

Montana Family Forest News



Are You Ready?



Are You Ready?

I think that many of us believe we got lucky in the summer of 2015 because Montana did not suffer as much from out of control wildfires as we could have, or that neighboring states like Idaho and Washington did. Some of that was due to luck because lightning strikes or human caused ignitions did not occur in the worst of places, another part was due to all of the great fire hazard reduction work that has been completed in critical areas, and last but perhaps most importantly, our fire suppression teams at local fire departments and the DNRC where at the very top of their game last summer. As a person who tracks forest wildfire risks, ignitions and occurrences around the state from an academic level, I was very much impressed by how quickly the Montana teams responded and aggressively put out ignitions. They perhaps saved us from the fate of eastern Washington that lost hundreds of thousands of private forest acres last summer.

As is well established by now, weather creates the conditions that predispose us to severe and extensive wildfires, and the spring of 2015 came early with a quick snowmelt and then extended warm dry summer. The longer trees are growing in warm temperatures without any rain, the more they dry out the soils, the quicker they go into drought stress, and the more flammable they become. The same goes for the understory grasses, forbs and shrubs. Also, the more years of drought we experience, the more severe the impacts become. Thus, even though our early spring last year gave fire suppression teams an early heads up and they were listening and preparing, there are only so many fires they can respond to quickly before they get overwhelmed. Now we are in 2016, and our spring came even earlier and mid-elevation snow is gone in the first week of March. Long term NOAA forecasts indicate the effects of the super El-nino we have been experiencing off the west coast of California and southern Oregon these past years will continue into late spring and early summer, perhaps tapering off by mid summer and into late fall. A real change that implies cooler temperatures and more moisture is not predicted until January of 2017. That leaves Montana with an above average potential for another hot dry summer on top of an early and warm spring. Thus if last year we had the ingredients for a severe wildfire season, this summer could be worse (unless we get above average rain, which right now is not indicated by all of the weather models). Use these incredibly warm spring days wisely and take care of any fuel hazard reduction projects you have had on the back burner before summer hits. On a personal note, we have a few patches of dense Douglas-fir saplings that are too close to our barn to be safely suppressed in an extreme year. I have left them because they are great nesting sites for some of the native migratory songbirds we have on our place, and because I just liked the diversity they offered. They are all getting thinned and cleaned up to a 8-16 feet spacing this spring.

Peter Kolb

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From the Editor's Desk

This newsletter is possible through funding from the Renewable Resources Extension Act (RREA). The highlights numerous articles focused on information and resources that forest landowners can use to better their knowledge and potentially implement on their own land. The overall concept is to provide articles that capture one's attention based on current issues and updates on various organizations on a state and national level. Our goal is to provide articles that will give important information and encourage landowners to develop new ideas towards their land. If you wish to view the full color version of this newsletter and for additional articles such as landowner spotlights please go to our website at <http://www.msuextension.org/forestry/publications.htm>.

Warm regards,

Christina Oppegard

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We would like your Feedback?
If you like/dislike certain things about this newsletter.
please send us your thoughts!
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Wood, Water, Wildlife, Recreation...and Relationships.

By: Angela Mallon, Montana Tree Farm Chair and Certification Coordinator

What exactly does the American Tree Farm System do? This is a question I hear a lot, and one for which I don't always have a quick answer. I struggle because the benefits of Tree Farm are so numerous, and because many are intangible, and because they don't fit conveniently into a 30 second sound byte. Third-party certification...technical assistance...publications...these are some of the tangible benefits of Tree Farm membership. And yet, what I really want to tell people about is relationships, which isn't described by any of those terms.

A recent blog entry from the *Huffington Post*, "When Loneliness Isn't Funny," describes from one woman's point of view the harrowing isolation that many people in our country experience, especially as they grow older. As the author points out, volunteer service, club membership, and community activities aren't necessarily the antidotes to loneliness. They may bring people together, capitalizing on their knowledge and experience to provide services for the greater public good, but they do not always cultivate meaningful relationships.

I believe the Montana Tree Farm program is one organization that is exceptional in this regard. Tree Farm is a place where strangers become acquaintances, and acquaintances become friends. I was most recently reminded of this by the 3 days I spent attending the Tree Farm National Leadership Conference (NLC) in Seattle with fellow steering committee members, one in particular. This woman and her late husband were recognized as Montana Tree Farmers of the Year right around the time I began working with the group. A few years later, she joined the steering committee, and I came to respect her straightforward demeanor and can-do attitude in the work she is doing to contribute to Montana Tree Farm's secure financial future by leading our fundraising task force. I have always admired her – she is smart, intrepid, optimistic, and direct (and she solo pilots a truck and travel trailer all over the country) – but it was over the course of those three days in Seattle that I realized I considered her a friend. I hope she feels the same, and that we remain so long after our tenures with the Tree Farm Steering Committee are finished.

Meanwhile, as I listened to American Forest Foundation CEO Tom Martin speak during a banquet at NLC, I finally got the sound byte I was waiting for. He answered the question as to what Tree Farm does by saying simply, "We address important issues in our communities through forest stewardship." No statement could be more succinctly accurate and descriptive. We grow sustainable timber. We provide clean water. We create wildlife habitat. We provide recreational opportunities. And we build relationships. I realize that this, even more than a stewardship ethic or my love for forests in all their transformations, is what keeps me engaged with the Tree Farm program.



2016 Annual Montana Tree Farm Meeting

September 24th in Florence, MT

Florence-Carlton Community Church Fellowship Hall

Property visit to Steve Arno and Clint Carlson Tree Farms

Contact Allen Chrisman, Vice Chair—Montana Tree Farm at achrisman52@gmail.com

Tree Farmers Meet in Bridger Canyon

Submitted by: Steve Arno



“Tree Farmer Jody Christianson discusses forest health treatments on her Tree Farm while husband Mike purveys hot cider to the audience at the 2015 Montana Tree Farm annual meeting.”

On October 3, 2015, upwards of forty Tree Farmers and their friends braved cold, drizzly weather to tour an exceptional family forest in Bridger Canyon northeast of Bozeman. Then our bus ascended the drainage to Battle Ridge Pass, where despite blowing, wet snow we examined a planned thinning operation in the mature Douglas-fir stand in a National Forest campground. Finally, we returned to the warm, friendly confines of the Bridger Canyon Fire Hall for a festive luncheon, short presentations, awards, and a silent auction of donated arts, crafts, and tools.

The featured Tree Farm consists of 75 acres of forest and grassland owned by Mike and Jody Christianson on lower slopes of the Bridger Range. Most of the property is dominated by a 120-year-old

Douglas-fir stand, with smaller amounts of quaking aspen, lodgepole pine, and mountain maple. Unusually, this sizeable property is part of a 1970s subdivision that has covenants excluding commercial timber management. Upon purchasing their property in the early 1990s, the Christiansons recognized the need for management to sustain a healthy forest, reduce wildfire hazard, and maintain and improve wildlife habitat. Despite the restrictive covenant, Mike and Jody have done an admirable job of attaining management goals by carefully harvesting and thinning trees themselves for use as firewood and other donated products.

To gather up logs on their moderately steep slopes, Mike and Jody use a Bobcat skid-steer tractor with rubber tracks equipped with a Scandinavian yarding and skidding winch. They also employ a large chipper for limbs and tops, and scatter the chips on skid trails to prevent erosion and discourage weed development. They also use backpack weed sprayers for control, and they have planted a native grass mix. These are only a few of the intensive cultural practices that the Christiansons have conducted to achieve their management goals, and the condition of the forest reflects their excellent stewardship. They were also gracious hosts, providing hot cider and even hand warmers for their visitors.

Up at Battle Ridge Recreation Area, we were briefed by RY Timber’s forester Dennis Davaz and MSU Extension Forester Peter Kolb on ecological considerations and management options for sustaining a healthy Douglas-fir forest on a cold, dry site. We discussed and visualized selection of individual trees that should be removed to help perpetuate the value of this stand as an intensive recreation area. Discussion included pheromone application to limit budworm damage.

Back in the warm comfort of the Fire Hall meeting room we heard a presentation by Matt Ricketts of the Natural Resources Conservation Service on enhancing resistance to drought and reducing noxious weeds. Matt entertained a lively question and answer session. Montana Tree Farm Chair Angela Mallon briefed the group on

current issues affecting family forest owners and reminded attendees that stewardship outreach and education is a prerequisite for membership in the Tree Farm program.

Awards included recognition of Stoltze Land and Lumber Company for their 50 years of participation in the Tree Farm program. A \$500 scholarship was granted to University of Montana student Philip Williams. Jim Watson of Spring Brook Ranch near Kalispell was awarded Educator of the Year for his work in youth education and on the Foyes Community Forest, which is Montana's first community forest to become a certified Tree Farm.

Bob Muth Jr. of Whitefish was recognized as Tree Farm Logger of the Year for his skillful and attentive work. Outstanding Tree Farm Inspectors were Everett Young, Owen Retzlaff, and Jeff Rupkalvis. Richard and Katherine Fichtler of Florence were honored as Montana Tree Farmers of the Year in recognition of their 35 years of active management.

A final, high note was the announcement that our 2014 Montana Tree Farm winners, Duke and Naomi Hoiland of the North Fork Flathead won the National Tree Farm Western Regional Tree Farmer of the Year Award. Also in the running were Tree Farmers from Colorado, Idaho, and Washington.

All attendees seemed to enjoy the tours, banquet, and visiting, and we hope more Montana Tree Farmers and their friends will join us in early fall of 2016 for the next Tree Farm conclave.

Philip Warren Williams - 2015 Tree Farm Scholarship Recipient

Submitted By: Cindy Peterson

This year, Philip Warren Williams was the recipient of the 2015 Tree Farm Scholarship. He also received the scholarship in 2014. Philip works for the Burnt Fork LLC as an apprentice forester. In the summer of 2015 he began work as a project assistant for the Bureau of Business and Economic Research's Forest Industry Research Program at the University of Montana Missoula. Philip says of this endeavor, "I have travelled across the western United States to study aspects of forestry across a broad social and geographical spectrum. These experiences have taught me the importance of American forests in global economies and local traditions. Clearly, the actions of foresters have far-reaching consequences both ideologically and physically, from new utilization strategies to carbon sequestration."

Philip completed four years at Williams Home School High School, Stevensville, MT he graduated in 2012. He is an outstanding upper-division honors forestry student at the University of Montana and carries a 3.95 GPA. He plans to continue his education in pursuit of a MS and perhaps a PhD in the field of forestry. Philip has provided community service to the Missoula and Stevensville area for many years for the USFS, museums, and as a musician. Philip has received numerous awards for his musical and scholastic achievements.

Philip is appreciative of the scholarship and says, "This scholarship will help me become a forester who recognizes the dual functionality of forests as healthy, productive places benefiting both society and the natural realm. It is my wish to practice scientifically-based forest management so society can enjoy all the benefits of forests both now and indefinitely in the future."

Congratulations Philip and best wishes in your endeavors, studies, and career.

2015 Montana Tree Farmer of the Year

Submitted by: Owen Retzlaff



The Montana Tree Farm Program is proud to announce that the Fichtler family has been selected as the Montana Tree Farmers of the year for 2015. Dick and Katherine Fichtler reside in the Bitterroot Valley where they have spent the last 35 years raising 3 sons and being tireless stewards of their Tree Farm.

When the Fichtler's acquired the property the timbered stands had been repeatedly mismanaged and the native rangeland plowed in a misguided attempt to qualify for the government's Conservation Reserve Program (CRP) payments.

To address the torn up, weed infested grasslands, Fichtler's implemented a 35 year integrated management strategy that included, biological organisms to attack invasive species, herbicides, mechanical treatment, seeding and fertilizers. All that work paid off with the reestablishment of a healthy and diverse rangeland today.

The Fichtler's also implemented a long term management strategy to restore a healthy forest community. The remaining old growth overstory of mistletoe infested Douglas fir was harvested. The logs were processed using Dick's one-man sawmill and the resulting lumber used to build their family home. Openings created from this harvest were replanted with ponderosa pine and western larch. In addition, an aggressive program of thinning was implemented to address the overstocked second growth of pine and fir. Over the last three decades the Fichtler's have utilized commercial timber harvests to remove diseased trees and reduce forest fuels. The most recent sale in 2013 eliminated a mountain pine beetle epidemic that threatened to wipe out the entire pine component of their forest.

As dedicated stewards of their forests, the Fichtler's have also placed great emphasis on providing quality wildlife habitat. Their Tree Farm provides winter range and security for big game and is also home to a wide variety of other wildlife species including a nesting pair of piliated wood peckers, a protected species. Cavity nesting trees have been selected specifically to enhance bird habitat throughout the property, and most recently with the help of the American Bird Conservancy several large ponderosa pines were topped to create snags.

To round out their management efforts, Dick and Katherine have also protected an archaeological site and the ruins of an historic log cabin located on their property.

Dick and Katherine are honored by this recognition of their efforts, and will continue their lifelong stewardship of this property to pass it on to their three sons in the best health possible.

DENNIS SWIFT MEMORIAL

Tree Farm Inspector Recognition Award

Each year the Montana Tree Farm System recognizes the top Tree Farm Inspectors at the annual state tree farm meeting. These inspectors along with the many other Montana Tree Farm Inspectors volunteer their time, equipment and vehicle use in promoting the Tree Farm System through their certification and inspection activity.

Are you willing to support Montana Tree Farm Inspectors by contributing to the Dennis Swift Inspector Recognition Award?

YES, I would like to show my support in recognizing the importance of our Montana Tree Farm Inspectors in promoting the Tree Farm Program by contributing to the Dennis Swift Inspector Recognition Award:

\$_____.

Please make your check payable to **Montana Tree Farm System** and return it with this slip to:

Montana Tree Farm System, Inc.

P.O. Box 17276

Missoula, MT 59808-7276

The Montana Tree Farm System is a 501 (C) (3) Organization



Montana Tree Farm Scholarship

MT Tree Farm offers a \$500 scholarship annually to a resident of Montana enrolled (for the first time) or attending any accredited institution of higher education, on a full time basis, have a cumulative grade point average of 2.0 or above, and must demonstrate an interest in forestry. Applicants must have a Tree Farmer or a Tree Farm Inspector as a reference. Perhaps you know someone who qualifies for this scholarship. If so, please let them know about this great opportunity.

The objective of this scholarship is to help a student with an interest in forestry and also to get knowledge out to students about Tree Farm and the family forests of Montana. Making a connection between future foresters and land managers can lead to the development of long term personal and professional relationships.

The application deadline is September 15, 2016. For an application go online: <http://www.mttreefarm.org/about-us/scholarship.html>, email: cindy.peterson@cfc.umt.edu, or call Cindy Peterson at 406-243-4706.

Save the Date

Understanding Forest Qualities to Create Quality Forests

Saturday, May 21, 2016, 9am to 4pm

Lubrecht Experimental Forest

This field-based workshop is open to all forest landowners interested in understanding the current condition of their forest, visualizing future stand development, and translating these concepts into treatment options appropriate to their forest's unique condition. Cost is \$25 per ownership and includes lunch and snacks.

The event is hosted by the Montana Forest and Conservation Experiment Station and the Montana Tree Farm Program.

For more information contact Tree Farm Chair Angela Mallon at amallon@mt.gov or 406-542-4221.



SAVE THE DATE: Ties to the Land - *Your Family Heritage*

Explore succession planning and develop the tools to plan for an orderly transition.

April 9th, 2016

9:30am – 4:00pm

Chico Hot Springs, Townsend Room

163 Chico Road

Pray, Montana 59065

\$35 for first family member; \$10 per additional family member. The fee includes lunch and one copy per family of the workbook.

If desired, attendees can make lodging reservations at Chico (406) 333-4933

Contact Brad Bauer at the MSU Extension-Gallatin County to learn more.

(406)388-3213; brad.bauer@montana.edu



Avoid Probate of Real Property with a Montana Beneficiary Deed

By: Marsha A. Goetting, MSU Extension Family Economics Specialist

A beneficiary deed could be a vital part of your overall estate plan. The Montana legislature has authorized beneficiary deeds as a way for you to transfer your real property to one or more beneficiaries without probate at death. There's only one catch....the property has to be located in Montana.

With a beneficiary deed you pass your interest in Montana real property to a grantee beneficiary, but the deed is only effective upon your death. In other words, your real property is transferred only after you die to the person or persons listed on the deed and there is no probate. Grantee beneficiaries may be your spouse, children, relatives, friends, or charitable organizations, such as MSU Extension Forestry program.

You are not required to give your grantee beneficiary notice that a beneficiary deed has been recorded. Your grantee beneficiary has absolutely no ownership rights in your Montana real property until you die. Creditors of your grantee beneficiary or grantee beneficiaries cannot get access to your property.

Your beneficiary deed is recorded with the clerk and recorder in the Montana County where your property is located. All beneficiary deeds must have the post office address of the grantee beneficiary listed before the clerk and recorder's office will record it.

The deed must have a complete legal description of the Montana property that you wish to convey at death. Use the legal description for the property from a previously recorded deed – not the description appearing on the property tax bill that is sent annually by the county treasurer.

After a beneficiary deed has been signed and recorded with the county clerk and recorder, it cannot be revoked by a provision in your will. As an example, let's assume Gary signed and recorded a beneficiary deed naming his daughter as grantee beneficiary of real property he owns in Missoula County. Gary later wrote a handwritten will leaving the same real property to his son. Upon Gary's death, the provision in his will leaving the real property to his son is not valid. The real property would pass to Gary's daughter under the terms of the beneficiary deed.

A beneficiary deed is a contract just like any other beneficiary designation such as a payable on death designation on financial accounts or a transfer on death registration on stocks, bonds, and mutual funds. If Gary's estate planning goal has changed and he now wants to pass the property to his son, he could revoke his beneficiary deed in which he named his daughter as the grantee beneficiary. Or, Gary could record a new beneficiary deed naming his son as the grantee beneficiary. The latest recorded deed is the valid one.

A handwritten will or a formal will with a provision that conflicts with beneficiary deed could result in "family drama." Do you think Gary's son and daughter will be speaking to one another because of the beneficiary deed naming the daughter as grantee beneficiary and a will with a provision naming the son as the devisee of the property? Both children can justifiably claim "Dad wanted me to have the land." However, the beneficiary deed contract prevails and the daughter is the new owner of the property after Dad's death.

You can also designate a successor grantee beneficiary in case your primary grantee beneficiary dies before you. For example, Mark recorded a beneficiary deed to be effective upon his death, naming his son, Evan, as the

grantee beneficiary of his land in Lake County. Mark also designated his grandson, Luke, as the successor grantee beneficiary in case Evan dies before Mark. Mark's attorney recommended the following language in the beneficiary deed: "If Evan dies before me, I name Luke as the successor grantee beneficiary effective upon my death, should he survive Evan and me. If Luke does not survive Evan and me, this deed shall be void."

You must also prepare a Montana realty transfer certificate to accompany the beneficiary deed before the county clerk and recorder will record it. A Montana Realty Transfer Certificate (Form 488) is available at your county clerk and recorder's office or online at www.revenue.mt.gov. Under forms search "Realty Transfer Certificate or form 488."

If there are water rights on your real property, you should also prepare and sign a DNRC Water Right Ownership (Form 608). This form should be stored in a safe place with a copy of your beneficiary deed. The form should be filed with the Department of Natural Resources and Conservation after the death of the owner by the grantee beneficiary. The certificate is available at <http://dnrc.mt.gov/divisions/water/water-rights/docs/forms/608.pdf>

Whether a beneficiary deed or a will or a trust is best depends on your circumstances. Some families may find all three estate planning tools would best meet their estate planning goals. Discuss your goals with an attorney to assure you are using the appropriate legal tools for your circumstances. No two families are alike. Simply because one of your neighbors has a beneficiary deed doesn't necessarily mean you should use one also.

More information is available in our MSU Extension MontGuide Beneficiary Deeds in Montana. (MT201407HHR) If you are sharing this newsletter with family or friends who do not have computer access, a copy of the MontGuide is available from your local MSU Extension office or from me PO Box 172800, Montana State University, Bozeman, MT 59717.

Self Help using YouTube videos

Ever watch "informational" web based classes or webinars? I have and although some of them are very informational, I find them hard to watch for very long. It is one thing to listen to a lecture or presentation when you are there in person, it is another to watch on a computer screen. On the other hand, I have found my self using YouTube for trouble shooting technical things that range from fixing a part on my old tractor, changing out a seal on our washing machine, to replacing a sensor on my truck. No talking heads, just a basic "here is what it looks like, this is how you take it out and this is how you put it back in" instruction. That said there are of course plenty of posts that are less helpful and often simply someone's excuse to show off their poor vocabulary. To better help you the landowner, we have started producing YouTube videos that are our best effort to be short, concise, and concentrated informational broadcasts that help you do something like run a chainsaw, or get an overview of how forests function across the northern Rockies and our role as managers. Please take a look at our newest releases in Chainsaw Safety and Forest Management and let us know what you think at:

<http://www.msuextension.org/forestry/videoresources.html>

Residential Wood Heaters: What's new?

New Source Performance Standards for Residential Wood Heaters

By: *Martin Twer, BioEnergy Associate Specialist, MSU Extension Forestry*

Updated clean air standards for residential wood heaters - New Source Performance Standards (NSPS) - were announced by the U.S. Environmental Protection Agency (EPA) in early 2015. Based on improved wood heater technology, these emission standards now include previously unregulated new wood heaters, like outdoor and indoor wood-fired boilers (also known as hydronic heaters), indoor wood-fired forced air furnaces, and single burn-rate woodstoves.

- The rule will not affect existing woodstoves and other wood-burning heaters currently in use in people's homes.
- The rule does not apply to heaters that are fueled solely by gas, oil or coal.
- The requirements are phased in over five years to allow manufacturers time to adapt emission control technologies to their particular model lines.

Emissions Limits for New Woodstoves and Pellet Stoves (Source: EPA)

Step	PM Limit	Compliance Deadline
Step 1: All stoves without current EPA certification	4.5 grams per hour of operation for catalytic and non-catalytic stoves Limit is for crib testing. If tested with cordwood, emissions test method must be approved, and stoves must meet crib wood limit.	60 days after final rule is published in the Federal Register.
Step 2: All woodstoves and pellet stoves	2.0 grams per hour for catalytic and non-catalytic stoves, if emissions are tested using cribs Alternative limit: 2.5 grams per hour, if tested with cord wood; method must be approved	5 years after the effective date of the final rule.

Emissions Limits and Compliance Deadlines for Hydronic Heaters (Source: EPA)

Step	PM Limit	Compliance Date
Step 1	0.32 pounds per million Btu heat output (weighted average), with a cap of 18 grams per hour for individual test runs. Limit is for crib testing. If tested with cordwood, emissions test method must be approved, and stoves must meet crib wood limit.	60 days after final rule is published in the Federal Register
Step 2	0.10 pounds per million Btu heat output for each burn rate <i>Alternative limit:</i> 0.15 pounds per million Btu heat output for each burn rate. If tested with cordwood; method must be approved.	5 years after the final rule is published (2020)

Standards and Compliance Deadlines for Forced Air Furnaces (Source: EPA)

Step	Standard	Compliance Date
Work Practice Standards	Operational/work practice standards	60 days after final rule is published in the Federal Register
Step 1 Emissions limit	Emissions limit of 0.93 pounds of PM per million Btu heat output, weighted average. Cordwood testing is required for forced air furnaces.	Small furnaces: one year after the final rule is published (2016) Large furnaces: two years after the final rule is published (2017)
Step 2 Emissions limit	Emissions limit of 0.15 pounds of PM per million Btu heat output for each individual burn rate. Cordwood testing required.	All furnaces: five years after the final rule is published (2020)

More detailed information can be found on EPA's website "Final New Source Performance Standards for Residential Wood Heaters" <http://goo.gl/q17B0N>.

Wood Heater Tax Credit

As part of the omnibus spending bill passed by the United States Congress at the end of 2015, the \$300 tax credit to purchase a wood heating appliance was extended through December 31, 2016 and is retroactive to January 1, 2015.

Wood Stove Design Challenge

The Wood Stove Design Challenge is run by the non-profit group, Alliance for Green Heat. In 2013, the Design Challenge hosted the Wood Stove Decathlon on the National Mall in Washington DC. The international Collaborative Stove Design Workshop that followed in 2014 focused on automated wood stove technology. To address the common problem that most consumers don't operate wood stoves well and many use unseasoned wood, the workshop tested with cordwood that was not fully seasoned, captured some start-up emissions in the tests, and assessed how automation can reduce operator error.

And the winner was ...

The Mulciber, by the MF Fire team – a woodstove whose inventors say gives off less smoke per hour than one cigarette.

In their own words: *"The Mulciber Stove by MF Fire is an automated and catalytic residential wood burning stove. The Mulciber Stove utilizes a forced air internal ventilation system that is controlled by a variety of burn-box sensors. These sensors monitor the burning conditions within the stove in order to provide feedback to the smart controller. The smart controller then regulates the airflow, which optimizes burning and, in turn, increases burning efficiency and reduces particulate and carbon monoxide emissions. The previous version of the Mulciber Stove produced as low as 0.2 grams/hour of particulate emissions at the previous Wood Stove Decathlon. In order to power the ventilation systems, sensors, and controller, thermoelectric generators are used to generate electricity from the heat produced by the stove. This model utilizes a few clever heat recovery techniques that also prevent waste heat from traveling up the chimney and out of the home, thus improving efficiency. The Mulciber Stove is an ultra-clean, high efficiency, and easy to use wood stove."*


A runner-up that operates without any electricity, the VcV, a New Zealand mechanical device, achieved the highest average efficiency.

Here's how the designer describes it: *"The VcV or "Kivi Valve" is a barometrically operated variable choke venturi tube (VcV) that is used to control the amount of combustion air entering a stove, particularly at the lower burn rates. It is designed to maximize burn times while simultaneously reducing particulate matter (PM) emissions and increasing overall efficiency (%OE). Normally there are 2 VcVs on a stove, 1 for the primary air system and 1 for the secondary air system and each operates differently. This dual VcV system can be adapted for use on any naturally drafted wood stove and since it is mechanical, the VcV system does not need an external power source for operation."*

If a consumer closes the primary air control (PAC) early on a typical stove being sold today, the result can be an increase in PM emissions because the stove has not been brought up to proper sustainable operating conditions. The operation of the PVcV is specifically designed to prevent this from happening because even if a consumer were to close the PAC early, the PVcV will not automatically "pop up" until the stove has reached the proper sustainable operating conditions.

The operation of the 2VcV does 2 things, (1.) it enhances starts by limiting the amount of secondary air entering the stove which enables a stove to come up to operating temperature quicker and (2.) by matching (optimizing) the amount of secondary air entering the stove with the static pressure over the entire burn cycle, both combustion efficiency (%CE) and overall efficiency (%OE) are increased/optimized."

Information about all five stoves that competed in the Collaborative Stove Design Workshop at Brookhaven National Lab in November 2014 is available here <http://www.forgreenheat.org/stovedesign/stoves.html>.

 MONTANA <small>STATE UNIVERSITY</small> <small>EXTENSION</small>	2016 Calendar of Workshops and Events		
Workshop/Events	Date	Location	Information
Logger Workshop	April 25-28	Yellow Bay	Register at www.logging.org
Forest Stewardship	May 12-13 & 20	Bozeman	Register by April 29th
Forest Stewardship	June 9-10 & 17	Billings	Register by May 27th
Forest Stewardship	July 21-22 & 29	Frenchtown	Register by July 8th
Forest Stewardship	August 11-12 & 19	Condon	Register by July 29th
Forestry Mini-College	February, 2017	Missoula	
MT Natural Resource Youth Camp	July 10-15	Lubrecht Experimental Forest	www.mnryc.org
Joint Montana SAF Annual Meeting & MT Forest Landowners Conference	April 15-16	Helena, MT	http://www.cfc.umt.edu/saf/events/mtsaf-annual-meeting/default.php
2nd Northwest Wood-Based Biofuels + Co-Products Conference	May 3-4	Seattle, WA	http://nararenewables.org/conference/
Woody Biomass Treatment and Tree Regeneration	June 27	Lubrecht Experimental Forest	See below *
Riparian and Stream Assessment and Management	July 25	Bozeman	See below *
Forest Soils and Understory Vegetation Management	July 29	Lubrecht Experimental Forest	See below *
Forest Harvesting and Advanced Silviculture	August 26	Lubrecht Experimental Forest	See below *
<p>* Registration information http://www.msuextension.org/forestry/calendar.htm#mfsp</p>			

Heating with Wood – Online Calculators & Estimators

Submitted by: Martin Twer, *BioEnergy Associate Specialist, MSU Extension Forestry*

The MSU Extension Forestry website provides several online calculators and tools to inform the decision making process if heating with wood is right for you. The calculators are available here <http://www.msuextension.org/forestry/WB2E/calculators.htm>

Estimate Space Heating Demand and Effective Costs

An important component in evaluating the economic impact of a wood-fired heating system is the current space heating demand and fuel cost.

This *Estimator for Space Heating Demand and Effective Costs* can help you with this process. A pre-populated example case study is available as well.

Heating Fuel Comparison Calculator

What motivations do you have to consider using wood for heat? People invest in renewable energy for a variety of reasons. For example, you may be motivated to be less dependent on fossil fuels and its suppliers. Perhaps you are working to reduce your personal carbon footprint. Are you simply trying to reduce your current energy costs? Are you trying to hedge against future energy costs by using wood as a back-up fuel to your current system? Your reasons for exploring wood heat will influence your decisions about system size, economic benefit, and system type. Take time to think about your reasons for this investment before talking to a qualified installer.

This *Heating Fuel Comparison Calculator* can help you with one part of this process: It provides a quick way to compare the cost to purchase various fuels to heat a building. The calculator estimates the amount and cost for each fuel to deliver the required BTU's in the form of heat, and takes into account the cost of the fuel, the energy content of the fuel, and the efficiency of the appliance.

How much Energy is in a Slab of Wood?

Do you want to know how much energy is stored in a piece of wood and what you could do with that energy?

For example, how long a shower you could take if that energy would heat water?

Or how long different types of lightbulbs would burn if that energy would be available as electricity?

Find out with this illustrative *Wood Slab Energy Calculator*.

Firewood as a Heating Fuel Alternative

This is an online adaptation of MontGuide MT8411.

It provides an estimate how much heating your home with a "traditional, open-faced fireplace" is costing you, and if/how much investing in a new, EPA-certified wood stove could potentially save you over time. You can also estimate if substituting your existing fuel source with firewood would make financial sense at current market prices.

The Next Generation of Family Forest Landowners and Natural Resource Professionals



Submitted by: Martin Twer, BioEnergy Associate Specialist, MSU Extension Forestry

For over 25 years, the Montana Natural Resources Youth Camp (<http://mnryc.org>) has provided young people an opportunity to study in an outdoor classroom the scientific principles, economic realities, historical heritage, and social perspectives of natural resource management today, to help future leaders in their quest to gain a perspective that is informed and progressive.

Campers spend one week (July 10-15, 2016) in the rustic setting of The University of Montana's Lubrecht Experimental Forest learning about Montana's natural resources. The accommodations are comfortable, the food is great, and the instruction and friendships are the best!

The camp is open to all youth ages 14-18. The full cost of the camp to students is \$250 which includes meals, supplies, and lodging. Campers are encouraged to contact their local Conservation Districts, which usually offer significant scholarships to our camp.

Campers learn about wildlife, forestry, streams, soils, geology, range management, and recreation, taught largely by professionals that volunteer from a variety of natural resource management agencies and industries. They also spend a half-day rafting the Alberton Gorge of the Clark Fork River. The field sessions, specialty evening programs, guest speakers, hands-on learning-through-discovery, and campfires provide for a lasting summer camp experience.

Student teams also compete in a land-use simulation game where they manage a 3,800 acre ranch for 20 years. As in real life, teams must make hard choices between profits and conservation ethics, especially if they face poor commodity prices. Most students enjoy the competition and have the typical reaction of, "Wow, I never knew that making a living by managing land was so hard."

An advanced level curriculum, the Conservation Leadership School, is offered for returning campers (fee \$300), including an overnight camping trip into the mountains.

For more information contact Martin Twer, Camp Director, phone (406) 243-2775, email director@mnryc.org, or visit the camp website <http://mnryc.org>.

Landowner Survey—Please participate!

What is important to you as a forest landowner?

Periodically it is important for us at MSU Extension Forestry to hear from all of you about your concerns and what is important to you with regard to being a forest landowner in Montana. Please log onto the internet and type in your control bar the following address: <https://goo.gl/65K6sV>. This will route you to an invitation-only short 1-page survey that should only take 10 minutes of your time, and when completed will automatically be routed to us for compilation. The survey consists of two parts: an issue based rating, and a short questionnaire that includes information about you. The issue based rating must be filled out for the survey to be submitted, the short answer questionnaire is optional, but would be greatly appreciated. None of the personal information (who you are and acres you own) will be filed for anyone to see, it just helps us determine credibility and also get back to you if you have specific issues that we can help you with. **This survey will close April 30, 2016.** Please do not share this with anyone who is not a forest landowner as you are who we are interested in hearing from, not special interest or advocacy groups.

Thank you for considering participating.

Peter Kolb

Forest Biomass in the Clean Power Plan

Submitted by: Martin Twer, BioEnergy Associate Specialist, MSU Extension Forestry

In August 2015, the Environmental Protection Agency (EPA) announced the Clean Power Plan (CPP). The regulation requires the U.S. power sector to achieve gradual cuts in carbon (CO₂) emissions and could accelerate the deployment of renewable energy sources, including from biomass. The EPA proposed a federal plan for the Clean Power Plan that will serve as a model rule for states with fossil fuel-fired power plants, for developing their state plans, as well as a federal plan that the EPA will be put in place if a state fails to submit an adequate plan.

In the Clean Power Plan, the EPA has developed emission reduction targets for individual states based on current emission levels and potential reduction capabilities through their Best System of Emissions Reductions (BSER) for CO₂. The BSER is based on four building blocks to reach compliance: 1) Heat rate improvements from existing fossil fuel power plants; 2) Increased dispatch of low-emitting power sources, i.e. natural gas combined-cycle generation; 3) Increased generation from low- and zero-carbon sources such as renewables and nuclear; and 4) Increased end-use energy efficiency;

The new-source standards of the Clean Air Act continue regulatory uncertainty as they do not clearly label the use of biomass feedstocks as carbon neutral. Doing so would simplify the inclusion of forestry residues as renewable electricity generation in individual state compliance plans. The proposed Federal Implementation Plan (FIP) will be imposed on states that do not write their own plans. Currently, biomass is not included in the FIP. Forest health initiatives and biomass can become an integral part of the Clean Power Plan, but will require creativity to fully realize.

Much of the public discourse regarding (forest) biomass (particularly round wood) as a component of the third building block in the Clean Power Plan has been around the term “qualified” biomass. It derives from the question what the net carbon emissions from biomass are, if biomass can be considered carbon neutral, and is captured in EPA’s Biogenic Emissions Accounting Framework (BAF).

Biomass combustion results in CO₂ emissions, so the accounting for these emissions depends on various assumptions: What is the baseline for emissions; is it a reference level from the past or an anticipated level in the future? What is the alternate fate; what would have happened to the biomass (and its emissions) if it were not combusted for power generation? What spatial scale is considered; local, regional, national scale? Over what time period are carbon emissions and sequestration accounted for; one year, 50 years, 100 years, millennia? And what type of biomass and associated land management practice are considered; agricultural residues, forest materials, energy crops, etc.?

Even though the Clean Power plan has been temporarily blocked by the U.S. Supreme Court pending adjudication of an application for a stay at the U.S. Court of Appeals for the District of Columbia Circuit, several states are continuing to plan for its eventual implementation. But in Montana, which is one of 29 states suing the federal government over the CPP, the work of the Montana Clean Power Plan Advisory Council, which was established by Governor Bullock on November 12, 2015, was put on hold.

Even if the legal challenges to the CPP currently pending in the courts are successful, (forest) biomass could still be an important factor in the newly evolving energy environment: Biomass co-firing is likely to present a cost-effective option for coal plants; Co-firing could be competitive with Building Block 2, natural gas re-dispatch.

The Clean Power Plan could provide (forest) biomass an opportunity to play a significant role in meeting CO₂ emission reduction goals for Montana, while at the same time providing potential market signals for forest products and forest management.

More information regarding biomass in the Clean Power Plan is available online:

A NEWBio webinar series addresses the Role of sustainable Bioenergy in the CPP, <http://goo.gl/4oGcpl>.

EPA is holding a Biomass Stakeholder Workshop: Fostering Constructive Dialogue on the Role of Biomass in Achieving Clean Power Plan Goals on April 7, 2016 (<http://goo.gl/MrNjZm>).

The EPA is offering CPP Webinars (<http://goo.gl/6bWpvS>), a CPP Toolbox for States (<http://goo.gl/uCmLyU>), and a CPP Community Page (<http://goo.gl/cfB85Z>).

Synapse Energy Economics, Inc. CPP webinars, <http://www.synapse-energy.com/webinars>

Burning Slash Piles; What's the Best Way to go About it?

By: Peter Kolb, Forestry Specialist, MSU Extension Forestry



Bigfork fire chief Rick Trembath demonstrates the ignitability of dead interior lichen covered twigs in winter.

Woody debris generated by logging, thinning or fire hazard reduction usually ends up as something the landowner must deal with either directly or after the contractor has met the minimum fire hazard reduction rules of the state of Montana. Traditionally burning has been a common and preferred method, however, fire liability laws, smoke generation ordinances, and perhaps a landowner with limited fire experience might make this a questionable tool to use. It can be the least expensive, useful and for some (me included) a most enjoyable land management practice. There are some experiential tricks that can be useful to know for the best results.

Pile size is a constraint determined by who and what method of logging/thinning is used. When hand-piling, it is most efficient to create numerous smaller piles than one large pile, since dragging debris can be time consuming and exhausting. Pictured on the right (1) is an average pile size that the branches from one 14-20 inch diameter ponderosa pine will create and an easy burn size that creates only a small soil scorch spot. Pictured on the bottom-left (2) is the average pile size generated by mechanical logging that uses whole tree harvesting and delimiting at a landing. It is often the size of a cabin. For either size it is very important that the pile is not densely packed so that aeration dries out the material. Larger logs can take up to a year to dry out whereas smaller branches

and needles can dry out over several months depending on temperature and sun exposure. Compacted piles with soil and soil surface organic layers pushed into them may never dry resulting in poor combustion and thick acrid smoke when ignited (3).

The location of the pile is important as an efficiently burning pile generates significant heat. Smaller piles (4) should be at minimum 15-20 ft from green trees and larger piles 30-40 feet (5). Overhanging branches and crowns are also a concern as the convection column of burning gases will reach 3-5 times as high as the slash pile is tall, and scorch tops or ignite dead branches or lichens. Smaller piles can be manipulated by placing a sheet of corrugated metal over the top (6) which prevents tall convection columns. Such a technique also can facilitate a cleaner burn by keeping heat in the pile—and also helps when trying to burn out stumps that may interfere with trails or lawns. Metal sheets should only be placed on the pile after a hot clean



1



4



2



3



5



6



fire is established, which is indicated by a substantial flames and limited smoke production. Larger piles are much harder to manipulate in this way simply because of their size and the energy they release. In mountain valleys smoke from one smoldering fire can make life miserable for everyone. Typically there will always be some “start-up” smoke for the first 15-30 minutes, though. One actively burning a well constructed pile will produce next to no visible smoke until it burns down to a few remaining pieces.



Most fires will burn hollow, leaving a ring of debris (7,12,13). This material should be repled to the center when there is still a deep bed of red hot coals. This should be done several times by hand during the course of a day for small piles (8) and every day over several days for large piles with a tractor (14). Once reduced to a bed of coals, a small pile might remain hot and smoldering for a day or two, and a larger pile for a week. If done well, only a flat bed of white ash and black charcoal pieces will remain (9). Burn sites from small piles can be very effective site preparation for tree seedling recruitment (10,11) and strategically placed and created to enhance natural regeneration. Larger burn pile sites are also good tree seeding recruitment sites but must have deep ash and the burned mineral surface scattered and turned or they will remain unproductive weed colonized scars that last 30+ years.



The utility of multiple piles is that they can be burned with little to no risk at the end of summer when rain or snow is (has) fallen, and open burning is still allowed. In spring I try to only burn fine debris piles as large diameter debris remains wet after winter and will produce lots of smoke as it slowly smolders, and potentially remain active into fire season. To best start burn piles only use diesel fuel (sparingly) and never gasoline as it tends to explode. Crumpled newspaper placed under a clump of fine fuel concentration with a little diesel on it is a great ignition wick.



For safety a loose wool shirt is ideal as wool is fire and heat resistant (though cotton also works). I also wear a wool ball cap because the radiant heat from a fire can be intense and lowering my head allows the bill to shield my face. A hard hat is recommended when falling debris is a risk. Wear leather boots (not rubber or synthetic), leather gloves and only cotton or wool (including undergarments). Make certain you have a burn permit, and always watch the weather!



Montana Master Forest Steward Program - An Advanced Curriculum for Forest Landowners



Submitted by: Martin Twer, BioEnergy Associate Specialist, MSU Extension Forestry

One of the primary and most consistently offered forest-landowner oriented educational programs has been the Montana Forest Stewardship Program. The goal of this program is to help landowners assess their forests, develop short and long term objectives for their lands, and write a plan that reflects their personal objectives and resource potential for their land.

The initial Forest Stewardship Program is complemented by the multiple-workshop Montana Master Forest Steward Program (MMFSP). To gain the status of “Master Forest Steward,” landowners are required to complete seven core courses and three elective courses for a total of ten courses. Landowners who complete this program will be recognized with a certificate.

Each course provides participants an opportunity to find out about a new subject, study a familiar topic in more depth, interact with and learn hands-on from professionals as well as fellow landowners, and complete a subject-specific supplement to their existing Forest Stewardship Plan. While most of the classes are one-day, some are offered as two days, either back-to-back or with a week in between to allow landowners to conduct an inventory of their land regarding a specific topic, and return a week later to discuss their findings and hear about possible management considerations.

Since we are still in the process of scheduling our workshops for 2016 please visit our online educational calendar <http://www.msuextension.org/forestry/calendar.htm> for the most current information.

Tentatively planned workshop topics include:

- Forest Harvesting Practices/Advanced Silviculture
- Forest Soils - Evaluation and Protection
- Forest Wildlife Habitat Identification and Management
- Introduction to GPS for Forest Landowners
- Using Google Earth to map your Forest
- Forest insect and disease identification and management

From an educational perspective we think it is important that landowners who enter the Master Forest Steward Program workshop series are presented with the approach that the initial Forest Stewardship Workshop is a first step in caring for their forest, and that additional information and knowledge is offered as they continue to learn about their land and adjust their management plan to meet new expectations and changes to their forest. By offering a Master Forest Steward curriculum we not only give landowners the opportunity to pursue more in-depth training, but will also present them with an acknowledgement of their commitment, and achievement.

For more information on this program see online at <http://www.msuextension.org/forestry/mmfsp.htm> or contact Martin Twer (MSU Extension Forestry BioEnergy Associate Specialist) by phone (406) 243-2775 or email martin.twer@cfc.umt.edu.

Bavaria-Germany Forest, Culture and History Study Tour May 14-27, 2017

Planning is starting for a 14-day tour of German forestry practices centered around Munich, Germany for the spring of 2017. We will start with several days in Freising, which is only 30 minutes from the Munich International Airport and home of the Bavarian Forestry Institute and then travel north with stops in Regensburg, Nuremberg and smaller towns and castles in the Thuringian Forest, before heading south again to Freising, Munich and a trip to Salzburg, Austria. The focus will be on forest management on state and private lands as well as local history, food, beverages and culture. Although there is a packed schedule, at least two days will be “on your own” to relax and explore. You can also arrive early or stay late to vacation on your own time.

The cost is expected to be approximately \$3000 per person (depending on rates and monetary exchange) plus your own airfare. Discounts will be available for double occupancy. The trip is limited to 25 persons (first come first serve) as larger groups limit where we can go and stay. If you would like to participate please send an e-mail or letter of intent to: peter.kolb@cfc.umt.edu Peter Kolb, MSU Extension Forestry Spec., 32 Campus Drive, Missoula MT 59812-0606

Planning updates and information and pictures of our last tour can be found on the MSU Extension Forestry web site.





Purpose

Montana Forest Owners Association, Inc. is a Montana corporation organized in 1995 for the primary purpose of being a voice for non-industrial private forested land owners. MFOA is known throughout the state of Montana and with the state legislature as a respected advocate for the nonindustrial private forest landowner and has played an important role in numerous legislative issues.

New domain and website

MFOA has a new domain. Board member Jay Pocius created a new website for MFOA. The website contains helpful information. Please take a moment to check it out. www.montanaforestowners.org

MFOA has new board members and 2016 officers, as follows:

President	Mike Christianson, Bozeman
Vice-President	Peter Pocius, Helena
Secretary	Mark Boardman, Columbia Falls
Treasurer	Jody Christianson, Bozeman
Director	Matt Arno, Potomac
Director	Allen Chrisman, Kalispell
Director	Peter Kolb, Evaro
Director	Pat Mandzak, Lewiston, ID
Director	Joe Moran, Drummond
Director	Jay Pocius, Helena

Mark Your Calendar

There will be an Educational Forum/Legislative Listening Session in Helena on December 6, 2016, in Helena. MFOA is sponsoring this session with the Montana Wood Products Association and the Montana Tree Farm.

Join/Renew

MFOA is a membership organization. Any person interested in furthering MFOA's purpose is eligible to become a member. If you are a landowner, please help us ensure the management decisions on your property remain with you. To join or renew, simply go to www.montanaforestowners.org and click on JOIN/RENEW or click on the QR code below.



Forest Stewardship Foundation

Submitted by: Ed Levert, Chair

As you read this Montana Family Forest News edition you might ask yourself, what is the Forest Stewardship Foundation? Many of you already know us, but sometimes it seems our group falls between the cracks. We are a non-profit organization with a basic mission of educating and informing forest landowners, resource professionals and the general public on natural resource issues. Originally formed in support of Montana's forest stewardship workshop program over twenty years ago, we now attempt to find needed educational subjects not being covered by Montana State University Extension Forestry, DNRC or other educators. Yes, we still believe the forest stewardship workshop program is integral to forest landowner education and in 2015 we presented MSU Extension Forestry with \$2500 in support of these workshops.

It appears that most of our success comes from our efforts to team up with other groups. On April 15, 2016 we will once again co-sponsor the Helena Landowner Conference with Northwest Management, Inc. This marks our seventh year of involvement with this successful conference. What makes the conference special this year is that we are again joining with the Montana Society of American Foresters for their annual state meeting. Those who attended the last joint meeting in 2013 will remember the large number of attendees, the quality program and the value of having professional foresters and focused landowners at the same event. Mark this event on your calendar.

The day following the Helena Landowner Conference a Ties To The Land Workshop will be held at the same location. This award winning program developed by the American Forest Foundation and Oregon State University helps landowners make those important decisions on who will own and manage my property when I am gone. Attendance is limited so for more information on this workshop contact me at televert@kvis.net.

Twice a year we publish the Forest Steward's Journal, which goes to over 1200 landowners, etc. For those of you familiar with Facebook, you will find a multitude of information about natural resource management on our site. You can access this site by typing in "Montana Forest Stewardship Foundation" in the top "search" box.

How do we do all of this with only a handful of volunteer board members? We do it through your help with a \$25 year membership, donations and other support. Please consider joining our foundation by mailing your request to the Forest Stewardship Foundation; PO Box 1056; Libby, MT 59923.

Healthy Forests Demand Strong Private Property Rights

By Dan Happel, Chair – Montana Forest Stewardship Steering Committee

For decades there has been an ongoing debate about the role of private vs. public land ownership, and which form provides better forest stewardship. Although there are some pretty egregious examples of private forest land stewardship. There is little doubt that in the bigger picture of private property ownership, the better stewardship choice. Now, I know that there are a number of folks out there that would argue against that statement, but I think we can back this hypothesis pretty easily with a little common sense and some pretty solid examples from recent history.

The truth is, in most instances, folks don't take as good care of something publically owned as they would of something privately owned...they don't have a stake in the game. Well, look no farther than subsidized public housing projects to see the truth in that statement, if you pay nothing or next to nothing for the use of something, then in all likelihood it will have little or no value to you....that's just human nature. That is why multi-million dollar public housing, projects, typically have a useful life of 10-20 years before they are in such a state of disrepair that they must be condemned and/or demolished. Compare that with similarly constructed owner occupied buildings in the same city where investors expect a return on their investment and a useful life of at least 40-80 years.

I know that public housing stewardship is a bit of a stretch from public forest stewardship, but the basic premise is the same. It is human nature to respect and care more for something that requires a personal monetary sacrifice to acquire and an investment of time and sweat to maintain. In my years of experience as a rural landowner in Montana, old time farmers and ranchers were far and away the best land stewards because their livelihood and survival depended on their respect and care for the land. They wasted nothing and threw away only things that were completely worn out.

Pride of ownership and the profit motive are without doubt the best tools to enhance forestry stewardship.

Americans hold private property ownership at the very top of their list of constitutionally guaranteed rights and although they quietly accept a degree of public control of their property rights, they are becoming disenchanted with increasingly restrictive environmental policies and government mandates that impose unreasonable burdens on landowners. We all recognize that some limited land use restrictions are necessary under certain circumstances. However, greatly reduced utility, imposition of unwarranted costs, and the total control of the productive use of our private lands transcend any reasonable necessary restrictions.

It's as simple as this, if we want healthy forests and productive private stewardship we stand a much better chance if we show respect for private property rights. Let's provide landowners with quality stewardship training instead of blanket Federal mandates that penalize them for productively using their forest land.

Productively managed private forest lands provide good paying jobs, wood products, healthy ecosystems and beautiful physical environments. Conversely, poorly managed public lands have spotty natural resources utilization. Insect/disease infestation, limited public funding, and facing crippling law suits by well-funded environmental groups for almost any human activity are a significant liability to our state's economy. The last thing we need is more poorly managed underfunded public lands.

The poorest natural resource models in the world are countries where private ownership of property is non-existent or centrally controlled and where people work in a planned economy for subsistence wages. The forests of the Soviet Union and their Eastern European satellites were models of management and environmen-

tal destruction. Although they contained the most extensive and productive forest lands in the world, they used forestry practices that were at least 50 years behind the U.S. and Western Europe in both technology and ecology. The fundamental weakness of controlled economics is that they lack private property rights and the economic incentives which promote new technologies and a cleaner, healthier environment.

In 1960 Montana enjoyed the sixth highest per capita income in the United States, today we are 48th. The reason for our economic decline can be explained with three simple words natural resource utilization. We have been transformed from a youthful, productive, job rich, "resource" economy to a state full of retirees and folks dependent on government jobs, grants and entitlement programs. The two largest employers in Montana are the Federal and State governments with private enterprises lagging far behind.

We have a significant "brain drain" because Montana's young adults cannot find meaningful long term employment in the local private sector. How can that be after all we are the resource rich "Treasure State"?

The simple truth is that not everyone can be a doctor, lawyer or banker and there are only so many low paying service industry and burger-flipper jobs for non-government employees. We must realize that high paying manufacturing jobs are what America really needs, and you can't manufacture anything without natural resources. If we really want healthy forests and wealth producing jobs, the answer is staring us straight in the face utilize our natural resources, and do it in a thoughtful sustainable and environmentally responsible way so those jobs will last.

In times past did we have instances where we were very poor stewards of our resources and damaged the natural environment? Absolutely, but we also learned many lessons from our past mistakes and are generally much wiser stewards of our resources since it is in our self-interest to be so. Resource utilization and responsible environmental stewardship are not mutually exclusive. Productive utilization provides the economic incentive to create clean technology and mitigation techniques that enhance a clean and healthful natural environment. Very little real science has come from radical environmentalism mostly it has come from the industries they oppose. Rich economies have cleaner environments; poor countries have dirtier environments... that's just the way it works.

Of course the arguments today will be that there is no market for lumber because of the meltdown of the residential construction industry and to a certain extent that is true. Moving toward more government control of forest land is certainly not the answer. There will always be a market for value added wood products and the bio-fuel market is barely in its infancy and has enormous growth potential. There will be markets and uses for forest products as long as there are people on earth. The key to wise forest resource development is letting the free market system and the ingenuity of American entrepreneurs go to work without the mind numbing over-regulation of the past three decades. We can have healthy forests, good stewardship, environmental sustainability and profitable resource development if we just return to a common sense free market system. Does this make as much sense to you as it does to me?

Question: What is the most over-developed, frequented, commercialized, crowded, and financially exploited 56 acres in the world? Based on our preconceived notions of over development and environmental exploitation this place sounds pretty hellish, doesn't it? Answer: Disneyland

Marginal Timber Markets Make for Tough Forest Stewardship....but There are Foresters out there to help, which one is right for you?

By: Cameron Wohlschlegel, Forester - F.H. Stoltze Land & Lumber Company

Currently the Montana timber market is marginal and lumber values are low. This marginal period however has not decreased the demand for property management of private landowners. Many people aren't only concerned with getting the highest prices for their timber, but also are interested in long-term timber production, hazard fuel reduction work, increasing wildlife habitat and maintaining or improving forest aesthetics. More often than not good trees pay their way out of the woods. The dilemma facing many private landowners is meeting the secondary objectives; reducing fuels on their property, removing pulp from stands which are overgrown or not commercially viable, ensuring cleanup/slash disposal, and regenerating their forest. These secondary objectives are almost always economically challenging. Factor in these losses with the logging and trucking costs, a variable pulp market, low lumber values, and it makes good forest stewardship difficult.

But wait here is the good news! Foresters can help private landowners practice quality forest stewardship in a few different ways. Multiple grants are available at the state and federal levels that help private landowner's cost-share projects that would previously be cost prohibitive. Foresters utilize grants on private projects to treat logging slash and to cost-share the removal of pulp. Pulp is often a product of dense overstocked stands with a high fire danger. Pulp material is too small to make a log but is an acceptable product for our paper/chip market. Removing this smaller diameter material increases the growth of more desirable species, residual leave trees, and reduces fire hazard fuels. It's good stewardship to remove this pulp material but often takes away from profits. Foresters also help landowners manage their forest by utilizing select smaller diameter timber in market diversification. There are currently specialty markets for firewood, rails, posts, and pole sized timber. Utilizing and knowing these select markets helps make timber that would normally be too small for a traditional sawmills to use become a "specialty" product. This market utilization aids landowners in finding a profitable way to remove this normally sub-merchantable sized timber from their property.

Good foresters will strive to promote amongst private landowners sustainable forestry practices that are economical and environmentally responsible. The right forest management can also provide some measure of protection within forests from wildfire, pests, and diseases thus improving long-term health and productivity. Foresters can design management prescriptions around local or future insect and disease threats while also recognizing the special significance of each acre of land and incorporate adaptive management to account for unique qualities. With all the benefits we receive from our forests many landowners choose to utilize professional foresters in their quest for stewardship forestry. Using a forester will help you meet property objectives and achieve best market utilization of wood products so you get the most return on your investment.

So, are you interested in having a custom management plan created for your property? Conducting a timber harvest that incorporates long-term timber production and wildlife habitat enhancement? Are you unsure if your forest products are commercially viable? If you are one of the many private forest landowners in Montana struggling with forest management options and are interested in practicing good stewardship forestry, you should be contacting your local forestry experts.

Forestry experts come in many forms; state service foresters, private consulting foresters, and mill foresters

are just a few examples of forestry professionals available to private landowners. Using a good forester will help you meet management objectives while utilizing all available tools and expertise to provide quality stewardship. Foresters also know how to utilize current markets to maximize the value of your forest products. So what are differences with each forester and which one is right for you?

Service foresters are available to private landowners through state agency offices. A service forester will often conduct a woods walk with a landowner suggesting management options that are geared towards specific landowner objectives and property characteristics. This type of forester can usually provide a list of quality contractors that can help landowner meet their property management goals. Also, a service forester can help landowners determine if their property and management objectives are conducive with any current grants or cost sharing available. Current grants include funding for hazard fuel reduction and slash disposal. If you have noticed any mortality in your forest these foresters are also great for on the ground inspections in to insect and disease activity and defining management options for containing the threat and salvaging the timber. Montana does an excellent job at keeping their foresters current with the newest insects and disease activity training. The best part of service foresters is that they are a free service that can provide sound advice and are a good starting point with most forestry applications. You can easily find your local forester by going to MT.gov and searching “forestry assistance.”

So, now you’re thinking well I’m still not sure about forest management, the advice from the service forester was great and all but I am too busy or just not comfortable overseeing/administering management on my property. Well, that’s when a consulting or mill forester can fit the bill. I mean literally fit the bill as their time is not free. Most consulting foresters can provide assistance with any number of property management services desired including but not limited to: developing custom management plans, resource inventory, contract administration, marking timber, reforestation, or road design and layout. Another benefit of a consulting forester is how they market your wood products. Usually timber is marked for sale with products and volumes determined and then sent out to the consultants “bid” list of mills and contractors. This bidding process can be beneficial in the values a landowner receive for their goods. Consulting foresters pitch is that their services are covered by the increase in revenue generated from this bid process. However, additional management services are usually charged on a per acre, hourly, or commission based rate and can take away from overall profits. The upside to using a private forester is getting professional knowledge and oversight on forest management projects which in turn helps to promote a stress free environment for the landowner; knowing that your forester will handle all the paperwork, coordinating, and quality control to meet objectives on your property.

Lastly utilizing a mill forester can also be a wise option. Mill foresters often provide many of the same services a consulting forester. One major difference is that mill foresters often times do not charge a monetary fee or out of pocket fee for their services. This can be a major help when money is tight. Whereas a consulting forester may be a good fit for a landowner who has sub merchantable timber and is interested in property management without the revenue stream of a timber harvest, using a mill forester is most economical when you know you want to conduct a timber harvest on your property. Having merchantable timber is the key for using a mill forester because they will often incorporate the cost of their services: creating a management plan, creating and administering legal documents, and the management oversight of services into the stumpage paid for your timber. Also, whereas service foresters have an idea of what your timber is worth and consulting foresters-market/sell your timber to mills, a mill forester can tell you exactly the current price and quality of your timber. Forest stewardship services both pre and post harvest activities such as road building, slash cleanup, herbicide, and reforestation are typically bundled into stumpage prices. This practice effectively makes timber pay for complete stewardship forestry practices instead of money coming “out of pocket” for additional services.

As a new forester at F.H. Stoltze Land and Lumber in Columbia Falls I look forward to carrying on the tradition of providing forest stewardship solutions to private landowners. Here at F.H Stoltze our forestry team has been doing just that for over 100 years! I encourage landowners of Montana to utilize their local mill

foresters it could wind up benefitting you, your property, and your community, making it a win, win, win!

Now you know a little about the different foresters available to landowners in Montana. Which one is right for you? They each have their own strengths and weaknesses, to determine which type of forester best fits your personal management goals I recommend starting with your regional state service forester and then contacting your local private and industrial foresters to “feel” them out and determine which one best fits your property. Just remember good forestry starts with the desire to learn and do the right thing and doing the right thing usually involves getting the best help available – use a forester! We are there for you, your woodlot, your water, and your wildlife.

Protecting your Trees from Douglas-fir Beetles

Submitted by: Amy Gannon, Forest Pest Management Program Manger, Montana DNRC

Protecting your trees from Douglas-fir beetle? Vegetation management is the recommended method for long-term control but anti-aggregation pheromones can be useful for short-term protection or high value trees. Methylcyclohexanone, MCH, is the pheromone used to deter Douglas-fir beetle. Place MCH in your Douglas-fir stand by April 15th. Don't place it much earlier; it could dry out before beetles fly in mid-May. Pouches should be nailed or stapled to trees at an approximate density of 30/acre or 2/tree, whichever is more cost effective based on the number of trees you wish to protect. For example, individual protection of ten trees would require 20 pouches. More than 15 trees could be protected with 30 pouches placed in a grid throughout the stand. Place pouches in as uniform of a grid as possible. This might mean that you need to hang a pouch on a pine tree or fence post to get the proper spacing. It doesn't need to be exact, but your goal is to permeate the stand with a consistent coverage of MCH. MCH is available for purchase on the internet. Order soon so your MCH arrives by mid-April.

Thinning Pine Trees this Season? What about Pine Engraver Beetles?

Submitted by: Amy Gannon, Forest Pest Management Program Manger, Montana DNRC

Thinning pine trees this season? If so, be wary of pine engraver beetles. Pine engraver beetles, also known as ips, are slash breeders that infest freshly cut pieces of pine greater than three inches in diameter. Adult beetles overwintering in the forest floor generally emerge in April-May. These slash-inhabiting adults are not problematic but their offspring can cause tremendous damage. The second generation of pine engravers emerge in approximately 50 days and seek out more fresh slash or residual trees. They can attack small diameter trees or the tops of large trees. It is disappointing to thin your stand only to have your intentionally selected leave trees killed by pine engravers! Nonetheless, pine engravers are not challenging to mitigate. **You can restrict your harvest activities in pine to August through December.** This will give slash time to dry out prior to beetle emergence in the spring. **“Green chaining”** is a method of interspersing fresh slash piles throughout the management unit and providing moist pine material for the next generation of beetles to infest (versus your leave trees). **Building large slash piles** is another effective method for keeping beetles from your stand. Material in the interior of the large pile retains moisture that is suitable for the second generation of beetles to migrate into. Once you notice a slash pile is infested, you can chip or burn the pile before the second generation emerges. Lopping and scattering pine generally does not lead to pine engraver outbreaks, but be sure you aren't dispersing a lot of large material on the landscape. If spring is your best time to manage a stand of pine, be sure to consider pine engraver beetles and mitigate accordingly.

Montana's Dynamic Forest Products Industry: Trends from 2000 to 2015

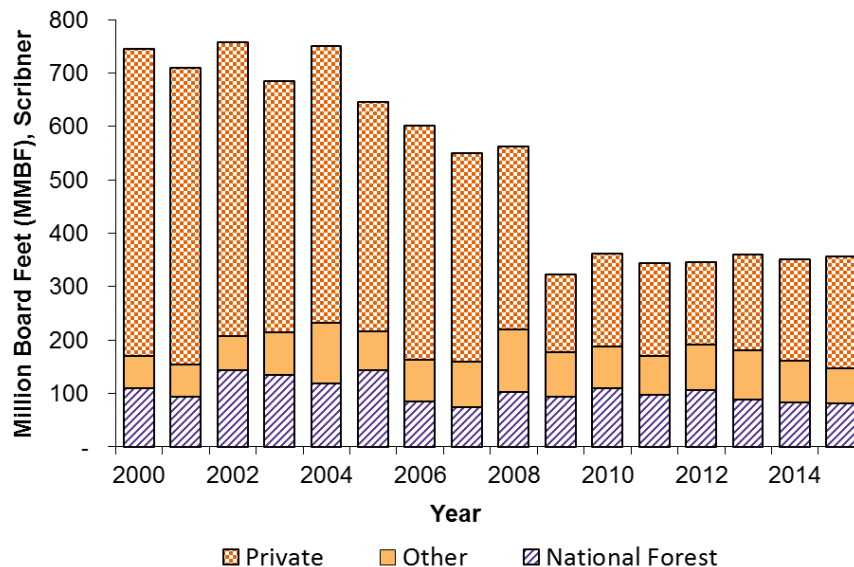
By: *Kate C. Marcille, Todd A. Morgan and Steven W. Hayes*

University of Montana's Bureau of Business and Economic Research

Montana's economic vitality has been closely linked to the forest products industry for decades. Management of Montana's vast public and private forest resources continues to be of great importance for providing employment and economic stability. Timber markets throughout the state continue to be dynamic and influenced by local, regional, and global factors. Throughout the supply chain of forest products there are numerous uncertainties and fluctuations in both timber supply as well as demand for final wood product consumption. Planning for the inherent uncertainties of tomorrow can be informed by historic and recent trends across the state's forest product industry. Analyzing fluctuations in timber harvest levels, log prices, and employment can help inform private landowner forest management decisions in the future.

Over the past 15 years, annual timber harvest volumes have undergone noticeable fluctuations, with an overall decreasing trend in active forest management (Figure 1). In 2000, the volume of timber harvested from Montana forests exceeded 740 million board feet (MMBF, Scribner). In late 2006, the burst of the U.S. housing bubble disrupted all sectors of the national economy, dramatically injuring the forest products industry. The "Great Recession" brought a sharp decline in U.S. housing starts and subsequent demand for forest products. The following stagnation of housing and wood product markets drove Montana timber harvest levels to a historic low of 323 MMBF in 2009. Annual state-wide timber harvest slightly increased in 2010 and has remained relatively flat, averaging around 360 MMBF, roughly half of the 2000 to 2005 average. Montana's total timber harvest volume during 2015 was about 357 million board feet (MMBF), increasing by only 2 percent since 2014. The low timber harvest levels of the past six years have challenged Montana's forest industry as it continues to struggle with raw material availability.

Figure 1. Montana Timber Harvest by Ownership, 2000-2015 (MMBF Scribner)

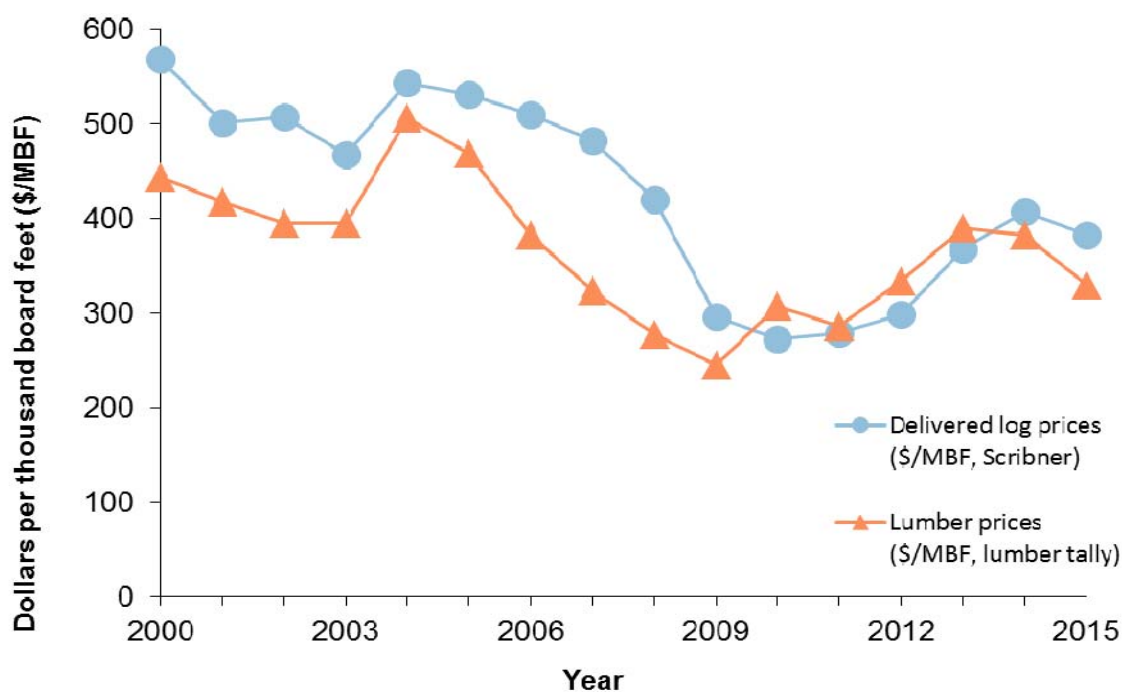


While overall harvest between 2000 and 2015 sharply declined in 2009, harvest levels fluctuated across land ownership classes, revealing different drivers of forest management on public versus private lands. Since the late 1970s, private lands have provided the largest share of the timber harvested in Montana despite operating on a fraction of the acreage relative to the Forest Service. In 2000, industrial and nonindustrial private lands collectively accounted for 77 percent of the total timber harvested in Montana. However, that proportion fell to 45 percent in 2009, and by 2015 the proportion has increased to about 59 percent. Private forestlands bore the majority of the decrease in harvest volume in response to low prices and market fluctuations accompanying the “Great Recession.” Private harvest levels have not returned to pre-recession levels, and many factors may be contributing to this shortfall such as challenging timber market conditions, wildfire, insect-induced tree mortality, past harvesting, land sales and development. Private operators are currently removing only about one-third of the volume harvested in 2000, despite gradual recovery in the housing market and increasing demand for wood products. Harvest from private lands increased by about 11 percent from 2014 to 2015, reaching the highest point since the historic 2009 low.

As a result of lower private harvest volumes, public timberlands—including national forests, state-owned lands, and the Bureau of Land Management (BLM)—now account for a larger share of the total harvest, and thus play a more critical role in supplying the state’s wood products industry. Timber harvest from state and other public lands has fluctuated during the last 15 years but remained relatively consistent.

More than three-quarters of non-reserved timber in Montana is on federally managed land. Thus, the influence of increasing wood products demand on state-wide timber harvest levels is less dramatic. Though Forest Service harvest levels were at their low in 2006 and 2007, changes in timber harvest volumes have been of substantially smaller magnitudes than on private forest land and harvest levels were lower in both 2014 and 2015 relative to 2006. Forest Service removal of timber volume is driven by congressionally mandated timber targets and shaped by a diversity of management goals, including restoration, wildfire protection, and other goals unrelated to wood products markets. Forest Service timber harvest in Montana saw slight increases in 2008, 2010, and 2012.

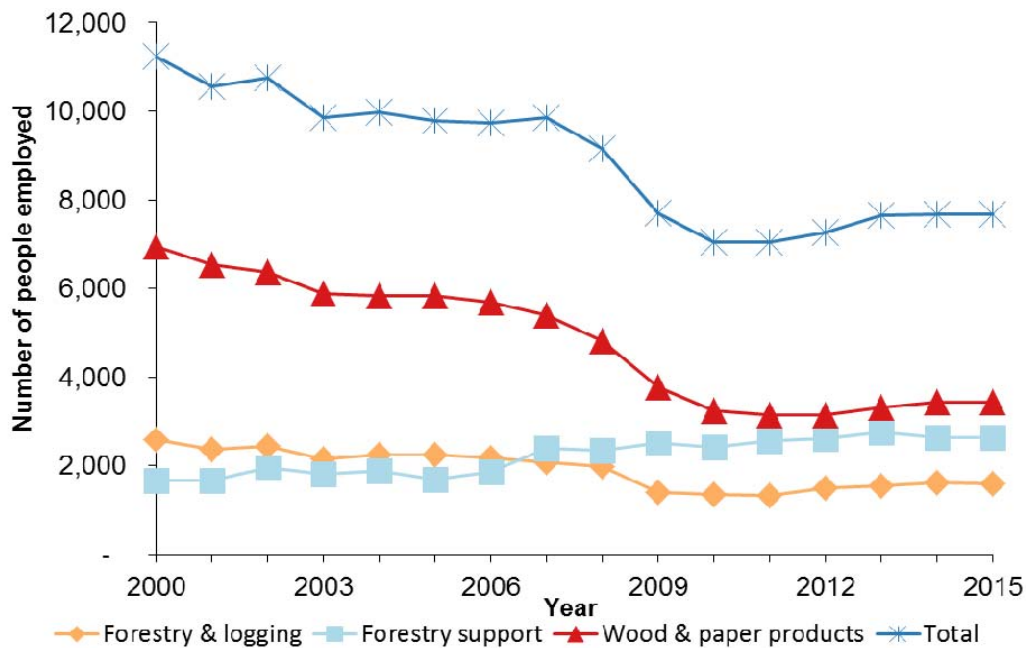
Figure 2. Average Annual Sawlog and Lumber Prices 2000-2015
Constant 2015 dollars



As both the volume of wood products demanded and product price have increased, the forest industry continues to be challenged by low timber harvest levels. Fifteen years of survey data from Montana sawmills demonstrate the dynamic nature of log prices across the state (Figure 2). Decreased demand for lumber and other wood products lowered prices across the industry from 2006 to 2010. Montana's delivered log prices were slow to react to the housing market shock, lagging behind drops in lumber prices as mills continued competing for the limited supply of local logs. Delivered log prices began increasing from 2011 to 2014, as Montana mills competed to procure higher timber input volumes to supply more robust product markets. However, 2015 brought a slight downturn in delivered log prices, with a decrease in price of about 6 percent.

Overall employment in Montana's forest industry has declined over the past fifteen years, with total employment down approximately 32 percent since 2000 (Figure 3). Industry employment levels remained relatively constant through 2007 before reaching a low in 2010. Employment has been increasing, however Montana's forest industry has grown very little in the past five years and times continue to prove difficult. In 2015, many Montana mills were operating at just 60 to 75 percent of their capacity, numerous sawmills decreased their overall production, and some reduced operations from two shifts to one due to struggles with high log prices and low timber availability. Throughout the slow recovery of the forest products industry, total employment in Montana's forest industry has slightly increased every year since 2010, with earnings per employee remaining relatively constant. An estimated 7,668 workers were employed in Montana's forest industry during 2015, with total earnings industry-wide estimated at \$318 million dollars.

Figure 3. Montana Forest Industry Employment (2000-2015)



Recovery for Montana's forest sector has been slow, and trends over the past five years demonstrate only modest increases in timber harvest, lumber sales, and forest industry employment levels compared to the recovery of national and state economies. Despite challenges, Montana's forest industry will continue to be a vital economic asset for many communities, and the larger national wood products market. New niche markets may continue to emerge in areas including Blue Stain Pine, biomass utilization, and cross-laminated timber (CLT). Montana's forest industries continue to seek new ways to adapt moving forward, and still have the capacity to increase production if an adequate supply of timber becomes available. Visit BBER's Forest Industry Research website for more information at <http://www.bber.umt.edu/FIR/default.asp>.

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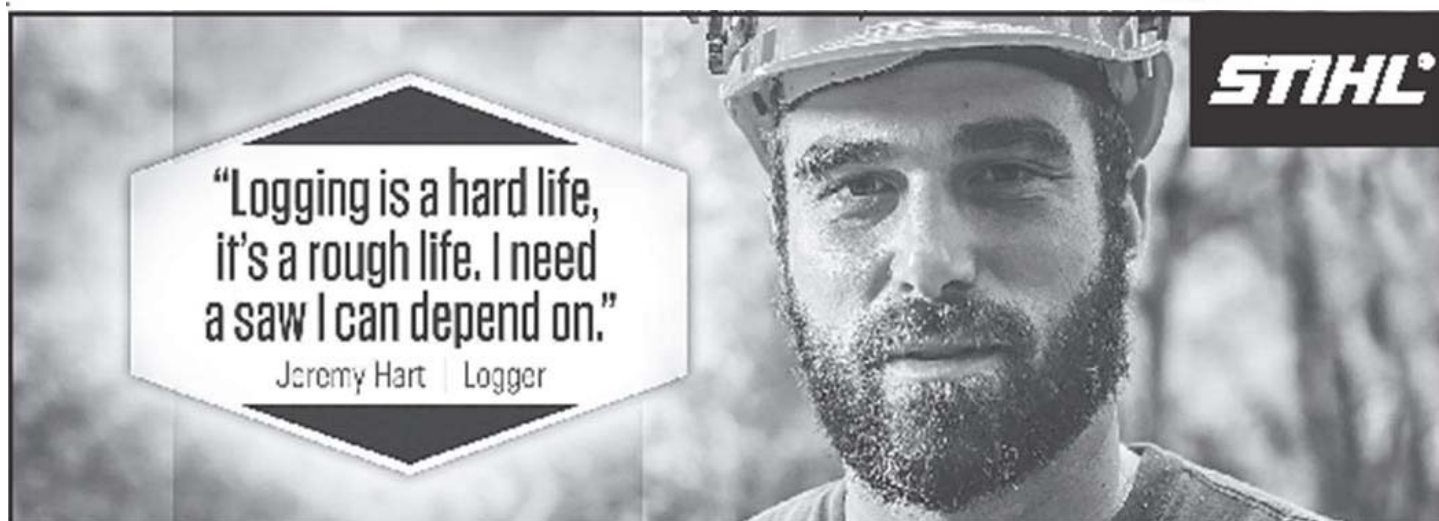




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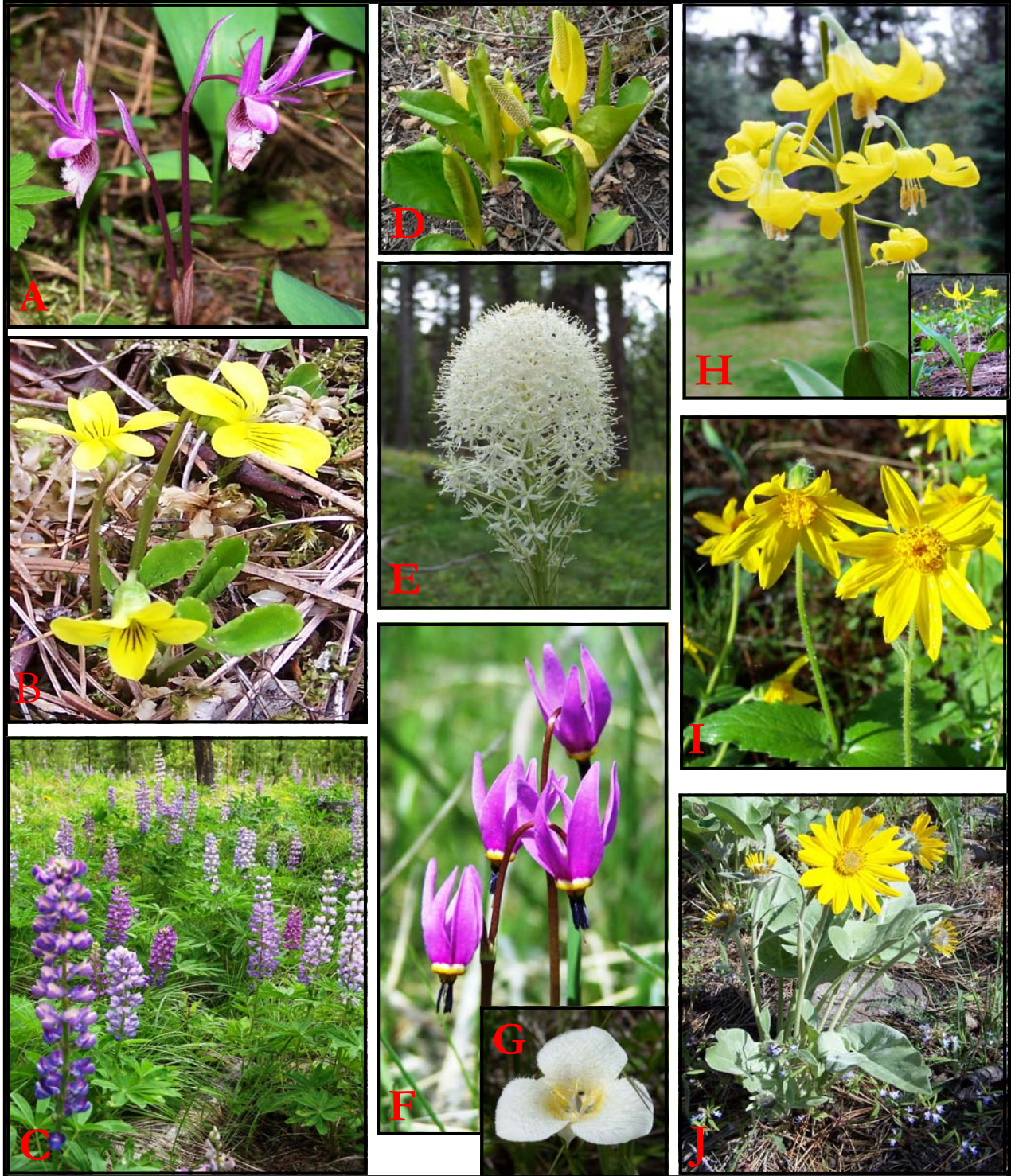
Oral presentation by February 29th
Poster Presentation by April 15th

Flowers

by Peter Kolb

- A) Fairy slipper (*Calypto bulbosa*) one of the earliest spring orchids to flower it is found on moist organic soil and shaded areas across most forest types. Picking it typically kills the plant.
- B) Round leafed violet (*Viola orbiculata*) found widely across many forest types along with a wide variety of other violet species. Very high in vitamin C eaten raw or cooked – soup thickener.
- C) Blue pod lupine (*Lupinus polyphyllus*) occurs across most of the west. Flowers range from blue to purple to white tinged. An important nitrogen fixing plant it contains toxic alkaloids for people and livestock when ingested. All lupines easily hybridize including with exotic species.
- D) Yellow skunk cabbage (*Lysichitum americanum*) found in swampy or riparian areas and an indicator of a rare habitat type for Montana. One of a few plant species worldwide that can actually generate its own heat which is why it is one of the earliest spring flowers. Smelling skunky as the name implies, it is surprising to read the entire plant is considered edible and a favorite bear food though boiling is recommended to reduce the amount of bitter oxalic acid.
- E) Bear grass (*Xerophyllum tenax*) actually a lily it is common to cold pockets and higher elevation sites. Somewhat resilient to fire the plant takes many years to flower and then die though its rhizomes live on. Flowering often occurs in cycles with peak years spectacular. Leaves used for basket making by native people – typically only the flower heads are eaten by animals (deer).
- F) Shooting star (*Dodecatheon jeffreyi*) one of many shooting star species found across the U.S. often found in meadows and openings. Boiled roots and leaf infusion was used by some native tribes as an eye wash or gargle for cankers – though no known proof of medicinal value.
- G) Mariposa lily (*Calochortus apiculatus*) name comes from Spanish for “butterfly” and one of many U.S. species. Commonly found in open forests and small dry meadows, boiled bulbs are sweet and considered nutritious, leaves were applied by some native groups to treat pimples.
- H) Glacier lily (*Erythronium grandiflorum*) wide spread it is one of the first early spring flowers that grows well into disturbed or burned sites from seeds that mature in mid July. Leaves and bulb roots were considered edible as salads or baked and an important native food source. Plants will decline on mowed lawns unless allowed to mature and produce seeds. Typically one plant produces only one or sometimes two flowers, pictured is a very rare 5 flower-head plant.
- I) Mountain arnica (*Arnica latifolia*) widely found across many forest types it hybridizes with its close cousin “heartleaf arnica” and is often under dry Douglas fir forests where it sporadically flowers. In the Aster family it is considered toxic causing bowel distress and slowed heart rates if eaten, dried flowers were considered antibacterial and used as a hand and abrasion wash.
- J) Arrowleaf balsamroot (*Balsamorhiza sagittata*) commonly found on open hot dry south slopes it is also known as rattlesnake weed because its leaves dry out midsummer and make noise somewhat similar to a rattlesnake. Historically considered edible, it contains complex flavonoids similar to Echinacea and was used to disinfect, reduce inflammation and enhance healing.

Caution: the information regarding medicinal uses or human consumption is added as a historical reference, and not an endorsement that a person should use these plants or ingest them. All natural grown plants have a wide range of biochemical substances they produce that vary in concentration based on site and a populations genetic variability. Using them based on historical accounts should only be considered with extreme caution and further research.



How well do you know your spring forest flowers? Answers on previous page.