

## Dealing with Catastrophic Events



We now understand that climate change means we can expect more severe weather, be it in the form of wind, rain, snow, ice, or drought. This February a “100-year storm” dropped 2 feet or more of heavy wet snow in parts of Lane and Douglas Counties that toppled extensive swaths of timber. Many forest management plans went right out the window, that is unless the owners had given thought ahead of time to how they might address catastrophic events.

### A “Natural” Disturbance?

When your timber is damaged by wind, snow, or fire how will you respond? Western forests are adapted to in all types of weather, and native forests have in fact been shaped by what foresters call *natural disturbance regimes*—the characteristic natural forces that shape stand structure. Think frequent low-intensity fire in the intermountain west, or gap creation from high wind gusts at the Coast. We can anticipate that certain natural forces are a regular part of any particular forest region. However, extreme events of any sort can wreak havoc, and chances are such damage will be rapid, unpredicted, and widespread—you will not be the only one considering salvage.

### To Salvage or Not to Salvage?

When a natural disaster strikes loggers will immediately be in high demand, log prices may drop, and timber quality may quickly deteriorate—time is of the essence! You have only a few years before down trees dry out, crack, and become infested with insects or decay. Value quickly declines and logs become unmarketable. With Douglas-fir this takes 2-3 years,

less for true firs, alder, and young trees. Logging costs for salvage are higher than for a typical harvest, and may exceed the value of the down timber. A rule of thumb is that 100 MBF is needed for salvage to be economical—or a truck-load of sawlogs per acre or more over 20 acres. Smaller sawlogs and pulpwood are often not economical to recover. The higher costs of cable yarding makes the economics even more difficult on steep ground. Industrial timber owners will often choose to cut their losses (no pun intended) and clearcut and regenerate any significantly damaged stands. Recognize that loggers may not be available for small or complicated projects.

### Balancing Values

Weather damage can amount to “nature’s thinning”, improving growing space, creating snags, and contributing down wood and other biological values. Timber value lost may be balanced by habitat gains received for free. Of course, too much down wood may increase fire hazards, lead to damaging insect activity, and contribute to erosion by blocking ditches or culverts. The amount, distribution, location, and species of damaged timber all need to be factored into the equation.

### Preventative Measures

It’s rarely possible to anticipate extreme weather events, but there are things you can do to build resilience into your forest. Encourage more drought-tolerant species on marginal sites. Thin stands early to maintain tree vigor, build stable tree form,

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# Log Market Update

Log markets appear fair to good for 2019, with Douglas-fir pricing returning to 2017 levels after a large spike and trough in 2018. Pole buyers are actively seeking Douglas-fir poles and prices remain strong there, while the Japan export market is flat but still worth pursuing for quality logs.

Log prices have been highly volatile over the past two years. In 2018 we saw a historic “bubble” in the lumber markets, leading to the highest prices on record for lumber. The reasons for this bubble are still somewhat murky—there was a lot of optimism about a rebound in the housing sector, but also supply concerns such as a shortage of railcars for moving wood, loss of timber to insects and fire, etc. Whatever the causes, it translated into some very high prices for logs—most sawmills in western Oregon were paying nearly \$900 per thousand board feet (MBF) for Douglas-fir. Some markets reached \$1,000/MBF. It seemed the mills were making enough money on lumber that they were willing to pay whatever it took to get logs flowing their way.

This all came to an abrupt end in the fall. As the lumber futures chart shows, futures fell precipitously from about early summer into fall. Lumber prices lagged a bit behind, as did log prices.

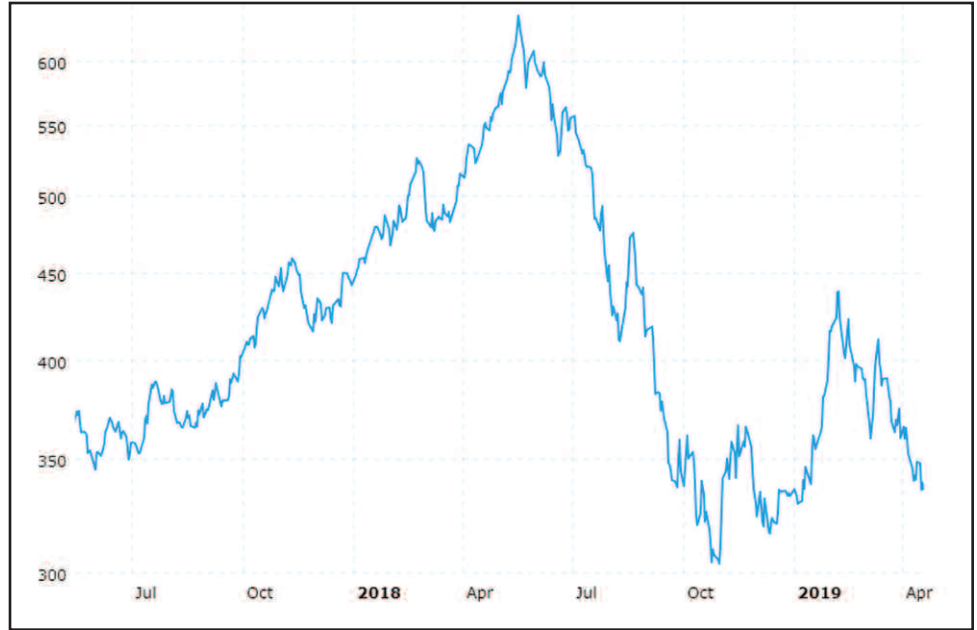


Figure 1. Lumber futures (\$/thousand board feet) 5/17 - 4/19

By winter, log prices were back to earth and then some—\$600/MBF was typical.

So far in 2019, we’ve seen log prices creep steadily back from the basement to respectable levels, as long as you don’t compare them to 2018—\$650 to 700/MBF for domestic sawlogs, and \$750 to \$800/MBF for grade logs and Japan export.

Some heavy snow events in late winter/early spring slowed down log production from higher elevation lands, which has

driven some of the price increase. In Douglas-County, snow loading caused extensive timber damage, resulting in millions of board feet down. This summers salvage harvesting could glut the log market there.

Chip log prices have recently dropped a bit due to high chip inventories at the paper mills. We are seeing \$37/ton, down from about \$42/ton a few weeks ago. This may remain the case until the mills draw down their chip piles. Hopefully, prices will rebound later in the year.

Hardwood markets are very poor right now—paper mills have stopped buying hardwood chips, and sawlog prices are considerably off what they were last year. Hardwood sawmills have had problems with their natural gas supply for drying lumber which has led to production problems, and this has been compounded by China buying hardwood lumber from other countries due to the tariff. Average prices for alder are around \$600/MBF.

Hemlock log prices are in the \$450 to \$500/MBF range and the continued trade war with China seems to be keeping that market suppressed.

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and create wind-firm stands over time. Maintain a variety of age classes of trees to help to reduce the risk that your entire property is impacted by any particular disturbance.

### Funding Assistance

Federal or State agencies may offer emergency assistance, but in most cases these are unlikely to be of much help for your forest. However, there may be assistance for repairs to critical infrastructure like roads and livestock fencing, or for fire risk abatement. The Natural Resources Conservation Service (NRCS) and Farm Service Agency (FSA) provide Federal cost-share programs, targeting local needs at the county level. Check with your county offices to see what programs are available in your area.

Its too early to tell what the “new normal” in regional weather will be—new occurrences of extreme weather seem to occur every year. But it’s not too soon to start planning for how to you might respond to future catastrophic events.

## Red Alder on the Retreat?

An unusual pattern of stress and decline in red alder has been observed over the past several years in the Willamette Valley and foothills that may be a sign of its retreat from marginal sites.

Due to its rapid growth, short rotations, strong markets, and immunity to laminated root rot (a ubiquitous fungal pathogen affecting Douglas-fir and other conifers), red alder has become a desirable alternative to Douglas-fir on certain sites. Some landowners have chosen to plant alder, particularly in root rot patches, while many have simply inherited alder stands that seeded in naturally. The best alder is found on mild, moist, low-elevation sites in the Coast and Cascade Ranges, yet it commonly occurs in the Willamette Valley and foothills, outside of its ideal growing conditions, due to its ability to rapidly dominate disturbed sites and achieve reproductive status before dying at a relatively young age (50-80 years).

The recent trend of intense summer droughts we have experienced since 2015 appears to be testing red alder's ability to persist on marginal sites, and climate change will likely mean more hot, dry summers in the future. Red alder is particularly sensitive to the combination of sustained high temperatures and low humidities, even when growing with its roots along a stream. Stressed trees become vulnerable to top dieback, stem diseases, and insect attacks. We have observed a general decline in alder growth and vigor across age classes at many Valley and foothill sites, with the most severe top dieback and mortality occurring in mature stands. East Multnomah County appears to be particularly hard hit, with the added stress of drying, east winds from the Columbia River Gorge causing entire alder stands to decline within the span of a few years.

So what does this mean for forestland owners in our region? Going forward, it will best to limit red alder management to



mild, low elevation sites with abundant rainfall. On marginal sites, active management to exclude red alder is probably warranted, as it will not likely persist to a mature, merchantable size (and in the meanwhile will suppress planted conifers). In the context of riparian restoration, landowners might try white alder, which will be better suited than red alder. White alder is a shorter-statured relative of red alder, growing up to 70 ft, and it is much more tolerant of hot, dry conditions. Its range extends from the Sierra Nevada as far north as the east slope of the Washington Cascades. Locally, it occurs in the southern Willamette Valley.

## Slash Pile Burning

Consideration of how we positively or negatively affect our environment over the short and long-term is inherent to our work as foresters. In the face of a changing climate, we strive to leverage the best science and practices, balancing them with the needs of our clients for positive forest-level outcomes. One recent area of internal discussion revolved around the practice of burning slash piles post-harvest. Pile burning can be very useful for ensuring sufficient planting space after regeneration harvests, as well as reducing fuel loading and habitat for forest pests, yet it comes at a cost. Carbon emissions from the forest products industry are the highest by any sector in Oregon (Law et al. 2018), and pile burning can significantly reduce air quality and impact human health in nearby communities.

In light of our discussions on the topic, our approach will be

to use slash burning as a tool where we feel it is in our clients best interest (such as for heavy slash accumulations, aesthetic concerns, or in oak restoration settings), but it will not be our default practice. Whether it is scattered or piled, retaining slash on-site might benefit our clients in a number of ways, including cost-savings, moisture retention, weed suppression, and nutrient recycling. Where we do opt to burn slash, best management practices include covering piles with polyethylene sheets (PE) which allow the piles to cure longer and burn "cleaner" than piles left out in the rain. Covering piles can reduce things like Volatile Organic Compounds (VOC's) and Particulate Matter (PM<sub>2.5</sub>), regardless of removing PE's before burning, as well as the size or thickness of PE's (Aurell et al. 2016). Consideration of short-term operational needs with other more far-reaching impacts is just one of the ways that we strive to maintain "a balanced approach".



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## Forester Updates

### Barry Sims

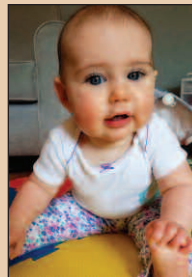
Last year, Barry helped secure a working forest conservation easement for Camp Adams in Clackamas County through the Oregon Dept of Fish and Wildlife/ BPA.



The easement permanently protects the property and provided funding to stabilize Camp operations. Putting the new plan into action this year will involve a commercial thinning as well as weed mapping and control. Barry and his wife Mary are now empty nesters, but younger son Ollie will be home from college for the summer and will be working with Dad in the woods!

### Mike Messier

Mike is now the proud papa of two small humans. His daughter Rose was born in October 2018 and is a very happy baby who is adored by her big brother, Miles.



Mike is planning to do his first father and son backpacking trip this summer with Miles, who will serve as chief huckleberry picker.

### Scott Ferguson

Scott and his wife Becky recently flew to Southeast Asia and visited the countries of Thailand, Cambodia and

Vietnam. While in Cambodia they worked with a group of travelers from around the world to help build 15 raised platform houses for



poor villagers outside of Phnom Penh. The area was in a vast river floodplain and the simple houses provide living platforms that are dry and safely above the floods and mud of the rainy season.

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