

MANAGING THE EASTSIDE PINE TYPE: AN HISTORICAL OVERVIEW.

Donald T. Gordon

Retired, USDA Forest Service Pacific Southwest Forest and
Range Experiment Station, Redding, California.

ABSTRACT

Grazing of grass by livestock was the first extensive use of a natural resource by white men in the eastside pine type. Since before the Civil War, range condition has deteriorated because of overuse and drought cycles. Yet, moderate grazing will probably continue into the future.

Huge mills began harvesting timber, mostly on private land by means of railroad logging before World War I. During the 1945-1960 period many of the large mills shut down because of reduced supplies of cheap old-growth timber, and industry depending increasingly on Federal timber following World War II. Newly-built mills were smaller than their predecessors.

Research by the Forest Service at Blacks Mountain Experimental Forest in Lassen County paved the way for many changes in western logging practices, and included development of: a rapidly portable log loader; truck road system; light salvage cutting to reduce insect damage; reduced damage to residual trees; planting, thinning, and pruning young trees.

INTRODUCTION

Several people know that I have spent some time during the past year assembling a history of Blacks Mountain Experimental Forest and vicinity. And, being a person of wishy-washy character, I found it hard to refuse a request by Tom Robson that I fill the time segment for this part of the symposium program. I will add that the Blacks Mountain history will be completed this summer, and that the Experiment Station will publish it when funds become available.

LIVESTOCK GRAZING - EARLIEST RESOURCE USE

The Eastside resource first used by white men was grass. Cattle herds became extensive in the 1850's. Resident ranchers predominated in the eastern and northern parts of the area, but the land from Susan River to the Pit River, roughly between Eagle Lake and Hat Creek, was used mostly in the summer by ranchers from

the Sacramento Valley, and by a few settlers along Hat Creek and the Pit River.

Range deterioration began even before the Civil War. Periodic droughts and heavy overuse because of economic conditions were often paired, leading to further deterioration. Sheep were introduced in the 1860's, were often exceedingly numerous, and their use of the range continued into the 1930's, coincident with cattle use of much of the range. Since the 1930's, only cattle have been run in the timbered part of the Eastside, with sheep being relegated principally to non-timbered areas in the extreme eastern part of the north state. Cattle grazing will probably continue indefinitely.

Because of timber stand structure in the Eastside there has long been speculation that grazing results might be linked to the abundance of young growth now present. The basic premise is that grazing created holes in the original low vegetation layer and greatly reduced the vigor of that plant layer. Then a succession of pine seed crops, and seasons with adequate soil moisture, combined to allow the seedling survival which has created the often over-dense stands of young trees we find today. As far as I know, this remains speculation.

EARLY TIMBER USE

Until the early part of this century few mills operated in the Eastside, for good reasons: population was sparse; the area was isolated and had no railroad access; and there were few rivers or creeks to power the mills.

Then, before the first World War, an era of large mills began to tap the vast timber resource. Mills were dependent on rail transportation to get their products to market. Southern Pacific operated a line from Reno to Susanville and Westwood, and extended it northward to Alturas and Klamath Falls and beyond, with a branch from Alturas to Lakeview. The McCloud River Railroad provided a tie from S.P. mainline at Mt. Shasta eastward to the Great Northern, and built many other miles of rails. By 1931,

Western Pacific completed its line from Keddie (on the Feather River) through Westwood to Nubieber, where it joined Great Northern - with a tie to Southern Pacific, nominally at Westwood Junction. And since all the early large mills used railroad logging methods, their own lines tied in with common carrier lines, usually near mill sites.

Some of those early large mills should be mentioned, but the list is nowhere near comprehensive: Graegle; Tarter, Webster and Johnson; Fruit Growers Supply; Red River (which could saw a million feet a day!); Lassen Lumber and Box; Paul Bunyan; Shaw; McCloud River; Longbell; those were some of the giants.

That era was characterized by a heavy culling of stands by size, quality, and species - on both private and public lands. Volume recovery was sometimes low; in some cases only the first 32-foot log was utilized, while most trees had five or six 16-foot logs. Some mills cut pine only, others used some white fir; there was some resistance to incense cedar even in the late 1940's.

When stands were heavily culled, those largest mills began to close down; there was just not enough large timber left to run them economically. Many of those mills closed during the period 1945 to 1960.

Results of the first heavy logging were variable. Stand structure and logging method and care were the chief determinants. Some places looked good after logging, and made rapid recovery. Other places were practically demolished. Currently, a common stand structure consists of unstocked areas separating over-dense groups of young trees.

RESEARCH AND PILOT PLANT TESTING AT BLACKS MOUNTAIN EXPERIMENTAL FOREST

During the early 1930's, Duncan Dunning concluded that most effort going into forest management consisted of sharpening the definition of "the marginal tree," and simply afforded more efficient means of culling stands. Silviculture was scarcely in the picture. As a result of Dunning's insights and insistence, several experimen-

tal forests were established and operated by the California Forest Experiment Station, now known as the Pacific Southwest Forest and Range Experiment Station. By far the most active of the experimental forests was that at Blacks Mountain, in which 10,000 acres was withdrawn from Lassen National Forest in 1934. The Great Depression was much in evidence by that time, but it proved to be an auspicious time for forestry research because the federal government was looking for ways to keep people busy on public projects.

But even more important was the coming together of a number of good ideas which rapidly bore sweet fruit. I will briefly list some of the results of activity at the Blacks Mountain Experimental Forest. Details are mostly covered in the forestry and entomology literature.

1. In 1933 and 1934 a 100 percent inventory of all trees over 3.5 inches d.b.h. was made by 2.5 acre blocks on all 10,000 acres. Simultaneously a vegetation type map was made. Data were used by Austin A. Hasel to prepare several papers on sampling.
2. Cooperating entomologists had been developing a risk-rating system of recognizing live pines susceptible to bark beetle-caused mortality; a severe epidemic was in progress. Removal of high risk trees by logging became known as the sanitation-salvage system. Crucial testing of risk-rating and sanitation-salvage logging began at Blacks Mountain in 1937. Insect-caused losses of over 200 b.f. per acre per year were cut by 80 percent through such treatment. It has been estimated that 3 to 5 million acres may have been processed by sanitation-salvage logging. Ken Salman and Jack Bongberg are credited with the ultimate development of the risk-rating system, but Paul Keen, Charlie Eaton and Ralph Hall made significant contributions.
3. Important contributions to Western logging methods included some "firsts":
 - a. The 42 miles of roads on the 10,000-acre Experimental Forest were the first designed and layed out for a large area exclusively for truck hauling of logs (mid-1930's).

- b. With its own equipment, and eventually with its own crews, the Experiment Station conducted its own logging from 1937 to 1960 on a scale not tried elsewhere by the Forest Service.
 - c. Experimentation and trials extending through several years led to the design and construction in 1943 of the first unguyed, rapidly portable log loader for handling overmature pine timber. This loader was the key to the success of "light salvage cutting," which revolutionized subsequent logging practice.
 - d. "Light salvage cutting" of about 2,500 board feet per acre was shown by a study to be no more expensive than heavier cutting. Previously, about 10,000 board feet per acre was thought to be about the minimum volume for profit-making. (Many eastside stands contained about 18,000 b.f. per acre.)
 - e. Progressive trials of tractor-skidding methods demonstrated that care used to save existing young trees, kept to a minimum the area needing expensive new regeneration. Beginning in the early 1950's, this affected U.S.D.A. sale contract terms.
4. Four cutting methods are being compared by means of four 20-acre plots replicated each year from 1938 to 1947. All trees more than 11.5 inches in diameter were described in detail, measured, and mapped. Periodic remeasurements were continued for 20 years, forming a vast body of statistical data. Analysis is under way. Biometricians used some of the data in their inimitable way at least 20 years ago.
 5. The concept of unit area control (UAC) in forest management, developed by Duncan Dunning and refined principally by William E. Hallin, received most of its early and continued testing at Blacks Mountain. Although accepted for use throughout much of the Forest Service's California Region, it was difficult to teach under administrative conditions of the 1950's and 1960's. As a result, it gradually became bureaucratized and bastardized to the point of nonrecognition in the field. Dunning and his UAC concept both "deserved better than they got".
 6. Methods of natural and artificial regeneration were tested under "eastside" conditions. Natural regeneration was successful only rarely. Careful planting with certain nursery stocks got reliable results every year, beginning in 1952.
 7. The influence of soil surface conditions, and of low vegetation and established trees, on regeneration survival and growth were reported.
 8. Project-type studies of thinning saplings, and of pruning poles, disclosed costs and satisfactory methodology.
 9. A few prescribed burns for fuel hazard reduction: created nearly as much new fuel (killed trees) as they consumed; were controllable only following expensive preliminary work; and judged to be unsuitable for use under current condition of the eastside forest type.
 10. The Experimental Forest was used extensively as a demonstration area for private and public agency land managers, foreign visitors, and college and university students and instructors.
 11. The Experimental Forest served as a training ground for Civilian Conservation Corps members, and new and old experienced professional people who participated in forestry, entomology, and pathology studies and projects. A recent search located 56 studies of all descriptions which used Blacks Mountain data in whole or in part. (All are reported in the pending Blacks Mountain Experimental Forest History.)
- Bill Oliver has done most of the Experiment Station's research on young tree spacing and growth in the Eastside. Plot locations were other than at Blacks Mountain.
- Jim Barrett, with the Bend, Oregon laboratory of the Pacific Northwest Forest and Range Experiment Station, has reported important research relevant to the Eastside - including results of thinning pine stands.
- Getting back to logging again, I think it worth mentioning that Red River Lumber Company at Westwood developed the first logging arches using Athey truss wheels, and was the first to experiment with a diesel engine in a logging tractor. And for those of you who never saw

or rode on them: main truck roads built and maintained by Fruit Growers Supply Company were the ultimate in freeways. The grandest of all ran from Harvey Mountain to Westwood - about 30 miles - and allowed two-way traffic of 12- and 14-foot bunk off-hiway trucks at 55 miles an hour. Our logging crew once put over 22,000 board feet aboard one of those trucks, and it blew only three tires by the time it got into Westwood. Fruit Growers' drivers never again told our crew to "wood 'er down"! And that's only part of the story!

THE PAST TWENTY OR THIRTY YEARS

During the period 1945-1960 many large mills closed. Private and public forests had become heavily culled of prime timber. New smaller mills replaced some on the same mill sites. Some new mills were built especially to handle small logs. All the new mills had equipment more refined than the older ones. Whether or not all the present mills will continue to operate for a long period now depends more than ever on the potential timber growth rate in the Eastside. If there is too much installed mill capacity, the game of "last man out" will have an obvious conclusion.

As the large mills closed down, so did most logging camps. Although many camps had had facilities for some loggers' families, all had been especially set up for single men. In those earlier times, you either did your job or were sent down the road. So logging skills were as much a matter of necessity as of pride. Yet it is well known that many of the single men who worked those camps in the summers were social misfits of one kind or another - black sheep of their families, alcoholics, or unusual personalities, to say the least. Life was pretty tough for them: a more or less sober summer of hard work, a week or two of high living in town in early winter, and the rest of the winter sleeping under bridges and maybe hanging around "Two Street" in Sacramento, where winters were not cold like the Eastside. Yet they looked after themselves, often by bumming from each other. In those times, foresters in private employ were mighty scarce, so there was little concern for or direction of woods activities along lines we have been growing accustomed to.

Not many of those old lumber Johns

worked beyond 1955 or 1960. Soon after World War II younger men began woods work. Many had families and preferred to be home nights. These men had a little more stake in their jobs than did some of their predecessors, and many of them had far more education. In addition, far more foresters were influencing logging operations on private and public land. From the late 1950's until about 1970, we found it easier to get a good logging job done. Men were willing.

Then in the early 1970's our great social planners made all kinds of handouts and benefits so easy to get, that at least around Lassen County, crews were hard to hire and hold. Few men wanted to sweat and eat dust when they could watch television and still eat by showing up at the proper time at the "slave market" or welfare office. I haven't had direct contacts with logging crews for about 10 years, so will break this off here.

Machinery in the woods has, in some cases, decreased in size, but has certainly increased in cost. Wheeled tractors or skidders have become common, where the "eight and an arch" were standards previously. I can say only one good thing for the rubber-tired front end log loaders used so widely now: they reduce the number of men exposed to the hazards of a log landing. Someone else could add that they reduce total logging cost. Nevertheless, especially where they are used to sort logs, they are severely compacting soil on large landings, and especially so if the soil is damp. And where terrain permits many landings with their shoo-fly roads, more land than you might realize is essentially removed from wood production. I invite you to examine aerial photographs of such tracts and draw the obvious conclusion. The very least that can be done to correct the damage is deep ripping - say to 1-1½ or 2 feet. More could be said about this matter - but action would be better.

Attitudes toward logging procedures, and post-logging or repeated logging condition of forest tracts has always varied and sometimes changed - either through self-interest or through a version of presumed and enforced public interest. Our social concept of private land ownership has gradually changed. I think this falls within the context of a remark I saw many years ago, which stated approximately, "if you have any doubt about the ultimate owner of the land, stop paying your taxes and you'll find out quick: the state takes it back." In other words, taxes are rent on a

deed which gives you certain rights, and these are subject to change through social concepts and political action. I think no one would challenge the statement that we have witnessed also many far-reaching changes in the public concept of how public lands should be managed.

If I seem to have dealt with people more than trees in the last few paragraphs, it's because we aren't going to get any kind of forestry done for the benefit of people generally unless we can inform them and lead the way. Foresters must be more believable, than simply to create an ideological environment within which we can get the job done.

Two exercises in timber culture have taken place on Forest Service-administered lands in the Eastside: beginning in the late 1940's, pole-sized trees were pruned on many thousands of acres; and many thousands of acres were thinned, principally since 1960.

I think we could use more research in these activities, particularly in thinning procedures. First, we need to be able to make simple site evaluations so that we don't waste funds on improper sites. And then we need to know at what size or age we should stop thinning from below. Poles on some sites seem not to have responded to thinning from below. Bill Oliver is beginning to get some leads on the affect of age on thinning response.

A practice which began only a few years ago bothers me because I think there is no way to find a short term evaluation of results. It is tied directly into small sawtimber utilization. Perhaps the best way to express my concern is to ask a question. If we continue indefinitely to harvest mainly the largest trees from groups of roughly similar age, will we harm the genetic composition of stands? This assumes that we will be acquiring some natural regeneration when trees are spaced more widely than now - I think that is a possibility.

THE FUTURE

The Eastside has long been an area looked upon by many foresters as that area over the hill where trees don't grow as big or as fast as in some other places. And since most conventional wisdom points toward making

greatest investment where tree growth rates are highest, the Eastside hasn't fared well in some planning processes.

Yet there are two things that require consideration. The first is that evidence accumulates that adequate spacing of trees from their earliest years results in much better growth rates than were earlier thought possible. The other is that Eastside timber lands will probably not be withdrawn from commercial timber production as has happened on the high sites of the west slope of the Sierra Nevada. A corollary of the first consideration is that controlled spacing of trees will probably result in periodic surges of understory vegetation which could support well-based livestock enterprises of several kinds. I am thinking of cattle, sheep, and goats, the latter two animals, especially, probably closely controlled by herders. Other animals might prove to be desirable.

About 20 or 25 years ago, I read an article detailing all the activities on some large forested areas in Great Britain. It was possible to calculate from the data that, on the average, 40 acres was supporting a family. I doubt that our Eastside type will ever prove to be quite so productive, but as food and fiber become relatively more valuable with increasing population, I am sure there will be more activity here than any of us has seen in the past.