

An Evaluation of the Adequacy of Conservation Easement Requirements to Prevent Timber Resource Depletion at Price Creek

The objective of this analysis is to evaluate whether the requirements on management imposed by the proposed conservation easement at Price Creek together with current laws are sufficient to guarantee sustainability, or whether there are loopholes in the conservation easement that could allow unsustainable harvest levels that could deplete the forest resource.

Depletion of the growing stock will be defined here as any decrease in inventory over time. The conservation easement imposes several independent requirements on timber harvest. The most important of these for the purposes of regulating harvest levels are:

- 1) At most 25 percent of the standing inventory at the beginning of each decade can be harvested each decade, starting with the implementation of the conservation easement.
- 2) If a standing inventory of 73 million board feet (MMBF) is reached and maintained, requirement 1) goes away.
- 3) At any one time, at most 10 percent of the area of the timberland base can be in openings with conifer stocking less than 50 square feet per acre.

Requirement 1: At most 25 percent of inventory can be harvested each decade.

This limit will decrease by five percent if inventory updates in every other Management Plan update (20 years) show a decrease in standing inventory. Growth in riparian buffers that are off limits to harvest is added to the allowable harvest quota on upslope areas.

Because the riparian buffers are currently dominated by red alder and other hardwoods and have only modest commercial conifer stocking (approximately 40 square feet of basal area per acre on average), adding riparian growth to the upslope harvest quota carries little risk of over-harvesting and depleting the growing stock on upslope areas in the short term. Limited simulations of growth on stands similar to that of the subject property suggest that as riparian areas gain commercial conifer stocking over time, in the absence of requirement 3) an aggressive harvest policy could potentially deplete growing stock on upslope areas. Also, because the percent of inventory harvest cap is implemented on a decadal basis rather than an annual basis, an unscrupulous landowner could in the extreme case harvest most of the decadal quota in the first one or two years and subsequently sell the property. Ramping down the percent harvest quota by five percent every 20 years will eventually reverse the trend, but the ranch could be drawn down substantially over the 20-40 year period it would take to reverse the depletion trend.

Adding the effects of requirement 3) is difficult to accomplish in a growth simulation, and was therefore based largely on separate calculations. When requirement 3) was added to requirement 1), depletion of upslope growing stock became much more difficult to accomplish, although probably not impossible.

Requirement 2: If a standing inventory of 73 million board feet (MMBF) is reached and maintained, requirement 1) goes away.

This requirement relies on carrying a very high stocking level (approximately 143 MBF per acre on the 512 forested acres) in return for providing relief from Requirement 2. It will take many decades to achieve 73 million board feet on the property if achieved at all. The property may never carry this high a stocking level, so this requirement is probably not going to be relevant in practice.

Requirement 3: At any one time, at most 10 percent of the area of the timberland base can be in openings with conifer stocking less than 50 square feet per acre.

Growth projections using stand structures similar to those found on the property indicate that the overall most binding requirement is 3) - at any one time, only 10 percent of the area can be in openings with conifer stocking less than 50 square feet per acre. Normally there would be a fairly even spread of basal area stocking across the property similar to that of table 1 below, and the ranch would carry an average basal area stocking of 80 square feet per acre or higher, property wide. In the most extreme aggressive timber management scenario however, a landowner could get away with carrying as little as 47 square feet per acre across the property, as shown in table 2. Minimum stocking requirements under the State forest practice rules however, would probably prevent this worst case scenario from occurring.

Table 1. Representative basal area stocking under average intensity timber management.

Basal Area / acre, sq.ft.	% of Area	Proportional Basal Area / acre, sq.ft.
0	2	0
10	2	0.2
20	2	0.4
30	2	0.6
40	2	0.8
50	10	5
60	10	6
70	10	7
80	10	8
90	10	9
100	10	10
110	10	11
120	10	12
130	10	13
Total	100	83

Table 2. Representative basal area stocking under aggressive timber management.

Basal Area / acre, sq.ft.	% of Area	Proportional Basal Area / acre, sq.ft.
0	2	0
10	2	0.2
20	2	0.4
30	2	0.6
40	2	0.8
50	90	45
Total	100	47

The cost of restocking the openings to 50 square feet of basal area in order to be able to harvest other openings would be high, and will contribute to make resource liquidation a less inviting option.

Conclusions

The requirements imposed on timber harvesting by this conservation easement provide the landowner with fairly generous flexibility in the stewardship and restocking of a property where the growing stock has obviously been substantially depleted in the past. It is unlikely that the proposed conservation easement, when taken in combination with existing laws and regulations, would allow depletion of the timber resource, but the possibility cannot be ruled out.

This situation illustrates the tradeoff between the competing goals of imposing management requirements that a) provide the current landowner with enough flexibility to implement optimal site-specific solutions, and b) are waterproof enough to curtail possible unscrupulous future landowners who would be inclined to liquidate the timber resource by any means possible.

Because the ranch is currently relatively low stocking, this property is probably not an attractive takeover target now for short-term depletion. A lot of the growing stock has already been removed. Concerns over further depletion of the growing stock is therefore probably unwarranted in the short term.

When the property becomes restocked to higher levels of merchantable conifer inventories, the conservation easement requirements on harvest are probably going to be sufficient to guarantee sustainable harvest levels and prudent stewardship of the forest resource, under most owners' management objectives. If future landowners however, should be highly motivated to deplete the timber resources for short-term financial gain, they may be able to do so under existing laws and the conservation easement requirements.

The risk of resource depletion in the future will probably be low as long as there is a ready supply of similar properties not encumbered by conservation easements. The requirements that exist as part of this conservation easement require commitments to restocking after harvest at substantial cost. These costs will make the potential profit from short-term resource depletion much less at Price Creek than for similar properties without a conservation easement, making Price Creek a less attractive takeover target.

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