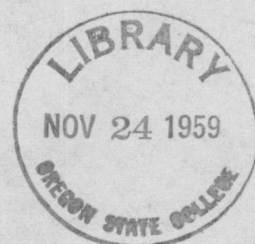


SILVICULTURE REPORT

F-321

SPRING TERM 1947



Milton H. Easton

Oregon State  
Conservation Act Survey

During the summer of 1946, after completing a year in the School of Forestry at Oregon State College, it was my good fortune to have a job with the Oregon State Board of Forestry. I say that I was fortunate because this was a chance to participate in the collection of data on an unknown subject, namely, the condition of Ponderosa Pine cutovers on private land.

At this time the State Conservation Act had been in effect for exactly five years. The provisions of this Act had to cover both the Douglas Fir region on the coastal side of the Cascades and the Ponderosa Pine region east of the Cascades. It was only natural in so doing that the major silvicultural emphasis was placed on the Fir belt. Those in the conservation department who had a chance to observe some of the results of the Act in the Pine region felt that certain revisions needed to be instituted, but due to a shortage of personnel during the war years no scientific surveys had been conducted. Thus five years had elapsed and the spring of 1946 brought the first real opportunity for a close examination.

At that time, Vance Morrison was the conservation inspector for the whole of Eastern Oregon and it was under his supervision that the survey was carried out. The survey was conducted over 2,000 acres throughout East Central Oregon and a general survey on twenty-five operations ranging from Klamath county in the south to Wallowa county in the north.



In conducting this intensive survey, field information was gathered by running a line plot cruise. Sample areas ranged from 40 acres to 160 acres. One fourth acre plots were used to tally seed trees and stumps and four 1/100<sup>2</sup> acre quadrants were used to tally surviving reproduction and damage.

The general survey was conducted by walking through cutover areas and using information obtained from the intensive study as a measuring stick for uniformity in observing existing conditions. This was actually done while accompanied by either the Forest Inspector for the district or the District Warden for the area, or both. Other personnel from the State Forester's office were sometimes present, and in some instances representatives of the operations were present.

#### RESULTS OF THE SURVEY

The Conservation Act required that all immature Ponderosa Pine trees 16 inches and less in diameter be left uncut. In stands where the leaving of Ponderosa Pine 16 inches in diameter and under would not leave sufficient seed trees to restock the stand, the operator had the alternative of leaving seed trees of other commercial species 12 inches in diameter in the ratio of two seed trees per acre.

This diameter limit provision was violated occasionally, but in nearly all of these instances of violation there was a question as to whether or not the tree was mature at the time of cutting. Where violation was certain there remained adequate seed tree and reproduction which would make reparation impractical.

Seed trees left were sufficient to meet the technical requirements of the Act, but were often of poor distribution and smaller diameter classes, or of alternate species not predominate in the original stands.

Reproduction was a difficult thing to figure. In many of the stands where the Act had been complied with as far as seed trees were concerned there was found no new reproduction coming in. On the other hand there would be considerable reproduction that had been established just prior to the cutting. In the light of similar experience on selectively cut National Forest lands the indication seems to be that it was not the lack of seed source that caused the poor restocking but the absence of a combination of a good seed year accompanied by good rainfall. In some cases the established seedlings had been badly damaged by improper felling and skidding.

Section 8 of the Conservation Act contains an exemption clause for agricultural use. This clause allows a grazier to clearcut and burn a timbered property providing that he has a fence around it. In some cases the land was obviously too steep and rugged to be of value for anything besides timber growing; but there was no legal means to prevent this abuse.

Much time was spent making intensive surveys on areas which had been subjected to heavy slash burns. Improperly planned and poorly controlled slash fires were responsible for the devastated condition of several hundred acres of previously highly productive forest land. The following are examples of three operations burned in the fall of 1945 and the spring of 1946.



320 acres burned --- 125 acres or 30% resulted in 100%  
kill of seed trees and reproduction.  
300 acres burned --- 200 acres or 67% resulted in 100%  
kill of seed trees and reproduction.  
185 acres burned --- 75 acres or 41% resulted in 100%  
kill of seed trees and reproduction.

### RECOMMENDATIONS

After completing the field work on this survey the results were tabulated. The following are representative cutover areas which show varying degrees of understocking and seed source. In the light of these relatively poor seed tree and stocking counts, the following recommendations were made for improving cutting practices in Eastern Oregon through the Conservation Act.

#### Compilation of Intensive Survey Data

Acres	Year Logged	Seed Trees			Percent of Stocking		% of Damage by Log.
		Ponderosa Pine 16" plus	12"-16" 12"plus	Other Species	Est. at Com- pletion of logging	Est. since Logging	
400	1941	5.2	1.5	.25	69.8	5.3	9
200	1941	2.4	4.6	0	40.0	3.9	8
280	1942	2.9	2.0	0	58.0	12.9	8
40	1943	5.5	2.3	5.2	60.9	50.0	11
320*	1943	2.8	3.9	0	48.1		76
120*	1943	1.6	1.8	3.5	82.0		64
65*	1944	2.8	1.5	2.5	76.0		42
460*	1945	3.6	1.9	.8	62.5		82
140	1946	.76	.56	12.8	70.0	0	14

\*Slash heavily burned on these areas - Seed tree and stocking figures represent conditions before burning - % damage includes damage by logging and slash disposal.

1. Diameter Limit: This provision is not entirely satisfactory since it often does not leave sufficient trees in the 16 inch diameter class to restock the area but tends to result in seed treed being left from the smaller diameter classes, or more often trees of other species not predominantly of the original stand.

Recommendations: The Diameter limit provision should specify that 16 inch trees in the required number remain instead of

allowing the same credit for 12 inch and 14 inch classes or in cases where competent markers are employed by the operator the diameter limit might be an average, thereby allowing the cutting of the same number of trees below the diameter limit as were left above.

2. Seed Trees: In no case examined had adequate restocking occurred since 1941 even though the survey indicated that the actual leave was above the requirements of the Act.

Since the theory that ponderosa pine stands are uneven aged is the exception rather than the rule in Eastern Oregon, the diameter limit often does not leave a potential residual stand. As a result, the seed tree alternative has had to apply in many cases. Four trees per acre would tend to give for a better distribution and would more nearly approach some sort of a potential residual stand which should be an objective of the law. They should tend to more nearly encourage an uneven age stand of three stories at least - made up of leave trees in one class, reproduction established before logging in another class and reproduction established after logging in still another.

Two seed trees per acre do not give good seed distribution and although they will eventually restock the area under favorable conditions, four trees per acre will accomplish more stocking and do it much faster. Field examinations show that the Act has not worked a hardship on the operator from the standpoint of leave, since passable cutting practices under the act in the past five years have not left cutoverlands in any better shape, in many cases, than they were for several years directly



preceding the act. It is true that on a number of operations, cutting practices have improved but probably they can be contributed more to the desire of the operator to practice good forestry than to the minimum requirements of the Act.

Recommendations: The requirement should be four seed trees per acre 16 inches in diameter and over of the commercial species of predominance removed from the stand.

3. Reproduction: Section 4 of the Act provides that precautions shall be taken to protect reproduction during the conduction of logging operations and slash disposal but provides for reparation and not a penalty. In Eastern Oregon to date, damage to reproduction is a major factor in the failure to secure more rapid regeneration of cutover lands.

Recommendations: A harvesting permit that would provide a penalty for violation before excess damage could be done should be adopted.

4. Slash Disposal: There is a present lack of control over proper burning methods in that much burning is done in Eastern Oregon during open fire season when no type of permit is required. The operator is desirous of being released from responsibility on slash areas and of securing this release at the lowest minimum cost in the shortest possible time. The small landowner, in many cases, is a grazing man who is desirous of removing all debris and even all growing stock. As a result, disastrous burns occur and the only penalty is reparation through an inadequate planting cost. Consequently, timber production is retarded on such lands for many years.

Recommendations: Burning of slash should be discouraged on many of these lands, but when burning is necessary adequate control should be provided. This could be accomplished by a harvesting permit that provides a penalty or could be revoked when necessary.

5. Exemption Clause: The present law is adequate except that the Eastern Oregon policy should be defined to allow exemptions only on 100% clearings for cultivation under agricultural exemption and require that the operator declare his intentions before the operation is started.

Recommendations: A harvesting permit should be adopted requiring the operator to declare the type of cutting practice to be used.

6. Definition of a Merchantable Stand of Timber: The present definition, as referred to by Section 9 of the Act, eliminates from control lands not supporting 3,000 board feet per acre from trees 16 inches in diameter breast high and larger, thus allowing destructive cutting of immature ponderosa pine. Several instances were encountered where operators were removing immature ponderosa pine of from 12 inches and up in diameter. These lands were well stocked with fast growing immature pine, but they were not yet supporting 3,000 board feet per acre from trees 16 inches in diameter breast high and larger. Lodge pole Pine areas are likewise without control since they do not support 3,000 board feet per acre from trees 16 inches and larger. In the past year the harvesting of Lodge-pole Pine for poles, lumber, box slats, cabin stock, decorative



fences etc., has started an inroad on heretofore unmerchantable areas of mixed and pure Lodgepole Pine.

Recommendations: The definition of a merchantable stand should be changed to read, "The term merchantable stand of timber shall mean any stand containing live timber which is being or can be harvested for commercial purposes." Section 5 of the Act which now provides for the leaving of all immature Ponderosa Pine trees 16 inches in diameter and less, should have added the following provision to take care of the Lodgepole Pine stands. "and provided further that in stands which are predominantly lodgepole pine there shall be reserved and left uncut 5 percent of each forty acre sub-division well stocked with trees of seed bearing size."

7. Other Recommendations: Adoption of a Harvesting Permit. In addition to providing controls as recommended under "Reproduction", "Slash Disposal", and Exemption Clause", a harvesting permit would:

(1) Provide a penalty where the diameter limit or seed tree alternative was violated, but where a reparation planting cost was not practicable.

(2) Enable enforcement personnel to contact operators and landowners before an operation began and acquaint them with the provisions of the act, thus preventing unintentional violations.

These recommendations for the pine region, along with several others of a general nature, were placed before the 1947 State Legislature with the result that most of them were incorporated into the Conservation Act. The following paragraphs cover the important revisions and present the Act as it stands today.

## CONSERVATION ACT 1947

The recommendation that four Ponderosa Pine seed trees be left per acre is now a part of the Act. These trees must be at least 12 inches in diameter breast height and if cutting to a minimum of 16 inches does not leave four Ponderosa Pine, then trees of other commercial species at least 16 inches diameter breast height must be left to complete the requirement.

This same section of the Act dealing with seed trees was also ammended to require that 5% of each forty acre tract supporting predominantly a Lodgepole Pine stand must be left will stocked with trees of a seed bearing size.

The harvesting permit was also adopted. In addition to the requirement that an operator take certain precautions regarding fire, the permit states that he must conduct his logging operations in accordance with the conservation act and that he must make every reasonable effort to protect residual stands and seed trees. If these requirements are violated his permit is revoked.

Instead of merely being able to go in and restock a violated area at \$5.00 per acre, as prescribed in the previous reading of the Act, the State Forester is now empowered to shut down the operation and require an immediate deposit of \$8.00 per acre for every violated acre. If the operator has not restocked the area within five years, or it has not restocked naturally within that time, the State Forester can spend up to \$8.00 per acre to restock the land. If the operator refuses to



furnish the bond, the state enters immediately upon the lands and may spend \$8.00 per acre correcting the damages.

The definition of "merchantable stand of timber" was made to mean any stand which is being or can be harvested for commercial purposes. This gives protection to young growing stands not yet supporting 3,000 board feet which were exempted by the previous wording of the Act.

The fact that an operator must procure a harvesting permit gives the State Forester a chance to acquaint him with the law, and to give him advice on how best to cut his stand. In addition the State Forester's office then has a record of all cutting operations which facilitates inspection.

As the Act now stands, one weak spot might be in the interpretation of bona fide agriculture as contained in the exemption clause. In the past this clause was interpreted to mean that any fenced lands were excluded from the Act. In the future the interpretation will rest with the State Forester. He will decide whether agriculture or timber production constitutes the highest use of the land.

Each year since the Conservation Act has been in effect, improvements have been suggested and incorporated. It is certain that this process will continue and each future year will see the Act becoming stronger and more workable.