

WHAT IS OLD GROWTH?

By Jean Sorensen

Twenty-five years after the War in the Woods, the new arguments are no longer solely about old-growth stem size or picturesque stands of old trees; they have morphed into how old-growth forests are protecting BC's unique biodiversity. BC has made significant strides in old-growth preservation in parks, wildlife areas, watershed and dedicated Old Growth Management Areas (OGMAs) within harvesting plans. As many as 55,000 OGMAs exist as part of a 1990s biodiversity plan. Best accumulative figures available suggest OGMA hectares stands rival Greece's total arable land base while current estimates of old-growth hectares in all protected areas are about the size of Hungary's agricultural land base.

BC divides into 14 biogeoclimatic regions, all with vegetation, trees, birds and animals characterizing each area. Forest planners are charged by law to preserve biodiversity traits when planning timber harvesting in any of these regions.

The 1995 *Biodiversity Guidebook* and 1999 *Landscape Unit Planning Guide* (LUPG), both issued by the BC government, set out guidelines for preserving diversity. BC's *Land Act* sets out legal OGMAs, while the *Forest and Range Practices Act* (FRPA) sets out a list of considerations ranging from fish to old growth that forest planners must consider when making a forest stewardship plan (FSP).

Targets for old-growth retention in OGMAs are set out in the LUPG, and hinged upon varying factors such as cut

size, ecological sensitivity of the area, and other conditions. The percentages of old-growth retention targets varied up to 70 per cent (in sensitive ecological sites), according to an investigative 2012 OGMA report by the watch-dog Forest Practices Board entitled *Conserving Old Growth Forests in BC*.

Today, the figures provided to *Truck LoggerBC* magazine by the BC government has 1.8 million hectares of legal OGMAs throughout BC. (Legal OGMAs are established by ministerial order on a harvest plan to meet diversity targets). Draft or non-legal OGMAs cover a further 783,000 hectares with that figure inclusive of 148,000 ha of old growth that meet the age category, according to Brian Bawtinheimer, executive director for the



Province's land use planning, resource stewardship division. (Draft or non-legal OGMA can be either ministerial order, or areas awaiting ministerial order, areas volunteered into company FSPs but can also include stands that are considered old but don't meet the old-growth age requirement but still have biodiversity characteristics; while not official they are still typically managed as OGMA).

In total, those figures combined set aside 2.58 million hectares of BC's old or old-growth forest lands in just one preservation tool. (By comparison, Greece has 2.6 million hectares of agricultural land). The latest PwC report for COFI cites figures of 55 million hectares of forested land in BC of which 22 million are available for harvesting.

BC government statistics state that "40 per cent of BC's forests are considered old growth while the proportion is higher in the coastal rainforest, where it's about 55 per cent of the forest." On Vancouver Island, 520,000 hectares (the size of Prince Edward Island) or two-thirds of the old growth is already in protected areas. (A straight-line hectare comparison has OGMA reserves at approximately 10 per cent, the size of BC's entire harvestable land base).

"OGMA give a portion of the picture, but not all the picture," says Bawtinheimer, adding BC is crunching new numbers to refine the tally of how much total old growth—found throughout BC—really exists. Old-growth stands were captured by aerial mapping but

Bawtinheimer says the common practice, for example, was to stop at a park boundary. Old growth occurs in parks, protected areas, federal lands, private lands, areas outside the Timber Harvest Land Base, and in other land management designations established for wildlife or biodiversity.

The new tallies on old-growth forests will help BC's new two-man inquiry Al Gorley, former head of the Forest Practices Board, and Garry Merkel, RPF, look at some of the issues facing old growth in BC. The pair will meet with stakeholders before tendering a report on old-growth forests in early 2020 to government with recommendations.

As BC crunches new numbers, previous government information released in

April 2016, when the oil and gas industry was required also to establish OGMA, estimated BC's old-growth tally at 3.1 million hectares in 49,000 OGMA. The release also cited 4.5 million hectares of old growth in all protected areas. (By comparison, Hungary has approximately 4.6 million hectares in agricultural land).

In an email, Bawtinheimer said the numbers on OGMA change as fires and other natural disturbances require replacing stands. Also in previous years the method of tallying the amount of old growth changed, making year-to-year comparisons not possible. "Estimations change based on data sources so comparing 2012 or 2016 with 2019 will not always make mathematical sense given different sources of information, methodologies, estimated verses verified data etc.," he said, adding updated figures hopefully released by mid-September can't be compared either.

Large new parks such as the Great Bear Rainforest (GBR) have also been created. GBR covers 6.4 million hectares, a land base equal to the size of Ireland. Within the GBR, 85 per cent of the area (old growth and second growth) are

excluded from logging. More recently, a new caribou protection plan could take 300,000 cubic metres of timber from the Interior AAC.

For individuals such as Vancouver Island third-generation contract logger Dorian Uzzell, president of Wahkash Logging, who harvests old growth at the end of northern Vancouver Island, the continued debate leading to erosion of the working forest has dragged on far too long. He wants that one-third of old-growth working forest left for logging. "Over the years we have worked diligently to set aside thousands and thousands of acres of old-growth timber in every watershed, on mountains and in areas where most people will never go to look," he says.

"We are also stewards of the forest," says Uzzell of those who work in the woods and live in rural resource communities. "The amount we log is sustainable year after year," he says, but if pressure groups such as the Green Party and environmentalists continue to lead to more reserves or a moratorium on old-growth logging, it will have a massive effect on people and the community.

Glass half full or half empty?

So what fuels the public debate decades after War in the Woods? The main difficulty with old growth is how one sees it.

"Definition depends upon the perception," says Mike Larock, RPF, director of professional practice and policy and forest stewardship for the BC Association of Professional Foresters.

Larock says professional foresters use a descriptive definition of an old-growth forest using age and characteristic (multi-layered canopy, varying age classes and stem sizes, and ground debris). "The old growth term was simply used for inventory for foresters and traditionally in the industry. We are using the inventory label for any stands for forests that were more than 250 years (on the Coast and 140 plus years in the Interior)."

These stands were deemed more difficult to harvest because of mixed stem sizes and dead and dying trees. However, the same characteristics are not exclusive to old-growth stands, he points out, and foresters can even create these stand attributes through management.

BC's definition leans heavily on age with some characteristics defined. Information from the Ministry of Forests, Lands, Natural Resource Operations and Rural Development provided to *Truck LoggerBC* magazine states: "BC's coastal forests are considered old growth if trees are more than 250 years old. In the Interior, where trees have a shorter lifespan and wildfires are more common, old growth is defined as more than 120 years of age for forests dominated by lodgepole pine or broadleaf species, and more than 140 years for all other forests such as Englemann spruce, white spruce and Interior Douglas-fir." The ministry added that "further refinement of old growth is based on frequency of natural disturbance, the biogeoclimatic zone and species."

Missing is a universal definition. "You won't find one," says UBC's Faculty of Forestry Dean Dr. John Innes, in the search for a common old-growth definition. The defining traits are interwoven in a swath of growth conditions. In the US, different states have differing definitions, he says. So, the basic fallback becomes age and that's a wobbly platform.

Innes says age doesn't capture true information. While 250-year-old trees conjure up images of large diameter



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trees, there exists in BC and across Canada stands of small diameter trees on poor growing sites that are also hundreds of years old.

In a 2008 discussion paper 'Defining old growth and recovering old growth on the coast', authors Rachel Holt, Karen Price, Laurie Kremsater, A. MacKinnon, K. Lertzman point out the difficulties in defining old-growth forests using age. "The age group of 250 years and above is also a practical limit: it is a standard age class used on forest cover maps and it is often difficult to measure the actual age of trees much older than 250 years accurately," the authors said. Coastal inventory maps were readily available and "they allowed identification of old growth based on existing data without the expense of field sampling."

Mapping demographics are flawed, according to the authors. "Forest cover age class data are often incorrect and may systematically misclassify age for certain forest types," the authors said. On one end it doesn't capture old growth on low productivity sites and at the other end it can't separate out stands beyond 250 plus years.

BC has made headway in separating old-growth trees from old-growth forests. BC Timber Sales (BCTS) has identified legacy trees are exceptionally old and large, creating a reserve around them that can help bridge forest cover transition to second growth. The BCTS' coastal legacy trees have a specific breast diameter height: yellow cedar 2.1 metres, Western Red Cedar 3 m, Coastal Douglas Fir 2.1 m, and Sitka Spruce 2.2 m. Legacy trees can also contain monumental cedars (used for canoe making), cultural cedars and culturally modified trees (all having First Nations significance) and are protected under various legislation. The Big Tree registry at UBC records some of BC's largest tree giants, although specific age is not known as there is no accurate non-destructive measuring means.

Other jurisdictions have gone further. The Food and Agriculture Organization of the United Nations (FAO) describes primary forests, rather than old-growth forest or using age. Primary forests are naturally regenerated forest of native tree species, where there is no clearly visible indication of human

activities and ecological processes are not significantly disturbed, states the FAO's *Global Forest Resources Assessment 2020* working paper.

Ancient forest is another term often used in describing old growth, but some jurisdictions have narrowed it to mean forests known to exist on a site for thousands of years. In the UK, ancient woodlots are continuous growing forests dating back to the 1600s.

Innes says the Society of American Foresters' definition is probably as good as any. It defines old-growth forests in a descriptive way that doesn't hinge upon ages. The Society's definition is simply "the (usually) late successional stage of forest development" in its *Dictionary of Forestry*. But the devil is in the details of its six descriptive notes. The first states: "Old-growth forests are defined in many ways: generally, structural characteristic used to describe old-growth forests include (a) live trees: number and minimum size of both seral and climax dominants, (b) canopy conditions; commonly including multi-layering (c) snags: minimum number of specific size and (d) downed logs and coarse woody

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debris: minimum tonnage and number of pieces of specific size."

But it can also be broader as the definition's fourth note states: "due to large differences in forest types, climate, site quality, and natural disturbances history (e.g. fire, wind, and disease and insect epidemics), old-growth forests vary extensively in tree size, age classes, presences and abundance of structural elements, stability and presence of understorey."

So, who are you calling old?

BC's inventory classifications system using age bears little correlation to a tree's natural and possible lifespan, which can be impacted by natural disturbances. As the ministry information states, long-life species such as Western red cedar, yellow cedar and mountain hemlock stands can grow up to 1,000 - 2,000 years but are placed into the old growth category at one-quarter into their lifespan. Douglas fir (with a 500-year lifespan on the Coast) is considered a senior citizen at mid-life. In the Interior, lodgepole pine stands survive to 125 to 150 years, but are classified

as old growth at near the end of their routine life expectancy. The yardstick of 140 years also catches Englemann spruce (300-400 year lifespan), and Douglas fir (300 years) at mid-life.

Kerry Rouck, RPF, and manager of corporate forestry and woodlands for Gorman Bros. in BC's Interior region says the 140-year designation of old growth is really only a "starting point". There is a difference in how long a tree can live and how often it is downed by natural disturbances. The Interior region has seen

flexibility in how trees are placed into the old-growth category with consideration given to known disturbances (fire, disease, infestations, and storms). "It can be 140 years, 180 years or 250 years," he says, as foresters learn more about the pattern of the natural disturbances intervals that travel through an area.

Species such as lodgepole pine, a pioneer species, relies on fire disturbance for propagation as the fire causes their cones to open and release new seed on the burnt ground. Douglas fir and ponderosa

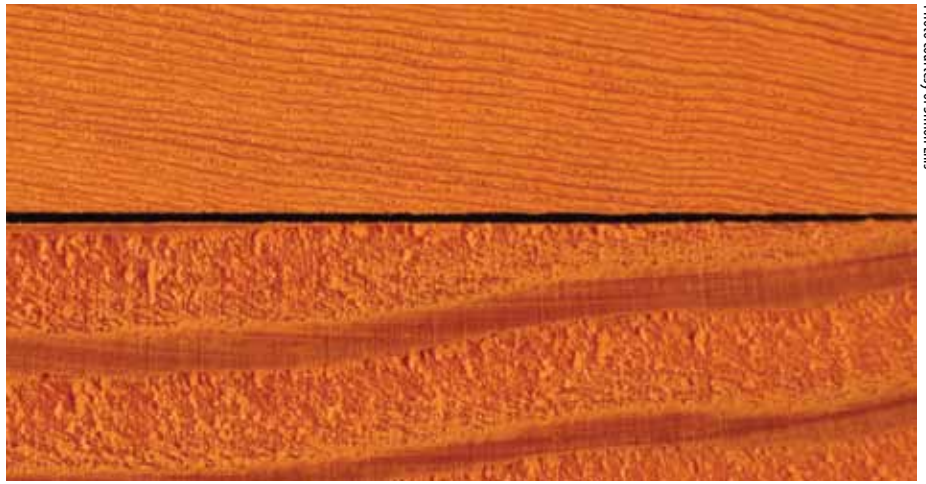


Photo courtesy of Simon Ellis



Photo courtesy of TLA staff

pine have extra thick bark able to protect the tree through some burns that take out competing trees.

Mature and Juvenile Wood

Where age matters is in fine wine and fine wood. Wood scientists don't use the term old growth and second growth (trees either naturally regenerated or replanted after logging).

UBC's Simon Ellis, a wood scientist, explains that all trees have a combination of mature wood and juvenile wood. Younger trees have a greater percentage of juvenile wood, which is prone to longitudinal warp when drying and is not as strong as mature wood. "The hormone that drives the production of the growth is at the top of the tree," he says, as the top spurts toward sunlight. "The tree grows at the top and leaves cells behind (new growth) but also grows outward leaving wood behind (growth rings)." The cambium layer (between the outside bark and the inside layer of wood) adds wood and is fed by the tree's inner bark layer carrying leaf nutrients downward.

Ellis says that the vigorous growth topside usually grabs nutrients first so by the time they hit the mature wood in the lower portions in older taller trees, pickings can be skimpy to fuel the growth of another tree ring. It is this process that leads to the sought-after fine and tight grain found in older trees.

Average estimates point to mature wood beginning to form when the tree reaches 20 years. Researchers at FPInnovations studying juvenile wood as

part of the Douglas Fir Task Force study found that old-growth trees (250-500 years) had experienced a longer period to accumulated mature wood bringing the amount of juvenile wood to 10 or 20 per cent from the 50 per cent found in second-growth stands.

Weather and site conditions can also influence growth ring size. In the Interior, the hot dry summers and cold winters result in wood that is slower growing and the spruce pine fir (SPF) lumber from stud mills producing machine rated strength lumber (used in house framing and cross-laminated timbers) while the Coast's larger diameter trees provide large or custom cuts, wood with less knots and the aesthetically pleasing fine lines in appearance grades of wood that architects search for.

Keeping an eye on the ball

OGMAs are not proven to be perfect; but they can be improved and co-exist with timber harvesting.

The challenge that the Forest Practices Board's Doug Wahl, manager of audits and investigations, a registered biologist and author of the 2012 investigation report on OGMAs, sees (in the absence of an agreed upon definition of old-growth forests) is using sound science over emotion as the key to preserving old-growth traits in a region's biodiversity. Older trees, both alive and dead, provide specific values to plants and animals and their inclusion in OGMAs should reflect

those values. "What are the trees providing ecologically?" is the question that should be asked, he says.

(In 2017, BC issued a procedural paper on how to assess old-growth stands for retention levels in OGMAs released by the Old Growth Forests Technical Working Group, a ministry team, with the protocol to be pilot tested in 26 areas. The project relied upon computer modelling).

Wahl doesn't see modelling as the answer. He favours boots on the ground to gain a realistic idea of how OGMAs are preserving regional biodiversity. "We really need to look, in my mind, at how much old growth we need to preserve to gain an adequate representation of the eco-system," he says.

Wahl says that BC also needs to record the OGMA attributes that are deemed important. Since OGMA emerged, information on unique attributes was either not recorded or as Wahl says the ministry has lost the information. "We need a central registry," he says, where the information can help track attributes over long periods of time, gauge their importance to an area and if they're meeting diversity objectives. More monitoring would also track the impact of climate change, disturbances and recruitment stands able to stand in if the OGMA fails.

Wahl says BC's biodiversity plan is geared toward having old-growth forests forever. "But, we can't have an area on a (harvesting) map that is a plan for the future without having a plan for the future," he says. ♣

MARKET REPORT

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production. BC interior lumber production as of June 2019 is down 18.7 per cent year-to-date and doesn't fully capture many of the mill closures and curtailments announced in the spring and summer. As such, it is looking to be the worst year for lumber production in the Interior since the trough of 2009.

Similarly, the coastal sawmilling sector was down 9.7 per cent year-to-date for June. Coast lumber production will be dramatically lower than the May rate because it doesn't reflect the strike at WFP that started on July 1 and has so far lasted the entire third quarter. Because of that, the Coast is set to experience one of the lowest levels of lumber production in decades.

From the TLA's perspective, the last major downturn took out a number of timber harvesting contractors and given those survivors have had little opportunity in the way of rebuilding their balance sheets, we expect further reductions in the number of contractors once this current downturn has past.

Factoring in the strike on the Coast and impacts of curtailments and closures in the Interior, lumber production in the Province will be nearly as bad or worse than the low of 2009.

Crossing over to log exports, their trend is similar to lumber exports and production, with a peak in 2016 and a steady decline since. For a number of years, log exports have represented ap-

proximately one third of the Coast total harvest. Based on what has happened thus far in 2019, total log exports are likely to be at their lowest since 2010. Unlike its positive trend for lumber, demand from China for BC logs has been decreasing. China is the largest purchaser of BC logs.

These indicators mean less timber harvesting and of course less employment in