



# The Boreal Forest Newsletter

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## From the editor:

Summer is waning now after only having just arrived in many locations. Summer in Southeast Alaska has been the best.

It was in full swing when I went to Anchorage, Palmer and Wasilla in July. It was in full swing when I went to Soldotna and Homer. Lots of people attended the CES-sponsored “Walk in the Woods” in Anchorage and Mat-Su with CES Forester Glen Holt. That’s me!

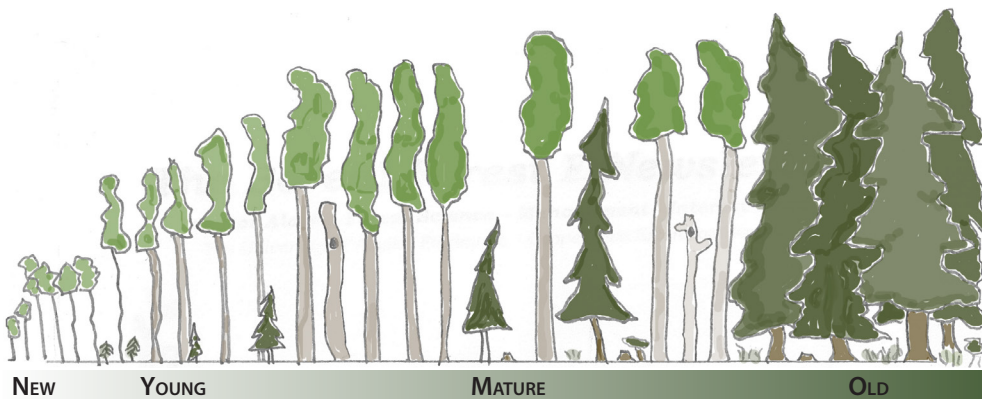


We had great questions and participation, in weather that was finally summer.

In this edition we look at: Alaska birch forests, how they grow, regenerate and some of the risks and barriers to birch management; how to use a log scale table to measure volume in board feet; and a family making their living in the woods in our “People of the Forest” section. We also look at forest recreation as a primary important forest use and value in Alaska; and finally a summer reading suggestion for people interested in the ethic of land management, forestry, and the people who historically and after many years in the profession, made meaningful contributions.

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## WOODLAND MANAGEMENT SERIES

# Birch forests

By Glen Holt

*CES Outreach Forester*

The Alaska birch (*Betula neoalaskana*) is a predominant tree species in Interior, Southcentral and Western Alaska. It is found on well-drained upland sites with white spruce, aspen and poplar. Alaska birch makes up most of the birch found in our natural birch-spruce boreal forest.



Alaska birch is best identified by its "papery" peelable bark.

Alaska birch is described and identified in the book "Trees and Shrubs of Alaska" by Leslie Viereck and Elbert Little (ISBN 9781889963860). We've outlined its identification previously in the Boreal Forest Newsletter. Here we look at how and why it occurs and offer some suggestions on how to manage it and regenerate it back to our forest.

Alaska birch is a relatively short-lived shade-intolerant tree species. Birch older than 100 years of age become difficult to age due to rot and their decline with age. Alaska birch is most often found in even-aged stands from 45 to 70 feet tall or taller and from 8 to more than 20 inches in diameter at maturity.



A healthy, fully stocked birch stand shading the forest floor.



An over-mature birch stand with lots of sunlight and grass in the understory.

Mature to over-mature stands decline because of rot usually introduced by frost cracking, wind, snow and ice damage, broken tops, conk presence, and other factors as they mature. Birch becomes scarce in stands older than 200 years of age.

## Uses for birch

Good quality birch sawlogs can yield lumber to make flooring, paneling, window frames, doors, cabinets, bowls, kitchen utensils, etc. Sorting through older-growth birch logs may yield some sawlogs, but

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An old-growth birch stand with beetle-killed spruce is in full decline.

*Birch, continued from page 2*

most of it is used for firewood. Birch sawlog demand varies with location, distance to market, sawmill availability, transportation infrastructure and lumber drying facilities.

Alaska birch grows poorly in the shade and declines rapidly as older stands age, making it difficult to regenerate without wildfire or clear-cut stand conversion. It regenerates best after wildfire, which lets full sunlight on the ground and allows seed from adjacent living birch to blow in over the snow and re-germinate it on mineral soil. Birch also may regenerate from stump sprouts after cutting or burning. Even-aged birch regrowth can produce thousands of stems per acre, which rapidly thin themselves out due to competition for sunlight, nutrients, moisture and living space.

As the stand matures it thins out due to natural mortality. As natural mortality occurs, more sunlight



Scarification after clear-cut logging is needed to allow birch seed germination.

is added to the stand and on the forest floor, which causes shrub, forb and grass growth to increase and the declining birch stand is gradually replaced by the longer-lived, moderately shade-tolerant white spruce (*Picea glauca*), already present in the understory.

The additional sunlight allowed in a maturing birch stand enables the growth of alder, elderberry, blueberry and grasses.

## Clear-cut logging

Birch also regenerate after clear-cut logging when it is accompanied by mechanical scarification. That technique uses a dozer blade or excavator shovel to expose mineral soil for birch seed to find mineral soil and germinate. It also reduces the amount of competition from grass. This “site preparation” must be done carefully to maintain the nutrient-rich A-soil horizon (topsoil) and the soil’s natural fertility. Thick growths of grass inhibit birch germination and growth. Scarification can be costly and may best be accomplished concurrently with logging or within three years of harvest to reduce grass competition with growing birch.

When utilized to provide full sunlight, clear-cuts should be large enough to foster regeneration that can overcome mechanical damage inflicted on birch trees by browsing moose. Excessive browsing can destroy birch regrowth and cause it to become shrub-like,

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**Moose browsing can wipe out birch regeneration on small acreages.**

*Birch, continued from page 3*

damaged and unable to attain tree size.

Severely damaged birch stands can become brush and grass fields. Small clear-cuts in average areas with moose will concentrate browsing by moose.

Controlled burning can regenerate a birch stand, but when conditions are right for burning, fire crews are often too busy dealing with wildfires protecting homes and lives.

Small woodlot owners may have a problem regenerating birch due to moose browsing and competition from grass growth. Birch seedlings and saplings may need protection using fencing to prevent damage and mortality. It may be more feasible to maintain and improve the existing birch stand by selectively cutting, and cleaning up wind-blown, snow-bent, stunted, deformed and damaged trees. Birch stand maintenance and improvement, if the stand is not too old, can be sustained with this strategy.

When thinning a birch forest, note the position each birch occupies within the overstory canopy. Dominant and co-dominant trees are the tallest in the overstory canopy and often the healthiest in a middle-aged to mature stand of birch. The pole-



**This middle-aged stand was improved by careful thinning.**

sized to small sawlog-size age class is most likely to benefit from thinning, which removes individual trees growing beneath the overstory birch canopy. Over-mature birch stands are not likely to benefit from thinning due to their old age and will most likely continue to decline as trees succumb to further physical damage and rot.

## The small woodlot

Clear-cut logging may not be the best option on small acreages. Carefully cutting, removing and salvaging poor-quality birch may be the best plan of action. Retain some dead snag trees to provide habitat for cavity-nesting wildlife.

Managing a stand of smaller diameter birch most likely won't provide a commercial logging income but can help provide a limited supply of firewood and personal use "energy security" to go along with wood cut elsewhere to provide a winter's supply. Thinning can be accomplished any time of year as equipment and conditions allow. Some woodlot owners forego tree cutting from May through June during the songbird nesting season.

## Thinning birch

Look up at the birch tree canopy to see each tree's position in the overstory. Select trees to cut more by

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Look up in the canopy to determine which birch to cut.

### *Birch, continued from page 4*

their position in the overstory canopy than the distance between each tree on the ground. Wimpy, suppressed and overtopped birch can be good candidates to cut as they will more likely decline due to lack of sunlight and competition from other trees than the healthy dominant birch in a stand. A poor-looking birch is not likely to improve with time.

Limit making gaping holes in the overstory unless the intent is to allow additional sunlight on the forest floor for berries or habitat diversity. Trees maintained close together in the overstory canopy can also minimize snow-bending and wind or snow damage to trees left in the stand.

Take your time thinning. Retaining even poor-quality trees in a birch stand can help maintain the quality of adjacent trees. Dominant and co-dominant birch trees left in the stand can help support each other, especially from wind and heavy wet snow. Mark trees to cut using colored flagging, not paint. If you change your mind about cutting, the flagging is easily removed.

Small openings can let sunlight into the stand and may improve berries and other forest attributes. Hand saws and chainsaws are useful tools for thinning. Girddling a few larger co-dominant trees per acre can kill them and leave them standing for use by cavity-nest-



Even birch cut while small can still accumulate good firewood.

ing wildlife.

Doing a winter thinning project on snowshoes and pulling a small sled to remove firewood can be easier than hand-carrying firewood out. Snowmobiles with sleds and ATVs with trailers can be useful woodlot management tools. Be careful of bashing into your residual trees with sleds and ATVs. Be light on the site to prevent soil compaction too heavily in certain spots.

After thinning, the remaining trees have room to grow, less competition for sunlight, moisture and nutrients. Cutting poor-quality pole-sized and small trees can help bigger more healthy trees grow larger, gain value and remain longer.

Contact your local Alaska Division of Forestry and Wildfires stewardship forester for more insight on birch stand management, and in developing a Forest Stewardship Plan as a starting point for specific management of your birch forest. Forest Stewardship Plans are written free of charge and they also have a handy and educational fill-in-the-blank plan for those that like the DIY option.

A good guide with Alaska references for birch and white spruce forest stand management and stand silvics may be found on pages 8 and 9 of the: [Preliminary Best Interest Finding for Mat-Su Spruce Beetle Sales \(SC-2023-01\)](#).

## PEOPLE OF THE FOREST

# Reid family takes care of Tongass forest roadways

By Glen Holt

*CES Outreach Forester*

Josh and Tammi Reid own Precision Development and operate under Reid Excavating in America's largest national forest, the Tongass, on Prince of Wales Island in Southeast Alaska. POW is a large Island in the Pacific Ocean not far from Ketchikan, Alaska.

The Reids are a family of the forest. They make their living as contractors and subcontractors using excavators, brush-cutting tractors, road graders, road rollers, and other tools needed to maintain U.S. Forest Service and community road infrastructure on POW Island.

Josh is part of a fourth-generation family that has lived and worked in the forests of Southeast Alaska since the early 1900s. Born in Petersburg, Alaska, Josh followed his family's tradition of woods work, which began with his grandpa, Alex Reid. Alex started Reid Timber shortly after World War II. Josh grew up in logging camps all over Southeast, including several camps on POW. Here he learned all the skills and aspects of logging. His growing experience and skills eventually enabled him to operate, own and manage his company.

Reid Excavating currently brushes 60 miles of forest road to keep them usable for the timber industry and tourism/recreational uses each year. Brushing is done on a six-year rotation to keep roads from being destroyed by encroaching brush, small trees and shrubs, which can ruin roadbeds and prevent useful access.

Tourism and recreation are increasing on POW and the tourist industry requires access to infrastructure that was constructed during the nearly 50-year



The Reid family and crew maintain forest roads in the Tongass National Forest.



Cody Reid and Cory Armstrong maintain miles of Forest Service roads each year.

lifespan of a very vibrant timber industry in the Tongass.

The Reids lease a road grader and roller to maintain nearly 200 miles of Forest Service and community gravel forest roads each year. Without this maintenance, forest roads can become impassable with potholes, landslides, rainwater erosion, and constant use. Unmaintained roads can destroy vehicles needed to access timber and the tourism and recreation industry.

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Periodic brush cutting and grading maintains Forest Service road access.



Forest Service contractors maintain access to timber and recreation.

*Tongass, continued from page 6*

Josh and Tammi Reid's son, Cody Reid, and friend Cory Armstrong work seasonally for Reid Excavating. This employment helps them make a living close to home.

Another son, Devin Reid, also lives and works in the Tongass as a registered sport fishing guide on POW. The Tongass National Forest with its coastal temperate rainforest ecosystem enables world-class Pacific salmon populations.

A variety of projects are supported by expert contractors in all national forests. These projects are often best accomplished by experienced private contractors like the Reid family. Those projects are important to preserving costly, federally funded infrastructure within national forests for everyone who uses them.

Josh learned his trade skills working for other contractors. Through diligence, perseverance, willingness and experience his family became contractors. Josh operates and maintains his brush-cutting tractors, dump trucks, low-boy trailers, pickups, a service



Brush encroachment eventually makes access inoperable.

truck with a welder, fuel tank, lubricants and other tools of the trade. He also maintains the leased grader and roller. Nothing is done without ongoing experience and work to keep things maintained to perform contracts as Josh and his family make their living in the Tongass National Forest of Southeast Alaska.

Woods work like that done by the Reids makes this national forest a useful place to work, manage, and recreate in for a variety of reasons



Left, measure the log's diameter at the small end of the log. Right, measure total log length in feet and compare diameter and length on table for log volume.

## Forestry tools: Scaling logs for volume

By **Glen Holt**  
*CES Outreach Forester*

The Mat-Su Valley and Kenai Peninsula as far south as Kasilof are in the throes of a large-scale spruce beetle outbreak. So far, this outbreak has killed approximately 1.6 million acres of spruce.

Beetle-killed spruce are best utilized as soon after death as possible to capture their best economic value. Here is a method for landowners to determine the gross estimated log volume in board feet of their dead spruce logs for use in recovering sawn lumber.

On the facing page is the Small Log Scribner Decimal "C" log scale from the USDA Forest Service used

to determine gross log volume in board feet. Actual lumber volume will vary according to log condition. Log use as timbers or D-logs may be better.

This scale has no built-in deductions for taper, hollowness, stain, rot, splits, checks, burls, or any other deduction. Defect the log according to estimated percent cull.

Merchantable volume declines due to cracking, checking, splits, rots, discoloration, etc. Milling the log as a 10x10 or other multiple of size that yields good products may be the best way to conserve value and volume. Each person will make their own determination on size based on each log's condition. Remember to add 6 inches in length to each cut log for trimming during construction.



Measuring the small end log diameter and the total log length.

**Note:** to the value depicted on the sheet, add a zero to get the gross volume of that log.

**Small end log diameter**

*\*Log volume in box (add a zero)*

Length	6"	7"	8"	9"	10"	11"	12"	13"	14"
8'	.5	1	1	2	3	3	4	5	6
10'	1	1	2	3	3	4	5	6	7
12'	1	2	2	3	3	4	6	7	9
14'	1	2	2	3	4	5	7	8	10
16'	2	2	3	4	6	7	8	10	11
18'	2	3	3	4	6	8	9	12	13
20'	2	3	3	4	7	8	10	13	14

**Small end log diameter**

*\*Log volume in box (add a zero)*

Length	15"	16"	17"	18"	19"	20"	21"	22"	23"
8'	7	8	9	11	12	14	15	17	19
10'	9	10	12	13	15	17	19	21	23
12'	11	12	14	16	18	21	23	25	28
14'	12	14	16	19	21	24	27	29	33
16'	14	16	18	21	24	28	30	33	38
18'	16	18	21	24	27	31	34	38	42
20'	18	20	23	27	30	35	38	42	47

**Small end log diameter**

*\*Log volume in box (add a zero)*

Length	26"	27"	28"	29"	30"	31"	32"	33"	34"
8'	25	27	29	31	33	36	37	39	40
10'	31	34	36	38	41	44	46	49	50
12'	37	41	44	46	49	53	55	59	60
14'	44	48	51	53	57	62	64	69	70
16'	50	55	58	61	66	71	74	78	80
18'	56	62	65	68	74	80	83	88	90
20'	62	68	73	76	82	89	92	98	100

*Example: a 16-foot log 12 inches in diameter at the small end = 80 BF Scribner scale.*



A cabin to rent in Tongass National Forest.

# The forest used for recreation

By Glen Holt

*CES Outreach Forester*

Many of our best recreational opportunities in Alaska are on publicly owned forest lands. This is true from as far north as trees grow to the very southern end of Southeast Alaska. Many forests are managed and deemed most valuable as places to recreate.

According to State of Alaska statistics, recreation in Alaska creates nearly 19,000 direct jobs and is worth more than \$2.1 billion in total gross revenues. These jobs create \$1.1 billion in wage and salary opportunities and approximately \$698 million in state and local tax revenues. Support industries include but are not limited to hotels, campgrounds, car rentals, fishing charters and cabin rentals. That forest use is



Berry picking is a popular recreational use.

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Hiking trails are a popular forest land use.

*Recreation, continued from page 10*

trending upward.

Forest recreational use includes hiking, camping, picnic areas, cabin rentals, ice fishing shack rentals, biking, horseback riding, cross-country skiing, snowshoeing, snowmobiling, dog mushing, ATV use, canoeing, rafting, boating, flightseeing, bear, bird and wildlife watching, photography, hunting, fishing, berry picking, and a host of other outdoor endeavors that require a place to go and not be trespassing.

Recreation is a primary forest use in certain areas. However, in other locations recreation is compatible with forests primarily designated for forest management or wildlife habitat enhancement activities. These locations often allow and encourage recreational opportunities.

The Alaska State Parks system encompasses more than 3 million acres, more than any other state by far. Alaska has 34 state parks, 23 national wildlife refuges, six wildlife management areas, two national parks,



State, federal and borough campsites are popular.

two national forests and three multiple-use state forests. Nearly 4 million people visit an Alaska park each year, a trend that appears to be increasing. Those sites increasingly include amenities such as hiking trails, boat launches, canoe trails, and remote and roadside cabins to rent.

More primitive dry cabin rentals in state and federally managed forests are becoming available. Alaska State Parks cabins may be rented for a night or, if available, up to two weeks. State park cabin rental information may be accessed at <https://www.alaska.org/public-use-cabins>

Borough park and recreation sites and Bureau of Land Management facilities also offer a plethora of recreational opportunities including primitive dry cabin rentals in certain locations.

To rent one of the many cabins on U.S. Forest Service lands, contact them at:

<https://www.fs.usda.gov/activity/tongass/recreation/camping-cabins/?recid=78613&actid=101>

Cabins here are listed for Alaska's two national forests: the Tongass and the Chugach, by ranger district. Some cabins are open year-round. Check with each entity described to ascertain availability, access (how to get there), amenities and seasonality.

There is still time to plan a week or an evening recreating in our state and national forests in Alaska in a recreational cabin.

## Insights in forestry — a summer reading suggestion

### “For the Health of the Land”

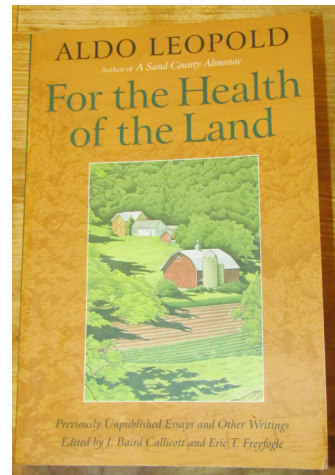
*Aldo Leopold*

By **Glen Holt**

*CES Outreach forester*

Aldo Leopold (1887 – 1948) was a professional forester, writer, philosopher, naturalist, scientist, ecologist, conservationist, and known as the father of American wildlife management. He became a professor of wildlife management in 1933 at the University of Wisconsin. He is best known for his book “A Sand County Almanac,” which consists of essays published a year after his death.

I also highly recommend reading his book “For



the Health of the Land.” Aldo’s writings are key to understanding the “conservation” and “land ethic” he espoused. Aldo Leopold was a master at his crafts of forestry and wildlife management by life experience, education, practice, and thoughtful implementation.

It is good to know the history and practice of our modern American land ethic philosophy.

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