Fall/Winter 2019

The Boreal Forest *Newsletter*

COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF ALASKA FAIRBANKS

This printing was paid for by the Renewable Resources Extension Act (RREA).

From the editor:

Welcome back to the Boreal Forest Newsletter. I am glad to be writing to you again! Our last issue was the Spring/Summer 2016 edition. Shortly after, our funding to continue the Extension Forestry Program ended because of budget challenges.

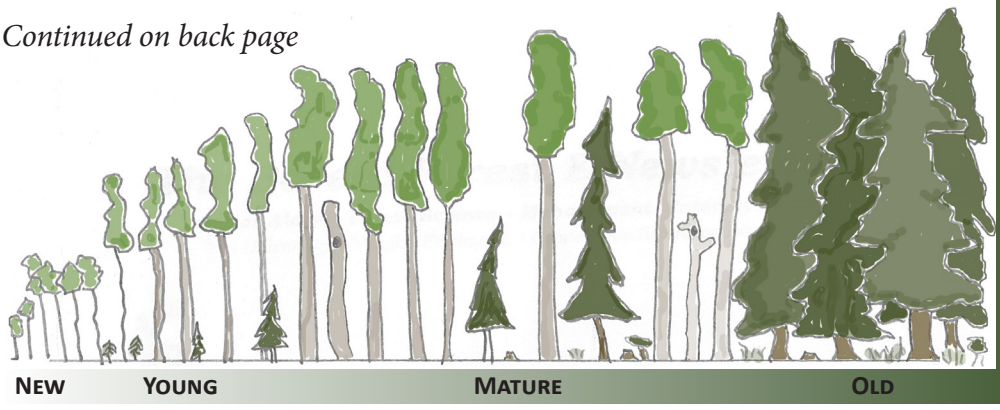
At this time, I work a few days each month through the federally funded Renewable Resources Extension Act (RREA), a nationwide forestry education/information Extension program coordinated by land-grant colleges across the nation, including the University of Alaska Fairbanks. RREA allows us to do additional forestry outreach and programming.

What have we accomplished in the past year? With RREA forestry funding, we put on workshops in local communities addressing local forestry issues and interests. Some of those so far have included two workshops on spruce beetle forest management in the Talkeetna area and other related activities, such as meetings with the Spruce Beetle Task Force in the Anchorage/Mat-Su area and two community council meetings about beetle kill in Willow and Meadow Lakes communities.

We also provided chainsaw safety and tree-felling workshops in Anchorage, Eagle River, Palmer, Big Lake and Sutton, formed an RREA Forestry Advisory Committee, sponsored the April Alaska Wood Energy Conference in Fairbanks, and attended the Society of American Foresters' state meeting in Anchorage and the State of Alaska's Board of Forestry meeting in August, telephonically. I also worked on forestry publications and rewrites for the UAF

Continued on back page

What's Inside



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Alaska's Board of Forestry

Glen Holt, RREA forester

Alaska has a Board of Forestry (BOF) and it was established under the Alaska Forest Resources and Practices Act (FRPA) (AS 41.17.041). The board represents diverse interests, including commercial fishing, environmental, mining and recreation organizations, an Alaska Native corporation and a forest industry trade association. Other members include a non-governmental professional forester and a professional fish/wildlife biologist.

The board is chaired by the Alaska state forester, who is a non-voting member. The Department of Natural Resources, Division of Forestry (DOF) serves as staff to the board, and the Department of Environmental Conservation and Alaska Department of Fish and Game provide technical support.

The nine-member board advises the state on forestry practices, provides a forum for discussion and resolution of forest management issues on state land, and reviews proposed changes to the FRPA regulations. The governor appoints board members for three-year terms. The board meets three times a year, with public meetings annually in Southeast, Southcentral and Interior Alaska. Minutes are posted on the Division of Forestry's board website at http://bit.ly/boardofforestry.

The board's purpose:

- Provides input to DNR commissioner on FRPA regulations.
- Provides a forum for representatives of affected interests to discuss and attempt to resolve forest practices issues and issues "relevant to the forest resources of the state"
- Surveys forest practices research needs, reviews research proposals and promotes projects to address research needs
- Coordinates FRPA compliance monitoring and effectiveness monitoring
- Reviews annual reports from the Division of Forestry, the Department of Environmental Conservation and the Alaska Department of Fish and Game on FRPA effectiveness, needed changes, and research and monitoring needs. It synthesizes this information and reports to the governor on these issues and FRPA status.
- Identifies candidates for state forester and submits their names to the commissioner

Members of the Board of Forestry view forest regeneration techniques near Tok.

Each year, the Department of Natural Resources, Department of Environmental Conservation and Fish and Game report to the forestry board on the effectiveness of FRPA and its regulations. Based on these documents and other information, the board then reports to the governor on FRPA effectiveness.

The board's most recent meeting, August 28 in Anchorage, had several guest presentations related to current or expected forest management issues. Those presentations may be viewed within the following links:

- "Building a Stronger Alaskan Economy: Alaska Trails Initiative," Chris Beck, http://bit.ly/2mjYg9x
- "Windthrow in Southeast Alaska," Greg Albrecht of ADF&G Habitat, http://bit.ly/windthrow

For more information on Alaska's Board of Forestry, to be added to the board's mailing list or receive future announcements of meetings by email or in hard copy, please contact Alison Arians, Division of Forestry, at 907-269-8467 and leave your email address.

Fall Activities for Spruce Beetle Mitigation

Jessie Moan, Extension integrated pest management technician

Spruce beetle activity continues in our forests and ornamental trees in Southcentral Alaska. As we head into fall, there are several things homeowners or small woodlot owners can do to assess their trees and mitigate damage from spruce beetle on their property. Fall is a good time to assess your trees for signs and symptoms of spruce beetle attack and make plans to manage this pest.

1. Check your trees for signs and symptoms of spruce beetle attack

2. Remove and process actively infested trees or dead trees that may become health and safety hazards

3. Make plans for spring spruce beetle management activities

Signs and symptoms of spruce beetle

Check tree trunks for evidence of spruce beetle entry and/or exit. For pictures of signs and symptoms and videos about identifying spruce beetle infested trees, visit: www.alaskasprucebeetle.org. Things to look for:

- Boring dust
- Pitch tubes
- Needle color change
- Exit holes

Pitch tubes, which appear as reddish globules on the bark's surface, are the spruce tree's attempt to push out invaders. This is definitely a sign of spruce beetle attack.

Remove infested trees

Removing trees that have been attacked by spruce beetles can serve to reduce the number of beetles in an area (if the material is processed properly). Removing infested trees and those that have been recently killed may also be a hazard-reduction strategy for trees that may pose a risk to people or property were they to fall unexpectedly. If any live spruce trees need to be felled, whether they are actively infested or without beetle attacks, fall is the preferred time to do that for spruce beetle management. The adult spruce beetle flight period ends around late July, after which felling and removal activities can resume.

A forestry crew removes the bark from a spruce beetle-infested tree.

Processing felled material

Whether the material is infested with spruce beetle or not, proper processing can eliminate spruce beetle habitat and may reduce beetle populations in an area. Processing may include debarking, chipping, or cutting and splitting for firewood. Each activity has benefits and drawbacks. Choose a processing activity (or activities) that fits the spruce beetle situation on your property and helps meet your management goals.

Make plans for spring: Activities to protect individual, uninfested, high-value trees are best accomplished during the spring, before the adult beetle flight period (May-July). Fall and winter are good times to research options and make plans to complete those activities.

For more information on spruce beetle and spruce beetle management in Alaska, visit www.alaskasprucebeetle.org

The Renewable Resources Extension Act Program

Glen Holt, RREA forester

The University of Alaska Fairbanks was established in 1917 as the Alaska Agricultural College and School of Mines and became the University of Alaska in 1935. The UAF is a land-grant university and home to several major research units, including the Agricultural and Forestry Experiment Station.

The Renewable Resources Extension Act (RREA) provides federal funding for Extension activities related to forestry and natural resources at land-grant universities throughout the United States. It is funded through a federal grant through the USDA, and was established in 1978 to designate federal funds for Extension programs designed to assist forest and range landowners and managers in making resource management decisions based on research findings. Forest and rangeland resources include vegetation, water, fisheries and wildlife, soil and recreation.

The RREA develops and supports extension programs and partnerships to provide the information, tools and skills to improve forest health, resiliency and productivity, to identify economic opportunities and to increase knowledge for better forest management in Alaska.

To achieve this mission, the RREA Program draws upon stakeholders and experts in Alaska for knowledge, advice and guidance. Our best source for this guidance is an active, well-informed and committed advisory committee.

Alaska RREA Program Advisory Committee Members

- Nathan Lojewski, Chugachmiut forestry manager, nathan@chugachmiut.org
- Clare Doig, private forestry consultant, cdoig@forestlandmanagement.com
- Will Putman, Tanana Chiefs Conference forester, wputman@tananachiefs.org
- Hans Rinke, Alaska Division of Forestry area forester for Kenai/Kodiak, hans.rinke@alaska.gov
- Sue Rodman, Alaska Department of Fish and Game programs coordinator, sue.rodman@alaska.gov
- Tim Kalke, Sustainable Energy for Galena general manager, tim.kalke@sustainablegalena.org

Cutting Your Own Firewood

Glen Holt, RREA forester

Fall is upon us! Very soon many of us will finish our outside chores, harvesting the last of those garden vegetables, putting up some game meat maybe and cutting more firewood to replace our ever-shrinking supply.

Firewood users in Alaska often cut their supply the year before it is needed. My favorite time of year for cutting firewood is late winter/early spring, when access is less painful. There are no bugs, less brush, increasing daylight, freezing cold nights to firm up my snow trails and forest roads plowed by commercial timber cutters to smooth my way. Snow season cutters have the opportunity to sled out larger loads than they could ever hand carry. Check out our article in this newsletter about splitting, stacking and seasoning firewood.

When getting firewood, even old-timers often use a list of woodcutting items to better assure a more successful day cutting wood. Leaving an important item at home can lead to wasting time and be highly frustrating. Professional loggers have all the tools needed because they cut wood everyday. I don't do it that often so having a checklist of items taped to the dashboard of my old firewood truck really helps. Here's the list and let us know what we could add to it.

- **Chainsaw:** There are lots of brands, sizes and price ranges to suit your needs and budget. I like a 40 to 50 cc chainsaw with a 16- to 20-inch bar length. If you live in Southeast Alaska with larger trees, a bigger saw would be appropriate.
- S**aw gas:** Mix your gas with the appropriate amount of 2-cycle oil carefully and according to the instructions within the owners manual.
- **Bar oil:** Chainsaw manufacturers recommend "bar oil" from the store but I've never had a problem

using old, car engine oil. Turn up the oiler on your saw if possible. I don't use the last inch of oil in the bottom of the oil can.

- **Screwdriver/wrench tool:** Some call it a scrench and it is important for servicing your saw, putting the chain back on, tightening the chain, taking off the air filter cover, tightening the saw bar, changing or checking the spark plug, etc.
- **Extra saw bar and cutting chain:** Needed in case your saw gets stuck in the cut. Just take the saw head off the stuck bar and chain, put on the new bar and chain and hopefully retrieve your tools, finish the cut and carry on with your day. The extra sharp chain is an asset if the saw chain you started with becomes dull. Chainsaw sharpening is best done at home in your shop where it's warm and on a bench or table to help with accurate sharpening.
- **Extra spark plug:** Choose one that fits your specific saw. Sometimes they just quit working.
- **Bar tip greaser:** Most saw bars have a small hole on each side of the saw bar tip. Apply a couple pumps of grease to each side of the bar at the beginning of the day. Greasing the tip will increase the life of your chain saw bar and decrease chain binding at the tip.
- **Personal protective equipment (PPE):** This is probably some of the most important equipment you can take from a safety standpoint. Don't use your saw without these important items:
  - *Hardhat for tree felling*. Getting hit by even a small falling branch can injure you.
  - *Sawyer's chaps:* These protect your legs from saw cuts and they work very well.
  - *Eye protection:* Protects your eyes from blinding injury and painful debris.
  - *Hearing protection:* This goes in or over your ears to protect you from long-term hearing loss.
  - *Protected toed boots:* These protect toes and feet from crushing injury.
  - *Gloves:* Leather gloves are best but even cotton gloves can protect your fingers from chain cuts. Gloves help holding on to the saw.

Additional woodcutting gear:

- **Tape measure or measuring stick:** Miscut firewood makes sloppy stacks of wood prone to falling over.
- **Chainsaw files:** Sharpen saw chains at home and take an extra sharpened saw chain in the woods with you. Dusty, gritty, silty tree bark or accidentally dipping the saw tip into dirt will dull the chainsaw. Include saw files with you in the field if you have only the one saw chain on the saw that day.
- **Felling wedges:** Made of plastic or wood, put a wedge in to the kerf (cut or channel) made when making the final felling cut. This will keep the saw bar from being pinched or where it cannot be removed and won't cut any more.
- **Hand axe:** Use it to drive in the felling wedge. I use a highly visible yellow-handled hatchet.
- **Plastic sled:** This allows you to haul out more cut wood than an armload each trip to your truck or trailer.
- **Snowshoes:** In winter, snowshoes are a useful tool for packing snow trails to allow you to slide your wood out on a sled, and they work well packing snow down around the trees you want to fell.
- **First-aid kit:** At least take finger bandages for minor cuts and a bottle of eye wash.
- **Cellphone:** It's always best to cut wood with a partner in case of an accident, but a cellphone can also help with rescue given good cellphone reception in your location.
- **Water, snacks, insect repellent, extra dry gloves, sunblock, etc.**

Forest Management on Nonindustrial Private Forest (NIPF) Lands

Glen Holt, RREA forester

This article identifies commonly used forestry terms and practices relevant to small nonindustrial private forest (NIPF) landowners and outlines principles. In the future, practices relevant to Alaska forest management will be identified to help increase knowledge and widen the scope of opportunity within landowner objectives. Many

of these terms and definitions may be found within the Society of American Foresters website (www.eforester.org). This section is followed by another that will help identify forest management techniques.

The federal government manages approximately 51% of the land in Alaska and local governments manage 25%. Native corporations manage 24% of Alaska's land. Only 0.4% of Alaska's land is owned by private landowners. Some parts are classified as "forest land," and a lesser portion is classified as "commercial forest land," which is capable of producing 20 cubic feet of wood fiber per year or more.

Classified forest land isn't always "commercial" forest land, although it may be quite productive and valuable to NIPF landowners. It may be valuable as wildlife habitat or watershed protection, or have scenic or cultural value (berries, etc.). Forest land may also be valuable for soil preservation, protection from erosion, as a source of non-timber forest products like herbs, bark, roots, subsistence foods, etc., and for an array of other personal and landscape-level attributes. Although commercial forest land in Alaska may yield enough wood fiber to be commercially valuable, it may not be viable to manage this land for timber revenue.

Here are two terms to consider:

Forestry is the science, art, and practice of managing trees and forests and their associated resources for human benefit.

"Managing" is the active word in this definition. Managing trees and forests and their associated resources for people indicates that diverse benefits are attributed to forests and the practice of forestry.

Forest management is defined as giving the forest proper care so that it remains healthy and vigorous and provides the products and amenities the landowner desires. The technical definition is "applying technical forestry principles and practices and business techniques (such as accounting and benefit-cost analysis) to management."

Forest management can be accomplished with several main objectives and could/should take into account other forest attributes. Forest management in a national park may look quite different than the management of a for-profit forest by a company focusing on current and future timber revenues, and it may also be different than a small NIPF land holding.

As an example, NIPF landowners with 10 acres of forest land surrounding their homes may have goals focused on forest health, wildfire defensible space, privacy, wind protection, emergency firewood and wildlife habitat. NIPF landowners may have an array of objectives that don't include long-term timber revenue.

Splitting, Stacking and Seasoning Firewood

Glen Holt, RREA forester

Many Alaskans use firewood for heating. Wood can often be the only local and cost-effective option available. Firewood may be more economical than the cost of fuel oil plus the transportation to get it there. If you cut and deliver firewood yourself or buy it delivered, once it is home, what you do with it can save you money, influence the amount of heat obtained from it, reduce air pollution in your local environment and conserve the wood resource so more is available for a longer period of time.

Firewood boilers require seasoned wood to quickly heat the water in a jacket surrounding the burn box. This water, or glycol, is transferred hot to an insulated holding tank and circulated by small pumps and thermostats throughout a building as needed.

Whether using the latest catalytic woodstove, a modern firewood boiler or an old-school barrel stove, how well the wood is dried or seasoned, split and stacked, protected from the local elements and allowed to dry (preferably to 20% moisture content or less) will greatly determine how much wood is needed, how much heat can be obtained and how much smoke is emitted.

Freshly cut green, split wood put directly in a woodstove will be the least efficient and effective, and you will need 20% to 30% more wood for the same amount of heat. Winter-cut green wood from live trees has

Left: Woodsheds work great. Those in Southeast Alaska need airflow and covered sides to protect firewood from blowing rain. In wetter Southeast Alaska, it dries covered in two years.

Right: Woodpiles stacked on pallets, with wood split more than once and covered on top, seasons well in Southcentral and Interior Alaska.

40% or more moisture content by weight. Summer-cut wood may have a higher moisture content as a result of sap flow during the growing season. Seasoned firewood is 20% moisture content by weight or less and works best in all heating devices.

The Cold Climate Housing Research Center (CCHRC) in Fairbanks, Alaska did wood seasoning research with a variety of trials to determine the best method for obtaining dry, seasoned firewood that will work most efficiently in the new low-emission wood burning devices and boilers with the least amount of air emissions. Fairbanks has a severe winter air pollution problem, largely attributed to burning unseasoned wood in woodstoves. There is no question that burning green or underseasoned firewood is a major factor contributing to winter air pollution in Fairbanks. Dry, seasoned firewood produces significantly less air pollution, which affects respiratory and cardio health.

CCHRC determined through its research that live, green-cut wood, split more than once, stacked up off the ground with airflow between stacks and covered on top, will season effectively by the following autumn to yield seasoned, dry firewood with less than 20% moisture content that is ready to burn more efficiently in any wood-burning device.

Featured Tree: Sitka Spruce

Glen Holt, RREA Forester

The Sitka spruce (*Picea sitchensis*) is a large coniferous evergreen found predominantly in the coastal Southeast Alaska temperate rainforest. It can grow to nearly 300 feet and have a breast-height diameter (DBH) that exceeds 16 feet. It is the largest spruce tree species and the fifth largest conifer species in the world.

Its name is derived from the community of Sitka in Southeast Alaska, and its range is from the southern Kenai Peninsula of Alaska, south throughout coastal Southeast Alaska, down along the west coast of Canada and into the northernmost part of coastal California. It is never found more than 50 miles from the Pacific Ocean or its bays and inlets.

Common ways this tree may be identified include thin and scaly bark that flakes off in circular plates

Sitka spruce in Olympic National park (photo by Graaf van Vlaanderen) and close-up of needles and cone.

Sitka Spruce, continued from page 7

that are 2-8 inches across. The stiff, sharp needles are 15-25 millimeters long (less than 1 inch) and are dark blue-green on the top and bluish white on the bottom, with two bands of stomata visible there using a hand lens. The cones are pendulous, slender and cylindrical, about 2-4 inches long and less than 1 inch wide. Sitka spruce grows rapidly and can become huge.

Trees over 300 feet tall may still be seen in the Pacific Rim National Park on Vancouver Island, British Columbia and in the Olympic National Park. Large trees can also be found in Southeast Alaska within the Tongass National Forest.

Sitka spruce is a long-lived tree, and individuals have been measured that are over 700 years old. It grows rapidly under favorable conditions. Its large size may not indicate exceptional age. The "Queen's Spruce" in the Olympic National Forest has been estimated to be only 350 to 450 years old, but it gains more than a cubic meter of wood growth each year.

Sitka spruce grows in the extremely wet climate of the coastal temperate rainforest, often on very thin soil overlying bed rock, and has a shallow root system with long lateral roots that help support it, keep it upright and give it nutrition.

Sitka spruce has been planted in parts of Europe, Britain, New Zealand and elsewhere. It is considered an invasive species on the west coast of Norway.

Sitka spruce is of major importance for timber and paper production and can grow to yield large volumes of timber per acre, making it a desirable tree species to manage for timber products and revenue. The wood has a high strength-to-weight ratio and exhibits regular, knot-free annual growth rings that make it strong and an excellent conductor of sound. Lumber from older trees is highly sought for specialized uses, such as sound wood for musical instruments and for making fine-quality wood arrows. Sitka spruce was used to make wing spars and propellers for airplanes and in the construction of sailboats.

The soft spring tips of Sitka spruce branches are used to flavor beer and make spruce tip tea. They are also used as a seasoning, and may be boiled to make syrup. Native American cultures used split spruce roots to make cordage for a variety of uses and basketry.

Sitka spruce regrows readily after timber harvest in many locations of Southeast Alaska — so prolifically that it must be thinned to keep from choking itself and stunting its own growth. Pre-commercial thinning often leaves the forest floor covered in a thick, deep blanket of cut spruce slash for years. This thick layer of debris makes it difficult for wildlife like deer or bear to use. Forest land managers continue to look for ways to successfully remove and utilize this thinning slash.

From the editor, continued from page 1

Cooperative Extension Service; made two site visits with private forest landowners regarding forest management after beetles killed spruce; and wrote forest management reports on site visits, documenting and forwarding workshop and outreach contacts back to UAF.

We received a number of phone calls regarding tree or forest condition and management issues and one about local species lumber grading.

We look forward to more questions and hope to hear from you on this newsletter — what you'd like to see in it, what your forestry interests include and where we can best use our funds to make this the most useful forestry outreach program we can make it.

In this edition, we will look at the federally funded RREA Forestry Program, the State of Alaska's Board of Forestry and what it does and the importance of splitting, stacking and seasoning your firewood for cost savings, heating efficiency and to reduce air pollution. Jessie Moan, an integrated pest management specialist, will discuss what has happened with the spruce beetle outbreak in Southcentral Alaska. I have also included a woodcutters' checklist to help us remember the tools to take in the woods during a day of woodcutting and more!

Keep us posted on announcements and your local forestry-related activities by emailing uaf-rrea@alaska.edu. We are looking to the future and glad to be back!
— Glen Holt, RREA forester