

Effects of Timberland Parcelization and Regulatory Restriction on Annual Harvest Volumes Humboldt County, California

**An analysis Prepared for the North Coast Regional Land Trust
by
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Executive Summary

Introduction

There is concern that parcelization of large timbered parcels into smaller parcels may lead to a loss of timber production from those parcels; that such parcelization is rapidly undermining the long-term viability of our local timber economy; and that such parcelization ultimately results in a loss of tax revenue to the county from those lands. On the other hand, some argue that there is no loss of timberland because the timber is all still on the parcel and could be harvested at any time. In order to understand this issue better we conducted an analysis of how many harvest plans were filed on ownerships of various sizes over the recent past, 1997-2008. An estimate of *timber volume* harvested was then extrapolated from the estimates of *acres* harvested on various size parcels.

Secondarily, an estimate of the effect of regulatory restrictions on timber harvest volumes was made. This was based on an estimate of the change from the mid 1990s to 2008 in the percentage of each harvest area that is unavailable for timber harvest due to regulations such as stream buffers, owl buffers, steep slope restrictions, etc.

The estimated effects to the average annual timber volume produced in Humboldt County were then compared for parcelization and regulation.

Methods

Data on ownership size were compiled based on 2008 Assessor Parcel Number (APN) layer data from Humboldt County GIS. Ownerships were divided into the following size classes: 5-160 acres, 160-640 acres, 640-2,500 acres, >2,500 acres. Non-industrial Private Forestland (NIPF) landowners were separated from Forest Industry landowners (industry). Humboldt Redwood Company, Green Diamond Resource Company, Sierra Pacific Industries, Soper-Wheeler, Barnum Timber and Eel River Sawmills were considered industrial timberland owners.

Timber Harvest Plan (THP) and Notice of Timber Operations (NTO) GIS data were obtained for the 1997 to 2008 time period from CALFIRE.

The acreage of merchantable timberlands on each ownership was calculated using vegetation type data from the 2005 LCMMP GIS layer. Merchantable forestland was defined as Douglas-fir (DFR) or redwood (RDW) dominated stands in any of the following size classes: 3 (6-11" diameter at breast height), 4 (11-24" dbh) or 5 (>24" dbh).

These 3 GIS layers were intersected to determine how much merchantable timberland was on each ownership >5 acres in Humboldt County and which ownerships had filed harvest plans in the 1997-2008 time period. Information regarding the quantity of land unavailable due to regulatory restriction was obtained through an informal poll of registered professional foresters (RPF's).

Results

There are approximately 1.5 million acres of privately owned lands in Humboldt County that exceed 5 acres in size (Table 1). Approximately half of the total acreage is occupied by tree species and size classes considered to be merchantably viable. The proportion of merchantable timberland is highest on land owned by the timber industry (HRC, Green Diamond, SPI, Soper-Wheeler, Barnum and Eel River Sawmills) at 64%. On non-industrial private forest lands (NIPF) the proportion of timberland is approximately 40% of total ownership, regardless of size class. On private lands, about 68% of merchantable Douglas-fir forestland and 21% of merchantable redwood forestland is owned by NIPF's; industrial holdings account for about 32% of the merchantable Douglas-fir forestland and 79% of the redwood forestland.

There was a relationship between size of ownership and the likelihood of filing a harvest plan during the 12 year study period. The total number of acres of merchantable timberland in each ownership size class group was calculated and compared to the total number of harvest plans originating from that size class group. The data indicate that as ownership size class increases a greater percentage of merchantable timberland in that size class group had a harvest plan filed for it. For example 9,000 acres of harvest plans were filed on the 96,000 acres of merchantable timberlands that occurred on ownerships <160 acres, or approximately 9% of the merchantable timberland during the 12 year period; or 0.8% annually (Table 2). Whereas on NIPF lands >2,500 acres, approximately 2.8% of the merchantable timberlands were planned for harvest each year (Table 2).

Ownership Size Class	NIPF				Industry	Total
	5-160 ac.	160-640 ac.	640-2,500 ac.	2500+ ac.		
Timber Acres Owned	96,464	70,689	73,420	140,383	397,687	778,643
THP acres	6,507	6,935	7,700	33,002	180,890	235,034
NTO acres	2,513	2,529	7,291	14,817	-	27,150
Acreage of plans filed over 12 year period	9,020	9,464	14,991	47,819	180,890	262,184
% of Timberland Planned for Harvest per year	0.8%	1.1%	1.7%	2.8%	3.8%	2.8%

Table 2. Relationship between ownership size class and percent of merchantable forestland planned for harvest annually, based on THP and NTO data from 1997-2008.

Effects of Parcelization

Using the harvest intensity values described in Table 2 facilitates rough projections of land use change effects on county wide harvest volumes.

Example 1- Recent Parcelization:

A rough estimate of parcelization over the past 12 years is that approximately 35,000 acres from ownerships in the >2,500 acre range were broken into smaller parcels, let's assume it went to 5-160 acre parcels for this example. For those 35,000 acres that were parcelized, the data from Table 2 (above) indicate that there was a corresponding drop in harvest intensity from 2.8% per year (on >2,500 ac size class) to 0.8% (5-160 ac. size class). This decrease in harvest intensity due to parcelization is predicted to have reduced average annual harvest intensity by 13 MMBF per year or 3.3% during this time period. This reduction in harvest volume would have reduced annual timber yield taxes collected by approximately \$150,000-200,000 for 2008.

Effect of Regulation

The direct effects of regulation include actual decreases in lands available for harvest due to regulatory restrictions such as stream buffers, owl buffers, steep slope restrictions, etc. An informal poll of local foresters in Humboldt County indicates that a reasonable estimate of the quantity of land that is unavailable for harvest due to regulations has increased by 5-15% from the 1990s to today. The foresters estimated that in the 1990's the average amount of land in a given harvest plan that could not be harvested was about 10-15% mostly due to logistical impediments, whereas currently it is about 20-30%, with the difference being due to increased regulation.

So, the direct effect due to regulation appears to be restricted harvest on about 5-15% of the merchantable timber land base; or 40,000 to 120,000 acres. The average harvest rate on the merchantable timber base is 2.8% (Table 2), which includes restricted and un-restricted lands. So, it is likely that the harvest rate on regulatorily restricted lands (buffers, etc.) is currently about 0.5% and the harvest rate on un-restricted lands is about 3.0%. In the absence of regulations, theoretically, the harvest rate on regulatorily restricted lands could increase from ~0.5% up to ~ 2.5%.

A 2% increase in harvest rate on 40-120k acres per year would mean an additional 800 to 2,400 acres harvested each year. At an average harvest volume of 17MBF/acre this would result in a 14 to 40 MMBF increase in harvest volume each year, or 4 to 11%.

Conclusions

Size matters, from 1997 to 2008 ownerships with >2,500 acres filed plans to harvest timber at rates 3 to 4 times higher than landowners with <160 acres (Table 2). Private landowners with ownerships >2,500 acres own 69% of the merchantable timber lands and filed plans representing 87% of the yearly total acreage during the 12 year study period. Ownerships in the size classes that are generally the result of parcelization (less than 640 acres) own 21% of the merchantable timber lands and are only responsible for filing about 7% of the harvest plan acreage in Humboldt County. And the reason that harvest is lower on smaller parcels is not simply due to

smaller parcels having smaller timber or fewer acres of merchantable timber. Data from Appendix A of NRLT Forestry Analysis indicate that timber in the larger size classes (>11 inches dbh) is present in approximately the same proportions on small as well as large parcels. During the past 10-15 years the estimated effect of parcelization was to reduce average annual timber harvest by about 13MMBF or 3%. During approximately this same time period the effects of regulatory restriction on the timber harvest area were estimated to have reduced average annual timber production by about 14-40MMBF or 4 to 11%. Thus it appears that the past 10-15 years of regulatory restrictions have had an equivalent or greater impact on timber production as the past 10-15 years of parcelization (Scenario 1).