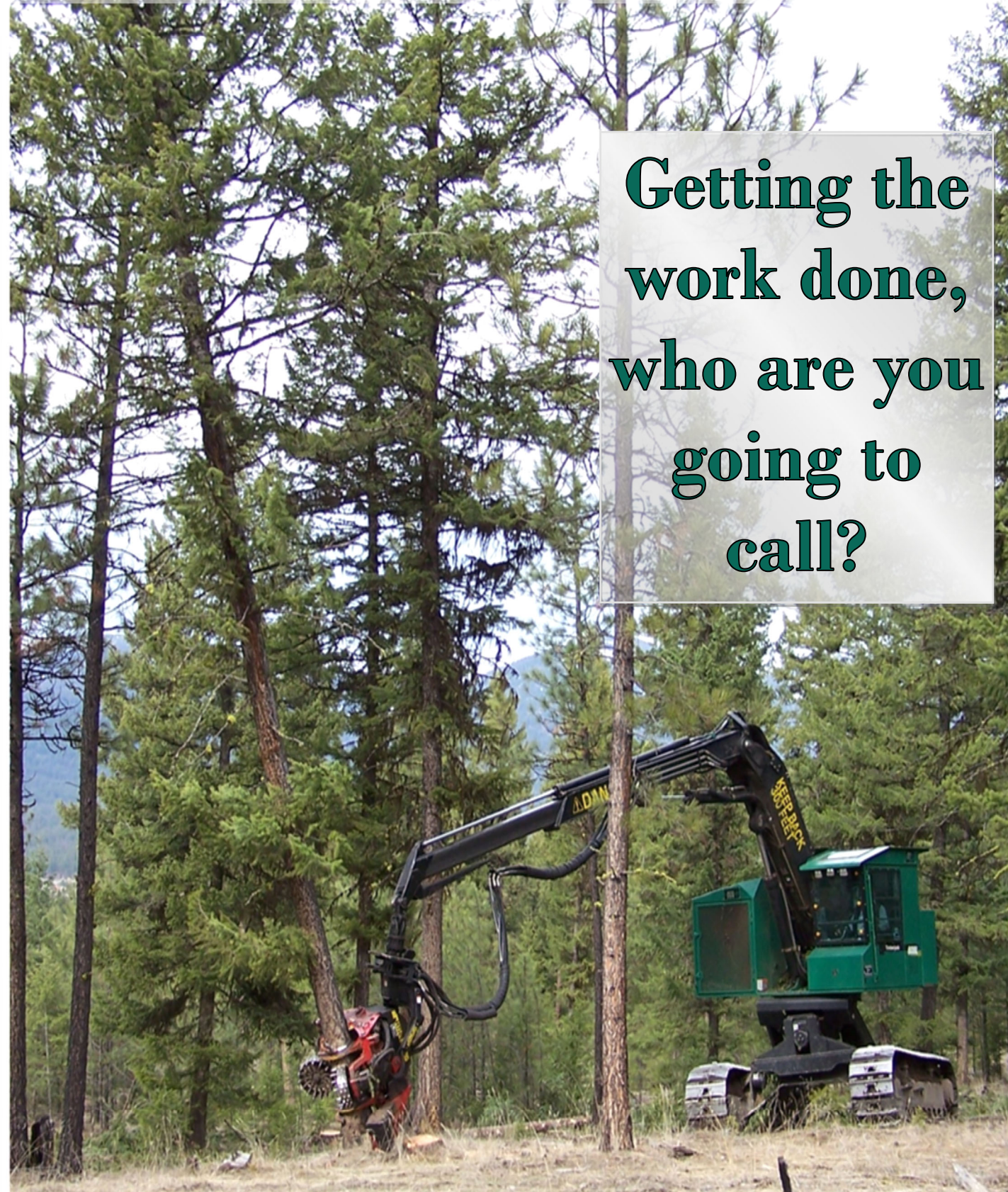


Montana Family Forest News

Getting the
work done,
who are you
going to
call?



Front page

Forested lands remain an incredibly important resource to Montana, and especially to the Montana wood products economy, that has over the past decades relied on private lands for about 60% of its wood supply. At the same time, Montana forest landowners rely on a competitive wood products industry as the growing and harvesting of trees allows most landowners the financial means to meet their stewardship objectives. This last part “what can you afford to do” forms the primary basis for what and when most forest stewards implement and complete forest management actions even when ecological reasons are considered by most landowners the primary reason to develop a forest management plan in the first place. The practical reality that drives much work in forests across the state is: “How much and what forest raw material do you have, how valuable is it, how far is it from the marketplace, and how is it going to get there?” It is not uncommon for forest landowners, upon completion of their forest inventory and stewardship plan, to expect to conduct much of their own work. Quite a few accomplish this, depending on how many acres they plan on treating and the initial condition of their forest, while many others figure out sooner or later that there is only so much a couple of people can accomplish with a chainsaw and tractor. I spent my formative years helping my parents manage a 13-acre woodlot, and my favorite memories are of spending long days sawing trees with my father, piling brush and burning slash piles. That experience was probably why I chose forestry as a profession. More recently my wife and I have spent the last 23 years working to restore and maintain a 20 acre forest and trying to provide the same experiences to our kids. In the process I have collected some thoughts about options and considerations any Montana forest landowner might want to think about. I am certain much could be added, and there is a wealth of additional information that could be shared on this topic by others who have worked on their forest over the years.

Cutting down trees with the goal of selling them yourself requires a great deal of skill and some substantial investment in equipment. The less you have of both, the harder it will be on you. There is also a steep learning curve of how to be safe and efficient, especially when you add concerns about damaging trees you want to leave behind, minimizing erosion, and reducing versus increasing both insect pests and fire hazard. That said, planning, selecting, harvesting, and eventually selling trees (logs) as well as cleaning up and burning logging debris is for me (and many landowners I have met) as much a recreational endeavor as it is environmental stewardship and hopefully economic gain. I like walking through my forest and watching as trees get bigger, wildlife habitat actually increasing the number and variety of critters I see, wildflowers blooming and hearing the birds sing (in my right ear as I used a chainsaw too long in my youth with inadequate hearing protection and am now partially deaf in my left ear). My wife and I get a lot of satisfaction in seeing the improvements we have worked for, and the identifying the new projects we will undertake. The real challenge, however, remains turning proposed projects into reality.

From the Editor's Desk

This newsletter is possible through funding from the Renewable Resources Extension Act (RREA). It 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://forestry.msuextension.org/publications.html>

Warm regards,

Christina Oppegard

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*Courtesy of Bonnie Simpson, submitted by Gary Johnson.
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Horse Logging. 16 ft. Ponderosa Pine logs, 8" in diameter, are skidded to landing. Horse logging saves cost and damage to small trees and reproduction.

Courtesy of Bonnie Simpson, submitted by Gary Johnson. Bob Jopling's Tree Farm Photo.



Think Warm Thoughts

By: Jared Richardson, Montana Tree Farm Chair



It's difficult to consider this a "Spring" letter while the temperature is somewhere south of zero degrees while I'm writing this, so I'm trying to think warm thoughts and keep in mind that it should be spring in a few short weeks. I'll start off my first Letter From the Chair by introducing myself to the Montana Tree Farm members, I've been involved with Montana Tree Farm for a little over 3 years as a steering committee representative for Weyerhaeuser and I took over the role of State Chair from Allen Chrisman on January 1, 2019. Timber harvested from sustainably managed Tree Farms is critical to our log supply at Weyerhaeuser and I wholeheartedly believe in the Tree Farm mission and committed landowners who practice good forestry on the ground. Prior to supplying logs for mills in the Flathead I spent much of the last decade living in Helena and traveling throughout the Inland West working as a consulting forester for Northwest Management, Inc. where I spent much of the time with small, private landowners like yourselves.

The new year has not only brought a new chair to the Montana Tree Farm but other new faces have also joined the committee. Elizabeth (Betty) Kuropat has agreed to replace longtime treasurer Gary Johnson, Holly McKenzie has agreed to step in as Chair-Elect and Cameron Wohlschlegel will be transitioning in as the F.H Stoltze representative while Mark Boardman transitions out. Another familiar face that's been around for the last year was Bonnie Simpson who worked as our part time administrator. Bonnie has decided to pursue other opportunities and won't be continuing as our administrator in 2019 (although she will remain an active Tree Farmer). As if those changes weren't enough, we held our first meeting of the new year in Kalispell, breaking the tradition of meetings held in Missoula. I hope to move our meetings around a bit to give the option to some of our members to attend or even join the committee if they would like – after all we're a group of volunteers.

One topic many of you will be familiar with is that of a membership assessment fee and I can report that once again we have deferred the implementation of a statewide fee. The American Tree Farm System at the national level and its parent organization the American Forest Foundation (AFF) have revised their decision on a fee implementation. The national office has also outlined a proposal to take on some administrative functions in order to relieve the burden on state organizations. Stay tuned for more updates on this as we learn more in 2019. Many of you may also recall hearing about a proposal from the Sustainable Forestry Initiative (SFI) to offer a "Small Lands Group Certification". Initially, AFF felt this proposal could have been at odds to AFF's and Tree Farm's mission and came out as opposed to this action. The two organizations have since come to an agreement on this certification mechanism and are now working in concert to bring more landowners interested in good forest management together and under the ATFS banner. I'm sure you would all agree that more Tree Farm members would be a good thing. I'll have future updates for you as this develops more.

On the near horizon and in the vein of thinking warm thoughts we have some steering committee members going to the ATFS National Leadership Conference on Louisville, Kentucky at the end of February. While far from tropical the Bluegrass State should be a little warmer than Montana in February. Holly McKenzie, Allen Chrisman, and Angela Wells will all be attending the conference and representing Montana Tree Farm. This conference is always a great opportunity to network with other Tree Farmers from across the country and really get into the intricacies of how state programs work with the national program. I hope they all enjoy the journey and come back with binders full of information on great ideas for the Montana Tree Farm program.

A little further out on the warming horizon, Past Chair Allen Chrisman is planning on hosting a field trip to his Tree Farm in the North Fork of the Flathead River in June. Allen recently had some logging completed and it should be ripe for a field trip and (hopefully) a grizzly bear sighting. The 75th Anniversary of the Montana Tree Farm program will also come around in 2019 and the Steering Committee is already working on a special program for the annual meeting that should coincide with the completion of the Montana Tree Farm history project

Thinking even warmer still are the Tree Farm inspections for 2019 which should involve a nice walk in the woods without any snow or cold. Angela Wells has organized the inspection schedule for the upcoming year and some of our Tree Farmers might be working with a new inspector as long-time inspectors Mike Justus and Dave Jones have retired.

There's a few legislative actions that have the potential to affect Tree Farmers floating around the halls of Helena and D.C. but nothing has been decided and short of monitoring I don't have anything new to report on the political front. Let's keep our fingers crossed that we won't have to weather another federal government shut-down as they seem to have ripple effects that impacts the forest.

I'll conclude my first communication as Chair with a reminder of something you can all do even if the weather outside is frightful: visit our Facebook page by searching for "Montana Tree Farm" or check us out at <https://www.treefarmssystem.org/montana>. Until next time, stay warm, think spring, and please don't hesitate to contact the steering committee with any questions.



Photo provided by Sarah and Sandra Maclay

In Memorial of Bruce Maclay 1929-2018

Submitted by: Stephan Arno

H. Bruce Maclay was a farmer, rancher, and Tree Farmer who left this world on December 28th. Except for his Army service during the Korean War, he lived his whole life on the family ranch a few miles south of Lolo, Montana. Bruce and his wife Mary joined the Tree Farm program in 1977. In 1988 he was recognized as Montana Tree Farmer of the Year, and in 2009 he received Tree Farm's Lifetime Achievement Award. After semi-retirement from running the ranch, he continued to be an active member of the Tree Farm Committee, and he testified at the Legislature's hearings about responsible forest practices and favorable timber tax legislation.

Bruce was a gentle soul, who according to daughter Sara only got angry when he was fixing obstinate old farm equipment. He had a quiet demeanor, listening and observing rather than speaking out a lot. He had many talents—Montana Farmer of the Year in the early 1950s, botanist, inventor, musician, woodworker, and world traveler. His only request about a memorial was that trees needed to be part of it.

Montana Tree Farm would like to extend our thoughts and prayers to the family of H. Bruce Maclay.

Five-Minute Facts for Tree Farm Inspectors

By Angela Wells, Montana Tree Farm Certification Coordinator

Montana Tree Farm inspectors are a dedicated bunch. It's barely February and already I'm getting calls every week with questions about the upcoming inspection cycle. For that reason, I've structured this inspector update as a series of answers to those questions. If you have any others, feel free to email me at awells@mt.gov or give me a call at (406) 542-4221.

Q1: How many reinspection assignments are there for Montana this year?

In 2019, there are 16 required sample inspections, 76 regular inspections, and 11 backlog inspections from 2018. I am in the process of sending out inspection assignments at the time of this writing.

Q2: Will there be an inspector training this year?

The current Standards of Sustainability under which all Tree Farms in the American Tree Farm System are certified are set to expire in 2020. New standards are currently under revision and development. For this reason, we will not be providing a large group inspector training for standards that will soon become obsolete. We plan to host a large-group inspector training in the spring of 2020. In the meantime, inspectors may be trained on an individual and case-by-case basis where we have a need for new inspectors due to attrition or increased Tree Farmer need. Are you a current inspector who needs a refresher? Let me know and I will provide you with instructions on how to do the on-line training.

Q3: New Standards of Sustainability come out in 2020. Are inspections conducted in 2019 still good for the next 5 years?

Yes, inspections conducted this year are good for the next 5 years, even with the release of revised standards next year. As a best practice, consider filling out a management plan addendum when you do recertifications to ensure the management plan is up-to-date with the most recent version of the standards. Since standards usually undergo only slight changes from one version to another, the addendum is an ideal way to make sure only minor modifications are necessary in future plan updates.

Q4: Why should I submit an electronic inspection form?

When you take the time to type your responses to questions on the electronic 004 form, save the form, and email it to me, you reduce the time it takes me to complete the certification or recertification process by about 90%. I submit electronic forms with the simple click of a button, and they are uploaded automatically to the Tree Farm database. Hardcopy or scanned forms must be entered by hand, which takes about 15 minutes per inspection, which means entry of those forms usually gets delayed until I have a slow day at the office (which is about once every 3 months). By submitting the electronic form, you reduce the time a landowner must wait to receive confirmation that their inspection has been entered. Plus, the DNRC graciously allows me to use my time for

certification coordinator duties, as long as I can get my other chores done first! Your help in expediting the inspection entry process assures I will continue to be able to provide this service.

Q5: If I submit an electronic inspection form, do I need to submit a hard copy?

There is no need to submit a hard copy if you submit the electronic form. Landowner's signatures are required for new certification only, and typed signatures are acceptable. I print hardcopies of electronic forms for the files and send them to landowners to confirm that their recertification or new certification has been entered. HOWEVER, if you submit a paper copy, you are responsible for providing a copy to the landowner.

Q6: I completed a new certification, but the landowner says they haven't received any confirmation from Tree Farm yet. When will they get a new member packet?

We typically send out landowner packets in batches, once every quarter. However, landowners go on our mailing list for publications and other notifications as soon as they are entered into the database...and this happens most quickly when you submit their certification electronically! (See items above).

Q7: How do I complete the section on Forests of Recognized Importance (Standard 5, Performance Measure 5.4.1)?

The Standards of Sustainability state that "Where present, forest management activities should maintain or enhance forests of recognized importance." Forests of recognized importance are defined as large, landscape-scale areas of forested land that are globally, nationally, or regionally recognized for their exceptional ecological, cultural, or biological significance. Currently, no agency recognizes specific FORI in Montana. However, no doubt there are many landscapes in our state which meet the definition. If you feel this definition applies to a Tree Farm you are certifying or recertifying, simply state on the 004 how FORI characteristics are conserved on the Tree Farm. If the Tree Farm does not display FORI characteristics, you must still answer the question about what resources were used to make this determination. "American Tree Farm System FORI guidance" is a sufficient answer.



We want you... and your nominations!

The Montana Tree Farm committee is looking for nominations for Tree Farmer, Educator, and Logger of the Year. Nomination forms can be found at www.treefarmssystem.org/montana the "Awards" section. Please contact Allen Chrisman at 406-249-3160 or achrisman52@gmail.com for more information.

Nominations are due by July 1, 2019.

Meet the Coles Family, 2018 Montana Tree Farmers of the Year!

By: Allen Christman, Montana Tree Farm

On forty acres nestled in the foothills outside of Bozeman, Montana, Franklin and Shelly Coles have created an oasis for runners of all kinds, and wildlife of all species. Located in the ecotone between dry Montana forest and sagebrush grasslands, the Coles have taken a unique approach to managing their Family Forest for recreation, wildlife habitat, wildfire resistance, forest health and community outreach. The Coles have owned the property since 1992, and have been a Certified Family Forest since 2012.

Recreation and Community Outreach: Using simple tools, primarily Pulaskis and Combi tools, and hard work, Franklin has created 3.6 miles of running trails used by multiple groups, including the "Tour de Critters" group run with up to 75 runners annually for the past 14 years.

"Runners ready, take your mark, get set, go.... slowly, and savor the wild flowers!" These are the commands given to start the annual Tour de Critters for the Big Sky Wind Drinkers (BSWD), a Bozeman, Montana running club. 2018 was the fourteenth time the run was held since its inception. The race is held in early to mid-June, at the height of wild flower season when the hills and valleys are a sea of color with myriad wildflower species dominated by Arrow Leaf Balsam Root, Lupine, Larkspur, Shooting Stars, Prairie Smoke and Montana's brilliant state flower, Bitterroot.

These trails are entirely single track, including switch backs to the tops of five hills through the forest and loop through the less vertical terrain. All course options are on the same trails with cutoffs for those seeking less challenging routes. Courses include the 1.6 mile "Bobcat Trail" with 400 feet of climb, the 2.4-mile breath-sucking "Wolf Trail" climbing 620 feet and the extremely technical 3.2 mile "Cougar Trail" with 940 feet of climb.

The Big Sky Wind Drinkers are not the only group to course the trails on a regular basis. One of the Objectives for the Coles Family Forest is to share the beauty of their land with others. The Bozeman Track Club (BTC), a developmental running group for elementary through middle school holds their cross-country season opener on the trails. The BTC run is not just for the track club members. Their coaches and families also negotiate the single track. Also running the trails is the adult winter trail running group, the Snow on Trails Runners (SNOTRS) who finalize their winter running schedule with a run and BBQ in the forest.

Forest Management: Involvement of the community in the Coles Family Forest is not limited to the warmer months. After Thanksgiving they begin a Christmas Tree Harvest. Neighbors and individuals who they catch doing good deeds are invited to hike the snowy trails and harvest trees for their seasonal celebrations. At the summer group runs they also raffle off Christmas tree tickets, entitling the recipients to harvest a tree for themselves and friends. Some trees designated for removal are flagged with engineer's tape. However, tree hunters



L-R: Allen Christman, Chair, Tree Farmer Franklin Coles, Angela Wells, Past Chair. Photo credit Bonnie Simpson, Montana Tree Farm

are provided with a handout that covers guidelines for tree harvesting. The handout sets detailed parameters for removal of saplings to reduce competition with neighboring trees for sunlight and soil moisture. Tree hunters are very respectful of the Coles' wishes not to remove trees that are already well-spaced from competing neighboring trees. This activity provides participants with an opportunity to enjoy the forest and learn about effective forest management practices. Plus, the Christmas Tree hunters are providing free precommercial thinning and slash removal!

Tree Establishment: The Coles' Family Forest is best characterized as marginal forestland with limited continuous canopy. The forest has open spaces which provide ideal habitat for wildlife. In an attempt to extend their marginal forest, the Coles transplant seedlings to establish groves of trees in areas that are otherwise treeless. To improve the survival rate, they practice snow pack management by erecting sections of snow fence upwind of the transplanted seedlings.

Wildlife Management and Community Outreach: To expand wildlife habitat and involve the community, the Coles' construct and gift bird nesting boxes to neighbors for use on their properties. Included with each gift box is a detailed instruction sheet describing the appropriate location for the box and yearly care directions. While the Coles usually gift nesting boxes that are designed specifically for blue birds, the dimensions are suitable for a wide variety of other marginal forest species including tree swallows, chickadees, and wrens. If properly located and cared for, the bird houses will provide the neighbors with years of enjoyment and will enhance the population of neighborhood birds.

The Coles also emphasize retention of snags for nesting bird species, perches, and wildlife use. Pruned limbs and brush are piled to provide habitat for small mammals. Bird boxes and nesting platforms are scattered around the property. Unthinned thickets are left for security and thermal cover for bird species and small mammals.

Improving Resistance to Wildland Fire: For fire hazard reduction, the Coles have removed volatile sagebrush from around structures, and implemented crown thinning to reduce the potential for rapidly spreading crown fire and to promote forest health. They have periodically used livestock to reduce fine fuels (grass) by grazing. The Coles also address pest management by using the biological insecticide Bt, *Bacillus thuringiensis*, to control spruce budworm populations that plague the dry site Douglas-fir stands.

Service to Montana Tree Farm: As one of the randomly selected Tree Farms to visit during the 2017 Certification Assessment by Pricewaterhouse Cooper, Franklin represented Montana Tree Farm and Tree Farmers everywhere exceptionally well.

The Coles' excellent land management and Community outreach and involvement led to their selection as **Montana Tree Farmer of the Year for 2018** – an honor well-deserved!

Congratulations to the Coles Family Forest!



Mary Naegeli Memorial Scholarship

\$1,000 in 2019

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 2.5 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.

Contact Cindy Peterson at 406-243-4706 or cindy.peterson@umontana.edu to be connected with one. Form more information and how to apply go to: <http://www.mttreefarm.org/about-us/scholarship.html> application are due April 1, 2019.

The objective of this scholarship is to help a student with an interest in forestry and also to provide information 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.

Mary Naegeli Memorial

Each year the Montana Tree Farm System recognizes a deserving college student with an interest in forestry and a resident of Montana with a monetary scholarship. At the 2017 Montana Annual Meeting, the membership unanimously approved a recommendation to name the scholarship the Mary Naegeli Memorial Scholarship after long time Tree Farm member Mary Naegeli

Would be willing to support the Montana Tree Farm System by contributing to the Mary Naegeli Memorial Scholarship?

YES, I would like to show my support in promoting the Tree Farm System by contributing to the Mary Naegeli Memorial Scholarship:

\$ _____.

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

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



What Does MFOA Do?

Submitted by: Mike Christianson, President MFOA

Overall

MFOA is the only Montana organization that specifically represents the interests of Montana's non-industrial private forest landowners. Formed in 1995, the purposes of MFOA are:

1. To promote economically sound and environmentally responsible forest management practices on nonindustrial private forest (NIPF) lands;
2. To serve as an advocate for Montana NIPF owners at all levels of governmental activity;
3. To provide communication and networking among NIPF forest owners;
4. To present, protect, and advance the social, economic, political, and educational interests of NIPF landowners;
5. To work with private organizations, governmental agencies, and other individuals to secure these interests;
6. To exercise the rights, privileges, powers, and immunities granted to non-profit corporations under the laws of the State of Montana.
7. To engage in fund raising activities to carry out the purposes of MFOA and may accept donations, grants, gifts, legacies, and bequests from any person, firm, trust, corporation, or from any source whatsoever, to be held, administered, and disposed of in accordance with the purposes of the organization and its Bylaws.

Staff

We have no paid staff. Our entire operation is conducted by volunteers.

Membership

Membership is \$25 per year. Click on Join/Renew at www.montanaforestowners.org.

Legislation

MFOA is tax exempt under Internal Revenue Code section 501(c)(6) and comparable Montana law. This status allows MFOA to engage in lobbying on behalf of private forest owners. Most of our efforts involve monitoring and influencing legislation that impacts our members. For your interest, there are over 29,000 non-industrial private forest owners that individually own forested parcels of 10 acres or more and cumulatively own in excess of four million forested acres in Montana.

Examples of recent legislative activities include:

1. Attended or monitored quarterly meetings of the Environmental Quality Council in the Capitol in Helena where we testified regarding who should be assessed, and for how much, to fund state fire preparedness costs.
2. Researched in depth the important and hot issue of prescribed burning. This particularly included research of whom should be liable for burns gone out-of-hand. The research included gathering facts and laws from states around the U.S.
3. Conducted research on the “fire rights project.” This involves the issue of various private forest owners having lost their properties from burnouts deliberately set by fire crews. The research has documented several tragic stories of losses. The research addresses whether there is a better way to conduct fire suppression without such losses to innocent parties who in many cases invested years of effort and thousands of dollars to create a managed forest.
4. Studied the inequities in the U.S. tax laws limiting the amount of a casualty loss from burned forests to one’s tax basis. Prepared a proposed new section of tax law for the Internal Revenue Code and presented it to congressmen and to the American Forest Foundation urging the section be enacted.
5. Monitored Montana’s legislative bills (on an almost daily basis when the legislature was/is in session) to locate bills which impact private forest owners. MFOA studies potential bills to determine whether MFOA needs to take action to protect our members. If the MFOA board votes to take action, representatives of MFOA travel to Helena and testify before Senate, House or Conference committees. MFOA also prepares and submit written input to the committees.

Other activities

1. Attend and support the Montana State University Extension Forestry Mini-College in Helena (this year on March 23)
2. Attend and support the Forest Landowners Conference (this year on April 12 in Butte)
3. Issue quarterly newsletters titled Big Sky NIPF-ty Notes to members
4. Provide quarterly issues of Northwest Woodlands (a publication for private forest landowners in Washington, Oregon, Idaho and Montana) to members
5. Brainstorm with representatives of Washington, Oregon and Idaho on topics and articles for Northwest Woodlands
6. Write a President’s Message for each issue of Northwest Woodlands
7. Serve our members by providing references to service providers and others who might assist owners with their needs
8. Provide information to members who have questions
9. Interface generally with our members

Please join MFOA and help the causes of the non-industrial private forest landowners.

Letter from the Chair

By: Paul Cockrell, Montana Forest Stewardship Steering Committee Chair

I was appointed the new Montana Forest Stewardship Steering Committee chairman this past year when Dan Happel served his 8 years on the committee and term-limited out. Dan has been an active and valuable member of the committee and his involvement will surely be missed. It has been a fun and interesting first year as the MFSSC chairman. Bryan Coles was appointed assistant chairman during our February 28th, 2018 meeting and has been an active member in the several years he has served on the committee.

The Montana Forest Stewardship Steering Committee, or MFFSC for short is made up of private Montana forest landowners who have completed the Montana Forest Stewardship program, as well as stakeholders from a number of organizations and agencies. These include the USFS, Montana DNRC, Montana State University Extension Forestry, Montana FWP, Montana Tree Farm, MFOA, Forest Stewardship Foundation, Vital Ground, and more. Forest land owners who have completed the Montana Forest Stewardship program, and are interested in learning more about our committee can contact me at cockrell123@gmail.com.

We had our annual spring meeting field trip at our May 16th meeting. This past year we visited David Atkins and The Nature Conservancies properties in the Blackfoot to see their 2017 Forest in Focus project, submitted and completed by Jeff Holliday, owner of Timber Trails and Spurs Contractors. The project's purpose was to restore forest health and fuel reduction on over 300 acres of former Plum Creek Timber lands in the West Twin Creek drainage. Slash and non-merchantable timber was piled and burned, while suitable pulp and saw logs were hauled to the mills. Jeff, David, and TNC forester Michael Schaedel were there to explain the work and answer questions from the committee members. All who attended were very impressed with the stewardship work conducted by Timber Trails and Spurs Contracting.



Example of 2017 Forest and Focus Project on TNC property in the Blackfoot Valley completed by Timber Trails and Spurs Contracting.

The August 16th, 2018 meeting the committee was formally introduced to new State Forester, Sonya Germann. Sonya was eager to meet and begin working with the MFSSC members to support the Montana Forest Stewardship program. The August meeting is also the time we look over this year's Montana Forest Legacy proposals. The one and only submission this year was for the 7,274 acre Lost Trail Conservation Project in Flathead County. Several committee members attended the onsite tour of this Weyerhaeuser property that is adjacent to the Lost Trail National Wildlife Refuge. The goal of this project is to secure a conservation easement on the property that would allow Weyerhaeuser to retain these timberlands, preclude development, ensure continued timber management, sustain wood product jobs, protect wildlife habitat, and provide permanent public recreational access. The committee agree that the project met all necessary requirements and should move forward for national consideration.

Our November meeting, the main discussion centered around the current opportunities to expand cross boundary forest land management on National Forest, State, and Montana private forest landowners. 2019 looks promising for good Montana forest management direction.



Forest Stewardship Foundation

By: Ed Levert, Forest Stewardship Foundation Chair

Mark your calendar! The forest landowner conference will be held on April 12 at the Clarion Inn Copper King-Convention Center in Butte. This conference is being sponsored jointly between the Forest Stewardship Foundation and the Montana Society of American Foresters. This year's conference is titled "Montana Forestry; Past, Present and Future". There will be numerous breakout sessions of interest to both forest landowners and professional foresters. This marks the 10th annual landowner conference and the first one held other than in Helena. Make plans to attend the conference by registering online at www.ForestStewardshipFounation.org. To reserve a room call 406-565-5001 and receive the special rate for the conference of \$95.00/night for a single occupancy and \$109.00 for a double occupancy.

The silent auction conducted annually by the foundation at the conference is one of our most important fund raisers. If you are going to be attending the conference please consider bringing along an auction item. Information on your auction item may be posted on our website, which helps greatly in tracking the auction items.

Once again, those of you who have not decided the future ownership of your property will have an opportunity to attend the nationally recognized Ties To The Land workshop the following day on April 13. The workshop is on succession planning and is designed to help you make that difficult decision of who ends up with the property. Once again forest landowners and trained instructors Kirk and Madeline David will be conducting the workshop. The workshop will be held uptown at the Butte Business Development Center at 155 W. Granite St. For more information contact me at 406-293-2847. You may also register online at our website.

On April 11th, the day before the conference, the Society of American Foresters will be conducting an all day workshop on weed management. The workshop will also be at the Copper King. Additional information and registration for the workshop will be posted on the Montana Society of American Foresters website www.cfc.umt.edu/SAF.



Save the Date



5th Annual Ties To The Land

Date: April 13, 2019

Time: 9:00am to 5:00pm • Location: Butte Business Development Center

Cost: \$50 for the first family member and \$10 for each additional family member

For more information go to: <https://www.foreststewardshipfoundation.org/ties-to-the-land-workshop>

Contact Ed Levert at [\(406\) 293 2847](tel:4062932847) or at televert@kvis.net



The Montana Forest Stewardship Foundation, Northwest Management, Inc. and the Montana Society of American Foresters invite you to attend the *Tenth Annual Forest Landowner Conference being held jointly with Montana Society of American Foresters State Meeting*

Montana Forests: Past, Present & Future

Friday, April 12
Clarion Copper King
Butte, Montana

2018 CONFERENCE AGENDA:

7:30-8:30AM / Registration

8:30-8:45AM / Welcoming Remarks:

- Ed Levert - Montana Forest Stewardship Foundation
- Gary Ellingson - Northwest Management, Inc.
- Bruce Schlaebitz - Montana Society of American Foresters

8:45-9:30AM / Opening Session:

- Montana Forest Management Past, Present and Future
- Jim Peterson - Founder Evergreen Foundation and Publisher of *Evergreen Magazine*

9:30-10:00AM / Break with Refreshments

Morning Concurrent Sessions: Choose One

Session A. Montana's Forest in Focus Initiative Program and Forest Products Infrastructure

10:00-11:00AM / Priority Landscapes, Collaboration and Partnerships, Good Neighbor Authority and Montana's Forest Action Plan

- Sonya Germann - Montana DNRC State Forester and Staff

11:00-12:00PM / Montana's Forest Products Infrastructure Past, Present and Future?

- Todd Morgan & Steve Hayes - UM Bureau of Business & Economic Research

Session B. Forest Science:

10:00-11:00AM / Montana's Forests: Thousands of years of dynamic change in response to climate-disturbance-management interactions.

- Dave McWethy - MSU Department of Earth Science

11:00-12:00PM / How Environmental DNA Helps Scientists Monitor Animal Populations

- Speaker TBA, USFS National Geonomics Center for Wildlife and Fish

Noon - 2:00 PM / Luncheon with Presentation:

- Butte History
- Chris Fisk - Butte High School History Teacher

2:00 PM / Close Silent Auction:

Afternoon Concurrent Sessions: Choose One

Session A. Forest Management Assistance on Federal and Private Lands:

2:00-2:45PM / Forest Collaboratives and their Role with National Forest Management

- Tim Love - Montana Forest Collaboration Network
- Gordy Sanders - Pyramid Mountain Lumber, Resource Manager
- Bill Avey - Lewis & Clark National Forest, Forest Supervisor

2:45-3:30PM / Financial and Technical Assistance Programs for Private Forest Owners

- Jerry Shows - NRCS Assistant State Conservationist
- Angela Mallon Wells - Montana DNRC Stewardship Program Manager

Session B. Weed Management:

2:00-2:45PM / Using Biological Controls to Manage Weeds

- Melissa Maggio - Missoula County Weed District

2:45-3:45PM / Managing Weeds in the Forest Understory

- Dr. Peter Kolb - MSU Extension Service

4:00-4:30 PM / Closing Session:

- Closing comments and announcement of Silent Auction winners

REGISTRATION DEADLINE:

April 5, 2019



Conference Registration Form

REGISTRATION DEADLINE: **April 5, 2019** COST: **\$40 per person**

***SAF Members:** Please register separately on the Montana SAF website (www.cfc.umt.edu/saf/) or call (541) 290-4788.

REGISTER ONLINE:

Go to ForestStewardshipFoundation.org then click on the **Events** tab at the top of the page and drop down to the Montana Forest Landowner Conference. Payments can be made by credit card (Pay Pal) when you register on-line.

TO REGISTER BY MAIL:

Complete the form below, place in envelope and mail along with payment to: **Forest Stewardship Foundation**, P.O. Box 1056, Libby, MT 59923

MAKE CHECKS PAYABLE TO:
Forest Stewardship Foundation

Questions?

nwmanagemt@NMI2.com
(406) 544-7169

ATTENDEE(S): _____

ADDRESS: _____

CITY/STATE/ZIP: _____

DAYTIME PHONE: _____

EMAIL: _____

Please indicate which sessions you plan to attend

- | | |
|--|---|
| Morning Concurrent Sessions <i>Choose One</i> | <input type="checkbox"/> A. Montana's Forest in Focus Initiative Program and Forest Products Infrastructure |
| | <input type="checkbox"/> B. Forest Science |
| Afternoon Concurrent Sessions <i>Choose One</i> | <input type="checkbox"/> A. Forest Management Assistance on Federal and Private Lands |
| | <input type="checkbox"/> B. Weed Management |

Tree Harvesting Options for your Property

By: Peter Kolb, MSU Extension Forestry

Doing it Yourself

Selecting and cutting down trees by yourself requires a certain skill set than can be achieved by taking classes and watching a lot of self-help video, followed by a lot of experiential learning. Especially cutting down trees requires not only chainsaw skill, but also a good sense of geometry and a mechanical inclination. As I have told numerous students, the most important part of harvesting is first being able to assess what can go wrong, and how those unplanned circumstances will kill or injure you. Trees are heavy, and a green 16" diameter ponderosa pine weighs on average more than a ton. A 3" diameter branch breaking out of the top of a tree and falling 40 ft to the ground will have more force than a baseball bat swung at you by the Incredible Hulk. Always be alert, know when to rest, and know when to quit. Don't cut that last tree of the day as darkness falls and your vision is impaired. OK, that is all the mandatory safety pitch you will get on the basics of falling a tree. More can be found on our video selection at: <http://forestry.msuextension.org/videoresources.html>

Once a tree is down, the biggest challenge is getting logs from their place of origin to a location where a log truck can load and haul them to a mill. Horses or horse-power is needed for this. Horse logging is a specialty that requires great equestrian skills, good horses and a whole lot of other things. Montana has some skilled horse loggers but it is relatively expensive to do, and takes some time. You need to shop and schedule well in advance to find a quality horse-logger. The ones I have met are great people and professionals—if they were not their own horses would eventually take them out of the profession.

Tractors or skidd-steer type of equipment is the do-it-yourself loggers equipment of choice and again there are many options. Each has their advantages and disadvantages. The most important considerations are clearance for driving over stumps and debris, roll-over potential, pulling power, attachable implements, and of course cost. Although I have pulled logs with a 19-horse garden variety tractor, pulling something that is heavier than your equipment is akin to pulling your own teeth - it can be done but it rarely turns out well. Medium sized tractors or larger such as my 1980's model ford 4x4 tractor (as seen in pictures) with a small diesel motor and many gears has actually worked very well for me, if I am careful, have patience and a little common sense. Pulling logs out with it works, but as was discovered more than a century ago, simply pulling logs with a cable or chain causes the cut end to dig into the soil, hang up on every stump or rock, and causes a lot of soil erosion. Plus logs embedded with rocks and soil may detract from the marketability of your logs.

Getting the forward cut-end of a log out of the dirt reduces the pulling resistance tremendously. The cheapest means to accomplish this is to build a steel "skid-plate" (Picture 1, 4) . I have heard of old car hoods being used for this purpose but doubt they would hold up well, thus for \$60 I had a 3/16" steel plate cut into a 2x2' rectangle and a 2" hole cut into the top center. Then I bent the upper 1/3 of the plate upwards to about a 30 degree angle (Picture 4). It weighs about 30 lbs. To use it simply run cable or chain through the hole and around the end of the log. The other end of the chain then goes around the hitch of the tractor with about 6-8 feet of space between the log and the back of the tractor to avoid rear tire and log interference when turning a sharp corner. A plow blade attached to the end of the tractor can enhance this system if the chain is placed over the plow and when the PTO is raised the attached end of the log is also raised. It is important that the chain length is short enough to snug the log against the plow blade, which also helps prevent the log from rolling or sliding sideways when pulled. One person that is hand falling, delimiting, bucking and skidding logs out to a landing by themselves typically has a productivity of one 20" diameter tree per hour.

On relatively level ground pulling logs behind a tractor works well though the majority of the log still

drags on the soil surface and thus the drag resistance is still fairly high. Logging in the winter when the ground is frozen or a minimum of 6 inches of snow is present also reduces drag resistance and minimizes soil disturbance. Engineering research has shown that drag resistance can be reduced by up to 60% if the attached end of the log is raised off the ground, which is why the old horse drawn “high wheel” system was developed. For tractors a grapple system is available that can do the same with a 3-pt hitch (Pictures 2, 3). The most basic non-hydraulic systems can be purchased for around \$600, and work quite well, though requires some learned skills, such as exact backing over a log for the grapple to grab well. Similar hydraulic systems are available from a number of manufacturers (Pictures 5, 6) that offer much more convenient operation but run closer to \$2000 -4000 in cost. Logging productivity can be increased double or triple using hydraulic grapples. Trailer arches work on the same principle (Picture 7) and are made in many sizes that allow 4-wheelers to be used to pull smaller and moderate sized logs.

Dragging logs downhill can be dangerous because heavy logs want to slide or roll faster from the force of gravity than they are being pulled by the tractor. However, using a tractor to skid logs on any kind of slope is in itself inherently dangerous because of the relatively high center of gravity and rollover potential of tractors. ROPS (Roll Over Protection System) are needed and are also standard on any modern tractor. Most older tractors can be retro fitted with a ROPS and a national cost-rebate program is available that will reimburse you for up to 70% of your retrofitting cost (<https://www.ropstr4u.com/>).

There are several cable winch systems (Picture 8) that can attach to the 3pt hitch of a tractor or front end of a skid-steer or bobcat. These are very handy and models exist with cables that can extend 80 yards or more.



The anchor plate built into these is very important as it can be lowered into the soil and prevents the tractor from being dragged when the winch is activated. Special snatch-blocks can be purchased that are anchored to pivot trees and self release when the log approaches them for dragging trees around corners. The price range of such winch systems varies by their pulling capacity and generally cost between several hundred to \$8,000. A lot of the cost difference is due to pulling capacity and the ability to pull multiple chokers and logs versus one log at a time.

Hiring a Contractor

Luckily Montana retains a competitive number of logging contractors with a variety of skills, experience and equipment. Some operate as independent loggers and others have close working relationships with consulting and/or mill foresters. The advantage of using foresters who subcontract out harvesting with a logger is that they should have an excellent and current understanding of log markets for species, log lengths and log quality and can better optimize the value of the logs on your property, and help insure that the act of logging can best meet other needs such as access, site preparation, and wildlife habitat to name a few. In addition, most have long standing relationships with logging contractors and will establish expectations of how work gets completed, and who is responsible for meeting BMP's (Best Management Practices), SMZ's (Stream side Management Zones) and Slash HRA's (Hazard Reduction Agreements). Sawmill foresters may also work directly with landowners and have their preferred logging contractors.

Many Montana logging contractors are also very skilled and experienced working directly with forest landowners. If you feel good about your forest management plan, and your ability to work with the contractor in the implementation of the kind of harvesting you desire, this can work well for you. However, like hiring any kind of other contractor like a

plumber or electrician, be aware that the job you get will depend on the individual. Within the timber harvesting profession there are a variety of skill levels and harvesting methods. A recent survey of Montana Logging Association members gave us the above information that may be helpful with regard to understanding the capacity and constraints that loggers with different equipment may have. As you can see, every contractor has developed a business model that works for the forest types, landowners and mills that they most commonly work with. The type of equipment they use is both a reflection of who they have worked for, and their expectations of the work they plan on conducting over the next



decade. The more mechanized they are in their logging practices the quicker and more efficiently they can complete a logging job, but also the higher their costs are since a modern harvester, forwarder and dozer can represent several million dollars investment and significant training time to be proficient in their use. Thus you may see that loggers with chainsaws and log moving equipment have less capital outlay and can make a living harvesting trees from smaller acres, and have less expense moving from property to property, whereas moving a fully mechanized operation to a new site may require several days, and the greater the equipment investment, the more log volume must be moved to pay for the increased cost.

Hand felling

Several decades ago there were many loggers that made a living dropping trees with a chainsaw, delimiting them on the spot and dragging the stems out with a skidder, tractor or bull dozer. These had a winch attached to the back with a cable and multiple chokers for pulling in stems and dragging them to a landing where they would be loaded onto a truck for mill delivery. Often working in teams a good logger and partner could cut, delimb and drag out 50—60 good sized trees a day. It was and is hard physically demanding work that some still do today. The smaller investment in equipment make this type of harvesting more profitable for smaller acreage work since it does not take as long to move equipment to a site. Clean-up of logging debris can be labor intensive for partial harvesting since trees are delimbed where they fall, leaving dispersed debris that is harder to push together with equipment, and may require some hand piling.

Mechanized Hot-saw or Feller Buncher

One of the first developed forms of mechanized harvesting was called the “feller buncher” because it had a mechanical arm that could reach out about 30 feet, grab a tree and cut it off and lay it down on a pile of other trees (Pictures 9, 10, 11). Many have grapple hooks that can collect multiple smaller diameter trees

Type of Harvesting	Minimum acres or volume required	Species preferred	Advanced notice required to initiate work	Preferred clientele
Hand logging with skidder	2-5 acres minimum 50+ acres preferred, more acres needed for low value species	Location dependent, harder to find p.pine markets	1-week to 1 month winter and spring, 1—6 months Summer and Fall	Private —better for small acre owners in area to plan together
Hand logging, Hot-saw, cable systems	20-acres or 40 thousand Board-feet	No ppine, all other species	2-weeks spring, 1– month Summer, 3-6 months fall, 2 weeks -6 months winter	Prefer private
Mechanical—Hotsaw	100 acres or 100 thousand BDFT	No ppine, all other species	1-2 months all seasons	Private and state
Mechanical—Dangle head	100-200 thousand board feet	All—prefer Douglas-fir	3-4 months all seasons	Prefer private
Mechanical - all systems	40—60 acres	Ppine not preferred all other species	2 weeks to 1– month spring, 1-month to 5 months summer, 2 months to 3 months fall	Prefer private but log on all lands

into a bundle before they lay them down, which makes collecting them with a skidder that has a hydraulic grapple on the back more efficient (Picture 12). Contrary to older skidders, the entire tree with limbs can be grabbed and dragged to a landing where another piece of equipment, often a slide-boom delimeter (Picture 13) grabs individual trees, shears branches off and cuts the stems into optimal lengths for different markets. This leaves behind large piles of logging slash (Picture 14) that must be treated. If a biomass market were to



exist, such logging debris concentrations would be good collection sites where the material could be chipped for transport as these piles tend to be fairly free of soil and rocks. Currently such piles are burned in late fall.

Early feller bunchers had a variety of cutting devices on them that included a set of pinchers that would snip off smaller stems, a retracting industrial grade chainsaw blade, or a 500lb horizontal mounted metal disk with cutting teeth (see insert Picture 9) that rotated at a high speed and would cut off a tree in a matter of seconds. This later version, now known as a “hot saw” or “horizontal high speed disk saw” is the most commonly found feller buncher across Montana. With a skilled operator it can harvest trees on up to 45% slopes and can treat up to 5 acres per day depending on the forest conditions and intensity of tree harvesting. The cutting disk has been modified by some contractors to also have mounted teeth on the bottom which is used to clear and chip dense stands of tree regeneration for fire hazard reduction or precommercial thinning. For such operations the cutting head is lowered onto trees and saplings and the 1000 rpm’s of the cutting head shreds the trees into chips (Picture 15).

Hotsaws are fairly robust machines and work well for most forest settings. The cutting head has a limited reach and trees must be mostly vertical for the cutting head to grab onto to them, thus forested settings with a lot of down or leaning trees may slow down this equipment. In addition, where rocky outcroppings or rock boulders are present on the soil surface the cutting head is quickly dulled. Since each tooth is bolted on, it is time consuming and expensive to replace them. In addition, such cutting heads have the tendency to throw sparks when they hit rocks which can ignite fires when the weather has been hot and dry.

Cut to Length or Dangle-head Processors

This kind of mechanized harvesting might be considered “next generation” compared to a hot saw. Although it may look similar from a distance, the cutting head (Picture 16) has many more features and is often on a much longer boom that may be capable of reaching trees located 60 feet from the main machine. Once it grabs the base of a tree, the cutting head’s industrial grade chainsaw severs the stem and the head then lays the tree on its side (Pictures 17-20).



At that point the stem is run through the processing head that delimits and measures the entire stem, and then backs the stem through again and cuts it into preferred lengths based upon diameter and species. All of the specs have been preprogrammed into the harvester's computer so that the highest value product is cut out of every stem. As the log is being cut, the operator also positions the machine and cutting head so that logs of similar value and species are concentrated into individual log stacks. Some cut-to-length machines have rigid cutting heads, though many of the more modern machines have a dangling cutting head that allows the operator to grab and cut trees that are standing or that have fallen over or broken off. Overall this type of machine offers the logger much greater versatility for selecting and harvesting individual trees in crowded stands of trees and requires less travel over compactable forest soils. Forest stands that have suffered significant beetle killed trees where trees have fallen over and created a complex jumble of tree stems can be efficiently harvested by this type of machine because it can reach, grab and pull individual stems out of complex forested settings, as well as handle and optimize more fragile dead wood stems that would break apart using other logging systems. Alternatively, the cutting head almost doubles the cost of the machine.

Stacking different quality stems immediately after they are cut and processed allows for more efficient pickup by a forwarder (Pictures 22-26) and stacking at a landing for truck pickup to different markets. The cut-to-length system requires the use of a forwarder versus a skidder. Forwarders come in many different styles and sizes that include rubber tires and tracked systems. The advantage of a forwarder is that they do not require road construction and can efficiently move logs much further distances than skidders can. Although forwarder trails are created, the degree of soil disturbance is much less than that from road building, and native vegetation recovery is faster.

The cutting head of a dangle-head processor also can be used to move logging debris into concentrations (Picture 21). Based on the desires of the forester or landowner, a harvester can cut logging debris into small pieces and disperse it, or concentrate it in the trail that the machine moves on (Picture 27). Use of logging debris in this fashion protects soils from compaction and also quite often creates a debris mat





that meets Montana slash hazard treatment specifications, eliminating the need for further post logging slash manipulations. Such logging debris mats may or may not meet land management objectives as they might be considered as local nutrient cycling concentrations, or across the drier conditions of Montana may persist for decades and be considered unsightly and fire hazard concentrations.

Studies on nutrient cycling have shown that about 90% of the macro nutrients are leached or other-wise removed from logging debris by the action of insects and arthropods within the first year of harvesting. A common practice is to use smaller equipment such as skid-steers or bulldozers (Pictures 28-30)

Equipped with brush blades to push logging debris concentrations left over from cut-to-length processing into piles so they can be burned a year after harvesting. If this is desired it is important to specify this to the contractor as concentrating logging debris into the tracks the harvester travels on when it being created allows for much more efficient piling and less unwanted soil disturbance.



The issue of logging debris creating breeding grounds for bark beetles is also something that should be considered. Piles of green logging debris, especially if larger branches and stems are included can be colonized by pine engraver, western pine beetle or Douglas-fir beetle if these piles are fresh in the spring or early summer. Logging debris mats created by cut-to-length processing do not seem to be as attractive, and if pushed into piles for burning a year after harvesting, do not pose a potential breeding ground for destructive bark beetle species.

Alternatively, if green logging debris piles are created during late winter or spring, they may pose a risk of promoting local beetle populations and should be burned in spring, which is difficult because the wood will be wet and produces significant smoke. Alternatively, very large piles of concentrated green logging





food source that beetles tend to stay in the pile all summer, with new hatches of beetles simply burrowing deeper into the center of the pile which typically stays moist and fresh. These piles can then be burned into the fall when the debris is drier and burns with less smoke production.

Cable Logging Systems

Excessively steep topography limits the ability of tracked or wheeled equipment to safely traverse and harvest trees. For these kinds of landscapes a variety of cable based systems have been developed where a winch system is used to pull logs of a steep slope to a log landing below or on the road. A great variety of such systems have been developed and the science of logging engineering really got its roots from the need for such systems in the mountain forests primarily owned by the forest products industry and National Forests. Several highly skilled logging contractors with cable systems operate across Montana, though the cost of many of these systems requires larger tracts of lands to warrant their setup. For smaller tracts of forest on steep slope a variety of innovative non-traditional cable systems are also available, ranging from cable based “tongs” that can be tossed by a skilled operator downslope where they are attached to hand felled logs, to long winch systems that use ground based pulleys to haul cable chokers down and up slopes. All of these systems require a road network above the harvesting unit because to safely retrieve logs they need to be pulled uphill.

I occasionally get asked if helicopter logging is a viable option. When log prices are high enough helicopters certainly have been and can be used to retrieve logs, though as expected it is an expensive operation that also carries with it specific requirements and skills. Typically helicopter logging requires that logs are found on an uphill site, and the helicopter uses a long cable to fly them downhill to a landing. The logistics of moving such an operation to a certain location usually requires that a lot of logs are available.

The New Kid on the Block

By: Matt Bishop, Forest Technician, F. H. Stoltze Lumber Company

The process of harvesting a tree has changed dramatically over the last century. It all began way back when with crosscut saws and high-wheels pulled by horses. Then came the invention of the chainsaw, then we began to use log trucks instead of trains to haul logs to the mill. Modern day logging equipment has almost nothing in common with historic equipment, other than that it is all meant to get a standing tree out of the forest to the mill. One of the newest logging systems available today is the steep ground cable assisted harvester and forwarder, also known as “tethered logging.” While the equipment being used on the ground isn’t all that new, the areas these common pieces of equipment such as a feller-buncher can reach with this system is new. This piece of machinery was developed to improve the safety and production of steep slope logging.



Tethered logging refers to a winch that is fitted to the back of a piece of equipment such as a harvester, skidder, forwarder, etc. The winch then has a cable that is tied off to a tree or some kind of anchor point up slope. Using the winch line, the equipment is able to access up to 75% slopes by lowering and winching itself up hillsides. The operator has control of the winch line from inside the machine. This allows operators to operate on more “broken” ground. For example, if an operator is heading one direction down a hill and the slope “breaks away” the operator can add another anchor point and change directions. This tethered has many advantages over a standard ground based harvest system.

While cable assisted logging has many advantages there are also some disadvantages. One concern about this harvest system is soil compaction. With a traditional ground based system the operators can choose many different areas to place skid trails to reduce the amount of compaction per trail. With a tethered system skid trails are a bit more limited due to the fact the operator can only forward up corridors where the winch line has an anchor. The concern of soil compaction is amplified on steeper slopes. However, soil compaction can be mitigated by the use of slash mats which helps buffer the tracks of the machinery from the ground. Another disadvantage to this system is cost. This equipment is not cheap and is comparable in price to a line machine however, they make up for the higher cost in speed and efficiency. Tethered logging can produce more volume per day than a line machine while also causing less breakage. This system is more efficient when it comes to maximizing the volume of a tree and causes less damage to the tree than a line skidding operation would. When hand sawing a tree, the sawyer has little control at the rate at which the tree falls, and on steep slopes this rate can be quite fast. With a tethered harvester on a steep slope, the operator can cut a tree and then place it on the ground with the machinery thus reducing the amount of damage caused to each tree. With a line skidding operation once the tree has been felled it is then attached to a cable and hauled to the landing through the air, this cause the tree to hit other trees and bounce of the ground which can damage the tree. With the tethered system the logs are loaded



onto a forward which then hauls the logs up slope to the landing. This process cause much less damage to the logs.

Tethered logging improves logger/operator safety. This system allows for all personnel to be inside the cab of a piece of machinery, instead of having sawyers on the ground like you would with a traditional line logging system. Having all personnel inside of a cab reduces the risk of a tree limb falling and hitting or injuring a sawyer. It also protects sawyers and hookers from being hit or injured by rolling or sliding debris that can be knocked loose by the yarder's cable.



Another advantage to this type of system is that the loggers are able to operate on a wide variety of different terrain. For example, a landowner owns 40 acres of timber, 20 of those acres are flat ground (less than 35% slope) and the other 20 acres is steep slopes (over 40% slope), this system allows for the landowner to only have to bring in one crew to complete the entire job. With the tethered logging system, the crew can harvest the 20 acres of steep slope using the winch system and then detach the cables and use the same equipment to harvest the 20 acres of flat ground. This saves the landowner money by reducing mobilization costs.

Logging technology is constantly changing to improve operator safety and to allow for more technical and challenging areas to be harvested. Tethered logging achieves both of those. With more people inside cabs and less people out on the ground, the overall risk associated with logging is greatly reduced. These machines can reach new ground that was once only accessible with line logging. There is a bright future ahead for tethered logging. Timber stands across the nation that are traditionally too steep for a normal mechanized operation and could not financially support a line skidding operation are where tethered operations will shine. While this might not be the cure all for steep slope logging, it is definitely another tool to have in the tool box. This new innovation keeps the future of logging looking bright.

2019 Calendar of Workshops and Events

Workshop/Events	Date	Location	Information
MT Forest Landowners Conference	April 11 & 12	Butte	https:// www.foreststewardshipfoundation.org/
Ties to the Land	April 13	Butte	https:// www.foreststewardshipfoundation.org/
Forest Stewardship for Loggers	April 8-10	Yellow Bay	
Forest Stewardship	April 25-26 & May 3	Libby	Register by April 12th
Forest Stewardship	May 16-17 & 24	Trout Creek	Register by May 3rd
Forest Stewardship	June 6-7 & 14	Corvallis	Register by June 24th
Forest Stewardship	July 11-12 & 19	Kalispell	Register by June 28th
Forest Stewardship	August 8-9 & 16	Lewistown	Register by July 26th
Forestry Mini-College	March 14, 2020	Missoula	Register by March 9th
MT Natural Resource Youth Camp	July 14-19	Lubrecht	www.mnryc.org

Master Forest Steward TBA

Project Learning Tree TBA

Registration information

<http://forestry.msuextension.org/calendar.html#mfsp>

We would like your Feedback

If you like/dislike certain things about this newsletter. Please send us your thoughts!

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Back cover key

1. **Western pine beetle (*Dendroctonus brevicomis*):** Found in ponderosa pine and only west of the continental divide in Montana. Galleries are a haphazard crisscross like beetles are drunk. Live tree killers—these beetles like mid-sized to larger trees that have been vigorously growing and are suddenly stressed. They tend to overwinter in outer bark and thus in the winter affected trees bark is peeled off by a variety of woodpeckers and bark gleaning birds. Can have broods emerging and attacking trees from early June until September. Yes, you should worry about these west of the Continental Divide.
2. **Douglas-fir beetle (*Dendroctonus pseudotsugae*):** Likes to attack mature Douglas-fir trees, often in stems of the upper crown and sometimes they attack western Larch—though brood has difficulty maturing in live larch unless trees are down. Galleries are distinctive with large vertical tunnel and alternating brood galleries emanating in left-right configuration from main tunnel. Adults attack live trees from May-June and brood typically requires 1-year to mature in trees. Outbreaks often require a large number of fire damaged trees or snow broken trees to be available in the spring in order to rear a local epidemic population. Anti aggregation pheromones do work if placed in stands in advance of a beetle hatch. Yes, you should worry if you have mature and stressed (crowded) Douglas-fir
3. ***Pseudohylesinus nebulosis*:** One of hundreds of smaller bark beetle species that really only attack dead or dying trees and often referred to as “slash beetles”. (If you were able to identify this one you are really good!) These beetles prefer smaller pole sized stems or tops of mature Douglas-fir that have been recently killed by other agents. When seemingly live trees are attacked by these and similar species the trees may actually only appear to be alive, but are already beyond recovery from drought stress or other damage (I refer to this as the Christmas tree syndrome where the tree is green but not actually alive).
4. **Mountain pine beetle (*Dendroctonus ponderosae*):** Attacks all pine species and perhaps the most well known tree-killing bark beetles across the west—responsible for killing ponderosa and lodgepole pine across tens of million of acres this past decade. Main galleries are long and vertical with distinct “J” hook at bottom and both opposing and alternating smaller larval horizontal galleries. Adults can be flying in search of new trees from mid-summer to late fall. Usually like stressed trees that were formerly growing well as they prefer thick and nutrient rich inner bark. Wide growth rings followed by sudden and narrow growth rings show this kind of recent sudden stress. During the recent outbreak they were found 100’s of miles from forests on isolated windbreaks across eastern Montana—blown there by the wind. Often attack trees in complexes with other beetles such as western pine beetle and pine engraver.
5. **Flatheaded (or Metallic) borer (*Buprestidae* species):** Almost all trees species are colonized by this large genus of beetles though most often only after the tree has been killed. Sometimes trees can be found that appear to be alive with only flathead borer larvae under the bark leading to speculation that under certain situations they can kill live trees. More likely is the Christmas tree syndrome where the tree appears to be alive but is stressed beyond recovery from drought, root disease or some other root damage. The larvae from these beetles rarely feed into the wood, but rather consume only the inner bark and leave wide, flat galleries behind with very fine sawdust. 1/4-1 inch pale larvae with large heads are often found under loose bark of trees that died within the past 6 months. No worries.
6. **Fir engraver (*Scolytus ventralis*):** Attacks true fir species - grand fir and subalpine fir, especially when these are drought stressed, often starting at the more stressed tree top. Can grow to outbreak populations during prolonged drought or root disease infested trees (basically drought stressed because of diminished root system. Unique characteristic is the horizontal adult main galleries with vertical brood galleries emanating from them. Only common bark beetle that consistently goes across the grain of the stem. Often kills patches

of trees on the landscape. Yes you should be worried if you have grand fir, especially where it is a growing out of a wet riparian area into drier sites where it is not usually found.

7. **Round headed borers (Cerambycidae species)** : Like flatheaded borers this genus of beetles rarely attacks live trees with the exception of cottonwood borers. These adult beetles are larger (1-1 1/2 inches long) like the similar flathead borer, but are distinguished by their long antennae which also gives them the common name “long horn beetle”. The larvae tend to feed on the live sapwood of trees and create long tunnels into the wood of trees. Younger larvae will also feed on the inner bark but leave behind very coarse sawdust of what look like wood splinters. These beetles cause damage to dead but salvageable wood with their tunneling and annoy many who store firewood inside, or who build log homes out of uncured logs because the larvae make loud carving noises when they feed, often all night long. Larvae mature based on wood nutrition and moisture and have been known to live inside infected logs for up to 8 years. The adults of some species are very attracted to turpentine found in varnishes or paints and have frightened many people because they are large noisy fliers that cruise about like miniature helicopters. They also have impressive mandibles that make them look like a fantasy flesh eating monster, but they rarely bite unless they are pinched into a tight space. White pine weevils cause similar damage to the small diameter tops of pines and spruce trees. Borers are not generally a concern.
8. **Red turpentine beetle (Dendroctonus valens)**: infests most pines, usually at the very base of the tree, especially those that have been injured by fire or mechanical scrapes. These are among the largest of the bark beetles (1/4 inch long) and are often red-brown in color. Commonly found infesting the base of ponderosa pine trees, they can, but rarely kill trees. Unlike their cousins, this beetle does not carry the blue stain fungus variety's with it which may be why it is not typically lethal to trees. To overcome tree defenses the larvae feed as a group, creating blob shaped pockets, often filled with pitch in the base of the tree, which is why no gallery is shown in the picture. Large reddish pitch blobs on bark often with sawdust are an identifier. This beetle is very attracted to oil based paints and often will get stuck in mass on newly varnished or painted outside surfaces in the early summer. Typically not a concern.
9. **Pine engraver (Ips pini)**: Found mostly in pine species, occasionally spruce trees, Ips beetles each create unique star shaped galleries, commonly with 3 branches but sometimes with 4 or 5. Medium sized among the bark beetles these are typically beetles that only attack stressed trees later in summer—dense pole sized clumps or the tops of mature trees. Typically they have two life cycles during the summer—with overwintering adults only able to colonize broken tops or green slash left over from winter logging and pose little threat to healthy live trees. However, they are notorious for developing into larger populations from spring broods that emerge in late July and can successfully mass attack and kill live trees mid-summer when these are drought stressed (why crowded groups are attacked). The key to managing them is not allow for green pine logging slash or snow breakage to accumulate in the spring for them to colonize (chip or burn green slash before summer starts). A moderate concern that can be managed.
10. **Pityogenese spp. or Pityophthorus spp.** Beetles: these bark beetles tend to be smaller than the more common tree-killing bark beetles and mostly only infest already dead or mostly dead **trees or logging** debris. They, like the earlier Pseudohylesinid beetles are often found in clumps of smaller diameter stems and branches and the many species within this group can infest a variety of tree species, but the majority prefer pine species. Most of these form star shaped galleries and can be distinguished from the Pine engraver in that they are smaller and less distinct galleries often with 5 or more branches radiating from a central point. Because they are smaller bodied beetles they often do not score the bark and the galleries are harder to see unless found in freshly attacked trees. Sometimes larger transplanted pines (ornamental or shelterbelt) are found to be infested by these beetles that typically only colonize damaged or recently killed trees. Not a real concern in most situations.

What's under the bark of these conifers? Should you be worried or not?





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