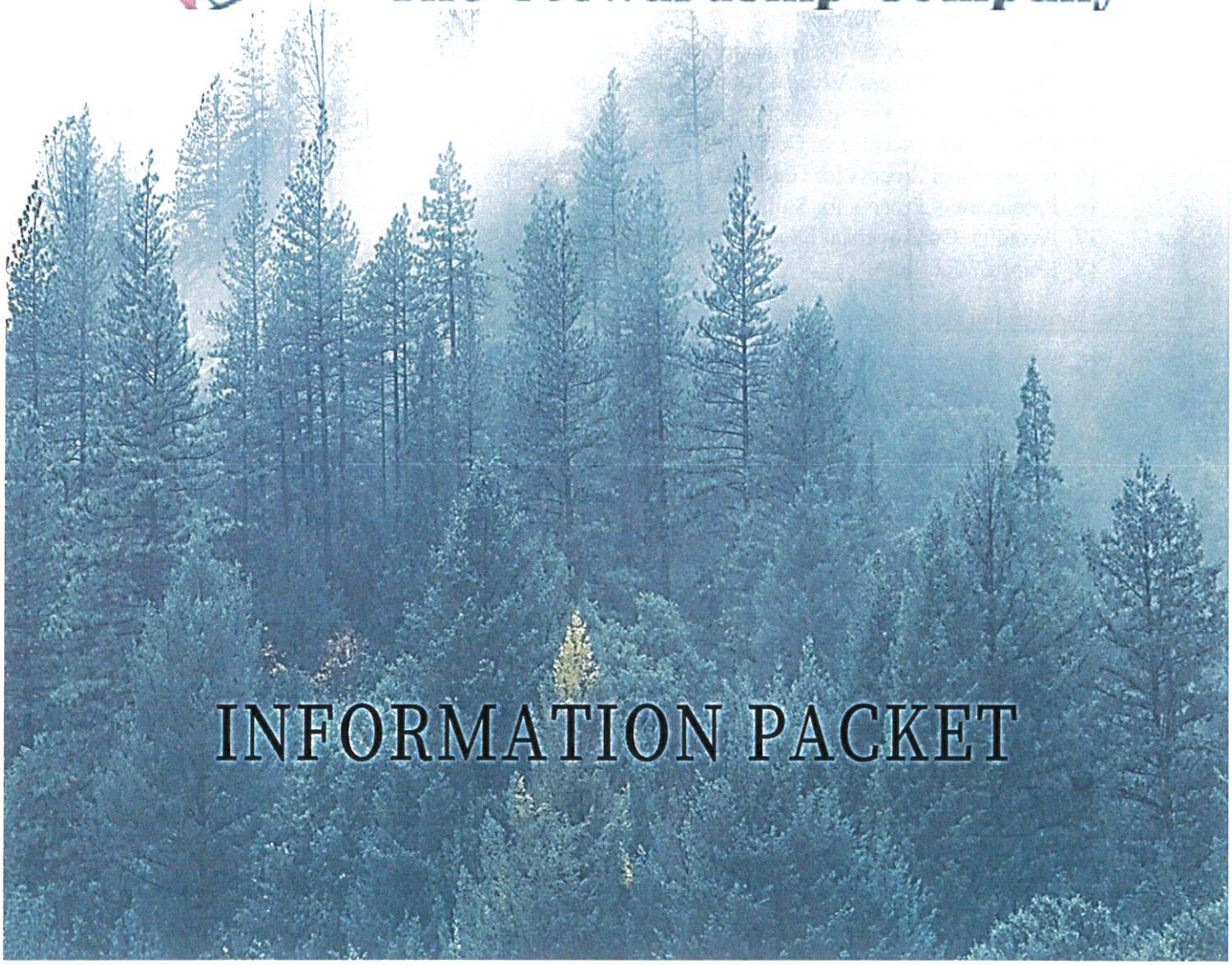
PYRAMID MOUNTAIN LUMBER INC.

The Stewardship Company



INFORMATION PACKET

www.pyramidlumber.com

(406) 677-2201

Please take time to look at the information in this packet. It contains prevalent information on sustaining healthy forests.

1. Pyramid letter of commitment of owners to Sustainable Forestry Practices
2. Pyramid's Program to Promote the Use of Qualified Logging Professionals
3. Sustainable Forestry in Montana Brochure
4. Montana Forest Action Plan Handout
5. Managing Your Timber Resource: Which trees to leave? By Peter Kolb, MSU Extension Forestry Specialist
6. Best Management Practices for Forestry in Montana
7. Species and Communities of Concern in Montana by Montana Forest Council
8. American Tree Farm System Information
9. Guide to Forest Aesthetics in Montana
10. Afforestation in Montana
11. Fiber Sourcing & BMP Monitoring Procedures
12. Program to Address Adverse Weather Conditions
13. Process for Addressing Special Sites
14. Forests with Exceptional Conservation Value
15. Procurement Process for Gate Logs
16. Procurement Process for Stumpage
17. Avoiding Controversial Sourcing and Illegal Logging
18. Helpful Websites

Also included in this packet:

19. *Voluntary Wildlife Guidelines for Streamside Management Zones DNRC*
20. *Guide to the Streamside Management Zone Laws and Rules 2006*
21. *Noxious Weed Treatment Quick Reference/Invasive Species*
22. *BMP Field Review Process*
23. *DNRC Fish Passage at Stream Crossings*
24. *DNRC Forest Practices*
25. *DNRC Protecting Special Sites*
26. *Inside Forests: Special Sites*
27. *Inside Forests: Bird Habitat*
28. *Inside Forests: Biological Diversity Guide*
29. *Inside Forests: Bat Biology*
30. *Natural Heritage Program & MT State Library GIS and Information Resource Brochures*
31. *Fire Risk Reduction: How Safe are You & Your Home*
32. *Fire Risk Reduction: Reduce Your Fire Risks*
33. *Montana State Wildlife Action Plan*
34. *Montana Field Guides*
35. *Montana Forest Action Plan Brochure*

PYRAMID MOUNTAIN LUMBER, INC
"The Stewardship Company"

Pyramid Mountain Lumber, Inc. is a progressive, versatile organization providing long term employment through the production of quality lumber products. This requires a commitment to personnel development, ongoing marketing efforts, efficient utilization of all assets and good stewardship of natural resources.

Pyramid's professional forestry staff promotes *Forest Stewardship and Active Forest Management* to achieve sustainable forestry. As a non-fee timberland based forest products company, long term relationships and active forest management to improve forest health and productivity on non-industrial private forest lands is essential to provide a continuous source of raw materials for our converting facility. Therefore, our foresters have been actively involved in or have leadership roles in organizations and efforts such as:

- Montana Tree Farm Program
- Tree Farm Inspections
- Stewardship Steering Committee
- Stewardship Advisors
- Forest Stewardship Foundation
- Montana Forest Restoration Committee
- Montana Forest Owner's Association
- Bureau of Land Management R.A.C.
- Blackfoot Challenge
- Montana Logging Association
- Society of American Foresters
- UofM College of Forestry and Conservation
- Montana Forestry Best Management Practice Audits
- SFI® State Implementation Committee
- Montana Forest Action Council
- Montana Forest Collaboration Network
- Southwest Crown of the Continent Collaboration

All of these organizations and efforts provide significant contributions to the development of various curriculum for educating non-industrial private forest landowners and conducting workshops or seminars which are consistent with the principles of sustainable forestry. Pyramid is committed to supporting our foresters' efforts in advancing the principles of sustainable forestry and stewardship through these highly credible organizations.

In addition, Pyramid's selective harvesting on non-industrial private forest lands, which comprises approximately one half of our annual usage, is performed by accredited logging professionals in good standing with the Montana Logging Association and their commitment to education and sustainability. Additionally, Pyramid commits to recognition of forests with exceptional conservation value in considering fiber sourcing opportunities through awareness of environmentally significant attributes which occur within their sourcing area, such as critically imperiled or imperiled species, special sites or other factors in socially responsible production of wood products. Log sellers marketing their logs through Log Purchase Agreements with Pyramid are increasingly achieving accredited status or trained in *Forestry Best Management Practice, Montana's Streamside Management Zone Act,* First Aid and CPR and Safety. Annually, Pyramid conducts a contract-logger and Log Seller Meeting to discuss log quality, industry issues and to provide a forum for the Montana Logging Association to discuss safety and their educational programs advancing sustainable forestry.

Pyramid Mountain Lumber, Inc. is a small business in Seeley Lake, Montana, locally owned and in operation for over 70 years. The owners are proud of the heritage and success in providing 140 full time direct jobs and an equal number of jobs in contract logging and trucking. Pyramid is committed to economically and environmentally responsible sustainable forestry practices. The second and third generation owners are not only committed to sustainable forestry, but are striving to continuously improve harvest practices further protecting Montana's timber, wildlife, air, soil and water resources. They believe active forest management can create healthy forests and improve other resource values. Society benefits include enhanced recreational opportunities and affordable, high quality forest products.

Todd L. Johnson, President

Charles Parke, Vice President

Roger D. Johnson, Director

Steven D. Johnson, Secretary-Treasurer

Pyramid Mountain Lumber, Inc.
Program to Promote the Use of
Qualified Logging and Resource Professionals

PML employs qualified logging contractors and qualified resource professionals as identified by the Montana Logging Association (MLA) and the Montana SFI Implementation Committee (SIC). Qualified contractors and qualified professionals are required to maintain a minimum number of continuing education credits and be included on the MLA's current list of trained professionals.

PML will encourage all contractors to complete required training and apply the principles of sustainable forest management in their operations.

PML will promote the use of logging professionals.

Revised January 1, 2015

America's Renewable Resource

In the United States the demand for wood products is projected to increase nearly 40% by the middle of this century. Fortunately, our country has some of the most productive timberland in the world. Despite a 150% increase in human population*, the U.S. has about the same acreage of forest lands as it did in 1920.**

* U.S. Census Data ** FIA Data

In Montana, we are growing more trees than we harvest.

Net annual growth in Montana's forests far exceeds timber harvest. Montana forest landowners are dealing with an emerging trend of increased tree mortality due to insect, disease and wildfire occurrence. For more information on forest statistics see http://fia.fs.fed.us/

The Sustainable Forestry Initiative is governed by an independent body: the Sustainable Forestry Board. Visit www.aboutsfb.org for detailed information. SFI® has a new 2005 certification standard, which includes the following forest principles:

Meet the needs of the present without compromising forest use by future generations.

Promote both environmentally and economically responsible practices on all forestlands.

Improve long-term forest health and productivity by protecting forests against wildfire, pests, and disease.

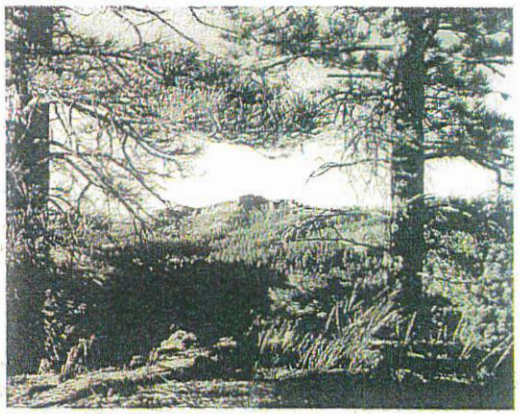
Manage forests of biological, geological, or historical significance to protect their special qualities.

Protect water bodies and riparian zones and protect and maintain long-term forest and soil productivity. Comply with all applicable environmental laws and regulations

Continuously improve forest management and regularly track progress toward achieving the goal of sustainable forestry.

Sustainable forestry provides many benefits to society and provides for the maintenance and renewal of our forested environments. To learn more about sustainable forestry in Montana, or if you have questions or concerns, call the Montana Forest Council, toll free: 1-877-652-5647

Sustainable Forestry in Montana



Patrick Heffernan

PYRAMID MOUNTAIN LUMBER INC.

The Stewardship Company

Join Our Commitment to Sustainable Forestry!

PRODUCED BY
THE MONTANA FOREST COUNCIL

In Montana, there are continuing efforts to improve the way we practice forestry, by pulling together large and small landowners, loggers, and forest products companies that purchase wood. We participate in the Montana Forest Council, to help promote the practice of sustainable forestry. We have gone an extra step to certify our lands and operations under the Sustainable Forestry Initiative (SFI•), an internationally-recognized forest certification program.

We have pledged to take a long-term approach to the environment on the lands we own and manage. What does this mean for our forestry operations in Montana? Among other things, it means we will continue to:

- ***Protect Water Quality***
  Soil protection will be designed into road construction and harvesting operations using forestry Best Management Practices (BMP's). Strict adherence to the Streamside Management Zone (SMZ) law will ensure protection of riparian areas and water quality.

Patrick Heffernan

- ***Enhance Wildlife Habitat***
  Green trees, shrubs, snags and down logs will be protected to promote nesting and denning sites, hiding cover and browse for wildlife.

- ***Ensure Prompt Reforestation***
  Harvest sites will be reforested in a timely manner by planting, seeding or planned natural regeneration.

Dick Hancock

- ***Minimize Visual Impacts of Harvesting***
  Cutting units will be designed to blend with the natural landscape. When clearcutting is the most appropriate forest management tool, the size of harvest areas will be controlled.

In Montana, the Montana Forest Council (MFC) is an organization that promotes sustainable forestry and assists in the state level administration of SFI•. MFC promotes and supports educational programs that help provide answers and reasons, not just rules. These efforts include:

- ***Forest Stewardship Workshops for Landowners*** Are designed to empower family forest landowners with the knowledge required to make informed stewardship decisions on their land.

- ***The Accredited Logging Professional Program*** ALP encourages professional growth and knowledge to advance forest stewardship in timber harvesting. Continuing education covers BMP's and the SMZ law, Forest Stewardship, Endangered Species, Riparian Area Management, Logging Safety, Forest Road Construction & Maintenance, Harvesting, Aesthetics and other topics.

Patrick Heffernan

- ***Support Outreach & Educational Opportunities***
  Montana State University Extension Forestry Mini-Colleges Montana Forest Owners Association Montana Forest Stewardship Foundation Montana Natural Resources Youth Camp Montana Tree Farm Program Family Forestry Expo

Today's forest products industry is concerned with more than simply meeting consumer demands for wood and paper products. Join our commitment to sustainable forestry to ensure that future generations of Americans will have the abundant forests we all enjoy today.

MONTANA **FOREST ACTION** PLAN

Fire, insects, and disease don't stop at fence lines. Neither should our management.

TAKING **ACTION**

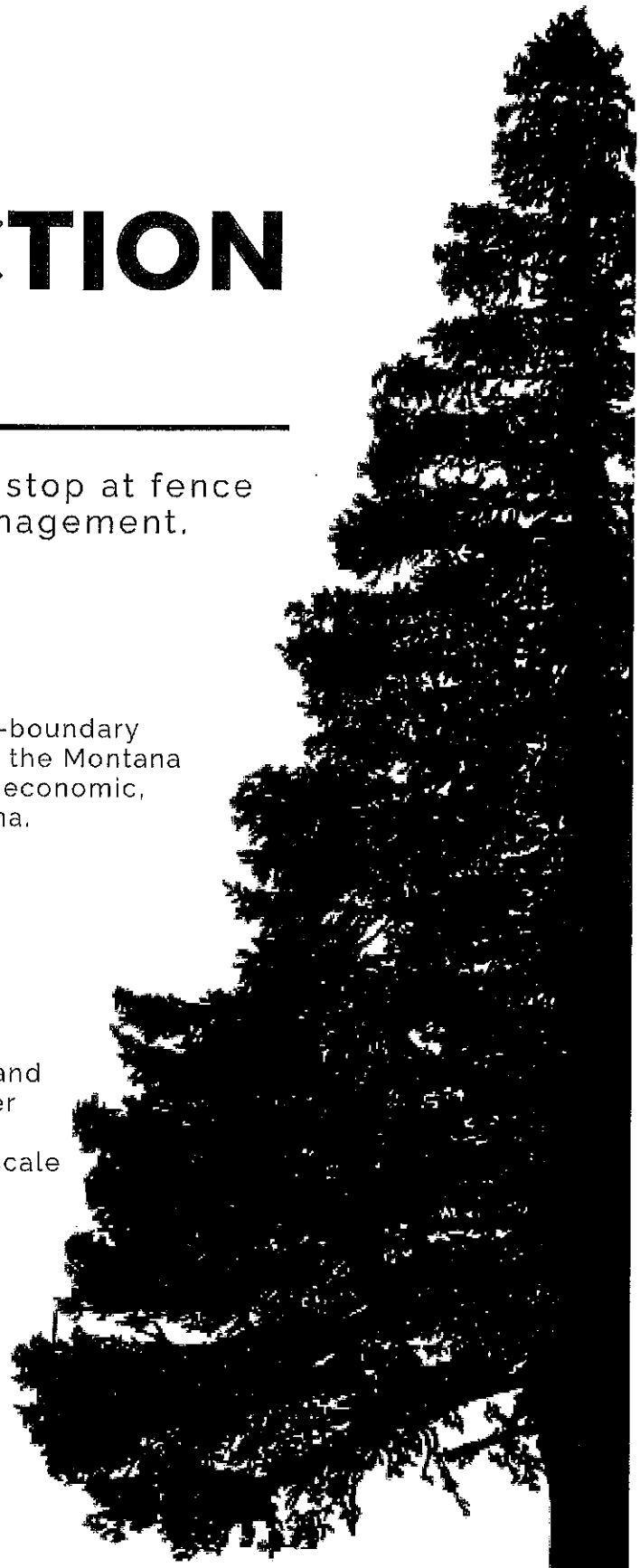
Through collaborative, science-focused, cross-boundary and shared landscape management strategies, the Montana Forest Action Plan will benefit social, cultural, economic, and biophysical forested landscapes of Montana.

COLLABORATIVE PARTNERSHIPS

The Montana Forest Action Plan will prioritize and amplify collaborative efforts that bring together Montanans representing diverse perspectives, interests, and expertise to achieve landscape scale forest restoration and management.

HEALTHY, SUSTAINABLE FORESTS

Part of Montana's legacy is built on our forests. The Montana Forest Action Plan will work to make sure that legacy continues by keeping Montana's forests healthy and sustainable for generations to come.



THE **HISTORY**

Under the authority of the 2008 and 2014 Farm Bill, Congress tasked the states and territories to assess the condition of the forests within their boundaries, regardless of ownership, and develop strategies to promote forest health and resiliency through a State Forest Action Plan.

In 2017, Governor Bullock launched the Forests in Focus 2.0 Initiative, ordering the revision of Montana's Forest Action Plan to be completed by September 2020. The Montana Forest Action Plan will outline a plan of work with goals and objectives to address forest health and wildland fire risk to communities, watersheds, and infrastructure.

Under Forests in Focus 2.0, the Montana Department of Natural Resources and Conservation will serve as the principal convener and will work to unite inter-agency partners and other groups from across the state to develop recommendations for improving forest health and keeping local communities wildfire resilient.

MONTANA **FOREST ACTION** ADVISORY COUNCIL

The Montana Forest Action Advisory Council is a group of proven collaborators brought together by Governor Bullock's Executive Order No. 7-2019 to help develop and implement the Montana Forest Action Plan. The Council is a group of Montanans representing federal, state, local, and tribal governments; industry partners; conservation organizations; collaborative and watershed groups; recreation organizations; and other relevant partners to help develop and implement the Montana Forest Action Plan.

THE **PLAN**

The 2020 Montana Forest Action Plan will serve as Montana's all lands, all hands plan for addressing forest health and wildland fire risk issues across the state of Montana. It will not conflict with any existing land management plans and it consists of three main parts:

THE ASSESSMENT

The Statewide Assessment of Forest Conditions will provide an updated analysis of forest conditions and wildfire risk across the state. Available January 2020.

PRIORITY AREAS

The Priority Areas will determine where in the state we need to focus capacity and on-the-ground support to communities. Available February 2020.

THE STRATEGY

The Strategy will outline an implementation plan to address forest health and wildfire risk.
Available September 2020.

Convened by MT DNRC

Want to know more? Tell us what you think.

www.montanaforestactionplan.org

Managing your timber resource: Which trees to cut, which trees to leave?

Peter Kolb (PhD), MSU Extension Forestry Specialist
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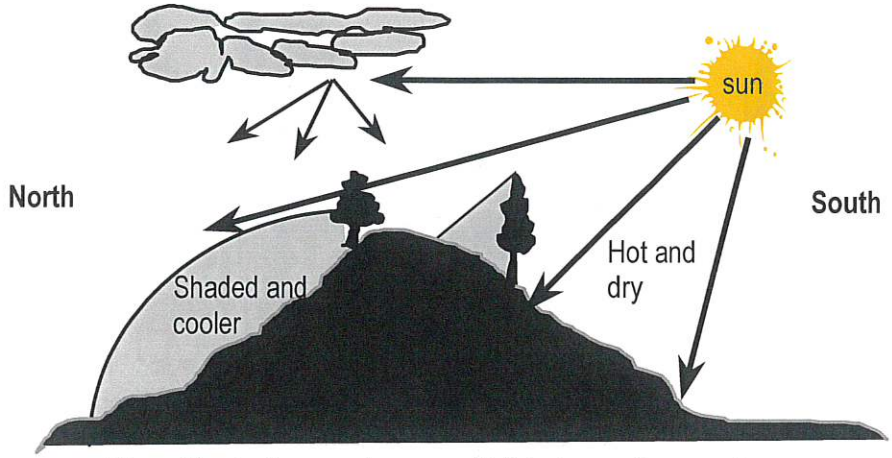
The first step in any type of land management is to formulate a set of objectives and goals for the acreage in question. While these goals will reflect the personal needs of the landowner, whether they are to minimize human impact on the land in question or convert it into a plantation, these goals should also be tempered by the ecological capacity of the site. Throughout history, the biggest "screw-ups" occurred when land managers tried to impose objectives that the land was incapable of supporting. With that in mind, all forested land management goals and objectives ultimately involve which trees should be left and which trees should be removed from a particular site. The most daunting challenge to the art and science of forestry is still represented by this basic decision making process, and can result in leaving all the trees or cutting every tree. To a forest landowner, setting objectives and goals for their land is relatively simple compared to finally standing in the forest and trying to decide which trees to favor.

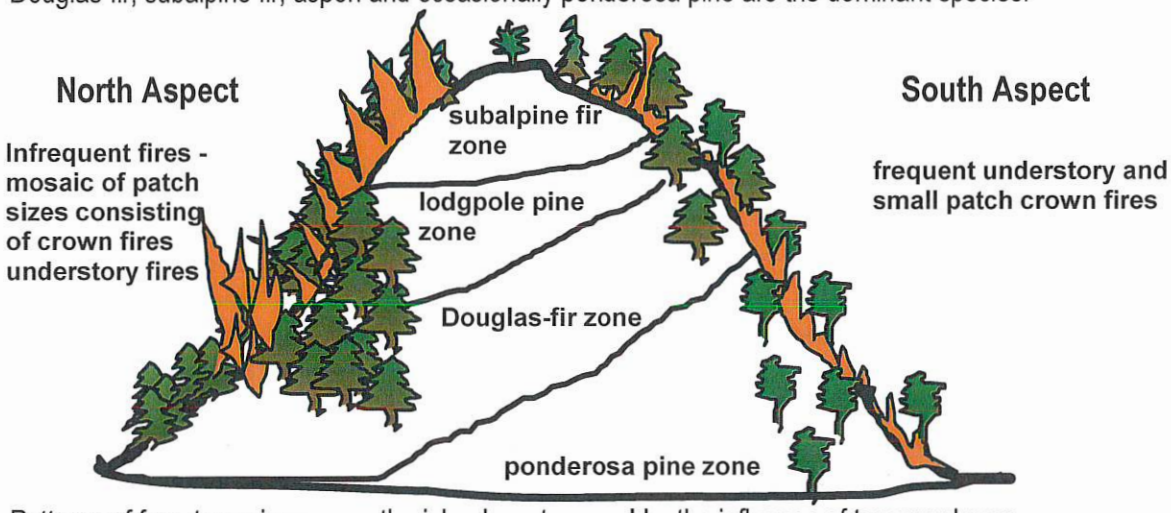
With the recognition that any forest management practice on a portion of the landscape will impact the functioning of the rest of the landscape, the first step in deciding which tree to leave or cut involves determining what scale of tree removal will work best for the landscape. One technique is to first determine what patterns of natural disturbance occurred on the property in question. The best tools for this determination are to look at the topographic position of the property, and then to look for clues in the forested stand structure and composition. Topography affects how much energy from the sun is transferred to the plants and soil. South slopes intercept almost all the sun's energy and are hot and dry, north slopes receive most of their sunlight from light reflected off the atmosphere and are, therefore, cooler and often wetter. East and west slopes get equal energy from morning or afternoon sun, however, the air temperature is usually already at its highest point of the day in the afternoon, thus west slopes start getting direct sunlight when they are already warmed up, making them warmer than east slopes. Typically the temperature rating from hottest to coolest aspects follows a south, west, east and north slope pattern.



The effect of aspect on sunlight absorption and temperature regimes

The suns energy absorption and resulting temperature patterns are important because they control the moisture availability of the site, and the combined moisture and temperature regime determines the tree species and also the potential for wildfire to occur. In the inland western United States wildfire has been shown to have been the single largest disturbance force that forests have

evolved with and in some cases are dependant on. In a general sense, the pattern of fire history is closely related to landscape topography. Hotter drier slopes, ie. southern and western aspects tended to burn more frequently than northern and eastern aspects. Tree species, understory vegetation, and forest structures reflect those differences in disturbance patterns. Forests that experienced frequent fires (every 3 – 10 years) support an open forest structure with a predominance of ponderosa pine and Douglas-fir, usually at lower elevations. Those areas that supported a combination of frequent and infrequent fires (10 – 100 years) are characterized by a patchwork of stand structures including multi-aged and even-aged stands with species that include ponderosa pine, Douglas-fir, aspen and lodgepole pine. These sites typically occur at higher elevation south slopes, intermediate elevation east and west slopes and across north aspects. Since north slopes are typically cooler and wetter than other aspects, they also support faster tree growth, which allows dense stand conditions and large amounts of fuel to develop. In addition, a drought event coinciding with a lightning strike is usually required for a fire to get started. This typically results in large forest stand replacing fires that occur at a frequency of greater that 100 years and created areas greater than 50 acres in size of even-aged trees, of which lodgepole pine, Douglas-fir, subalpine fir, aspen and occasionally ponderosa pine are the dominant species.



Patterns of forest species across the inland west caused by the influence of topography on temperature and soil water availability has also created different patterns of fire disturbance across the landscape.

Frequent understory fire
Savannah & 1-5 acre patches

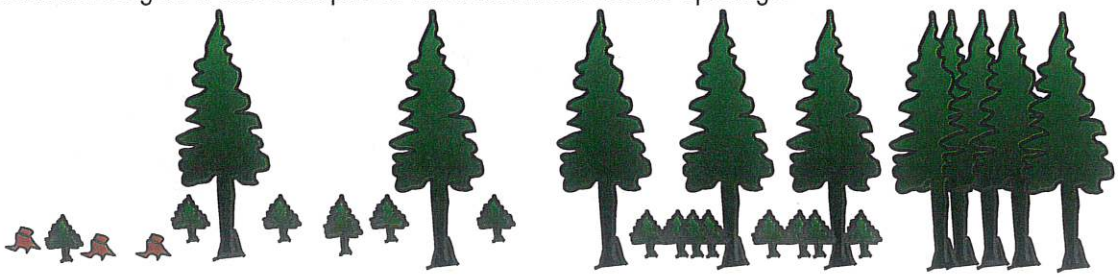
Mixed severity fire
1-20 acre patches

Infrequent stand replacing fire
5-2000 acre patches

Different patterns of disturbance result in unique adaptations of species and distinct patterns of forest stand structures and composition. By knowing which types of structures and disturbance patterns have historically occurred, we can tailor our forest management to simulate past disturbances without the destructive consequences of fire. This will provide the necessary habitat

for all of the organisms that over the centuries have become dependant on these unique forest patterns and structures.

Forest management practices of the past typically focused on the ecosystems where large stand replacement fires shaped the forests. The practice of clearcutting, seed tree and shelterwood cuts, all of which are referred to as "evenaged" management practices, are well suited for simulating stand replacement or crown fires. Which of these practices was used depended largely on the species mixture and individual tree characteristics in a stand. Where individual trees of desirable species have stem and crown dimensions that suggest their ability to withstand the shock of a more open environment, a seed tree or shelterwood cut is recommended. Stands that are dominated by sick or suppressed trees may benefit greatest from a series of clearcuts. Tree species that require full sunlight (shade intolerant) such as ponderosa pine, lodgepole pine and aspen will benefit from larger openings. Species that prefer intermediate shade (shade tolerant) such as Douglas-fir and subalpine fir will benefit from smaller openings.



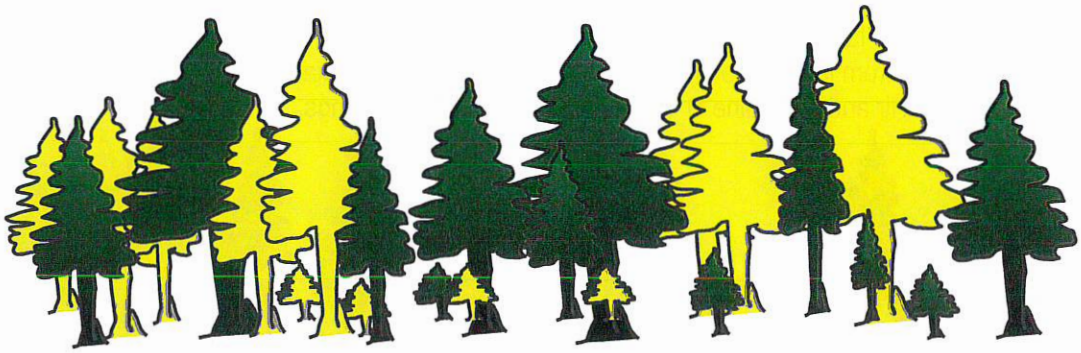
Clearcut **Seed tree *(shade intolerant)*** **Shelterwood *(shade tolerant)***

Sites that typically had mixed severity fires provide for the greatest options in forest management practices. Simulating those types of disturbance often calls for patches of trees to be treated differently although large scale evenaged treatments also work. Often the stand of trees itself will indicate what naturally would have occurred. For example, an area that has dense standing trees with large amounts of down woody debris would have led to a crown fire, burning all trees in that area and creating a large clearing. Stands that have a random spacing of dense and open grown trees would have burned in clumps creating small opening while leaving the more open spaced trees intact. Areas that are composed of large well spaced trees would have supported a fire that stayed on the ground with an occassional tree burning up. Mosaics such as these provide multistructural forests and are often the most productive wildlife habitats. Harvesting patterns can vary from several acre openings to individual tree selection. It is important to recognize that many different treatments can be used within the same stand of trees.

Single tree selection and group selection (*light color are cut trees*)

Drier ponderosa pine and Douglas-fir sites usually supported frequent fires that kept most of the stands in an open savanah- like composition. Quite often these areas are also used extensively by

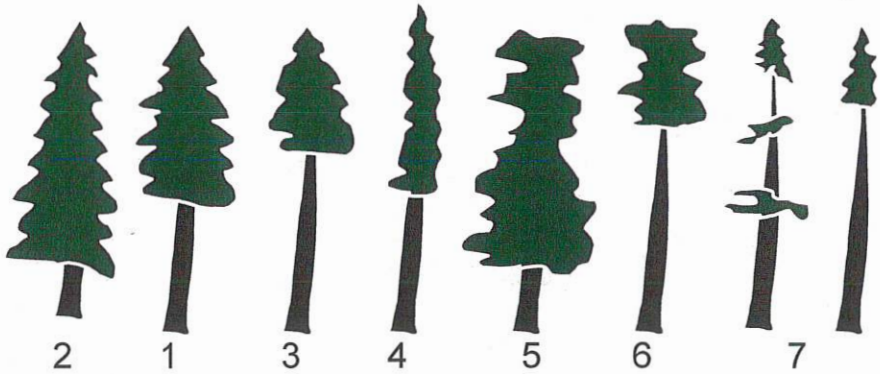
deer and elk for winter range because of the lush bunchgrass understory that was promoted by frequent fires. In the absence of fire prolific tree regeneration can occur resulting in dense stagnant stands of small diameter pine and fir trees. These stands not only represent a significant fire danger, but lose their bunchgrass understory to shading resulting in loss of winter range. Overgrazing of such sites will accelerate the development of dense tree regeneration. Land managers are often challenged in their efforts to restore such situations because there are currently poor markets for small diameter tree stems making these sites expensive to manage. Thinning combined with with light grazing (to reduce the fire hazard from cured grasses) is a good management alternative for these sites. Unevenaged management is also a good option on these sites.



Thinning and unevenaged management (*light color indicates cut trees*)

Tree selection criteria for vigorous high value trees

The criteria used for determining which individual trees to cut or leave are usually based upon their crown characteristics. Since the green needles are the food producing part of the tree, the more needles a tree has, the better the growth rates will be. In general, if less than a third of the entire tree height supports green needles, the tree is a poor choice as a leave tree. Optimal tree crowns occupy between 60 and 40 % of the tree height. Greater than 60% crown area results in a healthy tree, however one that also requires more water, nutrients and space relative to the amount of stem wood it produces. Less than 30% crown results in a tree that is top heavy and subject to wind breakage, slow growing, and often reflects a poor root system that may be inadequate to supply the tree with enough water during dry periods. Trees of lesser quality may eventually recover if left, however, it often takes them close to 10 years to develop a more vigorous crown.



1) Best form **2)** Still good -knotty wood **3)** Will recover though risk of wind breakage **4)** Over crowded, may sun scald, may recover **5)** An older # 2, good wildlife, may live another century **6)** Overmature, low vigor, high risk **7)** Diseased, low vigor, raptor nest trees

Tree selection for wildlife
Wildlife requires food sources and hiding cover. Tree structural and species diversity are the most common desired components for wildlife. Tree selection criteria should favor size and crown diversity. A spindly tree with a small crown may be favored by an owl or eagle whereas a dense bushy shrub is preferred by nesting warblers. Large snags, vigorous trees, odd shaped trees all contribute to wildlife habitat. For diversity, clumps of dense, evenaged trees can also be left in a mosaic with savannah-like openings. Wildlife species are especially sensitive to changes in their historical forest enviroment. It is important to match the patch size of the management areas to the patch size that fire historically created.

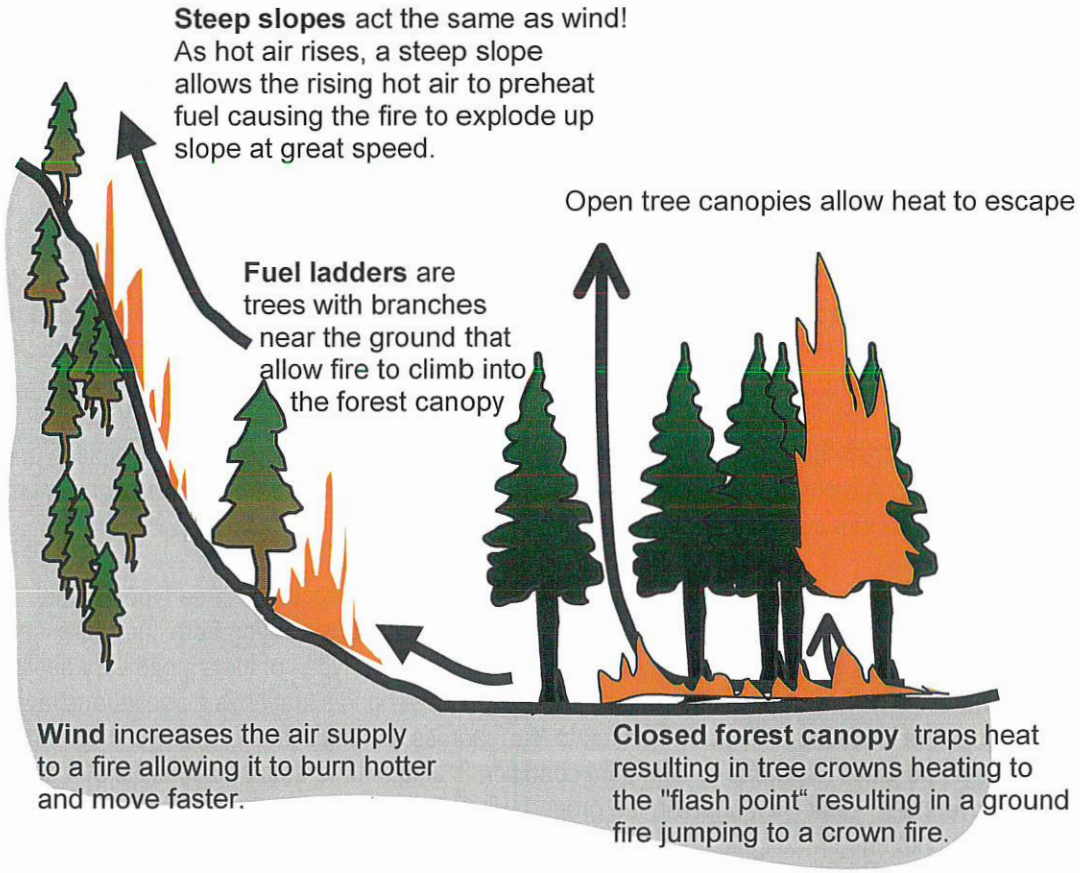
Insect and disease criteria
Most insects and diseases prefer specific tree species. Observing which tree species is suffering in a stand of trees will often indicate which species to select more heavily against. It is easy to overreact, however. Some degree of tree mortality is normal and necessary as insects are an important food source for a variety of wildlife species. Maintaining a healthy population of insect predators is the best way to keep pests in balance. Selecting for a diversity of tree species will keep any one insect or disease from devastating an entire stand of trees.

The wildfire issue
Although it is extremely important for humans to consider the historical ecology of a forest ecosystem when we contemplate alternative management scenarios, it is of equal importance to consider the risks associated with wildfire. Wildfire does not respect property boundaries and has little concern for human residences other than the fact that a house is a fuel to be consumed. When considering managing your forest, several facts about wildfire need to be taken very seriously. First, there is no such thing as a "fireproof" forest. Second, we need to take into consideration wildfire behavior during normal years when weather patterns are fairly typical, and we need to take into consideration wildfire behavior during "extreme" years when drought, wind and lightning are much more prevalent than normal.

Forest wildfires typically erupt into dangerous events when they encounter three types of fuel conditions. The first is an accumulation of "fine" fuels - dead debris ranging from cured grasses to dead tree branches less than 4 inches in diameter. Since these types of fuels ignite very easily, a lightening strike or spark will easily start and spread. The second situation is a continuous layer of fuel across the landscape. This allows fires to "run" across the landscape creating enough energy to preheat and ignite larger fuels. The third condition is unique to forests and consists of a dense conifer overstory. Heat from a fire on the ground will get trapped by the dense canopy until the needles get hot enough to ignite into a "crown" fire. If a continuous dense forest canopy exists across the landscape, condition two will be met and a running crown fire will result, often creating flames over 300-ft tall. It is often impossible or undesireable to create forest conditions that remove all fine fuels or dense forest canopies. However, by manipulating the distribution of these conditions across the landscape it is possible to create "fuel breaks" that will slow a fire down and allow control measures to be used effectively.

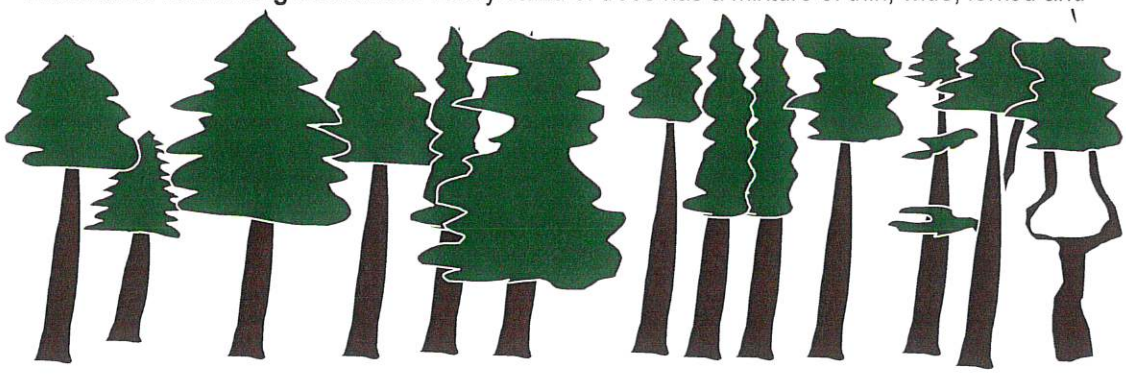
During typical years, south aspects are more subject to fire danger because they are hotter and drier than north aspects. A rigorous management strategy that addresses dried grasses as well as tree density needs to be considered. Since these aspects historically supported frequent fires, manageing these areas for more open savannah stands with some minor proportion in denser patches meets the ecological as well as fire danger issues.

North aspects represent a unique situation since they are often capable of growing a very productive dense forest. Ecologically, dense forests have been the normal condition and the wildlife that frequents these areas usually desires this type of habitat. Landowners who build homes into this type of forest often desire privacy and enjoy the conditions of a dense forest. Since north aspects are often cooler and wetter than south aspects, they also do not burn as readily during a "normal" year. During and extreme year, however, north aspects often support severe wildfires that are diffucult or impossible to suppress. It is therefore important to consider more "heavy-handed" management to reduce the risk of severe wildfire near homes. As mentioned previously, it is impossible to "fireproof" a forest. It is possible to reduce the risk of severe wildfires however, by reducing the fuels in strategic areas around homesites and across the forest in a mosaic of firebreaks.

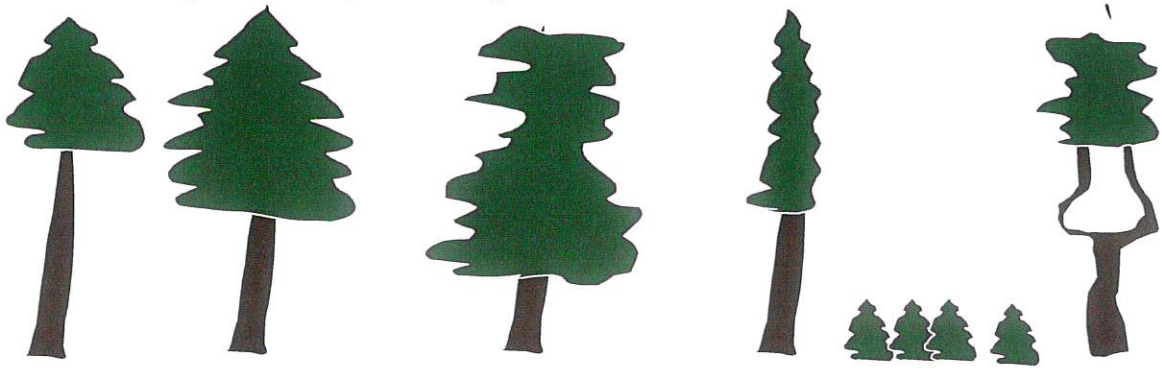


Factors affecting fire behavior

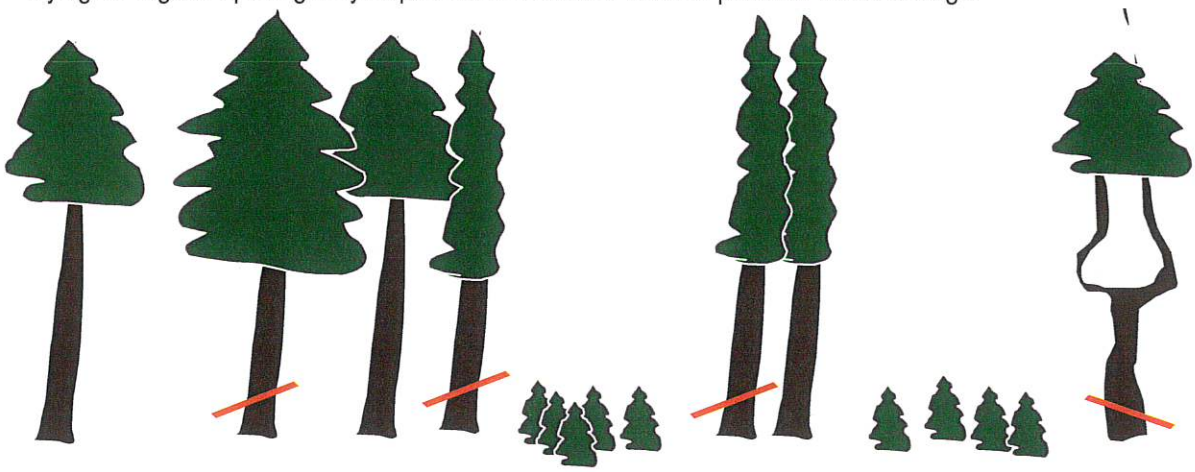
Alternative harvesting scenarios. Every stand of trees has a mixture of thin, wide, forked and



diseased crowns. "V" shaped crowns are inherited and are structurally weaker, "U " crowns are the result of prior tip damage and make good wildlife trees.



Dominant trees are left for aesthetics, forage production, wildlife and simulation of frequent fires. Trying for regular spacing may require some trees left that are prone to windbreakage.



Trees left based upon crown size and shape. Residual trees also have the ability to grow bigger for an eventual valuable product. Clumped pattern is determined by the natural occurrence of tree's with suitable crowns. Crowns prone to windbreakage are left in tighter groups for mutual protection. As crowns recover, more trees can be harvested for a wider spacing if desired. Selection criteria should be a trees ability to tolerate sudden opening of the stand, ability to grow well, and most importantly, ability to survive for a longer period of time. Simulates a mixed severity fire mosaic.

BEST MANAGEMENT PRACTICES FOR FORESTRY IN MONTANA

January 2006
* BMPs Not Monitored During Audits

I. DEFINITIONS

1. "Hazardous or toxic material" means substances which by their nature are dangerous to handle or dispose of, or a potential environmental contaminant, and includes petroleum products, pesticides, herbicides, chemicals, and biological wastes.

2. "Stream," as defined in 77-5-302(7), MCA, means a natural water course of perceptible extent that has a generally sandy or rocky bottom or definite banks and that confines and conducts continuously or intermittently flowing water.

3. "Streamside Management Zone (SMZ)" or "zone" as defined at 77-5-302(8), MCA means "the stream, lake, or other body of water and an adjacent area of varying width where management practices that might affect wildlife habitat or water quality, fish, or other aquatic resources need to be modified." The streamside management zone encompasses a strip at least 50 feet wide on each side of a stream, lake, or other body of water, measured from the ordinary high water mark, and extends beyond the high water mark to include wetlands and areas that provide additional protection in zones with steep slopes or erosive soils.

4. "Wetlands" mean those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include marshes, swamps, bogs, and similar areas.

5. Adjacent wetlands are wetlands within or adjoining the SMZ boundary. They are regulated under the SMZ law.

6. Isolated wetlands lie within the area of operation, outside of the SMZ boundary, and are not regulated under the SMZ law.

II. STREAMSIDE MANAGEMENT

The Streamside Management Law (77-5-301 through 307 MCA) provides minimum regulatory standards for forest practices in streamside management zones (SMZ). The "Montana Guide to the Streamside Management Zone & Rules" is an excellent information source describing management opportunities and limitations within SMZs.

III. ROADS

A. Planning and Location

1. Minimize the number of roads constructed in a watershed through comprehensive road planning, recognizing intermingled ownership and foreseeable future uses. Use existing roads, unless use of such roads would cause or aggravate an erosion problem.

2. Review available information and consult with professionals as necessary to help identify erodible soils and unstable areas, and to locate appropriate road surface materials.*

3. Fit the road to the topography by locating roads on natural benches and following natural contours. Avoid long, steep road grades and narrow canyons.

4. Locate roads on stable geology, including well-drained soils and rock formations that tend to dip into the slope. Avoid slumps and slide-prone areas characterized by steep slopes, highly weathered bedrock, clay beds, concave slopes, hummocky topography, and rock layers that dip parallel to the slope. Avoid wet areas, including moisture-laden or unstable toe slopes, seeps, wetlands, wet meadows, and natural drainage channels.

5. Minimize the number of stream crossings and choose stable stream crossing sites.

6. Locate roads to provide access to suitable (relatively flat and well-drained) log landing areas to reduce soil disturbance.*

B. Design

1. Properly design roads and drainage facilities to prevent potential water quality problems from road construction.*

2. Design roads to the minimum standard necessary to accommodate anticipated use and equipment. The need for higher engineering standards can be alleviated through proper road-use management.

3. Design roads to balance cuts and fills or use full bench construction (no fill slope) where stable fill construction is not possible.*

4. Design roads to minimize disruption of natural drainage patterns. Vary road grades to reduce concentrated flow in road drainage ditches, culverts, and on fill slopes and road surfaces.

C. **Road Drainage** Road Drainage is defined as all applied mechanisms for managing water in a non-stream crossing setting, road surface drainage, and overland flow; ditch relief, cross drains and drain dips)

1. Provide adequate drainage from the surface of all permanent and temporary roads. Use outsloped, insloped or crowned roads, and install proper drainage features. Space road drainage features so peak flow on road surfaces or in ditches will not exceed capacity.

   a. Outsloped roads provide a means of dispersing water in a low-energy flow from the road surface. Outsloped roads are appropriate when fill slopes are stable, drainage will not flow directly into stream channels, and transportation safety can be met.

   b. For in-sloped roads, plan ditch gradients steep enough, generally greater than 2% but less than 8%, to prevent sediment deposition and ditch erosion. The steeper gradients may be suitable for more stable soils; use the lower gradients for less stable soils.

   c. Design and install road surface drainage features at adequate spacing to control erosion; steeper gradients require more frequent drainage features. Properly constructed drain dips can be an economical method of road surface drainage. Construct drain dips deep enough into the subgrade so that traffic will not obliterate them.

2. Design all ephemeral draw culverts with adequate length to allow for road fill width. Minimum culvert size is 15 inch. Install culverts to prevent erosion of fill, seepage and failure as described in V.C.4 and maintain cover for culverts as described in V.C.6.

3. Design all relief culverts with adequate length to allow for road fill width. Protect the inflow end of all relief culverts from plugging and armor if in erodible soil. When necessary construct catch basins with stable side slopes. Unless water flows from two directions, skew ditch relief culverts 20 to 30 degrees toward the inflow from the ditch to help maintain proper function.

4. Where possible, install culverts at the gradient of the original ground slope; otherwise, armor outlets with rock or anchor downspouts to carry water safely across the fill slope.

5. Provide energy dissipaters (rock piles, slash, log chunks, etc.) where necessary to reduce erosion at outlet of drainage features. Crossdrains, culverts, water bars, dips, and other drainage structures should not discharge onto erodible soils or fill slopes without outfall protection.

6. Prevent downslope movement of sediment by using sediment catch basins, drop inlets, changes in road grade, headwalls, or recessed cut slopes.*

7. Route road drainage through adequate filtration zones or other sediment-settling structures to ensure sediment doesn't reach surface water. Install road drainage features above stream crossings to route discharge into filtration zones before entering a stream.

D. **Construction** (see also Section IV on stream crossings)

1. Keep slope stabilization, erosion and sediment control work current with road construction. Install drainage features as part of the construction process, ensuring that drainage structures are fully functional. Complete or stabilize road sections within same operating season.*

2. Stabilize erodible, exposed soils by seeding, compacting, riprapping, benching, mulching, or other suitable means.

3. At the toe of potentially erodible fill slopes, particularly near stream channels, pile slash in a row parallel to the road to trap sediment (example, slash filter windrow). When done concurrently with road construction, this is one method that can effectively control sediment movement, and it can also provide an economical way of disposing of roadway slash. Limit the height, width and length of "slash filter windrows" so wildlife movement is not impeded. Sediment fabric fences or other methods may be used if effective.

4. Minimize earthmoving activities when soils appear excessively wet. Do not disturb roadside vegetation more than necessary to maintain slope stability and to serve traffic needs.*

5. Construct cut and fill slopes at stable angles to prevent sloughing and other subsequent erosion.

6. Avoid incorporating potentially unstable woody debris in the fill portion of the road prism. Where possible, leave existing rooted trees or shrubs at the toe of the fill slope to stabilize the fill.

7. Consider road surfacing to minimize erosion.*

8. Place debris, overburden, and other waste materials associated with construction and maintenance activities in a location to avoid entry into streams. Include these waste areas in soil stabilization planning for the road.

9. Minimize sediment production from borrow pits and gravel sources through proper location, development and reclamation.

10. When using existing roads, reconstruct only to the extent necessary to provide adequate drainage and safety; avoid disturbing stable road surfaces. Prior to reconstruction of existing roads within the SMZ, refer to the SMZ law. Consider abandoning existing roads when their use would aggravate erosion.

E. Maintenance

1. Grade road surfaces only as often as necessary to maintain a stable running surface and adequate surface drainage.

2. Maintain erosion control features through periodic inspection and maintenance, including cleaning dips and crossdrains, repairing ditches, marking culvert inlets to aid in location, and clearing debris from culverts.

3. Avoid cutting the toe of cut slopes when grading roads, pulling ditches, or plowing snow.

4. When plowing snow, provide breaks in snow berm to allow road drainage.*

5. Haul all excess material removed by maintenance operations to safe disposal sites and stabilize these sites to prevent erosion. Avoid sidecasting in locations where erosion will carry materials into a stream.*

6. Avoid using roads during wet periods if such use would likely damage the road drainage features. Consider gates, barricades or signs to limit use of roads during spring break up or other wet periods.

7. Upon completion of seasonal operations, ensure that drainage features are fully functional. The road surface should be crowned, outsloped, insloped, or water-barred. Remove berms from the outside edge where runoff is channeled.*

8. Leave abandoned roads in a condition that provides adequate drainage without further maintenance. Close these roads to traffic; reseed and/or scarify; and, if necessary, recontour and provide water bars or drain dips.

IV. TIMBER HARVESTING, AND SITE PREPARATION

A. Harvest Design

1. Plan timber harvest in consideration of your management objectives and the following*:

    a. Soils and erosion hazard identification.
    b. Rainfall.
    c. Topography.
    d. Silvicultural objectives.
    e. Critical components (aspect, water courses, landform, etc.).
    f. Habitat types.
    g. Potential effects on water quality and beneficial water uses.
    h. Watershed condition and cumulative effects of multiple timber management activities on water yield and sediment production.
    i. Wildlife habitat.

2. Use the logging system that best fits the topography, soil type, and season, while minimizing soil disturbance and economically accomplishing silvicultural objectives.

3. Use the economically feasible yarding system that will minimize road densities.*

4. Design and locate skid trails and skidding operations to minimize soil disturbance. Using designated skid trails is one means of limiting site disturbance and soil compaction. Consider the potential for erosion and possible alternative yarding systems prior to planning tractor skidding on steep or unstable slopes.*

5. Locate skid trails to avoid concentrating runoff and provide breaks in grade. Locate skid trails and landings away from natural drainage systems and divert runoff to stable areas. Limit the grade of constructed skid trails on geologically unstable, saturated, highly erosive, or easily compacted soils to a maximum of 30%. Use mitigating measures, such as water bars and grass seeding, to reduce erosion on skid trails.

6. Minimize the size and number of landings to accommodate safe, economical operation. Avoid locating landings that require skidding across drainage bottoms.

B. Other Harvesting Activities

1. Tractor skid where compaction, displacement, and erosion will be minimized. Avoid tractor or wheeled skidding on unstable, wet, or easily compacted soils and on slopes that exceed 40% unless operation can be conducted without causing excessive erosion. Avoid skidding with the blade lowered. Suspend leading ends of logs during skidding whenever possible.

2. Avoid operation of wheeled or tracked equipment within isolated wetlands, except when the ground is frozen (see Section VI on winter logging).

3. Use directional felling or alternative skidding systems for harvest operations in isolated wetlands.*

4. For each landing, provide and maintain a drainage system to control the dispersal of water and to prevent sediment from entering streams.

5. Insure adequate drainage on skid trails to prevent erosion. On gentle slopes with slight disturbance, a light ground cover of slash, mulch or seed may be sufficient. Appropriate spacing between water bars is dependent on the soil type and slope of the skid trails. Timely implementation is important.

6. When existing vegetation is inadequate to prevent accelerated erosion, apply seed or construct water bars before the next growing season on skid trails, landings and fire trails. A light ground cover of slash or mulch will retard erosion.*

C. Slash Treatment and Site Preparation

1. Rapid reforestation of harvested areas is encouraged to reestablish protective vegetation.*

2. When treating slash, care should be taken to preserve the surface soil horizon by using appropriate techniques and equipment. Avoid use of dozers with angle blades.

3. Minimize or eliminate elongated exposure of soils up and down the slope during mechanical scarification.*

4. Scarify the soil only to the extent necessary to meet the resource management objectives. Some slash and small brush should be left to slow surface runoff, return soil nutrients, and provide shade for seedlings.

5. Carry out brush piling and scarification when soils are frozen or dry enough to minimize compaction and displacement.

6. Carry out scarification on steep slopes in a manner that minimizes erosion. Broadcast burning and/or herbicide application is preferred means for site preparation, especially on slopes greater than 40%.

7. Remove all logging machinery debris to proper disposal site.*

8. Limit water quality impacts of prescribed fire by constructing water bars in firelines; not placing slash in drainage features and avoiding intense fires unless needed to meet silvicultural goals. Avoid slash piles in the SMZ when using existing roads for landings.

V. STREAM CROSSINGS

A. Legal Requirements

1. Under the Natural Streambed and Land Preservation Act of 1975 (the "310 law"), any activity that would result in physical alteration or modification of a perennial stream, its bed or immediate banks must be approved in advance by the supervisors of the local conservation district. Permanent or temporary stream crossing structures, fords, riprapping or other bank stabilization measures, and culvert installations on perennial streams are some of the forestry-related projects subject to 310 permits.

   Before beginning such a project, the operator must submit a permit application to the conservation district indicating the location, description, and project plans. The evaluation generally includes on-site review, and the permitting process may take up to 60 days.

2. Stream-crossing projects initiated by federal, state or local agencies are subject to approval under the "124 permit" process (administered by the Department of Fish, Wildlife and Parks), rather than the 310 permit.

3. A short-term exemption (3a authorization) from water quality standards is necessary unless waived by the Department of Fish, Wildlife and Parks as a condition of a 310 or 124 permit. Contact the

Department of Environmental Quality in Helena at 444-2406 for additional information.

B. **Design Considerations** (Note: 310 permit required for perennial streams)

1. Cross streams at right angles to the main channel if practical. Adjust the road grade to avoid the concentration of road drainage to stream crossings. Direct drainage flows away from the stream crossing site or into an adequate filter.

2. Avoid unimproved stream crossings. Depending on location, culverts, bridges and stable/reinforced fords may be used.

C. **Installation of Stream Crossings** (Note: 310 permit required for perennial streams)

1. Minimize stream channel disturbances and related sediment problems during construction of road and installation of stream crossing structures. Do not place erodible material into stream channels. Remove stockpiled material from high water zones. Locate temporary construction bypass roads in locations where the stream course will have minimal disturbance. Time construction activities to protect fisheries and water quality.

2. Design stream-crossings for adequate passage of fish (if present) with minimum impact on water quality. When using culverts to cross small streams, install those culverts to conform to the natural stream bed and slope on all perennial streams and on intermittent streams that support fish or that provides seasonal fish passage. Ensure fish movement is not impeded. Place culverts slightly below normal stream grade to avoid outfall barriers.

3. Do not alter stream channels upstream from culverts, unless necessary to protect fill or to prevent culvert blockage. On stream crossings, design for, at a minimum, the 25-year frequency runoff. Consider oversized pipe when debris loading may pose problems. Ensure sizing provides adequate length to allow for depth of road fill.

4. Install stream-crossing culverts to prevent erosion of fill. Compact the fill material to prevent seepage and failure. Armor the inlet and/or outlet with rock or other suitable material where feasible.

5. Consider dewatering stream crossing sites during culvert installation.*

6. Maintain a 1-foot minimum cover for stream-crossing culverts 15 to 36 inches in diameter, and a cover of one-third diameter for larger

culverts, to prevent crushing by traffic.

7. Use culverts with a minimum diameter of 15 inches for permanent stream crossings.*

D. Existing Stream Crossing

1. Ensure stream crossing culverts have adequate length to allow for road fill width and are maintained to preserve their hydrologic capacity. To prevent erosion of fill, provide or maintain armoring at inlet and/or outlet with rock or other suitable material where feasible. Maintain fill over culvert as described in V.C. 6.

VI. Winter Logging

A. General

1. Consider snow-road construction and winter harvesting in isolated wetlands and other areas with high water tables or soil erosion and compaction hazards.*

2. Conduct winter logging operations when the ground is frozen or snow cover is adequate (generally more than one foot) to prevent rutting or displacement of soil. Be prepared to suspend operations if conditions change rapidly, and when the erosion hazard becomes high.*

3. Consult with operators experienced in winter logging techniques.*

B. Road Construction and Harvesting Considerations

1. For road systems across areas of poor bearing capacity, consider hauling only during frozen periods. During cold weather, plow any snow cover off of the roadway to facilitate deep freezing of the road grade prior to hauling.*

2. Before logging, mark existing culvert locations. During and after logging, make sure that all culverts and ditches are open and functional.*

3. Use compacted snow for road beds in unroaded, wet or sensitive sites. Construct snow roads for single-entry harvests or for temporary roads.*

4. In wet, unfrozen soil areas, use tractors or skidders to compact the snow for skid road locations only when adequate snow depth exists.

Avoid steeper areas where frozen skid trails may be subject to erosion the next spring.*

5. Return the following summer and build erosion barriers on any trails that are steep enough to erode.*

VII. HAZARDOUS SUBSTANCES

A. General

1. Know and comply with regulations governing the storage, handling, application (including licensing of applicators), and disposal of hazardous substances. Follow all label instructions.

2. Develop a contingency plan for hazardous substance spills, including cleanup procedures and notification of the State Department of Environmental Quality.*

B. Pesticides and Herbicides

1. Use an integrated approach to weed and pest control, including manual, biological, mechanical, preventive and chemical means.*

2. To enhance effectiveness and prevent transport into streams, apply chemicals during appropriate weather conditions (generally calm and dry) and during the optimum time for control of the target pest or weed.*

FORESTS
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SPECIES AND COMMUNITIES OF CONCERN IN MONTANA

Information for Family Forest Owners

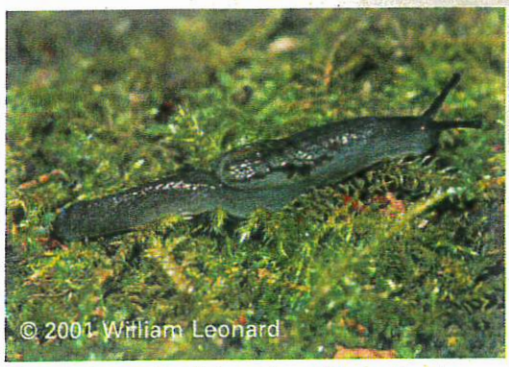
One of the more alarming environmental issues of our time is the worldwide decline in forest habitat and the related loss of biodiversity. As a good land steward, it's important to be aware of plant and animal species and ecological communities of concern that are designated as "imperiled, critically imperiled, threatened, or endangered" and how forest management activities on your lands may affect these species. 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 or the Canadian Species at Risk Act and may also be listed under state or provincial laws; yet they may or may not be listed as critically imperiled or imperiled, globally.

The Montana Natural Heritage Program can provide information on species of concern in your area. Log on to www.mtnhp.org, or call the **Montana Natural Heritage Program** office at (406) 444-5354. **NatureServe**, www.natureserve.org, has additional information on species and communities of concern. These organizations coordinate the management of inventories of biological diversity in the U.S. and Canada.

The Sustainable Forestry Initiative® (SFI) program (www.aboutsfi.org) combines the perpetual growing and harvesting of trees with the long-term protection of wildlife, plants, soil and water quality. To meet the SFI Standard, program participants who procure wood from family forest owners provide outreach opportunities to family forest owners on conservation of biodiversity for imperiled species.

In Montana, the SFI program has partnered with Forests for Watersheds & Wildlife™ to provide you with a series of profiles on species of concern native to Montana's forests. The species and communities featured in this profile are examples of many that depend on family forest owners for protection. To view other profiles, visit www.forestedflyways.org.

Marbled jumping slug — *Hemphillia danielsi*



A small, flat shell found on the top hump is an identifying characteristic

The marbled jumping slug is an imperiled (G2G3) terrestrial snail. The name originates from the fact that it does a "jump" back by flipping its tail when threatened by other carnivorous snails. The only known populations of this slug in Montana are found on the eastern side of the Bitterroot Mountains at lower and mid elevations in Mineral and Ravalli counties. Within this range, the marbled jumping slug has been found in ponderosa pine stands with consistently moist conditions; however, it cannot tolerate catastrophic flooding. Threats to the slug include development, grazing, logging, and high-intensity wildfires which can disturb the litter layer of the forest floor.

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SFI IMPLEMENTATION COMMITTEE
MONTANA℠

Spalding's Campion — *Silene spaldingii*


Steve Wirt,
U.S. Forest Service

Spalding's campion is an imperiled (G2) and federally threatened flowering plant. Plants range from 8" to 24" in height and usually have one main stem as seen in the photo. The flowers are white and bloom between July and August. It can be found where prairie grasslands meet areas with scattered ponderosa pines. Conversion of grassland to agricultural use is believed to have contributed to the plant's decline. Current threats include invasive plant species, herbicides, grazing, and development. It has been suggested that periodic fire is helpful to Spalding's campion, as it removes litter and provides new areas for recruitment. Known populations are found in the Palouse region of Flathead, Lake, Lincoln, and Sanders counties.

Engelmann spruce/yellow skunk cabbage forest — *Picea engelmannii/Lysichiton americanus*


Henning Stabins,
Plum Creek

The Engelmann spruce / yellow skunk cabbage forest community is ranked as imperiled (G2). It is the wettest of the Engelmann spruce forest communities and is characterized by pools of standing water, permanently wet soils, and a high water table. Yellow skunk cabbage is an easy to identify member of this community. It is a perennial plant whose dramatic, aromatic yellow blooms indicate that spring is near. This forest community also has a healthy shrub layer, primarily comprised of speckled alder, water birch, and red osier dogwood. Known remaining stands are located in the valleys of northwestern Montana near Whitefish and Flathead lakes. Drainage of sites for agriculture and timber harvesting led to the decline of this forest community.

Cost-share Assistance:

The Partners for Fish & Wildlife program of the U.S. Fish & Wildlife Service (USFWS) offers technical and financial assistance to landowners for restoration of native habitat types. Contact: (406) 727-7400 or http://mountain-prairie.fws.gov/pfw/montana/mt1.htm to learn more.

To learn more about cost-share opportunities through the Forest Land Enhancement Program (FLEP) or Environmental Quality Incentives Program (EQIP) or for assistance on conservation-related projects, contact Mike Justus of the Montana Department of Natural Resources at (406) 293-2711 or mjustus@mt.gov.

Technical Assistance:

If you want to develop a conservation strategy for one of the species in this profile or want to find out if rare species might occur on your land, contact the Montana Natural Heritage Program at (406) 444-5354 or www.mtnhp.org.

FORESTS
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Produced by Forests for Watersheds & Wildlife™ (F²W²), a program of the American Forest Foundation.
F²W² works with partners and family forest owners to conserve and create critical habitat for imperiled wildlife species.

Deep Roots – Growing Stronger:
The American Tree Farm System®

Take a drive through the Montana countryside, and chances are you will come across a forested property displaying the familiar diamond-shaped green and white Tree Farm sign. If you own forestland, you may wonder why and how one goes about becoming a Certified Tree Farmer. Or perhaps you have been a Tree Farmer for years.

The roots of the American Tree Farm System® (ATFS) run deep – it is the oldest and largest conservation, certification, education, and advocacy program for private forest landowners in the United States. It 1941, the first Tree Farm was designated in the state of Washington. Montana's Tree Farm program took root in 1944, and has grown to encompass over 400 Tree Farms on nearly 144,000 acres across the state. Nationally ATFS includes 91,000 certified Tree Farms on 24.3 million private forested acres. ATFS is a program of the American Forest Foundation, a nonprofit organization that strives to ensure the sustainability of America's family forests for present and future generations.

What does it mean when a private forest landowner proudly displays the Tree Farm sign? It means their property has been certified as being sustainably managed for the future. Landowners who enroll their forestland in the American Tree Farm System are following The American Forest Foundation's Standards of Sustainability for Forest Certification on Private Forestlands (Standards) These Standards include a management plan that meets certain guidelines which demonstrate a commitment to stewardship of the land.

For example, private forest landowners, who are members of the American Tree Farm System follow best management practices when they harvest timber, take measures to provide wildlife habitat, and protect biodiversity. But mostly, Tree Farmers manage the forest for the benefits that they desire from the land, and they reap not only the rewards of good management but also the benefits of belonging to ATFS.

ATFS supports Tree Farmers with the direct involvement of State Tree Farm Committees and more than 4,600 volunteer inspecting foresters across the country who make themselves available to landowners. Annually, state committees and volunteers administer the ATFS inspection process through a random sampling of properties. Approximately four percent of properties are inspected annually to determine the adherence to AFF's *Standards of Sustainability for Forest Certification on Private Forestlands.* In Montana, Tree Farmers receive a visit from a trained professional forester at least once every five years to provide guidance and support to Tree Farmers and to ensure management activities are consistent with the Standards.

Certified Tree Farmers gain access to a special set of learning opportunities. Newly enrolled Tree Farmers receive a complimentary issue of the award-winning, *Tree Farmer the Guide to Sustaining America's Family Forests* Magazine and the opportunity to attend the Annual National Tree Farmer Convention that features a wide variety of indoor technical sessions,

exhibits, an outdoor field day, and best of all – a chance to get to know and learn from other landowners with shared interests.

While firmly rooted in its traditional education oriented role, some exciting changes have taken place in the American Tree Farm System over the past several years. In 2008, the American Tree Farm System was endorsed by the world's largest forest certification program, the Programme for the Endorsement of Forest Certification schemes (PEFC). The PEFC provides an assurance mechanism to purchasers of wood and paper products that they are promoting the sustainable management of forests. In Montana, many forest products companies recognize the benefits of Tree Farm Certified management and encourage landowner participation in the program.

ATFS has strengthened its advocacy role in the policy arena. The 2008 Farm Bill was passed with significant opportunities for private forest landowners for forest conservation funding and the definition of biomass to include wood, wood waste, and residues. The ATFS National Public Affairs Committee, comprised of Tree Farmers and forestry professionals, follows issues of interest to forest landowners and helps organize and guide Tree Farmers' response to and promotion of programs and policies benefiting the practice of forest management.

And that's what Tree Farm is all about. With a common goal of getting more acres of good, sustainable forestry on the ground, and keeping it there, the Tree Farm program is about supporting its members. We are growing stronger to serve and represent the members of our system. So the next time you drive past one of those green and white diamonds, think about what's behind "the sign of good forestry."

If you own 10 acres of forestland or more and have a desire to keep your forests healthy and productive, the Tree Farm program may be a good fit for you. If you are interested in learning more about Tree Farm in Montana, please visit our website at www.mttreefarm.org or contact us at PO Box 17276, Missoula, MT 59808. We would be glad to talk with you more about the program and see if it is right for you!

Sincerely,
Montana Tree Farm Steering Committee

Yes! I want to learn more about the Tree Farm System

Name:_____

Mailing Address:_____

City:_____ State:_____ Zip_____

e-mail_____ Telephone:_____

Location of Property (County as a minimum)_____

Acres Owned:_____ Do You Have a Management Plan?: _____

Best Way to Contact You: Phone___ Mail___ E-mail___

Clip And Mail to:
Montana Tree Farm System
PO Box 17276
Missoula, MT 59808

Guide to Forest Aesthetics in Montana

Information for Family Forest Owners

Actively managing forests to insure their health and value often involves road building and commercial logging, both of which can dramatically impact a forest's visual appearance. Forest aesthetics are visual resource management practices that have been developed to address negative reactions to forest appearance.

Forest managers and private landowners who want to maintain aesthetically pleasing forest landscapes should consider the following four questions:

What are visually sensitive landscapes?

Just as riparian forest management practices are confined to riparian forest zones, visual resource management practices should be applied only on visually sensitive forest landscapes. When determining whether a parcel is in a visually sensitive landscape consider the following factors:

Distance between the viewer and the harvest area—in the *foreground*, details such as stumps and slash dominate the view, in the *middleground* as distance increases color differences are most noticeable, and finally in the *background* at long distances harvest size and shape are most notable.

Viewer position—a harvest can be screened from view if a viewer is below or even with the harvest. On the other hand, a viewer above a harvest is offered a clear look at the harvest.

Topography—in general, the steeper the slope the more visually sensitive the landscape.

Duration—the length of time a viewer is exposed to a site.

Ephemeral characteristics—temporary characteristics caused by weather or climatic conditions. For example, harvests on southwestern hillsides are well-lit by the sun, where as harvests on northern slopes tend to be shaded and less visible.

Stand Structure—any tree removal in even-age closed canopy stands will be apparent.

What harvest practices do people approve of, and which ones do they dislike?

Research has shown that the major concerns of the viewing public are:

Tree retention—the more standing trees after a harvest, the less the visual impact

Residual material—tree remnants such as tree stumps, snags, limbs, and brush are a major visual concern. Removing residual material, however, may conflict with wildlife objectives, or hamper nutrient cycling.

Color contrasts—forests are generally green, where as harvested areas are likely to be brown or black. The contrasting colors resulting from the harvest are disliked.

Shape and location of harvest unit—Square or rectangular harvest units create a greater visual impact thon those with more rounded edges.

Practices that the public likes include:

Buffers—a buffer is a strip of trees or other vegetation that screens a harvest area from view. If buffers are used they should be wide enough to effectively screen the harvest area. Thin, wispy buffers gives people the notion that something is being hidden from them.

Information signs—most people view signs that convey when trees were harvested, planted, thinned, etc. Well placed signs are useful in letting people know that a forest is being tended under a sound stewardship program.

Why don't people like certain harvest practices?

Despite the common notion that beauty is in the eye of the beholder, there is a high level of agreement among diverse populations regarding what makes a landscape attractive, or unattractive. Research has shown that when people do not like what they see on a landscape, it is because some element of the landscape doesn't "fit". Not fitting can be explained in terms of line, form, color, and texture; four elements that can be used to describe a landscape.

Lines—an element of the landscape that may include the horizon and tree trunks.

Forms—three-dimensional configuration of lines on the landscape, e.g. hills and mountains

Colors—a feature that applies to all elements of the landscape. Up close colors are easily distinguishable. At a distance, colors become shades of light and dark.

Texture—the relative smoothness of a landscape, e.g. craggy rocks versus relatively smooth forest canopy.

In an undisturbed, or natural landscape all of the elements work together to create a scene that we expect. A timber harvest often affects some of the visual elements and thereby creates a scene that doesn't "fit" with our expectations for a natural, forest landscape.

What can be done to mitigate the visual impacts of harvest practices?

Knowing what people like and dislike about harvest practices is helpful in any effort to minimize negative visual perceptions of timber harvesting.

Plan for the Viewshed

Planning the entire viewshed (the landscape seen from a particular area or along a transportation corridor) is essential. Rather than planning each harvest unit on a case-by-case basis, it is more efficient in the long-term to assess the needs of an entire viewshed and plan for all the harvest units that will occur in the area over time. Planning in this manner will minimize conflicts later in the process.

Evaluating the Need for Buffers

Part of the preliminary viewshed assessment is the task of evaluating the need or opportunities for buffers, By leaving visually impenetrable stands of vegetation in strategic locations, visually sensitive areas can often be separated from more utilitarian landscapes where routine harvesting takes place. Buffers should not be considered set-asides or reserves. In most cases they can be thinned to create openings, varied densities of tree stands, understory regrowth and opportunities for deeper views into the buffer (but not through the buffer to the harvest area).

Harvesting practices in foreground situations (less than 1/2 mile between viewer and harvest area) should concentrate on:

- Replanting with a variety of species
- Keep trees with substantial crowns
- Retaining trees in groups
- Increasing planting density
- Do not pile brush
- Avoid high stumps

Harvesting practices in background situations (greater than 4 miles between viewer and harvest area) should concentrate on:

- Minimal number of yarding corridors
- Harvest lines diagonal to ridge lines
- Curved and undulating edges
- Reduced size of units
- Trees retained in groups
- Curved and undulating ridges
- Feathered edges
- Selective cutting
- Few midslope roads

This information is distributed to you by:

SFI IMPLEMENTATION COMMITTEE
MONTANA

MONTANA STATE UNIVERSITY EXTENSION
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Afforestation in Montana *by Peter Kolb, MSU Extension Forestry Specialist*

Afforestation refers to the planting of trees on lands that have not historically supported trees. This term is not to be confused with "reforestation" which is the reestablishment of trees, either through planting or promoting natural regeneration on lands that have historically supported trees that were removed as a result of natural disasters, land clearing or commercial logging. Due to the combined effects of geologic substrates, topography and climatic patterns the applicability of afforestation across Montana is usually limited to the establishment of windbreaks, shelterbelts, wildlife habitat plantings and urban settings.

The forests of the northern Rocky Mountain Ecosystems occur in mountainous topography surrounded to the east, south and west by dry prairie and step deserts where annual precipitation is on average less than 14 inches. Native trees species can rarely establish and grow in annual precipitation zones of less than 16 inches. The orographic effect (lifting of air masses) by the northern Rockies on predominantly east moving Pacific air masses results in cooling which causes stored water to condense and release as either rain or snow. Thus mountainous areas in the Inland Northwestern United States often receive more than the surrounding plains and can even exceed 40 inches per year depending on the location. This effect not only supplies enough water to support a variety of tree species, it is also the cause for the origins of the of the Missouri and Columbia river systems. Typically, western most mountain ranges of the Northern Rockies such as the Eagle Caps in eastern Oregon and Clearwater and Selway mountains of northern Idaho receive the most water with the subsequent eastern mountain ranges such as the Cabinets, Missions, Big Belts, Little Belts and Big Snowy Mountains receiving significantly lesser amounts until eastern moving air masses are largely depleted of absorbed water. These patterns of precipitation are also responsible for the development of different forest zones and tree species distributions as shown in (Figure 1). Lower elevations do not consistently receive enough

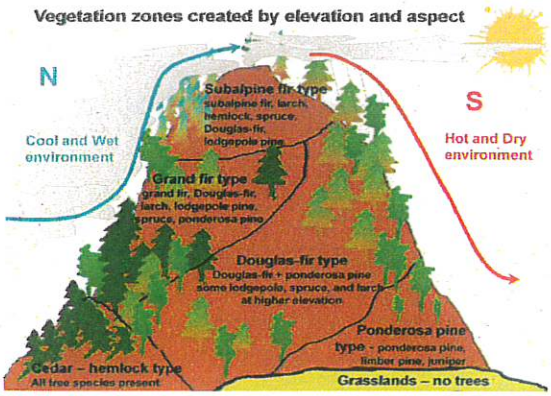

Figure 1

Figure 2 Highwood Mountains cne

rain/snow and are too dry to support trees. Montana has two tree exclusion zones: a high upper elevation zone where it remains too cold to support trees, and a lower elevation tree zone where it is too dry to support trees (Figure 2). Similar to low elevation, some mountain slopes with southern or western exposures are heated from direct and intense sunlight which evaporates precipitation before it can enter the soil creating an environment too dry for trees to naturally grow there. Planting trees where they do not naturally occur across Montana and expecting them to survive and grow into a forest is an unrealistic expectation unless extra-ordinary measures are taken. Successful tree survival typically requires that grasslands are converted to a fallow status for one year prior to planting to allow the soil to absorb and store enough water for tree seedling survival. Grasses and other competing vegetation must be controlled on such plantings for as long as trees are expected to survive. For windbreaks such controls can be justified, however, removing grasses from native prairie in exchange for trees has negative ecological consequences and is not a recommended practice.

Pyramid Mountain Lumber, Inc.
Fiber Sourcing and BMP Monitoring Procedures

Pyramid Mountain Lumber, Inc. will annually conduct a minimum of 15% of gate log agreements over 2 loads for onsite SFI-BMP inspections of non-certified gatewood suppliers. The 15% is based on annual figures.

Pyramid Mountain Lumber, Inc. will track and monitor the internal inspections and will encourage any suppliers not meeting the SFI-BMP requirements to address and clear the inconsistent practice(s), and if necessary will stop deliveries until the situation has been corrected.

Pyramid Mountain Lumber, Inc. will summarize the results of the company's inspections to identify rates of BMP compliance, set goals for continual improvement, and provide the data for the annual management review process.

On Pyramid Mountain Lumber, Inc. stumpage sales, PML will utilize the PML Stumpage BMP Inspection Report and will conduct at least three inspections, one at the start of the sale, one during the operations and one near completion on projects exceeding 25 loads. On small stumpage sales which are less than 25 loads and more than 10 loads, PML will conduct one inspection.

Revised January 1, 2016

Pyramid Mountain Lumber, Inc
Program to Address Adverse Weather Conditions

PML employs wood producers that have completed BMP training and are qualified logging contractors as identified by the Montana Logging Association (MLA) and the Montana SFI Implementation Committee (SIC). PML also encourages untrained contractors to complete the required BMP training offered by the MLA and SIC.

PML's Program for addressing adverse weather conditions includes the protection of soil and water resources and strives to reduce the movement of sediment into waterways. Contractors are expected to stop or curtail operations when wet weather conditions are damaging roads and/or causing rutting, soil compaction, or the movement of sediment into streams. PML monitors contractors' compliance with the adverse weather conditions Program via PML's Gatewood and Stumpage Inspection forms.

Revised January 1, 2016

Pyramid Mountain Lumber, Inc.
Process for Addressing Special Sites

Pyramid Mountain Lumber, Inc. recognizes the importance of identifying and addressing "special sites". Our forest management practice is to recognize the AFF definition of "special sites".

<u>Special Sites</u> – Those areas offering unique historical, archeological, cultural, geological, biological or ecological value. Special Sites include:

- ***Historical, archaeological, cultural and ceremonial sites or features of importance to the forest owner;***
- ***Sites of importance to wildlife such as rookeries, refuges, fish spawning grounds, vernal ponds and shelters of hibernating animals;***
- ***Unique ecological communities like relic old-growth, springs, glades, savannas, fens and bogs; and***
- ***Geological features such as terminal moraines, cliffs and caves.***

The forest owner and PML will develop a plan after making a reasonable effort to locate and gather information that would fall under the "special sites" definition. Sources of this information may include, but not be limited to, county, state and federal agencies, university and extension programs and local knowledge.

Special sites will be identified and managed in accordance with the forest owner's objectives to preserve the unique features of the site, while working with the size and scale of the property.

http://www.forestfoundation.org/pdfs/Final_Standards.pdf

Revised January 1, 2015

Pyramid Mountain Lumber, Inc.
Program for Addressing Forests with Exceptional Conservation Value

PML includes documentation in their outreach packet for landowners and wood suppliers that addresses forests with exceptional conservation value (FECV). PML's outreach packet includes information describing the conservation of critical wildlife habitat, threatened and endangered species, and the importance of biodiversity across the landscape. Agency Landowners have specialists on staff and resources to address forests with exceptional conservation values and presence/absence of G1, G2 and S1, S2 species. Documented occurrences or critical habitat identification results in mitigation measures through their contracts, sale layout and operating restrictions. Private forest landowners with a Timber purchase Agreement with PML receive our Landowner Outreach Packet.

PML is collaborating with the Montana Forest Council which is the SFI State Implementation Committee (SIC) and the Montana Natural Heritage Program to develop an FECV Risk Assessment template for G1, G2 species across Montana. A regionalized approach is being discussed to facilitate logger and landowner training opportunities supported by brochures or regional information on G1, G2 species with potential mitigation measures based upon species habitat.

It is envisioned that this approach will evolve over time as Nature Serve and Montana Natural Heritage Programs work to finalize the National Vegetation Classification System over the next couple of years which will determine the future of global risks.

As this new information becomes available on FECV, PML will include this information in their packets and include websites, professional journals and documents for the landowners to utilize.

Revised May 9, 2022

Pyramid Mountain Lumber, Inc.
Procurement Process
for
Gate Logs

Log Purchase Agreements (Gate Logs)

1. Agreement (by MBF or Ton) is made with logger, landowner, consultant, mill or agency to purchase logs in deck or delivered by species product.

2. Source of timber is identified (private, State, BLM, USFS or Tribal) and tracked by County and Sale Name.

3. On private land a copy of the State's Fire Hazard Reduction Agreement and Notice of Forest Practices is obtained and attached to file copy with the exception of Master Hazard Reduction Agreement holders (usually mills or large landowners/operators). Assigned HRA number is tracked for reporting volume and establishing bond withholding rate paid to State by Pyramid ($7.15/MBF for sawlogs).

4. Log scaling frequency mutually agreed upon with Seller.

5. Original and one copy of either an annual Master Log Purchase Agreement and Addendum or Log Purchase Agreement is executed and seller provides current W-9 prior to delivery.

6. Log accountant maintains records and inputs/manages information in an automated wood payment system which includes identification of contract holder, sale name, HRA number, pay rates by species code, scale frequency and termination date.

7. Minor volumes or intermittent deliveries are 100% scaled loads. Gate logs originating from private forest lands are issued Pyramid Truck Tickets Identifying date, sale name, contractor and trucker. Gate logs originating from US Forest Service, BLM, DNRC, FWP, BIA or other landowners with their own tickets have access to the automated weight scale system with those ticket numbers and identifying information.

8. All loads are weighed. Log trucks arrive on the State Certified scale. To get a weight pull on the scale and use the automated weigh scale on the keypad inside, choose product "logs" enter truck #, select the logger from the list, select sale name, supplier ticket # if applicable, if you have a pup hit "pup" and will tell you to pull forward, once pulled forward hit "weigh in" and weigh pup. Touch screen will indicate deck or scale load and will print you a ticket if it is a scale load. Tell the log yard via radio if it is a deck or scale load. To get an empty weight on the way out repeat the process above using "weigh out". The system will print you 3 copies of your ticket, 1 to leave for Pyramid in the box, 1 to leave for Forest Service in the box if applicable, and 1 for yourself. Scale loads are spread for scaling by Pyramid's Certified Scaler, annually reviewed by Idaho Board of Scaling Practices.

9. Logs scaled using Scribner Decimal C (actual taper rule) into handheld computers by species product/log quality and downloaded into wood payment system by Log Accountant. Net volume/MBF by species product is determined and values by Log Purchase Agreement calculate payment.

Agreements by ton are paid based on net weight. HRA deposit withheld from payment and paid to State.

10. Logs delivered the 1st through the 15th of each month are paid on the 25th and logs delivered the 16th through end of the month are paid on the 10th of the following month. All payment records are retained for 5 years.

11. Pyramid Mountain Lumber, Inc. is an SFI, Inc. member and supports the sustainable forestry practices of this Standard and gives preference to qualified logging professionals, Tree Farm Program members and other qualified sources.

Pyramid Mountain Lumber, Inc.
Procurement Process
for
Stumpage Contracts

Timber Purchase Agreements and Timber Sale Contracts (Stumpage)

1. Agreement is made or contract awarded by logger, landowner, consultant, mill or agency for standing timber available to harvest by stumpage rate (MBF or Ton) and all contractual requirements, including scaling frequency. Private Forestland ownership confirmed through current W-9, County tax records.

2. Source of timber is identified (private, State, BLM, USFS or Tribal) and tracked by County and Sale Name.

3. Timber Purchase Agreements on private forestland and assigned a Master Hazard Reduction Agreement number by the State under our Master and bonded according to outstanding, unabated slash. The attachment also serves as Notice of Forest Practices. Pyramid acquires any other additional permits. Agency Timber Sale Contracts and Stewardship contracts provide necessary permits through their own process and Pyramid provides appropriate payment bond/performance bond or cash bond.

4. Pyramid executes Master Agreements with qualified logging, road, slash/chipping contractors to perform terms and conditions agreed to, including full compliance with "Montana Forestry Best Management Practices" (BMP's). Pyramid's certified forestry professionals administer contract and negotiate terms with contractor through our Addendums to Master.

5. Timber Purchase Agreement and Timber Sale Contract information summarized on Wood Purchase Data Sheet and provided to Log Accountant for input and recordkeeping. Master Agreements, copies of Workers' Compensation or Exemption, and Insurance (i.e. Commercial General Liability, Logger's Broad Form B, Auto) and Addendums provided to Log Accountant for input/recordkeeping. Addendum Information is entered into an automated wood payment system which is connected to an automated weight scale system. Identification of contract holder, contractor, sale name, frequency and termination date are entered prior to delivery.

6. Timber Sale Contracts usually require the Seller's own ticket that the seller's issue themselves. Timber purchase agreements on private land are issued Pyramid truck tickets with identifying date, sale name, contractor and trucker.

7. All loads are weighed. Log trucks arrive on the State Certified scale. To get a weight pull on the scale and use the automated weigh scale on the keypad inside, choose product "logs" enter truck #, select the logger from the list, select sale name, supplier ticket # if applicable, if you have a pup hit "pup" and will tell you to pull forward, once pulled forward hit "weigh in" and weigh pup. Touch screen will indicate deck or scale load and will print you a ticket if it is a scale load. Tell the log yard via radio if it is a deck or scale load. To get an empty weight on the way out repeat the process above using "weigh out". The system will print you 3 copies of your ticket, 1 to leave for Pyramid in the box, 1 to leave for Forest Service in the box if applicable, and 1 for yourself. Scale loads are spread for scaling by Pyramid's Certified Scaler, annually reviewed by Idaho Board of Scaling Practices.

8. Logs scaled using Scribner Decimal C (Actual taper rules) into handheld computers by species product/log quality and downloaded into wood payment system by Log Accountant. Net volume/MBF by species product is determined and values by Timber Purchase Agreement and Timber Sale Contracts calculate payment to landowner. Agreements and Contracts by ton are paid based on net weight as are most Contract Loggers and Log Haulers under contract with Pyramid.

9. Logs delivered the 1st through the 15th of each month are paid on the 25th and logs delivered the 16th through end of the month are paid on the 10th of the following month. All payment records are retained for 5 years.

10. Timber Sale Contracts with Agencies are paid stumpage as billed by their Log Accountant.

11. Pyramid Mountain Lumber, Inc. is an SFI, Inc. member and supports the sustainable forestry practices of this Standard and requires the use of qualified professionals on stumpage sales.

Pyramid Mountain Lumber, Inc.
Due Diligence
Risk Management Program
To
Avoid Controversial Sources and Illegal Logging

Pyramid Mountain Lumber, Inc. operates a single sawmill in Seeley Lake, Montana and does not source any raw materials from outside the United States borders where effective social laws may not exist. The State of Montana and the U.S. have numerous social laws in place to protect worker rights, indigenous people's rights, harassment, wages and right to organize. PML complies with all applicable local, state and federal laws.

Pyramid sources raw materials from Montana and Idaho which do not have significant globally controversial ecological forest types and therefore, are considered low risk. Climate change however, is of global importance and minimizing risk is accomplished through active forest management to maintain healthy, sustainable forests which are more resilient to changing climatic conditions.

Pyramid's procurement process is designed to minimize the risk of illegal logging through written agreements and written contracts which contain language ensuring ownership and right to harvest timber. Montana DNRC Hazard Reduction Agreements and Notice of Forest Practices is the initial proof of ownership and right to harvest. Additionally, our Log Purchase Agreements contain language to warranty title and/or legal right to harvest and sell the timber included in the agreement. Pyramid's harvesting of Controlled Stumpage is conducted by Qualified Logging Professionals fully trained in safety and Montana's Streamside Management Zone Law and Forestry Best Management Practices.

Pyramid provides log sellers and landowners with information on threatened and endangered species through our Landowner Packets and with presentations at our Annual Contract Logger/Landowner/Log Seller meeting. Providing landowners and loggers with links to credible sources of educational information on occupancy, management practices, and suitable habitat for T&E species and species of concern parallels Montana's very effective Voluntary Forestry Best Management Practices approach to protecting soil and water resources. Also, state and federal contracts for controlled stumpage contain language specific to T&E species occurrence and appropriate actions.

Pyramid does not export or import logs or lumber from controlled stumpage or from logs processed in our facility. We do not own any fee timberland, so all other state, federal, tribal and private forest landowners provide the source of our raw materials through stumpage or delivered logs. Pyramid has never engaged in biotechnology or related research.

Should Pyramid pursue raw materials from other regions beyond Montana and Idaho, our due diligence approach to manage risk and avoid controversial sources will be implemented. State, local, federal and appropriate international laws, rules and regulations pertaining to logging and forest management would be thoroughly reviewed.

In addition, consultation and review through Nature Serve, Natural Heritage Programs and World Wildlife Fund documentation on Forests of Exceptional Conservation Value or risk of deforestation would be analyzed and considered in Pyramid's deliberations on procurement opportunities.

Revised May 9, 2022

HELPFUL WEB SITES:

- Pyramid Mountain Lumber Website: https://www.pyramidlumber.com/
- Montana State University Extension Calendar for classes and seminars: https://forestry.msuextension.org/calendar/index.html
- Montana Logging Association (Accreditation Info and Training Calendar): https://www.logging.org/
- Montana Department of Natural Resources & Conservation (Pest Management / BMPs / SMZ Laws): http://dnrc.mt.gov/divisions/forestry/forestry-assistance/forest-practices/best-management-practices-bmp-2
- Montana Wood Products Association: https://montanaforests.com/
- Nature Serve: https://www.natureserve.org/
- Montana Natural Heritage Program: https://mtnhp.org/
- American / Montana Tree Farm System: https://www.treefarmsystem.org/montana
- Insect Control: https://semiochemical.com/
- Intermountain Logging Conference: https://intermountainlogging.org/
- Western Forest Insects and Diseases: http://www.fs.fed.us/r6/nr/fid/widweb/wid-bb.shtml
- Fire Landscaping Resources: http://www.plantingmontana.com

Other Supplemental Information:

Pyramid Mountain Lumber routinely sends a complete packet of information, including this manual, to all contract agreement holders in hopes of enhancing the professional knowledge base of our industry and stakeholder collaboration to foster responsible and sustainable forest management practices. We are happy to assist landowners, loggers and other fiber sourcing stakeholders in locating information on forest stewardship and management practices.

Electronic copies of BMP's and Streamside Management Zone Laws are available on the Montana Department of Natural Resources and Conservation (DNRC) website above.

HELPFUL WEB SITES:

Montana State University Extension Calendar for classes and seminars:
http://www.cfc.umt.edu/ExtensionForestry/calendar.htm

Montana Logging Association for information on how to become accredited
http://www.logging.org/accredited_logging_professional.php

Montana Logging Association Calendar
http://www.logging.org/mla_calendar/index.php

Smallwood News for current timber topics, upcoming events and classified ads
http://www.timberbuysell.com

Montana Tree Farm System
http://www.mttreefarm.org

Pyramid Mountain Lumber Web Site
http://www.pyramidlumber.com

Insect Control
http://www.semiochemical.com/index.html

Western Forest Insects and Diseases
http://www.fs.fed.us/r6/nr/fid/widweb/wid-bb.shtml

DNRC Forest Pest Management Program
http://dnrc.mt.gov/forestry/assistance/pests/default.asp

Fire Landscaping Resources
http://www.plantingmontana.com

Other sites to GOOGLE:

For electronic copies of BMP's and Streamside Management Zone Laws go to Montana Department of Natural Resources and Conservation (DNRC) web site.

Good site for links to other organizations
Montana Wood Products Association

Contacts for classes, programs, and professors
University of Montana College of Forestry and Conservation

Intermountain Logging Conference