https://history.utah.gov/utah-state-historical-society/
Historical Society of New Mexico: http://www.hsnm.org/

Wildfire

Historically, wildfire has had a significant influence on the forests of the Rocky Mountain region. As a steward of forested property, you should be aware of fire issues relevant to your particular situation and ownership. The threat of large stand replacing wildfires is significant. Although it is probably impossible to completely fireproof you property, some safeguards can be instituted to lessen your exposure to potential damage from wildfires. The same practices that reduce fire danger also help control destructive forest pests.

Over stocked stands in a pine forest are substantial contributors to the severity of damage from a wildfire. Wildfire will spread quickly through forests with tree crowns that are too crowded. Managing your forest to get the optimum spacing between the crowns of the trees reduces the potential for damage and helps slow the travel of the wildfire through the forest. This becomes even more important as terrain becomes steeper.

In the Rocky Mountain region, management of logging residues or slash is an important consideration for your wildfire planning. The goal of proper slash treatment is the reduction of forest fuels. There are generally 3 types of logging slash treatments. The first is lop and scatter. In this method, the logging slash is cut down to 18 inches in depth and where heavily concentrated, it is evenly spread over the area. In some cases, machinery may be employed to further masticate the slash into small pieces. The second slash treatment method is whole tree logging where the trees are cut and then skidded to a landing where they are limbed, topped and processed into logs. This system concentrates most of the slash in landings where it can be disposed of by either burning or chipping/grinding. The third slash treatment system is piling the slash in the woods by either hand or machine to be burned or otherwise disposed of at a later time. You should discuss with your forester the use of the most appropriate system for your property and how it may relate to your objectives.

Another consideration for your property may be strategically located fuel breaks to help stop the spread of a wildfire. Fuel breaks can be heavily thinned strips of forest. They can utilize existing openings as well as using hardwoods, specifically aspen, to lessen the intensity of the wildfire as it moves through the forest. Fuel breaks can also help maintain access and increase biological diversity on your forestland. Maintenance is required to maintain their effectiveness.

Houses and outbuildings on your property add to the potential for damage from catastrophic wildfire. Extra care needs to be taken in what is known as the Wildland Urban Interface or WUI. A “survivable” space should be created around buildings. There are a number of agencies as well as your local fire department that specialize in assisting landowners with this special need.

For further information concerning wildfire you may want to visit:

Colorado State Forest Service – Wildfire Mitigation: https://csfs.colostate.edu/wildfire-mitigation/
Wyoming State Forestry Division – Fire Management: http://wsfd.wyo.gov/fire-management
Utah Division of Forestry, Fire and State Lands: https://ffsl.utah.gov/index.php/fire
New Mexico State Forestry – Fire Management: http://www.emnrd.state.nm.us/SFD/
National Interagency Fire Center: http://www.nifc.gov/
FIREWISE: http://www.firewise.org/