

Additional Information

Wood Station – Notes from Forest Geneticist, Dr. Jean Brouard

As an interesting aside I mentioned that some of the first trees to be logged on Saltspring would have been giant western white pines. These still exist in small remnant patches on the top of Mt Tuam and on the backside of Mt Maxwell, but the white pine blister rust (introduced around 1910) prevents them from getting to harvestable size anymore. It was the ultimate softwood – very easy to fall, easy to saw, easy to work, beautiful appearance and dimensionally stable. There may also have been more shore pine (the coastal variety of lodgepole pine) on Saltspring. It is now confined to smaller islands off shore (e.g. on Russell Island) and to small island habitats on the tops of Mt Tuam, Mt Bruce, and the hill tops overlooking Ganges.

We have a few stray individuals of Sitka spruce (one in former Joyce Pickstones' woods, one in Burgoyne Bay near the old log dump) and a small stand in a bog behind Beaver Point Hall.

The bread and butter for the early mills would have been Douglas-fir and western redcedar.

The hardwood/softwood schism is fraught. There are soft softwoods: western redcedar, pine, spruce and hard softwoods: yew and even Douglas-fir which is quite dense and strong and fairly hard.

There are hard hardwoods: ebony, African blackwood, Garry oak and soft hardwoods: balsa, aspen, poplar (e.g. black cottonwood)...

So when we talk about hardwoods and softwoods we are actually making the distinction between gymnosperms and angiosperms. Gymnosperms have naked ovules (somewhat akin to marsupials and monotremes) while angiosperms have ovules enclosed in an ovary (like placental mammals that rear their young inside a uterus). Both are spermatophytes (seed bearing plants as distinct from bryophytes and pteridophytes or algae). Most gymnosperms are evergreen and many are conifers. Some conifers are deciduous (larch and dawn redwood *Metasequoia glyptostroboides*). Some gymnosperms do not produce cones (yew: which has a berry: a seed enclosed in a fleshy aril or Ginkgo) or they produce modified fleshy cones e.g. Rocky Mountain Juniper (*Juniperus scopulorum*). So when we equate softwoods with conifers on Saltspring we are mostly right... except that some softwood like Douglas-fir actually have fairly hard wood.

I asked the kids to hold the wood samples and pass them along. I encouraged them to bash a softwood with a piece of hardwood. It makes a dent. It does not the other way round. This is the easiest way to compare soft and hard woods. I asked them to notice how heavy the pieces felt in relation to their size. This is a mark of the wood density and an indicator of hardness.

I asked the kids to go to the large Douglas-fir and to punch the bark (hard) and then go to a western redcedar and punch it (soft). They are both softwoods, but Douglas-fir has hard thick corky bark that resists fire.

I asked the kids to notice the softwoods around the circle: Douglas-fir, grand fir and western redcedar.

I asked the kids to notice the hardwoods: Garry oak, willow and bigleaf maple, arbutus. We discussed evergreen hardwoods (arbutus) and deciduous hardwoods (oak, maple, willow, and alder). I talked a little bit about nutrient recycling in deciduous trees. The tree recycles magnesium from the chlorophyll since it is very valuable and can be used for next year's leaves. After the chlorophyll is broken down the anthocyanins (yellow, orange and red pigments) remain inside the leaves hence fall colours. I mentioned that leaf shed is an active process requiring communication between different parts of the plant. Thus if a branch is broken in a wind storm the leaves will often not shed properly – and the opportunity to recycle the valuables is lost.

We discussed leaf shed in softwoods (conifers). I explained that Douglas-firs keep their needles for 4, 5 or 6 years. Because they have to last so long the tree needs to protect the investment from insects, deer and fungi – hence the terpenes and resin (resin is just large molecular weight terpenes). The resin tastes bad (I got them to taste some D-f. resin from a bark resin pustule). One of the kids said he was allergic to western redcedar so I did not let him taste any. I mentioned that because of the way the leaves in a western redcedar are arranged in scales, the trees cannot drop individual scales when they grow old. Instead cedar exhibits 'flagging' they get orange-red flags. This drops a whole branchlet instead of individual scales. It is the way that cedar maintains its order of branching (primary stem, first order branches, second-order branches – the flags are usually second-order or third-order branches) If they did not shed branchlets they would end up like cauliflowers and break. At least when they flag they do it actively and get to recycle the magnesium. They do this in the fall. Technically then evergreens are still deciduous in a way.

I talked about adaptations to wind and snow. We get a lot of wet snow in the Gulf Islands (cf dry snow in the interior of BC) hence our Douglas-fir are very brash: they

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break easily. Thus Douglas-firs will shed whole branches in windstorms or when snow loaded. This affects wood density and strength. Gulf Islands Douglas-fir is well known among foresters as a brash species (more so than interior Douglas-fir).

I got them to smell the Juniper cookie. I discussed terpenes (volatile aromatic hydrocarbons (not necessarily aromatic in the organic chemistry sense: i.e. do not necessarily have benzene ring) that the tree produces to deter browse (anti-feedant), insects and fungi. I got them to pick some needles off a grand fir and a Douglas-fir and compare smells: the grand-fir has limonine (smells of oranges), the Douglas-fir has pinene (smells of pine).

I encouraged the kids to experiment with different types of wood in their whittling. Wet wood is a lot easier to whittle with blunt knives than hard dry wood. I reassured them that they need not finish the task right there, that they should take their piece of wood with them and finish it at home but **THEY MUST ASK THEIR MUM OR DAD BEFORE USING THE KITCHEN PARING KNIFE.**

Well, all a bit stream of consciousness like.

Hope it helps.

Life is just not that simple.

Jean

The Mystery of Cusheon Cove

by Gail Neumann (gail@gulfislands.com), Submitted to the Times Colonist

When Chris Hatfield bought the 100-acre farm surrounding Cusheon Cove, on Salt Spring Island, in 1985, he knew it had been the site of a lumber mill after the turn of the century. Urged along by a lifelong interest in history, Hatfield literally dug into past unearthing garbage dumps that pockmarked the farm. Tools, bottles, rice bowls, pottery, even footwear survived in pits around the property. Chinese artefacts lay alongside Japanese and European industrial and domestic goods.

Wanting to know more Hatfield spent hours at the BC Archives in Victoria reading back issues of the Sidney and Gulf Islands Review. The papers from 1912 to 1931 were laced with minute details of social life on Salt Spring Island but there the papers contained only three short articles that mentioned Cusheon Cove at all. Although, in the early 1900's Cusheon Cove was one of the busiest communities on Salt Spring Island, equaling or surpassing the sawmill in Sidney.

Hatfield looked to the Salt Spring Archives for answers. Very few details about the mill were available although Hatfield listened to hours of recordings housed there retelling the stories of some of the early settlers. Although his investigations have been extensive, few photographs seem to have been taken and many of the known photographs appear to have been lost.

A company village, Cusheon Cove was driven by the Bulman-Alison Lumber Company established in 1905. Seagoing ships loaded lumber at the mill's wharf for international markets. The mill grew to a major industrial operation employing 150 men at its peak. At that time children from Cusheon Cove filled more than half the seats at Beaver Point School. In 1926 the wharf collapsed, and work at the mill slowed. A few years later the operation folded completely.

A large bunkhouse accommodated most of the single men while family houses and cabins for Asian workers dotted the acreage. Surrounding farmland indicated the village developed some self-sufficiency. One of Hatfield's projects is to make a map of the Cove and to pin point the location of all the buildings used during the operation of the mill. Using GPS technology and an aerial photograph from 1932 he's doing the footwork to mark building locations and begin further excavations.

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Hatfield has begun the huge project of gluing together the pieces and he's started a museum dedicated to the history of Cusheon Cove. Now open for the season the museum and the farm welcome visitors Friday to Monday.

Hatfield requests that anyone with information about the Chinese workers or anyone who has artefacts, photographs, or documentation from the Bulman Lumber Company contact him or the Salt Spring Archives. Hatfield may be contacted at (250) 653-9654 or write to him at 107 D. Meyer Road, Salt Spring Island, BC V8K 1X4. The Salt Spring Archives can be reached at info@saltspringarchives.com or <http://www.saltspringarchives.com>. The Archives and Hatfield will share any information or documents that are offered.