

Changes in the Redwood Region from 1996-2016¹

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Abstract

This introductory paper highlights some of the changes in redwood region land ownership, markets and infrastructure to help contextualize the dynamic nature of the forest industry in California and to help set the stage for a management and policy dialog among symposia participants. Twenty years have passed from the first redwood symposium in 1996 and with this so too have the conservation and management issues changed among regional stakeholders. Through 70 talks delivered in plenary and concurrent sessions, a poster session, and four field trip choices, session participants had the opportunity to learn more about how forests are managed today, gain an enhanced understanding of scientific advancements, and see first-hand some of the changes in both private and public forest land management. This paper reflects the conference organizer's personal observations and available regional data.

Keywords: coast redwood, economics, infrastructure, *Sequoia sempervirens*.

Background

The first redwood symposium was held in Arcata in 1996 (LeBlanc 1996) and has since travelled throughout the redwood region with a 2004 symposium in Rohnert Park (Standiford et al. 2007) and a 2011 symposium in Santa Cruz (Standiford et al. 2012). Bringing the redwood symposium back to Humboldt County provided an opportunity for reflection upon the twenty years of change that have taken place in the working forest land of California's redwood region. In 2016, with changes in California's demographic makeup, land ownership, and the regional economy, great interest has developed in areas such as forest sustainability and restoration, watershed assessment, fish and wildlife habitat conditions, and new silvicultural strategies. These themes were discussed in this symposium and are documented in these proceedings.

Ownership transitions

Today coast redwood forests (*Sequoia sempervirens*) are limited to a narrow band along California's coastal mountain range with a small population in southwestern Oregon (Figure 1a). A large percentage of these forests are privately held in both larger industrial holdings and in smaller non-industrial holdings (Figure 1b). During the last twenty years, there have been many changes in ownership across the region encompassing both redwood and Douglas-fir (*Pseudotsuga menziesii*) forests. Likely the most significant changes in ownership were observed in the industrial land base where publicly traded companies (e.g. Louisiana Pacific, Georgia Pacific, and Pacific Lumber Company) sold to privately owned family enterprises (e.g. Green Diamond Resources Company, Humboldt and Mendocino Redwood Companies). There were slight reductions in the industrial land base. Of note, was the approximately 33,000 acres transferred to new public ownerships with the creation of the Headwaters Reserve managed by the Bureau of Land Management (7,500 acre), the 24,700-acre addition to the California Department of Park's holdings in Del Norte County, and the recently established McKay Community Forest (1,000 acres) owned and managed by the County of

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Humboldt. The Yurok Tribe also acquired 22,000 acres. During the last twenty years, non-profit organizations emerged as new working forest owners, primarily in Mendocino and Sonoma Counties (i.e. Redwood Forest Foundation and Conservation Fund). Timber investment management organizations (TIMOs) also bought and sold forests during this period with Hawthorne Timber Company buying from Georgia Pacific and eventually selling to a new TIMO market participant in California, Lyme Redwood Timberland. Some of the smaller family lands transferred to other forest landowners, but many were also subdivided for rural development and/or cannabis cultivation, especially in Humboldt County’s Douglas-fir zone.

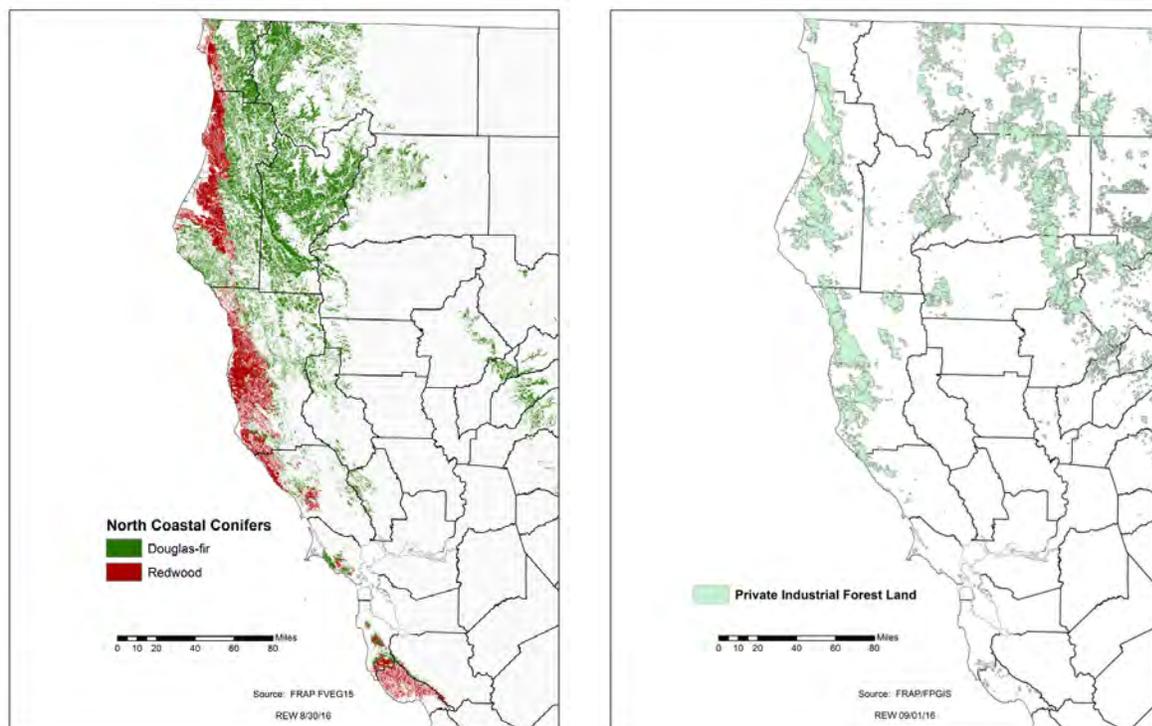


Figure 1—A. Distribution of Coast redwood and Douglas-fir across coastal counties in California. B. Private industrial ownership in northern California. Map sources: CAL FIRE, Fire and Resource Assessment Program.

Infrastructure loss

During the last twenty years, there were significant changes to the manufacturing sector. Sawmill reduction was common throughout California (Figure 2) and many sawmills that process redwood and Douglas-fir closed through the redwood region (e.g. Orick, Klamath, Korbel, Fortuna, Branscomb, Willits, etc). Additionally, there have been closures of the biomass power facilities that help dispose of mill residuals and a closure of the only pulp mill (near Eureka) in the redwood region. The remaining sawmill and biomass infrastructure is limited (Figure 3) and the log hauling distances have increased. The loss of manufacturing and biomass presents a considerable challenge to the region as it affects the viability of a skilled workforce, reduces competition for logs and can suppress prices, increases trucking costs, and creates a challenge for disposal of sawmill residuals and reduction of marketable byproducts. At present, sawmill facilities appear to generally be tied to the industrial land base and long-term log purchasing arrangements may have the unintended effect of reducing timber demand from the non-industrial family forest owners.

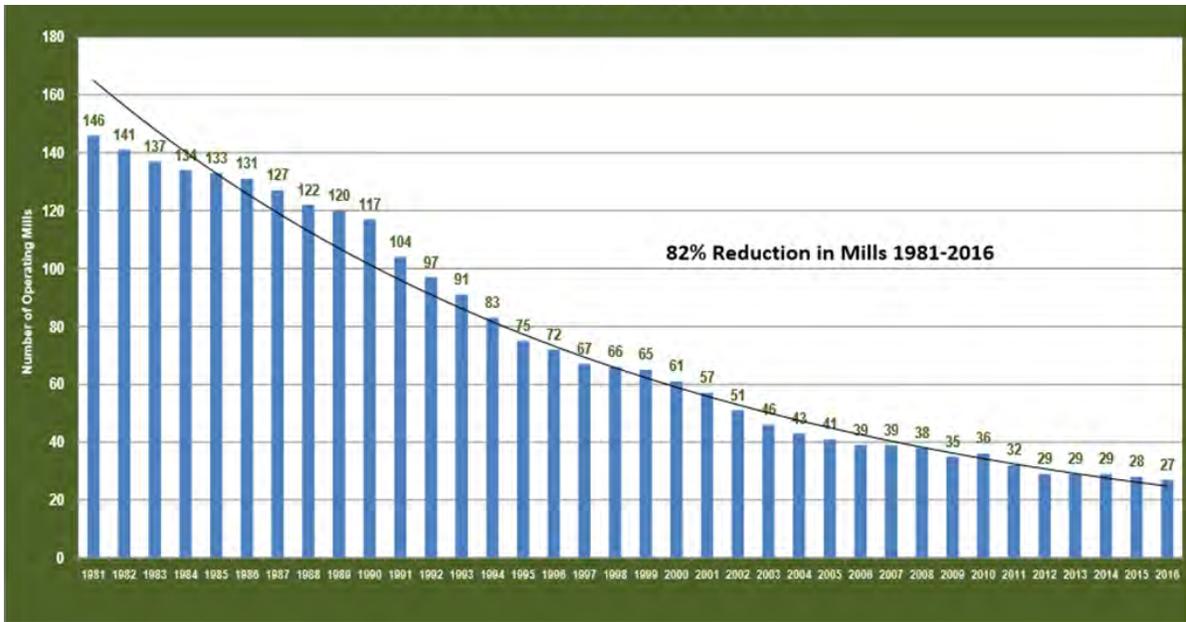


Figure 2—Reduction in the number of sawmills in California from 1981-2016 based on mill census data (BBER 2016).

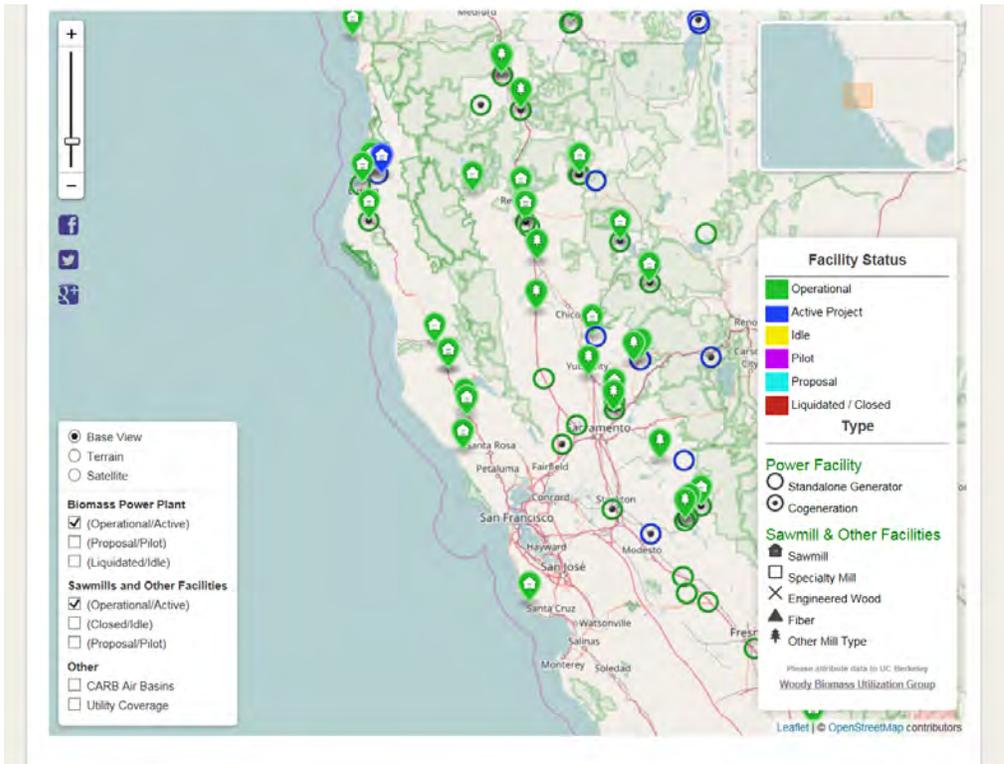


Figure 3—Operational sawmill and biomass power plants in northern California. (UC ANR 2017)

Timber harvest and market changes

While timber harvest has been decreasing statewide, the north coast continues to produce much of the total timber harvest (Figure 4), with Humboldt County remaining as the biggest timber-producing county in California (Figure 5). The effect of the transition away from old-growth and the 1990 listing of the northern spotted owl can be seen in decreased harvest levels from the coastal forest totals. The 2009 national recession was also significant, with Figures 4 and 5 demonstrating that markets have not rebounded and north coast harvest levels are lower than pre-recession levels. The new family and non-profit ownerships are bringing different management styles and goals to the region. They generally have more flexibility to operate on longer time horizons, especially while they rebuild timber inventories, improve road infrastructure and design, and transition to cable logging systems from predominately ground-based yarding systems.

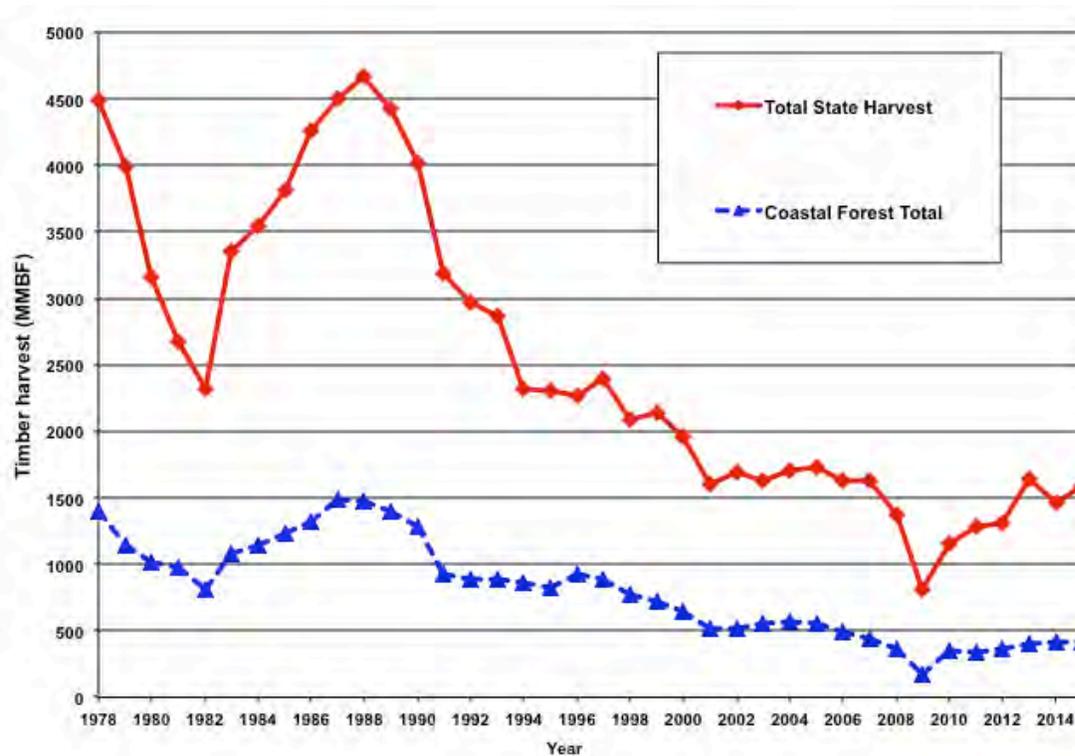


Figure 4—North coast harvest compared to the state total harvest (SBOE various years).

Most evident during this twenty-year period has been completion of the transition to a young-growth forest economy (Standiford 2012). Redwood prices have remained significantly higher than Douglas-fir. For example, 2016 young growth redwood stumpage prices in Humboldt and Del Norte Counties was \$600 per thousand board feet for medium sized logs (150-300 board feet per log), while young growth Douglas-fir stumpage for this same region and size class averaged \$270 per thousand board feet (SBOE 2016). Douglas-fir prices are tied in with trends in the housing markets, while redwood is more closely tied in with remodel and specialty uses. There has been some growth in new markets over the twenty-year period from forest certification and carbon offsets. Although certified logs have not resulted in a significant price premiums, this system has been important in securing long-term purchase agreements with big box store retailers, has required greater investment in

management planning and enhanced community engagement. Forest carbon offset markets are emerging with California’s cap and trade policies brought about by passage of the California Global Warming Solutions Act of 2006 (California Assembly Bill 32). Carbon sales have provided an alternative method to generate revenue from the Douglas-fir zone, especially where harvest plan preparation costs and long distances to milling infrastructure have made timber harvest economically challenging. While there are considerable forest inventory investment and maintenance costs, carbon has the potential to generate revenue on a property-wide revenue rather than a unit by unit basis.

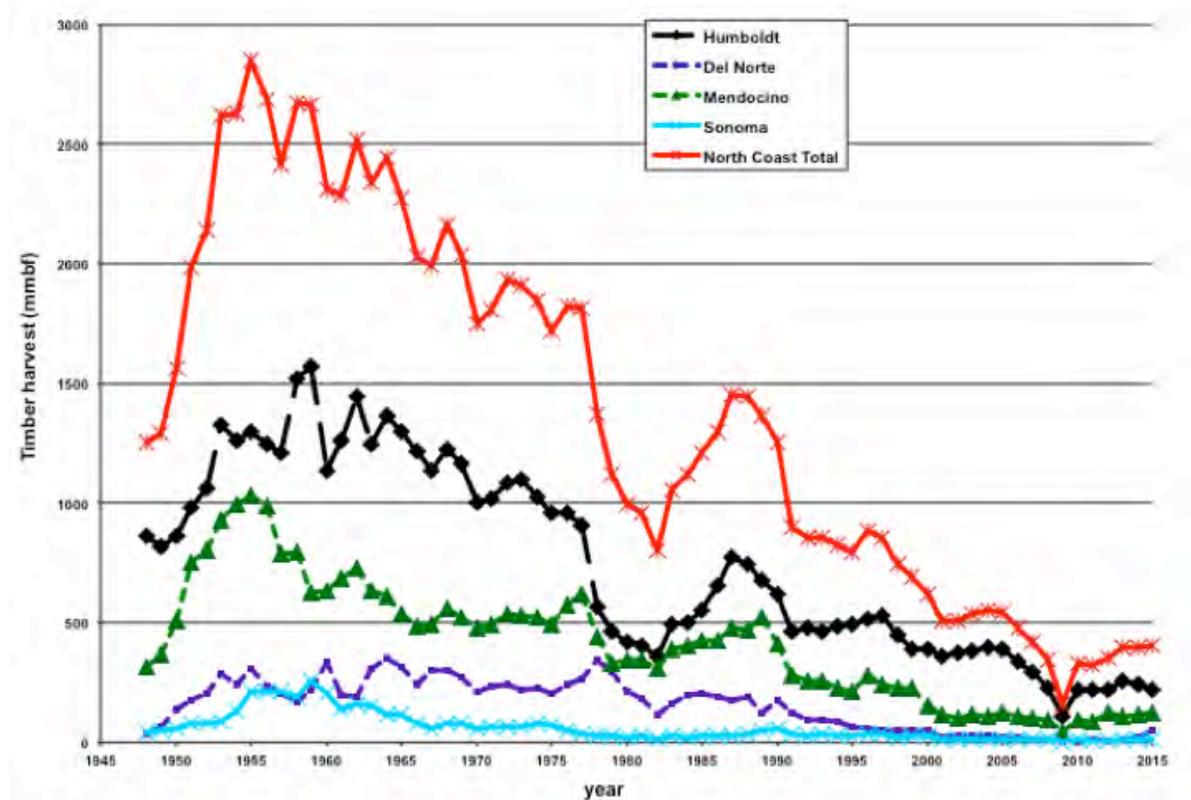


Figure 5—North coast harvest from 1945-2016 by county (SBOE various years).

Science, policy and management partnerships

Within these recent market, ownership, and infrastructure changes, there have also been significant developments under the Endangered Species Act, the Clean Water Act, and the California Forest Practice Rules that govern private forestland management. To satisfy these regulations and to respond to sensitive species listings, larger forest landowners have negotiated property wide habitat conservation agreements both for single species (i.e. northern spotted owls) and multiple species in attempt to create regulatory stability and maintain management options. To develop these agreements and to monitor their effects, many companies now employ interdisciplinary scientists and resource professionals who work in the fields of watershed science, wildlife biology, and botany. Additionally, women are more commonly working as scientists, foresters, and managers, further contributing to a diversified workforce.

The net effect of this changing workforce, and the focus on science, has resulted in significant advancements in our understanding of the ecosystems within the redwood region. As is evident by

this, and the past three redwood symposia, the last twenty years have seen tremendous advances in understanding the interrelationships between forest management and conservation and the region's wildlife, plant, fish, and watershed resources.

Conclusions

While no one can predict the future, the next twenty years are likely to be as dynamic as the past twenty years. Forest landowner demographics will continue to propel this change as most non-industrial forests are owned by older generations (Ferranto et.al. 2011) and family succession is guaranteed. New market forces, changing policies, competing land uses, growing human populations, and changes in climate are all going to challenge forest landowners to continue to be well-informed and to balance sustainability and profitability through economic and environmentally based decision making. Additional changes in forest products infrastructure and markets are anticipated.

During the last twenty years, the "timber wars" have largely come to rest, but the robust dialog over forest management is likely to continue in the redwood region. Hopefully this dialog can be better informed by symposia such as this, and by the scientists and managers, who have dedicated their time to better understanding this region, and the forest and people that live here.

Acknowledgments

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