

MARKING INSTRUCTIONS FOR THE LARCH-FIR TYPE
DISTRICT 1¹

I. Type Characteristics Affecting Marking

The larch-fir type usually originates as an even-aged forest resulting from reproduction following fires. In many cases, however, subsequent fires have opened up the original even-aged stand and are followed by reproduction in the openings and under the thinned stand. This process may have been repeated several times resulting in several distinct age classes in the same area, sometimes in groups, sometimes with the younger age classes forming an under-story to the older classes. This two or three-aged condition is very characteristic and occurs frequently.

Larch and Douglas fir are the principal species of the type. Yellow pine, white pine, white fir and lodgepole pine frequently occur in mixture in varying degrees.

Larch is much less tolerant of shade than Douglas fir, and there is a tendency for the percentage of fir to increase at the expense of the larch. Since larch is considered the more desirable tree, an effort should be made in marking to produce conditions favorable for larch reproduction as far as possible, unless the site is unfavorable for larch.

Both larch and Douglas fir are reasonably wind-firm. In uneven-aged stands windfall is not usually an important factor to be considered in marking. In even-aged stands of tall timber on moist soil, there is considerable danger of windthrow of seed trees after cutting.

Douglas fir is a prolific seed producer and bears seed nearly every year. Larch bears some seed nearly every year with good crops about every five or six years. Larch seed is very light, 130,000 to the pound, and is, consequently, widely scattered by the wind.

Germination of both larch and Douglas fir seed is better on burned surfaces than on the natural forest floor.

Both Douglas fir and larch will show very marked increased increment after release from a crowded stand if the trees have good crowns.

Larch is frequently affected by a mistletoe which causes large witches' brooms on the tree and eventually results in defect and finally death of the tree. Seed trees having mistletoe should never be left, and all mistletoe infected trees of merchantable size should be cut.

¹ This document was transcribed from a photocopy of the original, which is located in the Supervisor's Office Silviculture Library Archives. To the greatest extent possible, this version is an exact duplicate of the original text.

II. Classification of Stands.

For the purpose of specifying methods of marking, stands in the fir-larch type are grouped in three classes:

1. Immature, even-aged stands.
2. Mature, even-aged stands.
3. Uneven-aged stands.

III. Immature Even-aged Stands

These are stands which have not reached the rotation age (usually 120 to 140 years) and which are not yet ready for a final harvesting and reproducing. Any cutting which might be done in such stands should be in the nature of a thinning or improvement cutting. A thinning would remove the suppressed, intermediate, and perhaps some of the codominant trees, but rarely any of the dominant trees. It, therefore, follows that such cuttings are possible only when there is a market for small-sized material such as fence poles, fence posts, small mine timbers, etc. Tie operations are rarely practicable as thinning, since most of the trees to be removed are too small for ties.

IV. Mature Even-aged Stands.

The object of marking in stands of this class is to harvest the crop and secure reproduction.

Stands of this class will be cut clean except for seed trees. From three to six seed trees per acre should be left, giving preference to larch. Seed trees should be thrifty, full-crowned trees of the dominant or codominant class, selected for their seed-bearing qualities and probable wind-firmness.

V. Uneven-aged Stands.

This class is very important and included probably 80 to 90 per cent of the merchantable stands. The range of conditions which may occur in uneven-aged stands in the larch-fir type is so wide that only very general directions for marking can be given, and a high degree of judgment must be used by the marker to adapt his marking to the stand.

In general, the object in such stands will be a selection cutting to remove the larger and mature trees and leave the younger growth for the basis of the next cup. The simplest condition is a stand of veteran larch with reproduction 20 or 30 years old as an under-story. In this case, if the reproduction is complete, all the mature trees will be cut. If there are breaks in the reproduction, seed trees will be left as specified under mature even-aged stands.

Various more complex combinations of age classes may be encountered, ranging from poles to over-mature trees. Under such circumstances, the larger trees should be cut to a diameter of 14 to 20 inches, leaving seed trees wherever the stand of younger trees or reproduction does not fully occupy the ground. The percentage of the merchantable stand to be left will vary widely according to conditions, but will usually run from 10 to 30 per cent.

Groups of trees between 12 and 16 inches in diameter should be thinned. This is a phase of the marking calling for skill and judgment in selecting the best and most promising trees to leave and their proper spacing for the best growth. Larch should be given preference to Douglas fir, and particular

attention should be given preference to Douglas fir, and particular attention should be given to removal of badly fire-scarred or diseased trees.

VI. Treatment of Minor Species

Yellow pine in mixture should be encouraged. The general principles specified in the yellow pine marking rules should be followed. Trees of bull pine type and thrifty mature trees capable of putting on good growth should usually be left.

White pine is desirable to encourage where it occurs on the moister situations. Occasional scattering white pine trees should almost always be left for seed trees unless distinctly over-mature.

White fir, balsam and lodgepole pine are not desirable to encourage and should be cut to the lowest merchantable limit.

VII. Tie Cutting.

Tie should not be cut unless the saw timber is removed at the same time and no modification of the cutting system should be made to produce a larger cut of ties, that is, 13 and 14-inch trees which would be reserved in a saw timber sale should not be cut for ties.

VIII. Slash Disposal.

Slash will be piled and burned in all cases except in very light cuttings of larch where there is very little brush. In such cases, the tops may be lopped and left except along main roads, trails, and railroads, where it should be piled and burned.

IX. Examples.

The following illustrations from actual acres marked under several varying conditions will illustrate the application of the rules to specific areas. All four of these examples would be classed as uneven-aged stands.

Acre No. 1

East Slope. The acre contains 18 larch, all mature or over-mature, from 18 to 40 inches diameter, several of them spike-topped. Cut all of these except three 18-inch trees with good crowns, to be left for seed and further growth.

There are three yellow pines on the acre, two veteran trees 36 and 40 inches diameter, one of them with a dead top, and one thrifty 22-inch tree. Cut the two old ones and leave the 22-inch tree.

There are four Douglas fir from 14 to 16-inch d.b.h., with poor crowns, and badly fire-scarred at the butt. Cut them all.

There is some reproduction on the acre about 10 feet high, consisting of 27 Douglas fir, 1 yellow pine and 12 larch. These are in groups. The area is perhaps 20 per cent stocked.

Acre No. 2.

This is on a flat ridge top and is a heavy but rather open stand, with about one-third of the area occupied by groups of larch and Douglas fir reproduction 10 to 30 feet high. The larch varies in age from about 120 years for the 12 to 16-inch trees to 200 to 250 for the larger trees. Following is a summary of the stand to be cut and to be left.

D.B.H.	Cut	<u>Larch</u>		<u>Yellow Pine</u>	
		Leave	Cut	Leave	
12	-	3			
14	4	8			
16	6	2			
18	3	-		1	
20	3	1	1		
22	5	-			
24	-	-	2		
26	2	-			
28	-	-			
30	1	-	1		
Total	24	14	4	1	
Vol. B. Ft.	17,200	1,790	2,390	260	

The 14 and 15-inch trees which were cut have poor crowns or are defective. The trees left will furnish ample seed to complete seeding up the area and are all good trees to put on future growth.

The four yellow pine trees to be cut were all over-mature; otherwise at least one additional would have been left.

Acre No. 3.

On this area the crown cover has been considerably broken by fire and about two-thirds of the area is occupied by reproduction 10 to 20 feet high, or in groups or poles 4 inches to 5 inches diameter. About half this young growth is larch and half fir, with a few yellow pines. The trees to be cut and left are as follows.

Larch. Sixteen mature trees 22 to 46-inch d.b.h., all to be cut. Two 14-inch, two 16-inch and one 18-inch trees to be left.

Douglas fir. A good many of these have poor tops or are badly cat-faced. Most of them are 14-to 18-inche trees. Cut seven of them and leave four of the best.

Yellow pine. One 34-inch veteran is to be cut. Eight young trees form 10 to 20 inches to be left.

Acre No. 4.

North Slope. This is a scattered stand with almost a complete cover of saplings 10 to 20 feet high. Seventy per cent fir and 30 per cent larch. One group of 10 or 12 fir poles 6 to 12 inches in diameter. Five veteran larch 24 to 30 inches d.b.h., are all to be cut. Three 10 to 12-inch larch and one 20-inch larch are to be left. One 20-inch fir is to be cut. One 22-inch yellow pine to be cut.
