

**GYPPO LOGGING IN HUMBOLDT COUNTY:
A BOOM-BUST CYCLE ON THE CALIFORNIA FOREST FRONTIER**

by

Kenneth Frederick Farnsworth, III

A Thesis

Presented to

The Faculty of Humboldt State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

In Social Science: Geography

July, 1996

GYPPO LOGGING IN HUMBOLDT COUNTY:
A BOOM-BUST CYCLE ON THE CALIFORNIA FOREST FRONTIER

by

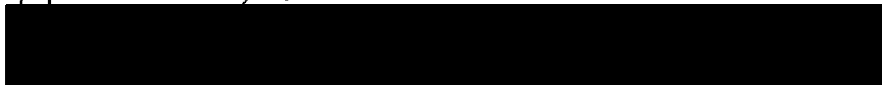
Kenneth Frederick Farnsworth, III

Approved by:



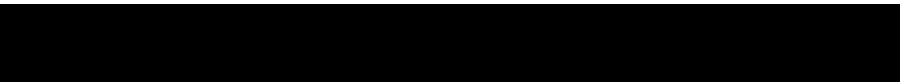
Joseph S. Leeper, Major Professor

Date



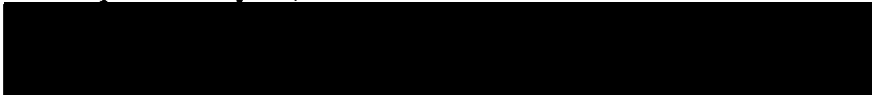
Paul W. Blank, Committee Member

Date



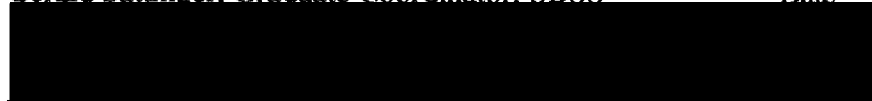
Christopher S. Haynes, Committee Member

Date



Gerald Sattinger, Graduate Coordinator, SBSS

Date



John P. Turner,
Dean for Research and Graduate Studies

Date

ABSTRACT**GYPPO LOGGING IN HUMBOLDT COUNTY:
A BOOM-BUST CYCLE ON THE CALIFORNIA FOREST FRONTIER**

by

Kenneth Frederick Farnsworth, III

Discusses the rise and decline of the *gyppo* (small contract) logging and sawmill industry in Humboldt County, California between 1945 and 1965. Historical discussion of the role of large redwood companies, and transportation systems which they used, prior to 1945. Explains the land ownership patterns, resource diffusion of the primary resource (Douglas-fir), and emerging logging technology. This allowed *gyppo* contractors to rival the production of the established industry. Conclusion: too many mills harvested excessive amounts of old-growth Douglas-fir during the 1950's. Tightening log supply situation during the 1960's and 1970's drove most *gyppo* mills out of business, and reduced the employment potential of the forest products industry. *Gyppo* logging continues to be somewhat viable, working individual contracts for large, integrated forest products companies.

ACKNOWLEDGMENTS

I would like to express my appreciation to a few people who have been influential and helpful during the construction of my thesis. First, I would like to thank my thesis committee, and especially Dr. Joseph Leeper , who first suggested the idea, and kept my spirits up when collection of material was going poorly. Thanks to Dr. Christopher Haynes, and Dr. Paul Blank, both of whom suggested important ideas and helped keep the idea in focus. All have shown remarkable patience.

I would also like to thank the staff at the Humboldt Room, Erich Schimps in particular, who helped to find the right facts and figures, supporting documentation for the maps, and who knew when to say that there wasn't any information available.

I would like to thank Rod Sandretto at the State EDD office in Eureka for providing information concerning employment within the industry, helpful definitions about how the data is organized, and important contacts to other sources of information.

I would like to thank Kim Rodrigues at the California Agricultural Extension Service for providing access to numerous brochures and sources of information published by the UC Extension Service and County of Humboldt, many of which were either out of print or unpublished.

Very special thanks to the Retired Loggers Group at the Humboldt Senior Resource Center in Eureka, and especially Carl Fairfield, whom coordinates the group for the Center and videotapes the meetings. To Ray Branscomb, J.R. Mitchell, Pete Peterson, Ben Young, Lewis Thomas, Richard Dresser, Bud Jernigan, Ron Koniche, Victor Bertain, Mel Byrd, Katie Boyle, Benny Schultz, and everyone else who participated, my most sincere thanks.

Special thanks also to Frank Schmidt, a friend and retired forester who helped enormously with the location of the mills and provided insights into the “big picture.”

And most special thanks to my mother, whose financial and emotional support during the writing of this study made it all possible.

TABLE OF CONTENTS

ABSTRACT.....	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF TABLES.....	viii
LIST OF ILLUSTRATIONS.....	ix
CHAPTER	
1. INTRODUCTION.....	1
2. ANTECEDENTS TO GYPPO LOGGING: THE REDWOOD-RAILROAD ERA.....	4
Introduction to Chapter Two	
Development of Early Lumber Mills	
Early Log Transportation	
The Advent of Steam	
Differences Between Railroad and Truck Logging(1930's)	
Attempts At Monopoly	
Humboldt County Railroads and the NWP	
The Arcata and Mad River Railroad (A&MRRR)	
The Vance/Hammond Line	
The Pacific Lumber Company Line	
Struggles Between Southern Pacific and Santa Fe	
The Conclusion of the Redwood Era	

3. “BOOM”: THE SCRAMBLE FOR OLD GROWTH FIR.....	49
An Emerging Industry	
The National Housing Boom	
The Shift to Douglas-fir	
Land Ownership Patterns and Douglas-fir	
Fir and Mill Distribution- 1942	
Changing Patterns of the Mills 1942-1952	
Changes in Technology	
The Chain Saw	
The Crawler Tractor	
Continuation of the Large Redwood Companies	
The Advent of Plywood	
The Problems With “Underutilization” and Teepee Burners	
Maximum Utilization As Expressed On the Landscape	
Summary	
4. “BUST”: OVEREXPLOITATION AND COLLAPSE.....	90
Employment	
Problems With Log Supply	
Local Government’s Role in the Boom-Bust Cycle	
Conclusion	
BIBLIOGRAPHY.....	103

LIST OF TABLES

Table	
1	Geographic distribution of redwood and Douglas-fir lumber shipments.....55
2	Private old-growth forest by type of ownership, redwood and fir zones, 1948.....56
3	Percent of forest land in private ownerships of various size, 1948.....56
4	Leading Lumber Producers in Humboldt County.....62
5	Number of Active Sawmills a Lumber Production by Species and Mills Size, Humboldt County, 1951.....63

LIST OF ILLUSTRATIONS

Figure

1	Arcata Bottom.....	9
2	Arcata Bottom (enlargement of Figure 1).....	10
3	Skid Road Using Oxen.....	13
4	Skid Road Using a Steam Donkey.....	16
5	The Evolution of Steam Yarding.....	19
6	Yarder Operation.....	20
7	Yarder Operation: Ground Level.....	21
8	Railroad Logging: 1936-1941 Hammond Redwood Company.....	23
9	North of Grizzly Creek State Park; Index to Figures 10 and 11.....	25
10	Yarder Operations: Aerial View.....	27
11	Yarder Operation: Active.....	28
12	Extent of Humboldt County Railroads, 1854-1946.....	33
13	Northern Humboldt Bay Region Railroads.....	35
14	Southern Humboldt Region Railroads.....	36
15	National Housing Starts and Humboldt County Timber Production.....	51
16	Humboldt County Lumber Mills, 1942.....	59
17	Humboldt County Lumber Mills, 1952.....	60
18	Number of Timber Operators and Total Timber Harvest: Humboldt County, 1940-1977.....	65
19	Equipment That Made the "Gyppo Era" Possible.....	68

20	Medium-Sized Fir Mill with “Tepee” Incinerator.....	78
21	Proximity of “Tepee” Incinerators to Arcata High School.....	82
22	Location of Tepee Incinerators in the Humboldt Bay Area.....	83
23	“Infeed Deck” (Log Storage) and “Remanufacturing”.....	84
24	Log Pond and Sunset Avenue.....	87
25	Drying Yard and Abandoned Mills.....	88
26	Employment in Lumber and Wood Products Industry Humboldt County, 1952-1990.....	91
27	Percentage Change in Employment by Manufacturing Sector: 1956 base consonant.....	93
28	Comparision of Commercial Forest Area Available during 1947 & 1967.....	95

CHAPTER 1

INTRODUCTION

The term “gyppo,” to the uninitiated, remains a curious logging term, much like “cull” (a worthless log). But to loggers and mill operators, the term denotes “small contract” logging, a type of operation which tends to meet the demands of the moment, then disappears. Non-union in nature, gyppo operations within Humboldt County flourished from 1947 to the mid-1960’s. This thesis attempts to explain the causes for the rise, and eventual decline, of this form of the logging industry within Humboldt County.

Briefly, as a result of the post-WWII housing boom, market demand for wood products skyrocketed. As a result of this, the large standing volumes of virgin Douglas-fir (at the time, a non-utilized resource), became the focus of economic interest. The natural, physical location of this resource, and the ownership patterns associated with it, played a major role in determining the size of individual operations, and gave the gyppo industry an advantage over the established lumber companies which were extant by the late 1940’s.

In addition to market demand, the speed at which the gyppo industry developed was heavily influenced by the quick application of emerging tractor/truck logging technologies and a ready availability of labor at the end of the 1940’s. Experiments with tractor/truck logging were known to have been conducted by Hammond and Holmes-Eureka during the mid to late-1930’s. Ostensibly, these experiments were to provide both companies a means of extracting timber at a lower cost, since existing rail lines did not have to be extended to the vicinity of actual logging. As will be explained in the next chapter, direct shipment of logs from the woods to sawmill by truck was well under way by 1936,

although “hybrid” means of log transport (using both trucks and trains) continued through the 1940’s.

Unlike the redwood lumber industry which had preceded it, the gyppo industry lacked the essential forward and backward economic linkages within the Humboldt forest economy. Since operations tended to be horizontally-integrated, there was no reason for the gyppo industry to invest in backward linkages (land base), and thus, a integrated gyppo industry never developed. The volatility and transitory nature of the gyppo industry was also fueled by the sheer number of mills which were created and operated from 1947 to 1960. In spite of this, gyppo logging and milling developed as an alternative to more traditional logging and milling operations, and still remains a part of timber harvesting.

Within the highly emotional debate over forest practices of the present, some people refer to the post-war period as a thriving, glorious time when employment and the industry flourished. And in a certain sense, they are right. But many times what they fail to point out is that the conditions which played such a critical role in the development of the gyppo industry were temporary, and in many cases, are no longer applicable. As a result, by the mid-1960’s, the gyppos quickly faded from prominence within the timber industry. Larger timber operations, in many cases, possessing both forward and backward linkages into the timber economy, have evolved into highly organized, labor-efficient enterprises. Timber harvesting and milling operations have become more centralized and capital intensive as opposed to dispersed and labor intensive endeavors. Government regulation has become tighter and more codified. Small land owners, who provided the basis for much of the logging activity, either have no more merchantable timber to sell, or have sold out to medium sized firms, which, in turn, have sold to large, corporate timber companies. In short, the entire timber industry within the county has reverted to a similar state that the redwood industry exhibited before World War Two.

This is not to imply the popular notion of “small is beautiful.” As will be explained in chapters three and four, the effects of small scale mill operations upon the land have been questionable at best, and have given the local public an unrealistic expectation of the employment potential in the forest products industry. There can be no reversion to the gyppo industry of the past, because automation of the milling process has severely lessened the need for employment in the more labor intensive “remanufacturing” sector. It is this very sector of the industry which once provided the bulk of employment during the early 1950’s.

In addition, the small scale forest land ownership patterns within the county from the 1940’s through the 1960’s played a part in the premature liquidation of the resource base. The timber tax structures which were in use by the late 1940’s were simply applied to incidental owners of Douglas-fir, without regard to the economic context of the owners. By not adapting taxation to the situation, timber harvests were greatly accelerated.

This peculiar mix of market conditions, ownership, and the selective transfer of logging transport technology combined during the late 1940’s. This allowed the decentralized, horizontally-integrated gyppo operations to establish themselves within the timber economy of Humboldt county, if only for a relatively short duration.

CHAPTER 2

ANTECEDENTS TO GYPPO LOGGING: THE REDWOOD-RAILROAD ERA

Introduction To Chapter Two

In this chapter, I will discuss the organization of the timber industry within Humboldt County prior to the post-WWII gyppo period. This organization centered upon the emergence of a capital intensive, vertically integrated logging and milling process. The organization of the redwood lumber industry in Humboldt County, particularly the role of transportation networks, had a direct relevance for gyppo logging and mills. By the start of the gyppo period, the existing industry had made heavy financial commitments into felling techniques, railroad logging, and transportation to end-use markets. Besides the high operational costs, the integrated milling process also required a great amount of labor. Later, a severe, prolonged labor strike (beginning in 1946 and lasting twenty-three months) removed the major lumber companies from competition, allowing gyppo operators to gain a foothold.

The regional railroads within Humboldt County and the sea-bound shipping systems of the 1880's provided a dual purpose. These local transport systems were more than just a means to move logs and lumber around and out of the county; for those lumber companies with interlocking ownership in transportation, it appears that capital from the railroad transportation industry helped to finance logging equipment innovations and lumber mill expansions.

In contrast to the Gyppo period, the widespread use of overlapping financial interests allowed most of the major timber operations a financial means to engage from harvest all the way to marketing of the final product. By the late 1880's, larger timber

operators, such as Northern Redwood and A.B. Hammond, not only owned the resource base, they also possessed the raw material transport and milling systems. Through interlocking ownership, they even controlled the transportation equipment that delivered finished lumber products to the consumer level. However, in some instances, this reliance on transportation sector as a means of gaining working capital contributed to the demise of several companies during the Great Depression, to be explained later in this chapter regarding the C.N. Nelson company.

Development of Early Lumber Mills

The first lumber mill in Humboldt County, located at Second and M Streets in Eureka, commenced operation in September of 1850. In 1857, it was sold to repay delinquent taxes.¹ Economically, the period of the 1850's was highly unstable, and this, along with the lack of a credit economy to provide stable operating budgets during start up (i.e., payroll), prompted the failure of most early mills.² The mills were exclusively confined to cutting some of the local stands of fir, spruce, and hemlock due to the limitations of the undersized hand tools and milling equipment of the time, but by 1854, the first attempts at redwood production were seen at several of the nine mills then in operation.³ However, it was only after the appearance of improved logging and milling equipment that could effectively handle the enormous redwood logs that redwood could become a commercially available product.

¹ Lynwood Carranco, Redwood Lumber Industry, (San Marino: Golden West Books, 1982), 196.

² Howard Brett Melindy, "One Hundred Years of the Redwood Lumber Industry." (Ph.D. dissertation, Stanford University, 1952), 151.

³ Ibid., 146.

Of the fifty harbors, ports, landings, and wharves cited by Turner in Place Names of Humboldt County, thirty-eight loading facilities were located within Humboldt Bay.⁴ All the alternative ports were unsuccessful in the long term, because of 1) high maintenance costs, 2) the limited product line being shipped, and 3) hazardous exposure to the open ocean.

Nearly all the early mills were located at the edge of Humboldt Bay mainly because the bay contained the only significant port between San Francisco and Coos Bay, Oregon. The coastline of Humboldt County, with its rocky shoreline interspersed with high bluffs and wide beaches, precluded the coastal linear distribution of sawmills, unlike the “dogholes,” located along the coast of Mendocino County.[†] The notable exceptions to this distribution were the ports at Bear Harbor, Shelter Cove, Trinidad, and at the mouth of the Mattole River. In conjunction with a small railroad, the Trinidad Mill Company used a small wharf at Trinidad Head from the 1870’s until a mill fire closed out all operations there in 1886.⁵ For ten years the Mattole Lumber Company used a wharf located at the mouth of Mattole River to load tan-oak bark onto ships, starting in June of 1908.⁶ By the time of its closure, tannin, the natural derivative from tan-oak used in tanning rawhide, had largely

⁴ Dennis W. Turner, Places Names Of Humboldt County, California (Eureka, CA., By the author, Dennis Turner, 1993), 250.

[†] “Dogholes” refers to the small harbors used for shipping located along the Pacific Coast. As the moniker infers, the maneuverability into and out of these ports was extremely confining (i.e. “just enough for a dog to turn around”). Nearly all goods, crew and passengers were carried to and from the ships by high line cables which were anchored from the cliffs down to either a sea level platform, or directly to the ship.

⁵ Lynwood Carranco and Henry L. Sorensen, Steam In The Redwoods, (Caldwell, Idaho: Caxton Printers, Ltd., 1988), 80.

⁶ Ibid., 169.

collapsed due to competition from synthetic tannin. By the 1920's, the thousand-foot long wharf at Shelter Cove (which also shipped tan-bark) had also succumbed to the same fate.⁷

The development of a central port, and thus, mill operations, was confined to the bay mainly for these reasons. The absence of land transport (both locally and out of the county) guaranteed that the newly emerging port towns around the bay would function as "break-in-bulk" centers for years to come. From the 1860's to the 1880's, Arcata held the preeminence as the primary break-in bulk center. However, this lead gradually eroded as railroad development from the forest to sawmill became more widespread during the 1880's through the 1890's. In turn, this impacted the methods of shipping and location of shipping facilities. As the methods of log transport changed, this affected the location of the sawmills.

Early Log Transportation

The major limitation of all mills, whether or not they were located directly beside port facilities, was the transportation of logs. By the 1870's, the two primary methods of log transport, draft animal teams and water (using the local streams and rivers), were rapidly becoming impractical.

Initially, the enormous weight and size of the redwood logs posed problems for water transport. This method of transport was exclusively seasonal, since it could only be effective during the winter rains. Usually, the removal method entailed logging the surrounding hillsides, dragging the logs to the base of a weak earthen "splash" dam, and waiting for the winter rains to burst the dam.

Downstream, booms were constructed to capture the logs that floated by. It tended to be more wasteful than land transport in that some larger logs, or "butt cuts" (logs

⁷ Ray Raphael, Edges, (New York: Knopf, 1976; reprint, Lincoln: University of Nebraska Press, Bison Books, Inc. 1986), 169. (page references are to reprint edition).

taken from the lowest level of the tree) would permanently lodge in river or creek sediment. Also, because there was inherently less control of individual logs, breakage was more common than hauling overland.

Unlike other logging operations elsewhere in the Pacific Northwest, two factors made traditional “river logging” prohibitive for the early Humboldt County sawmills, and limited the extent of mill activity. First, there existed an absence of adequate land transport from the natural streams and rivers to the sawmills located on Humboldt Bay. Not only did the lack of land transportation affect log movement, it also denied mills the use of water power for milling operations, raising both equipment and labor costs to the sawmills. Second, the discrepancy between the location of timber, the means of getting it to the sawmill, and shipping facilities were critical factors in the introduction of railroad development.

Before the development of railroads, the “Arcata Canal” was one of the first attempts to change this natural discrepancy. Shown in Figures 1 and 2, the canal allowed logging operations to occur in the Mad River drainage and prompted commercial timber exploitation in areas farther away from tidewater. The plume of smoke visible in both figures was from a steamboat located at the landing at Big Slough (now known as Liscom Slough), the earliest known commercial port for Arcata. In the early 1870’s, substantial improvements were made to the canal, including extensive dredging and construction of a stronger log boom (to capture logs from the river).⁸ Use of the canal resumed in 1877 and continued through 1881, when flooding permanently destroyed the functionality of the log boom, and subsequent operation of the canal.⁹

⁸ Christopher S. Haynes, “The Arcata Bottoms: Flooding on a Changing Landscape,” (Master’s thesis, Humboldt State University, June, 1986), 53.

⁹ *Ibid.*, 56.

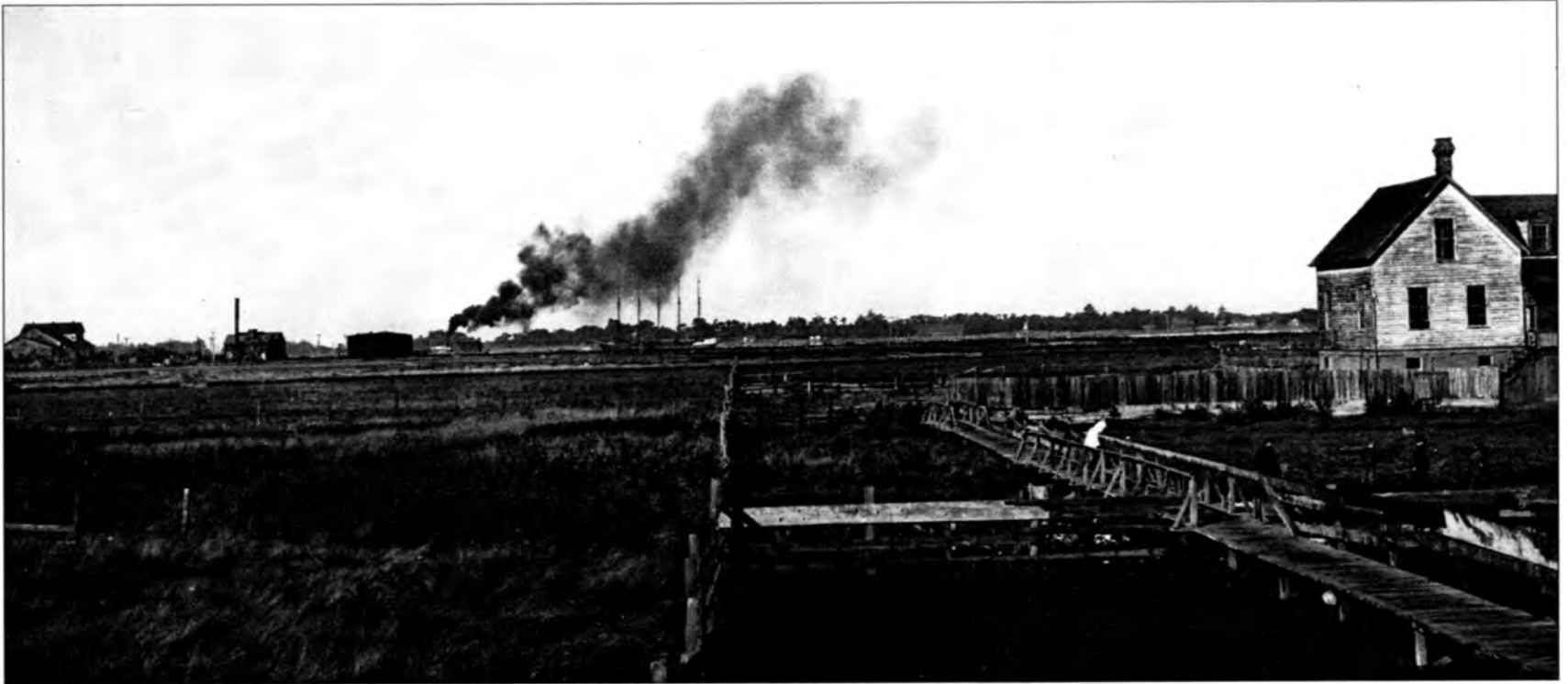


Figure 1. Arcata Bottom. (HSU Library Photograph, Humboldt County Photograph Collection, #24, Eugene Fountain Collection)

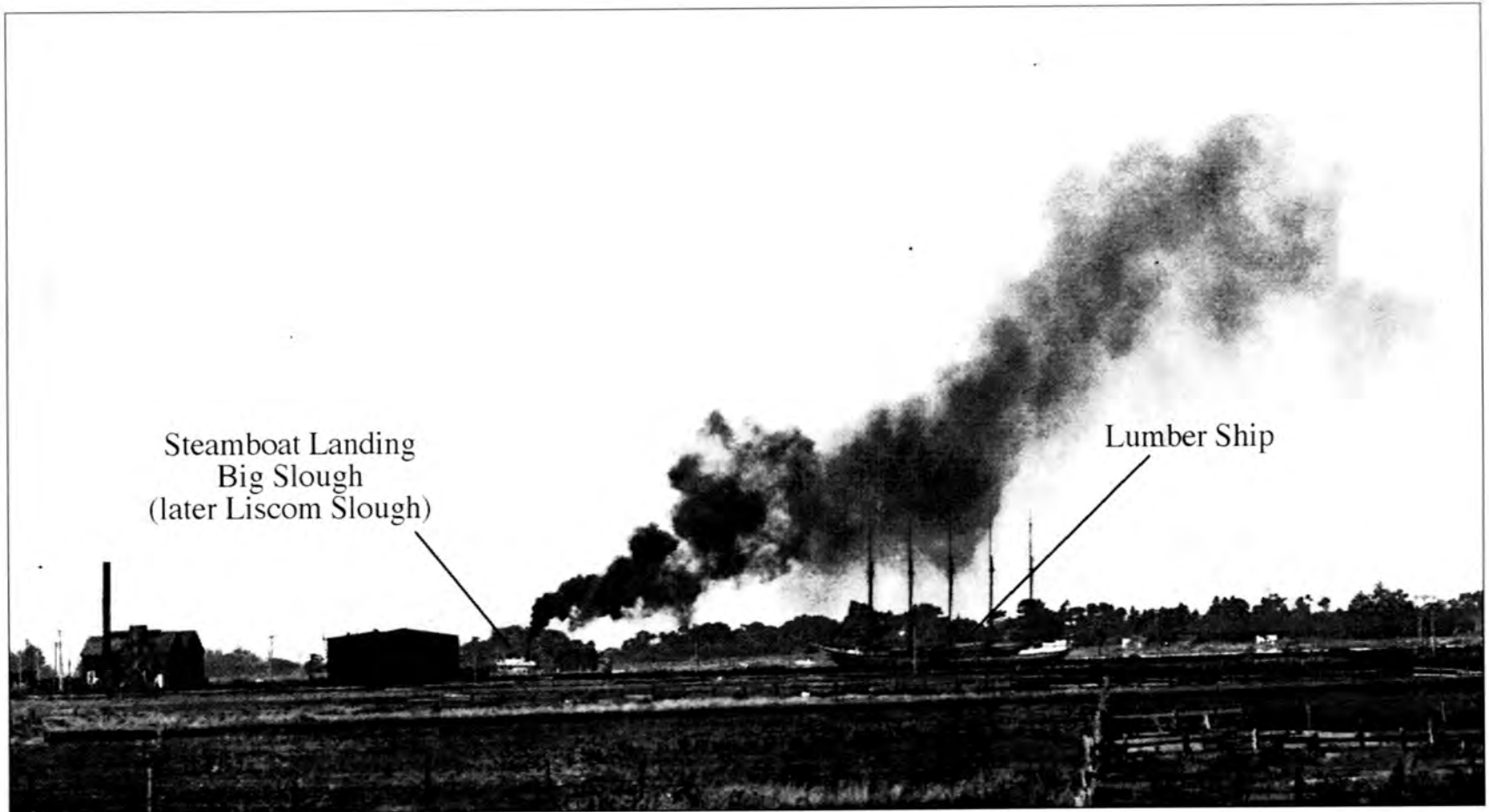


Figure 2. Arcata Bottom (enlargement of Figure 1).

A reduction in the commercial necessity of canal came in 1875, with the opening of John Vance's "Big Bonanza" mill on the north bank of the Mad River. The attendant railroad for the new mill, the Humboldt and Mad River Railroad (H&MRRR), bypassed the canal altogether, by terminating south of the canal exit on the Mad River Slough. From there, logs were rafted to the Vance mill in Eureka.¹⁰

While Melindy asserts that logs, were transported first and later, sawn lumber, Carranco reverses this sequence by stating, "In 1877 the huge logs were also transported to the slough."¹¹ The former seems to be more correct, in that extensions to the H&MRRR did not occur until 1877, and that pictures of the Vance company's Fourth of July picnic of 1886 illustrate a H&MRRR train with carloads of logs, not lumber.¹²

In either case, the volume of logs required to keep Vance's Eureka operation running was substantial (capable of producing 50,000 board feet per day in 1854).¹³ Although the Big Bonanza was operational by 1875, log shipments from Vance operations around the Mad River drainage continued through 1892, when a fire destroyed the Eureka mill.¹⁴ The early methods of transport limited the effectiveness of the mills on the bay, and ensured that logging and milling operations, especially that of redwood, would remain comparatively small until other means of transport developed.

¹⁰ Melindy, One Hundred Years..., 175.

¹¹ Carranco, Steam In The Redwoods, 33.

¹² Ibid., 35.

¹³ Melindy, One Hundred Years..., 155.

¹⁴ Ibid., 33.

The Advent of Steam

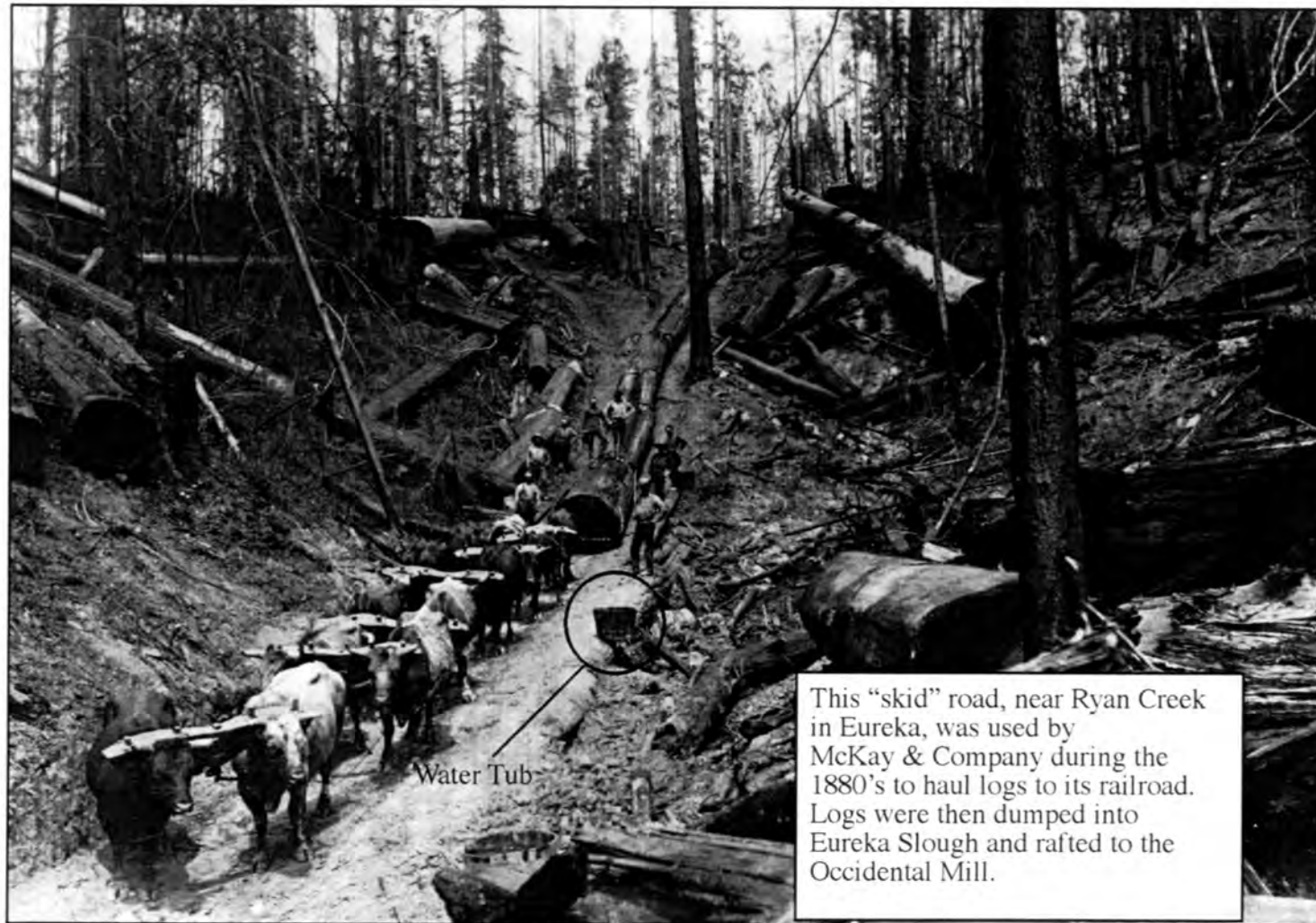
Although railroad track with steam driven engines were in place within Humboldt County by the 1870's, the process of "yarding" (or dragging logs to a staging area or "landing") was still accomplished exclusively by draft animals (usually oxen or horses). From the landing(s), a "skid road" (consisting of logs placed perpendicular to the path of travel) was constructed to meet up with the rail lines. An improvement to the skid road, the "pole road," used peeled logs for rails, over which the flanged iron wheels of the cars would be placed. Although the railroads could operate nearly year-round, a highly seasonal dependancy upon the animal teams remained until a fully mechanized system of log removal developed.

Figure 3 depicts a typical animal-powered skid road in operation. Constructed by McKay & Company, this particular road was located in the Ryan Creek area, south of Eureka. Note the tubs of water placed at regular intervals along the skid road. This was to provide the "water slinger" a ready means for lubricating the road, easing the strain on the oxen.

The "steam donkey," was the first innovation to speed up the logging process. Developed for use in logging operations by John Dolbeer in 1881, and patented in the following year, this creation was a small, portable steam engine that powered a capstan[†]. By the time of its implementation in the logging process, donkey engines were common around ports where they acted as loading devices and pile drivers, as well as being installed on steam ships as powered winches.¹⁵

[†] Capstan: a device used for hoisting weights, consisting of a spool-shaped cylinder that is rotated manually or by machine and around which a rope or cable is wound.

¹⁵ Richard H. Tooker, "Two Views of the Dolbeer Donkey," Forest History, Vol. 14, No. 1. (April, 1970), 20.



This "skid" road, near Ryan Creek in Eureka, was used by McKay & Company during the 1880's to haul logs to its railroad. Logs were then dumped into Eureka Slough and rafted to the Occidental Mill.

Figure 3. Skid Road Using Oxen. (HSU Library Photograph, Gerald Partain Collection, PAR 65).

Dolbeer's "invention" seems to have been more of an opportunistic rather than technical innovation. Even though machines that looked and operated as a steam donkey existed before the patent issue, no one had described the machinery for the specific purpose of logging. Fortunately for Dolbeer (along with all other inventors), patent protection grants not only the exclusive right to the production of a physical machine, but also covers a process in which that machine is used.

For logging operations, the implementation of the donkey engines posed a specific problem. On hilly terrain, the angle that the rope wound onto the capstan spool could greatly vary, requiring the use of numerous blocks and pulleys anchored to surrounding stumps. This excessive tackle created drag, and lessened the potential efficiency of the steam donkey. In addition, horizontally mounted capstans (as shown in the steam donkey diagram in Figure 5) would tend to pull the steam donkey to one side when tension was placed on the rope.

It appears that the only direct technical innovation of donkey engines that can be attributed to Dolbeer was to rearrange the capstan from a horizontal to a vertical position. Mounted on log skids, and usually delivered to a logging site by rail car, the steam donkey could pull itself into place at the various yarding sites. In 1883, another Dolbeer innovation was to mount capstan spools onto the front of locomotives, powered by steam from the locomotive engine. These hybrid machines became known as "gypsy" engines, and eliminated the need for maintenance of a separate donkey engine at railroad landings to load rail cars.

Despite these developments in the process of yarding, there remained a serious technical barrier to the use of the steam donkey throughout the 1880's. As the timberline moved farther away from immediate access by rail line, the skidding process was still limited to animal power. Because the manila rope being used at the time was simply not

strong or long enough, this limited yarding operations to within five hundred feet of the steam donkey. Wire rope, consisting of iron or, when available, steel, was both brittle and expensive. A bottleneck in log movement soon developed between the yarding operations of steam donkeys and the animal powered skid roads. This severely limited the efficiency of this logging system. While the railroad could operate in nearly any type of weather, the yarding and skidding process continued to be strictly limited to the summer dry season, based on both the technical limitations of the steam donkey and the continued use of draft animals in the skidding process.

This situation began to change in 1884, with the development of a larger form of the steam donkey, the “bull donkey.”¹⁶ By the 1890’s, the new Bessemer steel-making process allowed the use of steel rope, which became available in greater (and much less expensive) quantities. Combined with the immense power of the bull donkey, this meant that logs now skidded directly from the landings to the rail head, and for distances up to three miles.¹⁷ By using a separate spool, bull donkeys could return the haul line to the landings, eliminating the need for man or beast to return the haul line for the next load or “turn” of logs. Consequently, the use of draft animals in logging was largely abandoned by the late 1890’s.

Figure 4 shows how donkey engines replaced draft animals. Note that the water tubs are still present. The men riding on the plank in the foreground were referred to a “zooglers,” and were responsible for returning the haul line and rigging for each turn of logs. The plank they were standing on, called a “pig,” carried the rigging used between each log on the return trips.¹⁸

¹⁶ Carranco, Redwood Lumber Industry, 65.

¹⁷ Carranco, Steam In The Redwoods, 66.

¹⁸ Carranco, Redwood Lumber Industry, 69.



Figure 4. Skid Road Using a Steam Donkey.
(HSU Library Photograph, Gerald Partain Collection, PAR 41)

Mechanized skidding eliminated animals from the skidding process. This lowered the cost to extract timber, but only for those who had cash to buy the machines. Note the continued use of water tubs.

The use of bull donkeys and wire rope was to have another important effect upon the logging industry. It allowed rail lines known as “inclines” to be constructed, with grades[†] of up to fifty and sixty percent. Inclines are extremely steep grades of railroad track, unserviceable by locomotives (under their own power). Loaded rail cars (and often, locomotives) were assisted in their ascent or decent of these grades by bull donkeys, located at the top of the inclines. Since fewer bridges and trestles were required to negotiate the hilly terrain, this meant that more remote areas of the forest were now accessible, and at much lower cost. Companies such as Northern Redwood developed inclines to allow yarding “in an area of less than 1,000 feet, and load logs directly on the cars.”¹⁹

The progression of steam power is shown in Figure 5. With the greatly increased power that the Bull Donkey engines offered, another system of cable logging (called “slackline”) emerged during the latter half of the 1890’s. Usually, a support cable or “slack” line was attached to a series of tall (or “spar”) trees. Upon the slack line would rest a “lead block,” towed towards the yarder by the haul line. Hanging from the lead block, another series of blocks and pulleys would lift the first log in the turn slightly off the surface, preventing it from digging into the ground.

Slackline yarding soon developed into the “highlead” system, in which a load of logs would be completely suspended above the ground, an example of which is depicted in Figures 6 and 7. To a large extent, highlead systems were not employed in Humboldt County because of the weight of the redwood logs. However, the use of this method sped the construction of railroad bridges over valleys. While the location of both figures is not

[†] Grade: A percentage used to indicate steepness of slope. For example, a track that rises 20 feet in vertical elevation over 100 feet of track is said to be a “20 percent grade.”

¹⁹ Kramer A. Adams, Logging Railroads Of The West, (Superior Publishing Company, Seattle, 1961), 59.

known[†], they provide a good example of how a typical yarder operation would have appeared in the 1920's. Figure 6 shows the view of a yarder operation from above. A railroad incline is visible from between the stumps to the immediate lower-left of the yarder.

Figure 7 shows a log being towed towards the yarder in "highlead" fashion. At this point, the log would have been attached to the horizontal log boom (lower center of the picture) and placed onto a nearby flat car. The car would be attached to a stationary bull donkey, located at the top of a steep railroad incline, and lowered to a standard-grade rail line, where a steam locomotive would then haul it to the mill.

By the early 1900's, the improvements in logging technology had finally overcome the barriers to redwood log movement, albeit at extraordinary cost. To merely move logs now required an enormous investment, both in equipment and labor.

The essential equipment in slackline logging included 2,600 feet of 2-1/8 in skyline; 3,000 feet of 1-3/8 inch mainline; 6,000 feet of 1-inch haul-back line; 6,000 feet of 1/2 inch straw line; a 2,460-pound skyline high lead block, with a 42-inch sheave; a 1,540-pound mainline block, with a 36-inch sheave; 5 haul-back blocks, with 16-inch and 18-inch sheaves; and 870-pound skyline carriage, with 21 6x3-1/2-inch sheaves; 16 guy lines, 2 inches and 1-1/2 inches in diameter; tree straps; and tail tree rigging... The slackline flyer, fully equipped and ready to log, weighed about 220 tons, and moving it by rail required a 16-wheel all-steel car. Slackline crews consisted of fourteen men, all highly skilled at their jobs.²⁰

[†] In a conversation with Gerald Partain (the donor of the collection), Partain was unable to recollect whether or not these photographs were of Humboldt County origin.

²⁰ Carranco, Redwood Lumber Industry, 75-76.

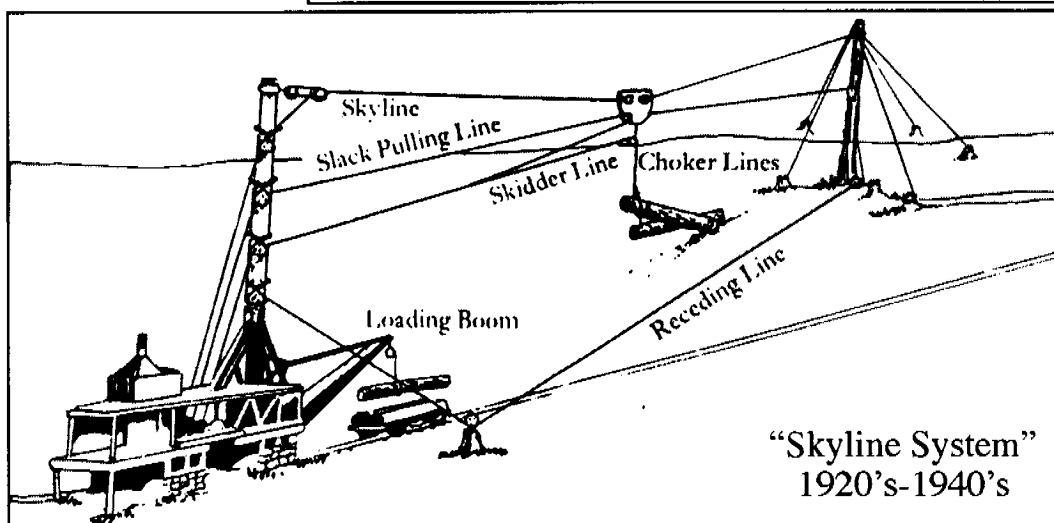
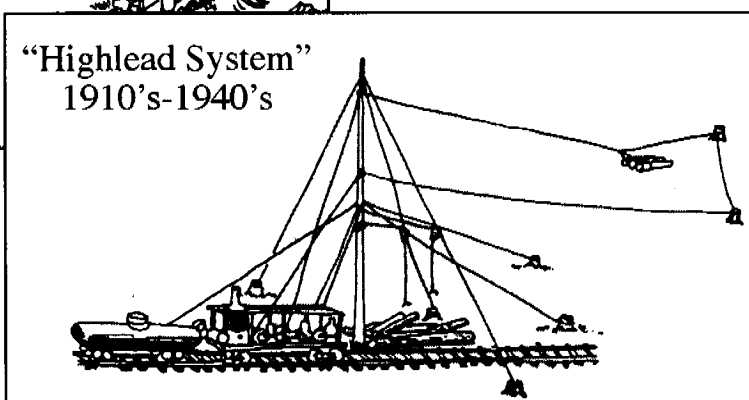
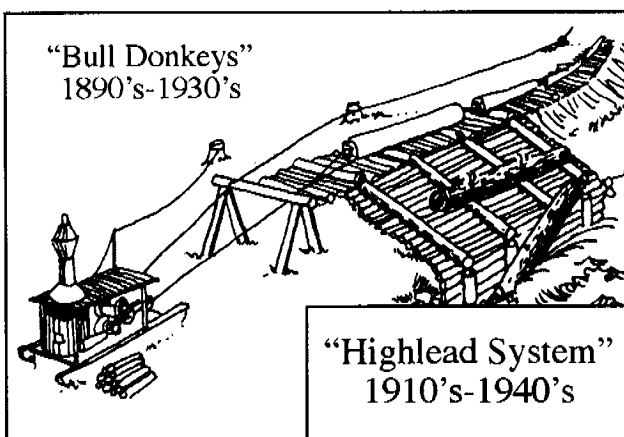
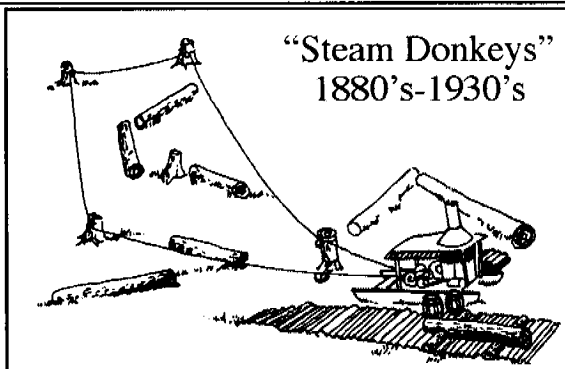
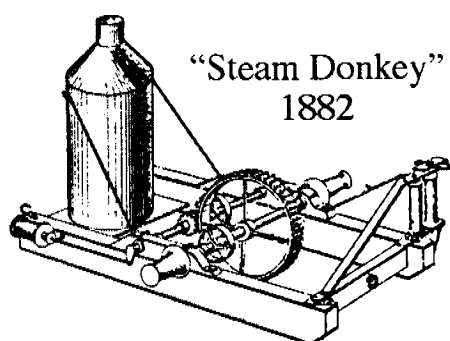
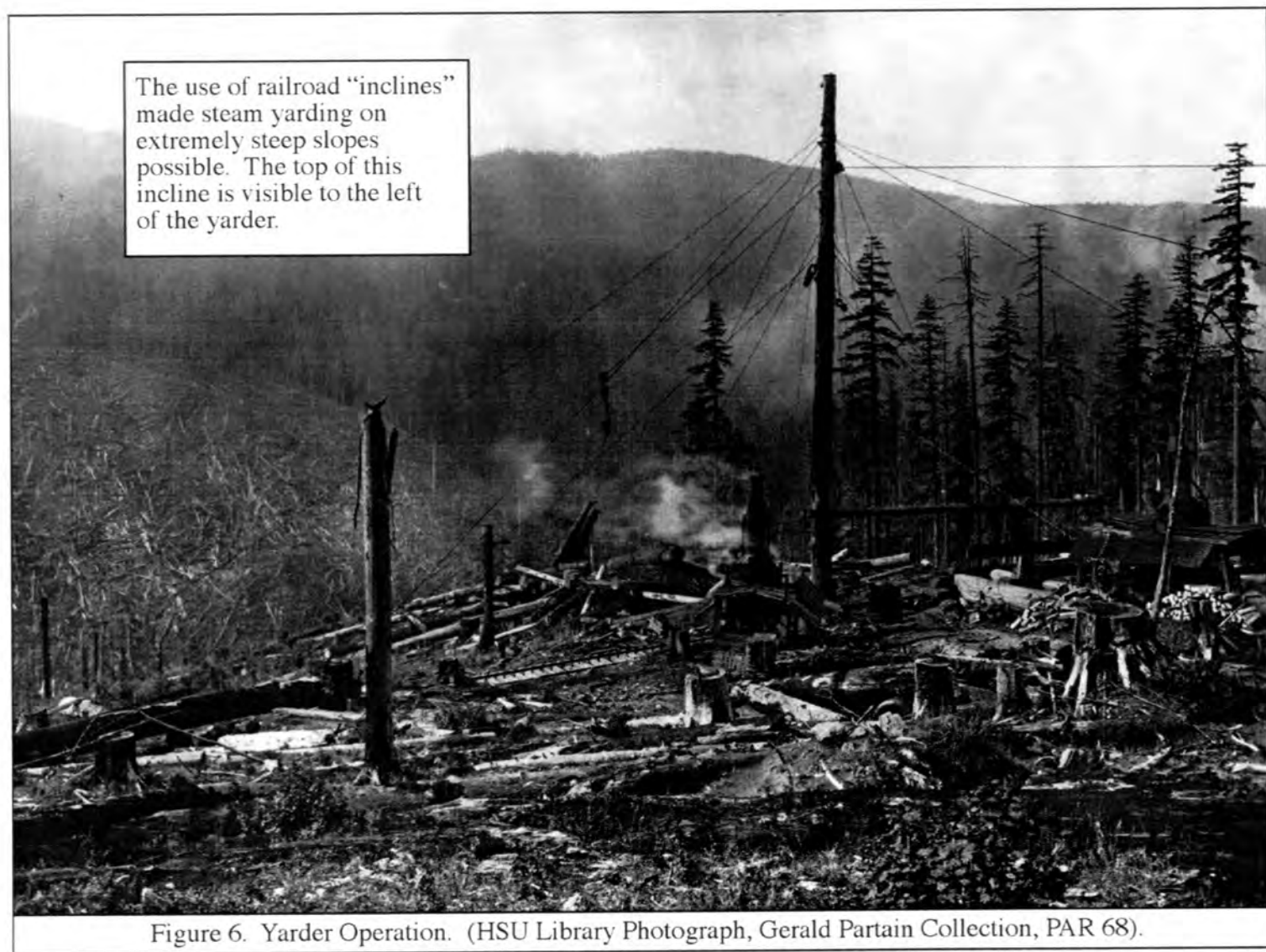


Figure 5. The Evolution of Steam Yarding. from Donald Mac Kay, The Lumberjacks, (Montreal: MacGraw-Hill Ryerson Ltd., 1978), 171-179.



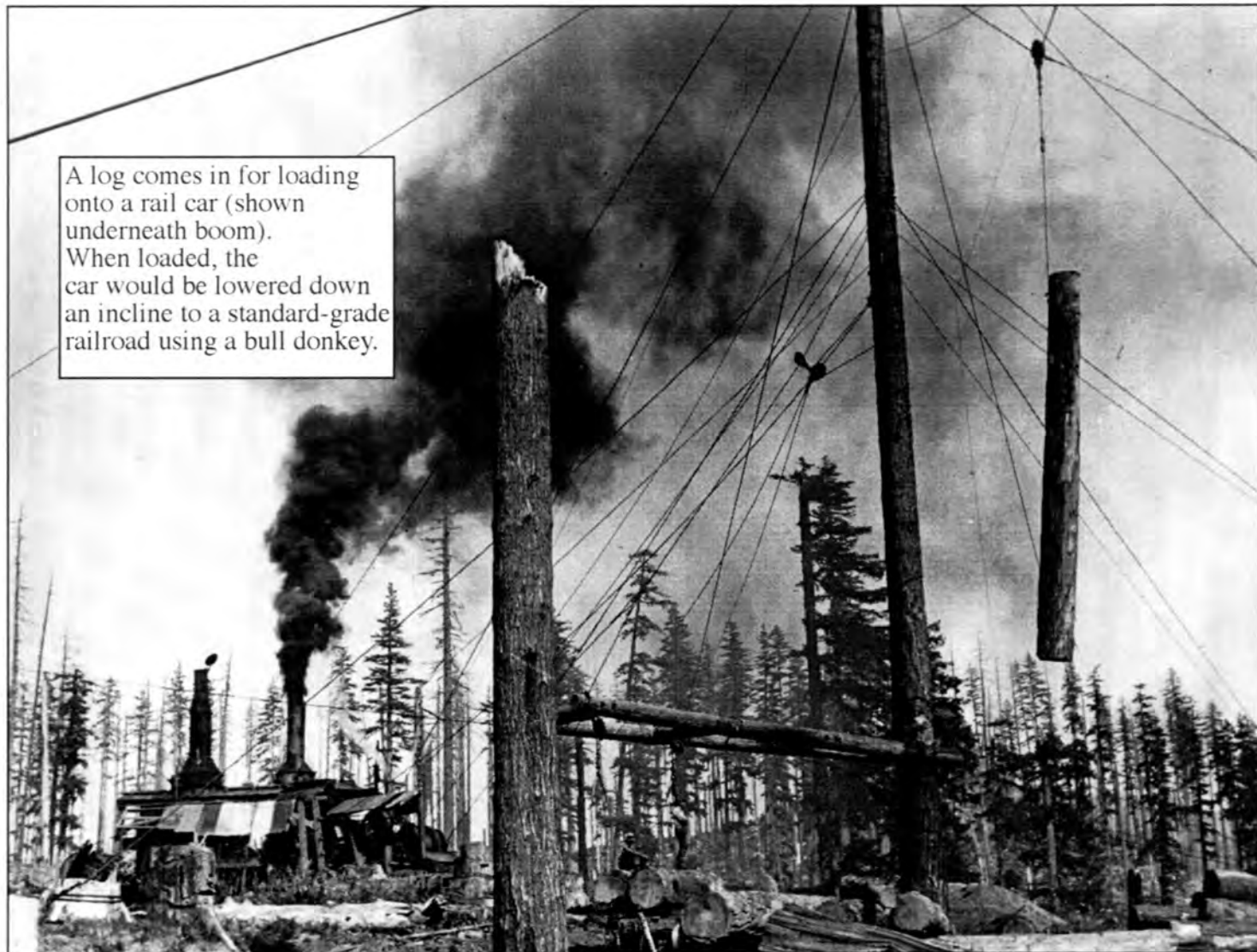


Figure 7. Yarder Operation: Ground Level. (HSU Library Photograph, Gerald Partain Collection, PAR 69).

For the major lumber companies that survived the series of depressions from the 1890's through the 1930's, the systematic use of slackline yarders, donkey engines, and railroads would remain largely unchanged until shortly after World War II. During the 1930's, diesel engines began to replace steam as a power source for the "cable yarders." Hammond Lumber Company and the Pacific Lumber Company began use of tracklaying crawler tractors during the mid to late-1930's in the yarding process, but as will be described in the next chapter, it was not until the 1940's that these machines were able to come into widespread use throughout the industry.

Differences Between Railroad and Truck Logging (1930's)

The heavy commitment to railroad logging (at least for Hammond) continued until 1945, when a forest fire destroyed most of its railroad bridges, and brought timber harvesting to a standstill on a large portion of its holdings.²¹ After this, emphasis shifted to off-highway truck logging, which brought salvaged (fire-damaged) logs to a newly constructed mill at the south end of Big Lagoon. The 1941 air photo at the center of Figure 8 is about three and one half miles north of Trinidad, and is roughly centered to the northeast of Section nine, Township Nine North, Range One East. Figure 8A shows the northern view of the A-line bridge (known as 59, but also referred to as Bridge 10), while 8B depicts the same bridge from the opposite direction.

Of particular interest in this figure, is the evidence of two types of yarding practices. First, there was a yarder located at a spur off the B-line loop. The B-line loop (top left off-center) departs from the A-line at the southern end of the bridge, extends to the northwest, returns, and passes underneath the A-line bridge. Approximately 600 feet to west of the top of this loop, there is a clearing with four to five prominent trails extending

²¹ Carranco, Steam In The Redwoods, 66.

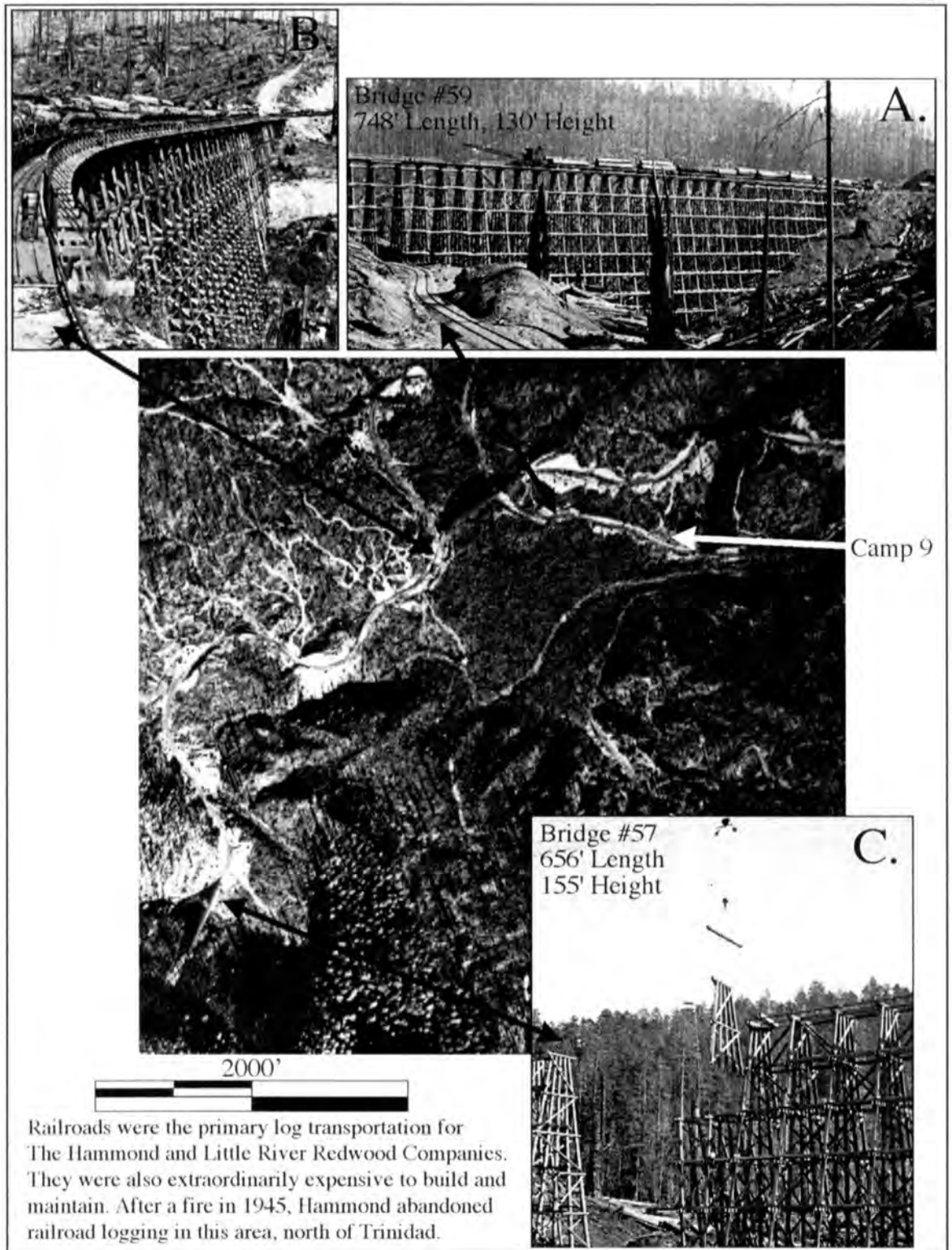


Figure 8. Railroad Logging: 1936-1941 Hammond Redwood Company.
(Airphoto: 11/25/41 Series, CVL-6B 96;
A&B: Carranco, *Steam In The Redwoods*, 73. C: *Ibid.*, 65).

radially from the center. Second, there is evidence of downhill movement of logs. This is apparent from the snake-like trails to the west of the A-line, south of the A and B-line junction. The movement of logs may have been accomplished with use of a steam donkey. More likely, a crawler tractor was used. At this time (1941), Hammond was experimenting with the use of crawler tractors in the skidding process. The steam crane, shown at the head of the line of cars in Figure 8A, loaded the logs onto the flat cars.

The effects of slackline yarding operations were particularly devastating to soil and vegetation. Although using yarders would affect soil compaction less than tractor, or “cat” logging, the effects on vegetation would be the same, due to the repetitive scraping of logs across the ground. Figures 9 through 11 show examples of effects of yarder operations, those of the Holmes-Eureka Lumber Company (which was purchased by Pacific Lumber in 1959). The general location is directly above Grizzly Creek State Park (purchased in 1943 from Holmes-Eureka). Figure 9 shows the Van Duzen river located in the bottom center, and the small white clearing at the upper right (above the inset box) is a portion of upland prairie known as Bald Jessie. As with Figure 8, this illustration is a raster computer representation of an airphoto (taken four months later, in 1942) by the U.S. Army.

Holmes-Eureka, unlike Hammond, did not have significant access to large amounts of money. As a result, it could not afford to significantly expand its railroad to its timber holdings, but adopted a hybrid, non-integrated method of moving logs from the woods to its mill in Eureka (now the present site of the Bayshore Mall).

In 1935 Holmes-Eureka bought timber from the Hammond Lumber Company at Keller Camp, north of Strongs Station on the Van Duzen River and also on Grizzly Creek. The company started using trucks in 1936 to bring logs in to the Eureka mill.

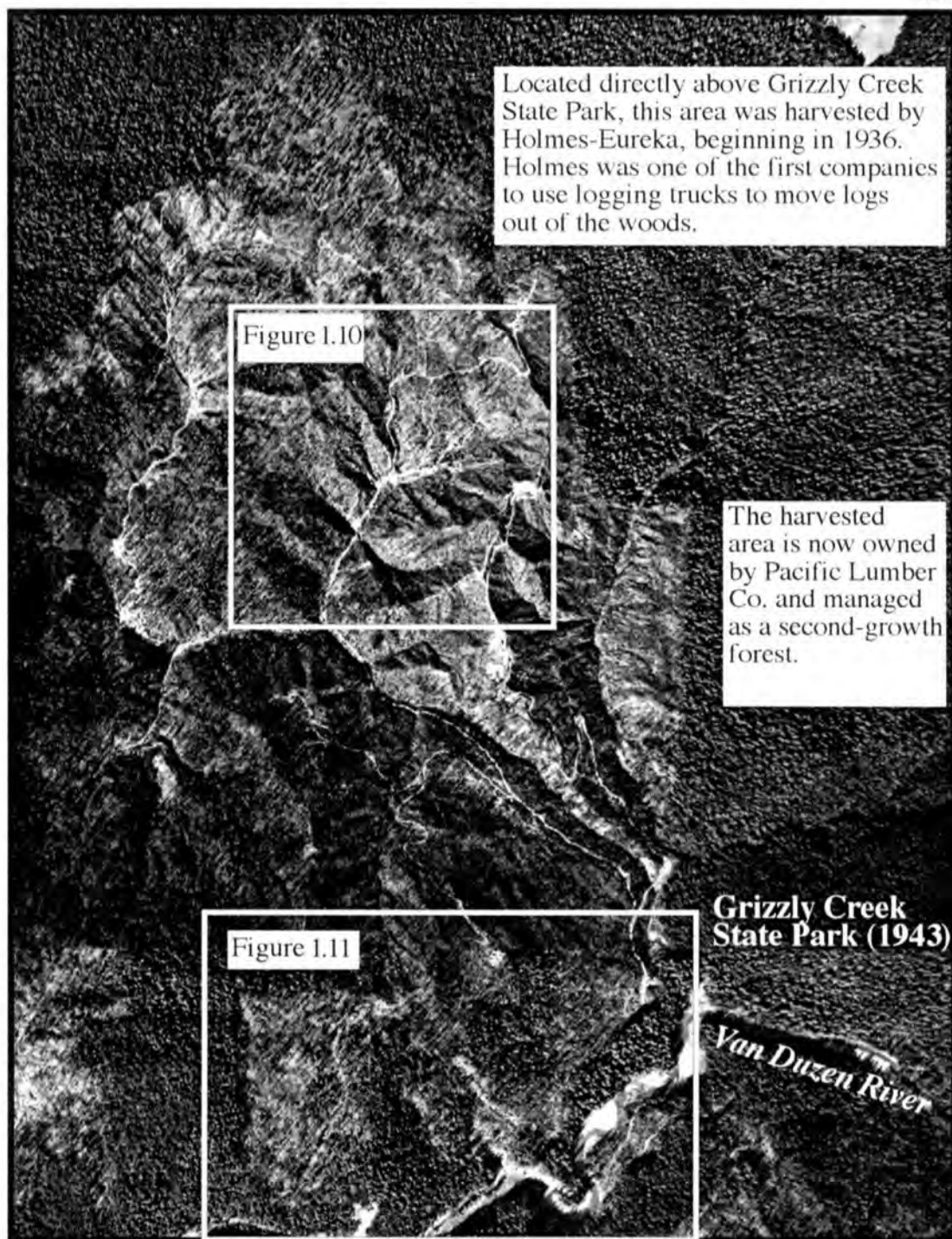


Figure 9. North of Grizzly Creek State Park; Index to Figures 10 and 11.
(3/3/42 Airphoto Series, CVL-11B 97, CVL-11B 98).

By 1936 the company had logged off its timber on Yager Creek and had begun to log farther up the Van Duzen River, bringing logs to Carlotta by truck where they were transferred to logging cars. The Holmes-Eureka Company made an agreement with the NWP to use its own locomotives within the Carlotta yard limits, for switching and making up the company's log trains.²²

Presumably, the individual yarders were delivered to this site by truck and pulled to the tops of various ridges using the haul roads prepared by crawler tractors (probably equipped with towed scrapers). The innovation of blade forward "bulldozers" during the late-1920's and early-1930's allowed the construction of haul roads, but it is not known if bulldozers were employed at this particular site.

Figure 10 shows yarder operations confined to the ridgetops, also completely denuded of vegetation due to the repetitive scraping of logs around the yarder. A large spar tree is still visible at the uppermost of the indicated yarder locations. Unlike Figure 8, an extensive network of haul roads throughout the area provides access by truck.

Figure 11 shows an active yarding operation. The bluff surrounded by the sharp bend in the Van Duzen river (at the lower left), is the present site of a vista turnout along Highway 36, and forms the western boundary of Grizzly Creek State Park. The indicated yarder is the yarding site with the highest elevation within the illustration, at 1602 feet above sea level. The large amount of logs lying on the ground to the lower left of the yarder, fallen uphill, are characteristic of this type of yarding operation. Beyond the strip of uncleared forest to the immediate lower right of the indicated yarder, there is another series of clearings visible, with no major amounts of bare earth except in narrow areas. Since these areas contain no evidence of yarder emplacement and marginal road access from above, it is assumed that logs were dragged downhill to be loaded onto trucks.

²² Ibid., 118, 119.

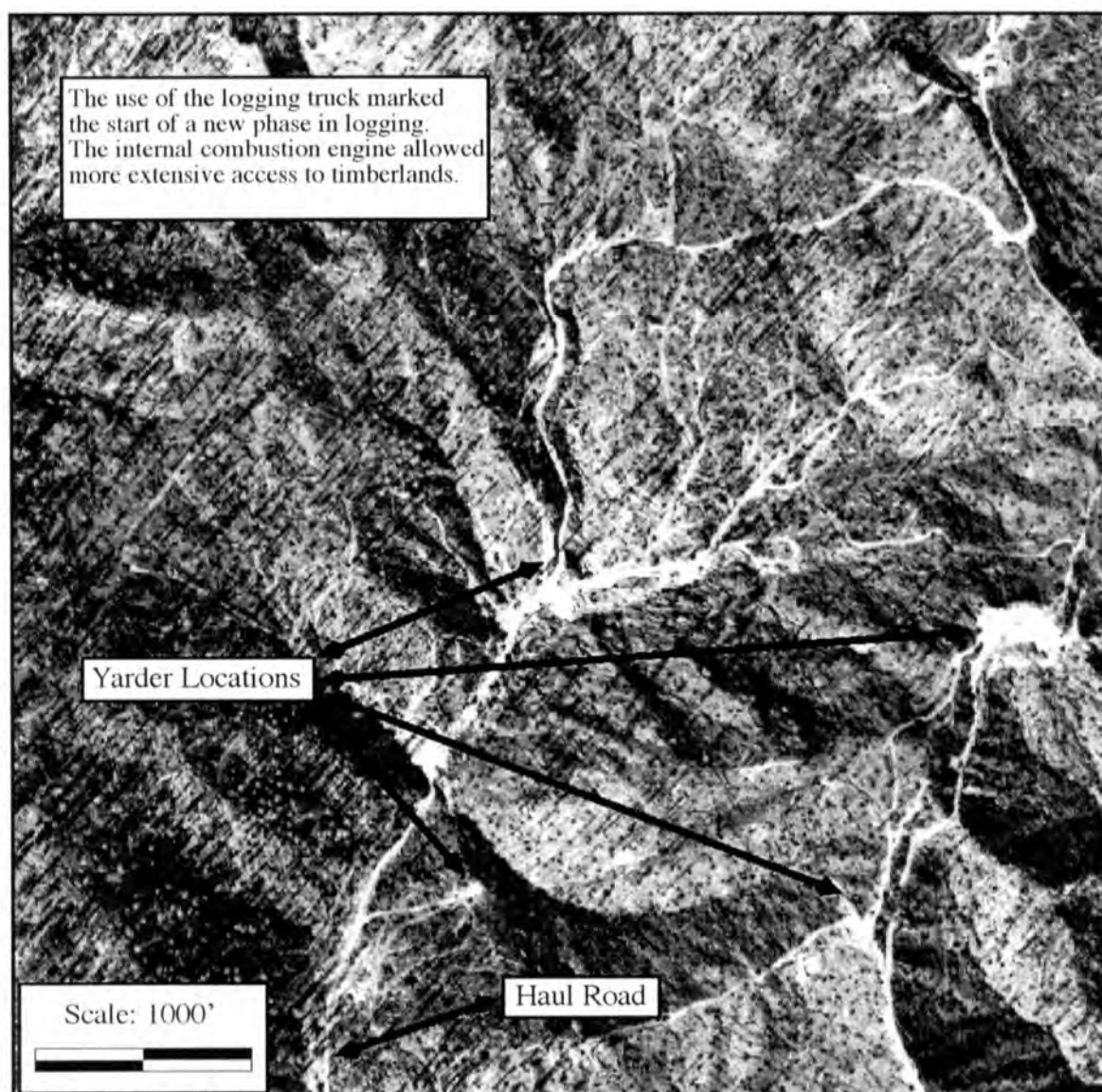


Figure 10. Yarder Operations: Aerial View.
Using steam donkeys, and perhaps crawler tractors, logs were hauled to the ridgetops, or dragged to the base of the hills. The area represented in this figure is roughly 230 hectares (568 acres).

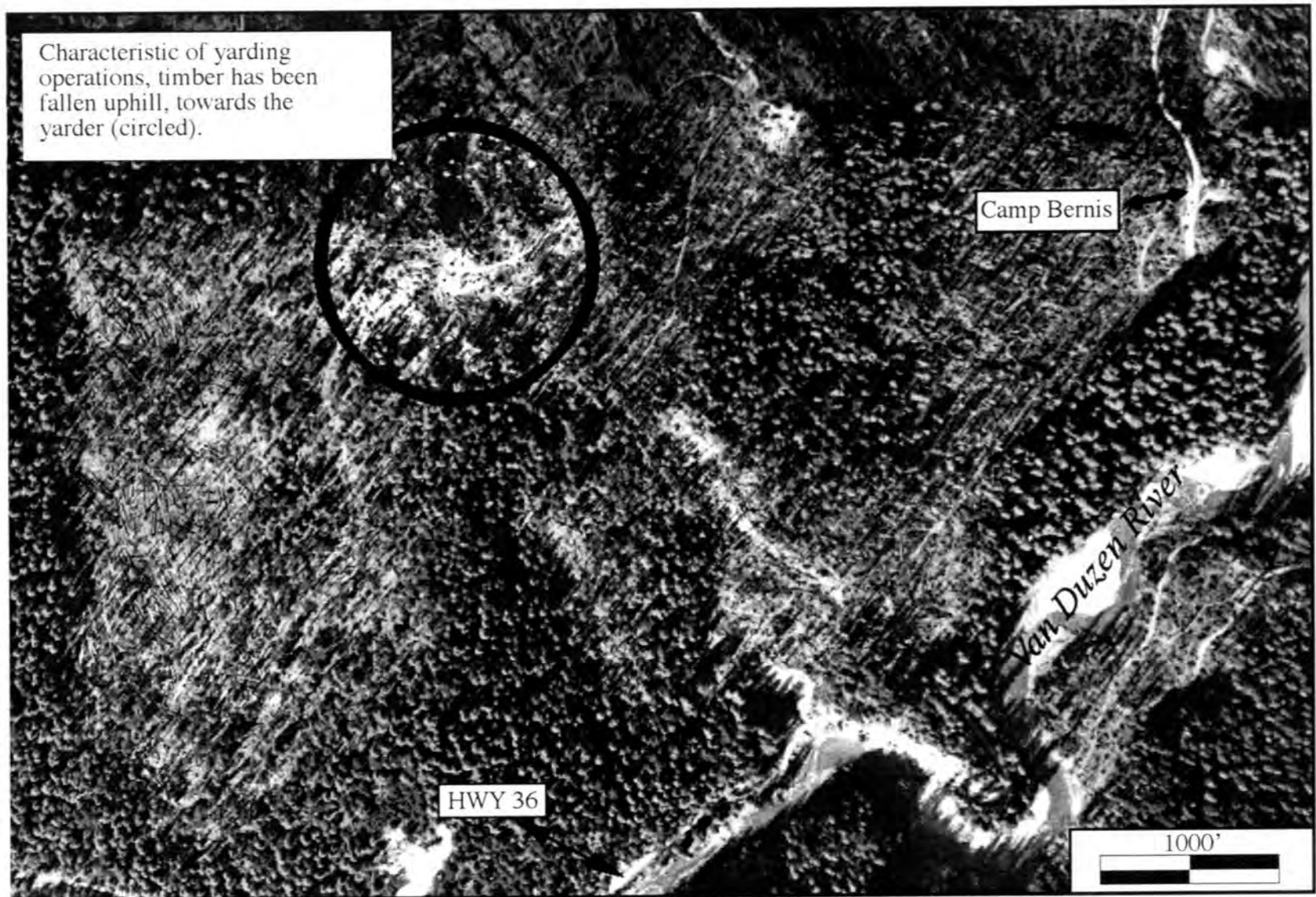


Figure 11. Yarder Operation: Active.

Attempts At Monopoly

Mill and logging technology was not the only barrier to entry into the Humboldt County lumber business. During the 1850's, the absence of rapid communication and material transportation outside the county seem to have been decisive factors in the failure of many pioneer sawmills.²³ Located far away from market, and with demands of capital intensive logging practices and large mills, an oligopoly, or even monopoly of redwood lumber producer(s) was likely to form. Dr. Brett Melindy, relates that;

In 1855, for example, it cost twenty-three dollars to cut, saw, and ship one thousand feet of lumber from Eureka to San Francisco. The only difficulty was that when they got it to San Francisco, it sold for sixteen dollars per thousand... This then drove the smaller operators of business.²⁴

Melindy describes how the proximity of redwood harvested in Sonoma county during this period contributed to "glutting" the market of redwood lumber in the San Francisco Bay Area. For mills operating at the margins of profit, there was another option; simply take the timber. The local "land grabs" of the mid and late 1800's (at least in the minds of those who perpetrated them), generally reflected the prevailing attitude towards capital elsewhere in the country, and was also occurring in elsewhere in the Pacific Northwest.

Through manipulations of the Preemption Act (1841); The Homestead Act (1862); and the Timber and Stone Act (1878), David Evans, the locally admired four-term mayor of Eureka, was able to take 64,000 acres of timberlands from the public domain and place them into the ownership of a Scottish syndicate based out of Edinburgh from 1883 to 1885. This, in combination with the purchase of other mills (with Evans had been

²³ Dr. Brett Melindy, "Misuse Of Land Laws," audio recording of speech before the Humboldt County Historical Society, March 24 1959.

²⁴ Ibid.

associated as a millwright), allowed the California Redwood Company to amass some 100,000 acres.²⁵

The acquisition process began by private timber cruisers[†], under the direction of Evans, to select prime redwood timberlands not yet surveyed by the U.S. Land Office. Under the Preemption Act, any squatter found living on these lands was given the first right to purchase the land from the government at the assigned rate of \$1.25 per acre. The construction of a small shack on this land soon followed. Transient men in Eureka were then contracted to be the “homesteaders,” and a small fee was exchanged for their services. These men would then travel to the shack, and camp there for several days. Upon their return to Eureka, an application for a “homestead” to the Land Office was submitted, even though the Homestead Act specified that a period of six months of squatting was required. When the deed from the Land Office arrived, it was “sold” to the syndicate through Evans, who was authorized to pay up to seven dollars per acre.²⁶

By the time of California Redwood’s formal incorporation, improved log transportation methods and milling systems were well in place. Redwood lumber was a firmly established product within the marketplace, and the potential profits were staggering.

The State Board of Forestry in 1885 estimated that the average yield for redwood lumber per acre to be from 28,000 to 38,000 board feet. With lumber at that time selling for about fifteen dollars per thousand, an acre producing 30,000 board feet was grossing the mill about \$450 for every \$1.25 invested.²⁷

²⁵ Carranco, Redwood Lumber Industry, 200.

[†] Timber Cruisers: Forestry personnel which estimate the board foot potential of a given piece of forest.

²⁶ Ibid., p. 146.

²⁷ Op. Cit., Melindy

The Bureau of Corporations report, released in 1913, showed that although there was no “monopoly” extant after the breakup of California Redwood, there did indeed exist an oligopoly of companies and individuals.

This report found that ninety-four percent of total coast redwood stands were situated in the four northern counties of California; Del Norte, Humboldt, Mendocino and Sonoma. They were looking for concentration of ownership of forest lands. The Bureau of Corporations found that six holders controlled forty-one percent of the standing redwood. With these six, an additional seventeen holders controlled a total of seventy-nine percent of the stands. Another group of fifty-two held only fifteen percent.

We add all these together and we find that seventy-nine companies and/or individuals; some of these were individuals; some were operating companies; some were speculating companies (timber holding companies). These seventy-nine organizations then had control of the redwood forests in Northwestern California....

...Further study by the Bureau showed an even greater concentration, for there were several examples of interlocking directorates.

And by the beginning of the twentieth century, there was no redwood acreage remaining in the public domain. And as we know, when the park system started, the land had to be purchased back from private hands.²⁸

By 1885, the numerous sales to the syndicate of “homesteads” and forest land obtained under the Timber and Stone Act was revealed by an investigation by the Land Office. Under court order, California Redwood was ordered to cease operations and disband.

However, California Redwood’s attempted monopoly of the resource base proved anachronistic. Integrated ownership of the raw material and processing was important, but it was never to prove decisive towards the ultimate success or failure of a given company. The ability to transport finished goods to market was the key.

As a result, companies such as Vance (later Hammond), Pacific Lumber, Holmes-Eureka, Dolbeer & Carson, and Northern Redwood began to cultivate enduring financial relationships within the transportation industry. These relationships allowed the major producers to efficiently move increasingly larger amounts of lumber (at lower cost) to market from 1915 through the end of WWII.

²⁸ Ibid.

Humboldt County Railroads and the NWP

The importance of these small railroads can be seen when it is pointed out that in 1887 five mills were completely dependent on the Arcata and Mad River Railroad to transport their logs and lumber. Four mills were dependent upon the Eel River and Eureka railroad; two mills depended on the Vance road; and three mills relied on the Bucksport and Elk River railroad. Here were fourteen mills relying, entirely or partially, on these railroads for their sustenance.²⁹

The railroad system of Humboldt County largely developed in response to the transportation needs of the redwood lumber industry. As a result, every rail system in Humboldt County was developed by the lumber industry (or by close subsidiaries). The sole exception was the Union Wharf and Plank Walk Company, which started as an independent transportation company, but was later sold to Northern Redwood. Figure 12 (“Extent of Humboldt County Railroads, 1854-1946”), shows the extent of Humboldt’s rail system. As the line delineating the range of coastal redwood suggests, redwood lumber production was the primary concern of railroad logging within the county.

By the late 1890's, common carriers such as the Eureka and Klamath River Railroad (E&KRRR), the Eel River and Eureka Railroad (ER&ERR), the Oregon and Eureka Railroad (O&E), and the California & Northern Railway (C&N) emerged as the basis for logging railroads and regional transportation. These companies were to consolidate into two competing factions, driven by the principle shareholders of them, Santa Fe and Southern Pacific. The local struggles among the various railroad companies within Humboldt county between 1900 and 1906 were to provide the rationale for compromise, and resulted in the construction of the Northwestern Pacific (NWP) main line, which eventually opened in 1915.

²⁹ Melindy, One Hundred Years..., 176.

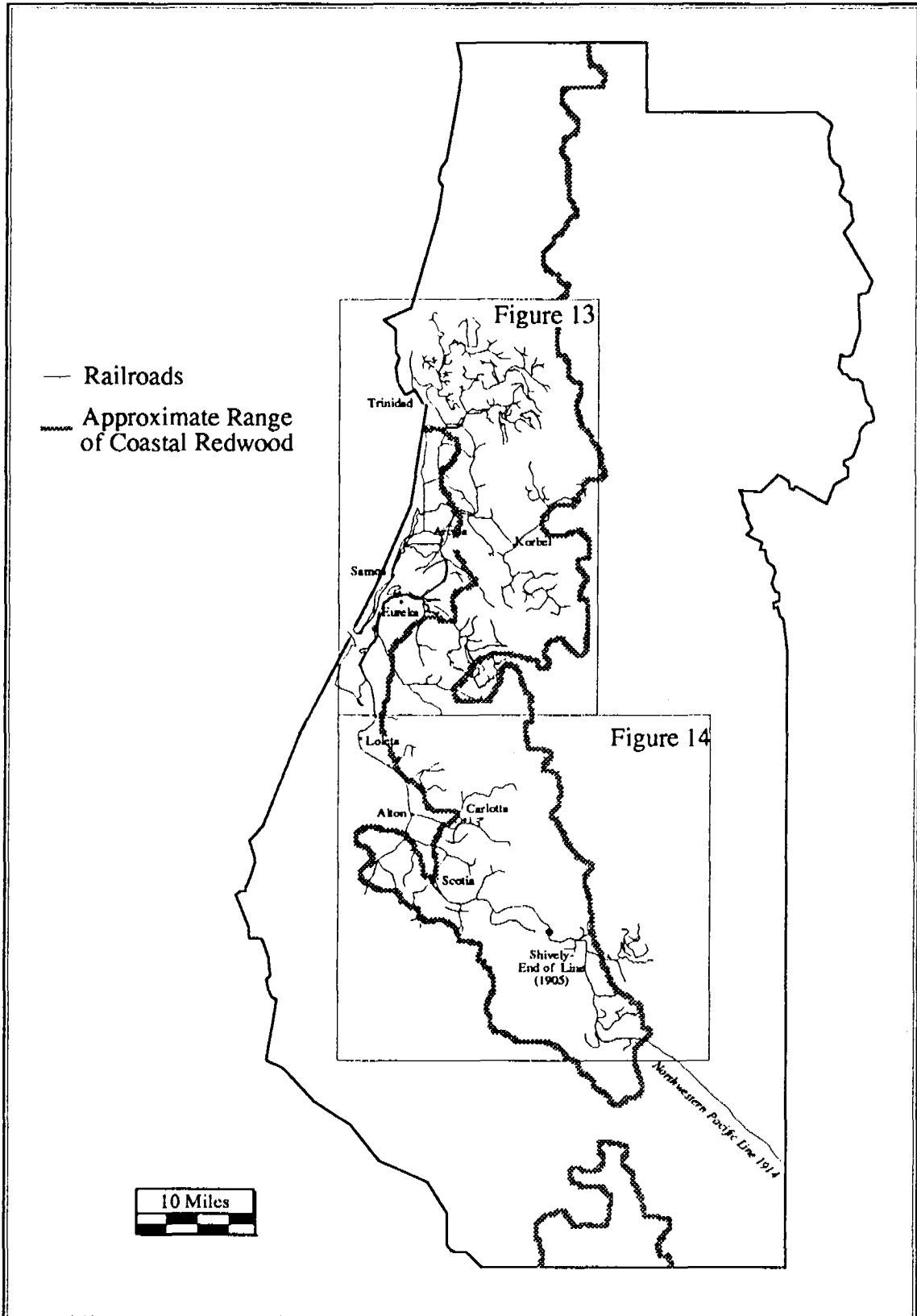


Figure 12. Extent of Humboldt County Railroads, 1854-1946

Before the opening of the NWP, the only mode of shipping was by sea. Initially, the response to water-borne shipping was the cultivation of close relationships between the local shipbuilders and the lumber companies. This relationship began in 1865, and lasted for ten years as companies such as Dolbeer and Carson and A.B. Hammond began to build and maintain their own merchant fleets.³⁰ This relationship between shipping and production became so prevalent, that by 1875, “thirty-eight percent of the total number of ships engaged in the lumber trade were owned or controlled by persons or companies in Humboldt County.”³¹ A reflection of this pattern is evident in Figure 13, which shows “common carrier” lines encircling Humboldt Bay. These lines (most of which were entirely owned subsidiaries of the lumber companies) provided access from the woods to both mills and port facilities located on the bay.

The use of the “common carrier” designation was also an attempt to mask the real ownership of the railroad lines and to gain franchise rights to key sections of trackage, as will be described later regarding to the waterfront trackage battle between the C&N and the E&KRRR.

Most of the major lumber companies that survived the turbulent period of depressions between the 1880’s and the 1920’s began with lumber and later, when finances allowed, moved into shipping. However, in the case of the Charles Nelson Steamship line, this relationship was reversed, with the vested ownership being controlled by shipping rather than production. The Nelson Company incorporated in 1867 as a shipping company, but moved into lumber production eleven years later with the purchase

³⁰ Carranco, Redwood Lumber Industry, 88.

³¹ Ibid.

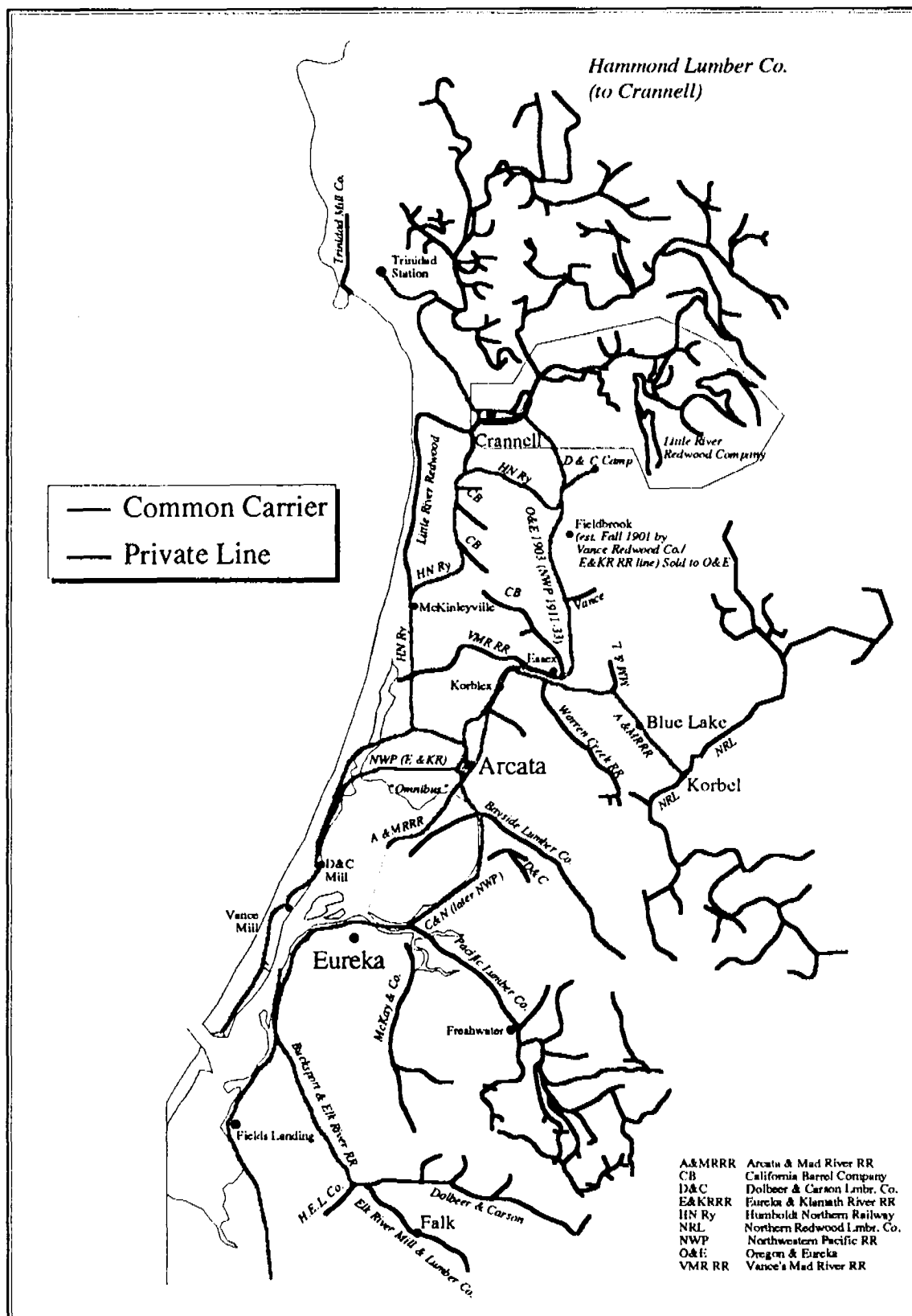


Figure 13. Northern Humboldt Bay Railroads. (Carranco, *Steam In The Redwoods*, 210-215.

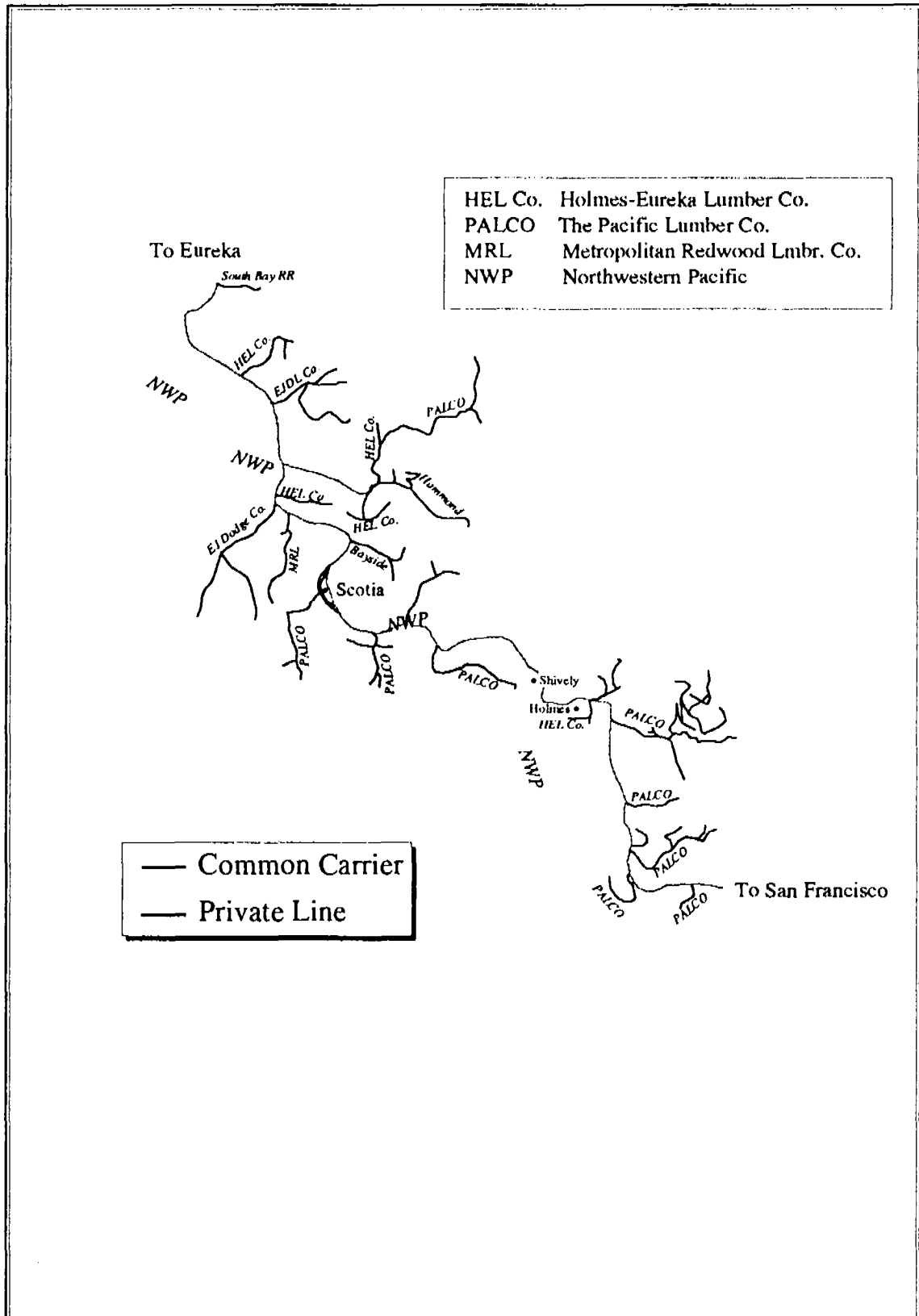


Figure 14. Southern Humboldt Bay Railroads. (Carranco, *Steam In The Redwoods*), 214-217.

of interests in mills and logging equipment in Humboldt County.³² During the 1930's, it was precisely this relationship that was to prove fatal to mills which were associated with it. The decline in the worldwide trade of lumber (upon which Nelson depended heavily), along with competition from the NWP for movement within the domestic market, drained the lumber mills of cash to finance improvements.

The high capital cost of logging itself ensured that only those companies with large amounts of capital could participate. Until the opening of the NWP main line, the financial ground rules for long-term, large scale success in redwood lumber involved: 1) adequate forest resources, with the ability to move the raw material to the mill, 2) sufficient capital for a mill, and 3) a successful marketing strategy to the lumber markets. As a result of these high financial requirements, the home offices of the major redwood companies during 1870's through the early-1900's were located in eastern states mainly to gain access to working capital, emanating then from banks in the Midwest and East Coast. This disparity in "location of incorporation" was due to the lag effect concerning the development of banking on the Pacific Coast, and was also influenced by the lingering effects of the 1890's depression.

The acquisition or dissolution of smaller mills from the latter part of the 1880's through the early 1900's also allowed the larger mills to expand. During this period, due to increasing business failures, larger companies usually bought land and/or mills in absence of the pressure of competitive bidding, making purchases and mergers all the easier. In addition, redwood was robustly profitable from the early 1900's on through the 1920's. Flush with cash, and with high demand for redwood lumber, steps were taken to improve the efficiency of the mills. Starting with Pacific Lumber in 1921, and then Dolbeer & Carson in 1922, electrification improved efficiency and lessened the hazard of mill fires

³² Ibid., 90.

caused by steam boilers.³³ By the 1920's, as a result of the increasing trade brought about by the NWP, the major companies had achieved such a dominant market share in redwood lumber that it effectively stifled competition from potential start-up mills.

Within the county, the Arcata and Mad River Railroad, the Vance/Hammond lines, and the lines used by the Pacific Lumber Company were three major systems that had emerged by 1910. These groups acquired smaller rail systems and continued to evolve into the 1930's, strengthening the transportation (and attendant marketing) positions of their owners. The emergence of the two latter systems, infused with money from Santa Fe and Southern Pacific, provided the incentive for linking Humboldt county to the rest of the U.S. by rail.

The Arcata and Mad River Railroad (A&MRRR)

The Arcata and Mad River Railroad was the first of the several railroad networks within Humboldt County. Incorporated in 1854, the Union Wharf and Plank Walk Company began to construct a wharf into Humboldt Bay to enhance the ability of Union to develop as a port³⁴. The remnants of this wharf can still be seen as a straight line of rotting pilings extending out into Humboldt Bay near the present Arcata Marsh. Before the wharf's construction, the only commercial transport from the bay was an "omnibus" service, which ran from the warehouse complex and steamboat landing on Big Slough back into Union, near J Street.³⁵ The need for supplies in the gold mining areas of the Trinity Mountains had provided the initial impetus to develop the new port. Also, the location of Union,

³³ Melindy, One Hundred Years..., 205.

³⁴ Carranco, Redwood Lumber Industry, 117.

³⁵ Carranco, Steam In The Redwoods, 3.

relative to the pack trails, gave the small community an advantage over Eureka, in that the cargo did not have to be hauled around the bay.

The UW&PW built extensions to Noah Falk's and Issac Minor's Jolly Giant Mill in 1875, and another one mile extension the Dolly Varden Mill in 1876. In 1880, Minor built his own three and one-half mile extension to the UW&PW line from his Warren Creek Mill.³⁶ Throughout the early years of operation, (1856-1884) the UW&PW almost consistently met with financial problems, and passed through a rapid series of reorganizations from the 1870's until 1884, despite the number of mills connected to the line.

By 1884, the ownership of the UW&PW, now called the Arcata Transportation Company, had passed to the Humboldt Lumber Mill Company, located in Korbelt.³⁷ From this point on, the ownership and control of the Arcata and Mad River Railroad (A&MRRR) became firmly established with a lumber company, which changed the A&MRRR from a separate transportation system into a lumber industry subsidiary.

By the late 1920's, a major portion of the stock in the Humboldt Lumber Mill Company (later the Northern Redwood Lumber Company) was held by the Charles Nelson Steamship line, a company that, by the early 1900's, had evolved into one of the world's largest lumber shipping companies.³⁸ Financial holdings in timber ownership and lumber production were nothing new for Nelson, since it also had controlling interests in the Pacific Lumber Company, the Occidental Mill (Eureka), and the Bayside Lumber Company (also of Eureka). By the early 1900's, the Nelson interests also controlled lumber mills in

³⁶ Ibid., 6.

³⁷ Ibid., 8.

³⁸ Carranco, Redwood Lumber Industry, 94.

Oregon at Coos Bay, and in Washington at Grays Harbor and Puget Sound.³⁹ By controlling a major portion of the freight hauled on the A&MRRR, the Nelson Company was assuring itself continued operations for its water-borne shipping.⁴⁰

Due to the influence of the C.N. Nelson company, the A&MRRR did not connect with the emerging NWP system until 1925, long after all the other lumber companies had done so.⁴¹ After the opening of the Northwestern Pacific main line in 1915, water-borne shipping to domestic markets became inefficient due to re-load costs associated with transferring lumber from one mode of transport (rail) to another (lumber ships). This narrowed the transportation options of the A&MRRR's main owner and customer, Northern Redwood, and hampered its integration into the emerging "club" of the NWP.

This close relationship between Northern Redwood and C.N. Steamship would prove to be the undoing of both Northern Redwood and the A&MRRR. The drop in worldwide demand for lumber products during the Great Depression forced both C.N. Steamship and Northern Redwood into trusteeship in 1936. The decline of Northern Redwood and the A&MRRR moved the companies to the periphery of Humboldt lumber production and local transportation until 1942, when reorganization, wartime orders, and a \$1,000,000 Reconstruction Finance Corporation loan brought a return to production.⁴²

³⁹ Jack McNairn and Jerry MacMullen, Ships of the Redwood Coast, (Stanford University Press, 1945), 66.

⁴⁰ Carranco, Redwood Lumber Industry, 94.

⁴¹ Carranco, Steam In The Redwoods, 16.

⁴² Lowell S. Mengel, "A History Of The Samoa Division Of Louisiana-Pacific Corporation And Its Predecessors, 1873-1973." (Master's thesis, Humboldt State University, 1974), 212, 216.

In 1956, the Simpson Timber Company bought Northern Redwood and the A&MRRR. Logging operations using the railroad were eliminated in the same year, and by 1984, Simpson announced the closure the A&MRRR as a means to move lumber out of its sawmill in Korbel.⁴³

The Vance/Hammond Line

As mentioned earlier, during 1874 and 1875, the construction of a separate, parallel railroad system along the north side of the Mad River was developed by John Vance's Big Bonanza Mill in Essex (near what is now the intersection of Fieldbrook Road and HWY. 299 at Lindsay Creek). Although predated by the Arcata and Mad River Railroad (A&MRRR) by some thirty years; unlike the A&MRRR, this line was, initially, exclusively devoted to the service of the lumber industry, shuttling logs and lumber from the Big Bonanza mill to the log dump and lumber terminal on the Mad River Slough. The creation of Vance Company transportation subsidiaries under direction of A.B. Hammond became the largest grouping of regional railroads in what was to eventually become the Northwestern Pacific Railroad (NWP).

On December 26 of 1891, John Vance transferred the H&MRRR to his nephews. Eleven days later, this line was sold to the Humboldt Bay & Trinidad Lumber & Logging Company (the holding company for the Humboldt Bay and Trinidad Railroad), which had been formed by the Vance nephews.⁴⁴ By the 1890's, this allowed the line to embark on obtaining contracts with other lumber producers, such as Dolbeer and Carson, and eventually opened for public use for both cargo and passengers.⁴⁵ With funds available to

⁴³ Carranco, Steam In The Redwoods, 30.

⁴⁴ Carranco, Steam In The Redwoods, 33.

⁴⁵ Fred A. Stindt, The Northwestern Pacific Railroad, (Redwood City, California: By the Author, 3rd Ed., 1978), 38.

the Vance-controlled line after going public, in 1892, an extension was built down the Samoa peninsula to serve a newly constructed Vance mill, built after the loss of its Eureka sawmill.⁴⁶ In 1896, the Vance Company created the E&KRRR to obtain the right of way to Klamath river, some sixty miles to the north; which was the most likely route to coastal Oregon. The E&KRRR then assumed the operations and ownership of the H&MRRR.

The sale of the Vance Lumber Company to the A.B. Hammond in 1900 greatly contributed to the growth of the Vance Company. Initially, an informal financial arrangement between Hammond and Henry Huntington provided access to monies coming from the Southern Pacific railroad, of which Huntington was now president. This gave Hammond a more secure means of financing the extraordinary costs of railroad development, as well as acquiring other lumber companies. It also placed Hammond at the forefront of a critical transportation system that was to emerge between 1900 and 1915, and would maintain that importance for the next forty years.

After the sale of the Vance Company to Hammond, William Carson, motivated by a personal grudge against Hammond, decided to distance himself from the transportation arrangements agreed upon in 1895 with Vance's E&KRRR (the Vance subsidiary that held the H&MRRR). During 1904 and 1905, Carson built the Humboldt Northern Railway to circumvent the lines leased by Hammond from the Oregon and Eureka (O&E).⁴⁷ This opened a second route from timberlands north of McKinleyville, and allowed California Barrel, Dolbeer and Carson, and in 1923, Little River Redwood to access the manufacturing complex surrounding Humboldt Bay. Two years later, the Carson interests,

⁴⁶ Carranco, Redwood Lumber Industry, 117.

⁴⁷ Carranco, Steam In The Redwoods, 49.

having logged most of its timber in the area, sold this line to the Little River Redwood Company.

The O&E was created by Huntington in 1903 to acquire the trackage of Hammond's H&MRRR and the E&KRRR to block the northward advances of Santa Fe. This limited the chances of Santa Fe acquiring the companies (both of which were common carriers). Santa Fe had formed the San Francisco and Northwestern Railway and was aggressively buying up lines associated with Pacific Lumber Company (of which it had become a major stockholder by 1902).⁴⁸

The largest expansion of the Hammond company presented itself during the Great Depression with the acquisition of the Little River Redwood Company (located in Crannell). Generally, those companies that had updated and modernized their mill and transport equipment by the early 1920's were able to pay off such improvements, and thus, were able to survive. Little River had engaged in a major expansion plan starting with the merger of Lagoon Lumber Company in 1923 (a remnant of the former California Redwood Company).⁴⁹ It also purchased the Humboldt Northern line in 1930 from Dolbeer and Carson, which allowed Little River to directly access their planing mill on the Samoa Peninsula.⁵⁰ However, by delaying these major expansions, the company was unable to recapture its improvement costs in a building materials market that had collapsed by 1930.

In January of 1931, the merger with Hammond was announced. Hammond acquired the twenty miles of logging railroad, so ambitiously developed by Little River, along with Little River's standing old-growth, south of the Big Lagoon area. Within seven

⁴⁸ Ibid., 46-47.

⁴⁹ Ibid., 58.

⁵⁰ Ibid., 58.

months after the merger announcement, the Crannell mill had ceased operations and two hundred of the five hundred men who worked there were suddenly unemployed. The rest (nearly all married men) were either transferred to Hammond's sawmill in Samoa, or given jobs in the woods.⁵¹

Throughout the period from 1900 to 1905, Hammond and Southern Pacific were attempting to fulfill the vision of the E&KRRR's road to Portland by buying rail lines north of the bay. However, Santa Fe was equally busy negotiating with lumber companies (and their railroads) to the south.

The Pacific Lumber Company Line

The Pacific Lumber Company was founded in 1869, but lacking a transport system to move either logs or lumber to Humboldt Bay, remained dormant until the early 1880's. The situation changed in 1882, when the company financially reorganized. By 1884, construction of the Eel River and Eureka Railroad (ER&ERR) from Fields Landing to Hydesville was complete, allowing the company an outlet to effectively market its lumber.⁵² Unfortunately for Pacific Lumber, the ER&ERR was also common carrier, and by 1886 became controlled by John Vance and William Carson; both of who saw Pacific Lumber's Humboldt and Eel River Railroad (H&ERRR) as a threat.⁵³

Although competing interests held major portions of stock, (Nelson Steamship, Vance/Hammond, Santa Fe) the ownership of Pacific Lumber did not readily consolidate onto any one particular shareholder. It was not until 1903 that the Murphy Family and Santa Fe began to assert control. For Santa Fe, the interest in Pacific Lumber and its

⁵¹ Ibid., 207.

⁵² Ibid., 131.

⁵³ Ibid., 135.

railroads was clear. Pacific Lumber controlled legal claims to the right-of-way along a good portion of the Eel River corridor. This corridor was the most likely route to link up with Sherwood extension of the San Francisco and Eureka railroad, over one hundred miles to the south. This effectively moved Pacific Lumber away from both C.N. Steamship, and the Southern Pacific railroad interests embodied by Hammond. Two years later, Santa Fe assumed near complete control of Pacific Lumber and gave a controlling interest in the Company to the Murphy syndicate.

Struggles Between Southern Pacific and Santa Fe

In the early morning hours of April 22, 1901, C&N crews began work on laying track towards Eureka, with the intention of gaining a monopoly on the only line that could be accommodated through the Eureka waterfront. The E&KRRR countered twenty-two days later by building its own track in the opposite direction. Oddly enough, the E&KRRR also held a franchise with the City of Eureka for the trackage.⁵⁴ The C&N, organized by Pacific Lumber and the Korbel interests (A&MRRR), appears to have been an attempt to create a local monopoly upon rail transport. Both the C&N and the E&KRRR could proceed no further, and a joint agreement to split interest in the respective lines was agreed upon in July. Ordinarily, this agreement would have allowed both companies to share the trackage, but due to the misgivings of both sides, the partnership never functioned successfully.

Although the events in the Spring and Summer of 1901 proved to be a push with Hammond's E&KRRR, C&N's attempt to create a monopoly on rail transport attracted the attention of a Southern Pacific rival, Santa Fe. Santa Fe began to purchase shares of Pacific Lumber. With control of Pacific Lumber secure by 1902, in February of 1903,

⁵⁴ Carranco, Steam In The Redwoods, 41.

Edward Ripley of Santa Fe formed the San Francisco and Northwestern Railroad (SF&NWRR). During May of 1903, SF&NWRR bought all of Pacific Lumber's roads (including the Eel River and Eureka), with the intention of organizing them into one contiguous concern.⁵⁵ Less than one year later, the California and Northern was also purchased.

Sensing that the C&N (and now, Santa Fe) could prevail in current joint agreements using the Eureka waterfront trackage with the E&KRRR, Edward Harriman and Huntington bought all of Hammond's lines in 1903 (including two Hammond lines in Oregon), organizing the O&E railroad. The O&E then promptly leased these lines back to Hammond, and the issue of a linked railway lay dormant for three more years.

By 1906, both Santa Fe and Southern Pacific Railroads were again becoming interested building a railroad to Eureka from the south. The settlement of trackage claims between the C&N and the E&KRRR was over by 1904, but it became obvious to the leadership of both Southern Pacific and Santa Fe that neither company was capable of undertaking the costs of construction, estimated to be \$150,000 per mile.⁵⁶ In November of 1906, construction of the Northwestern Pacific main line (formed under a compromise agreement between the Santa Fe and Southern Pacific lines) from Sherwood to Shively began, and was opened in November 1914.⁵⁷ The improved access that the main line provided allowed the lumber companies to lower their loading costs, as redwood lumber could proceed directly to end-use points (retail or wholesale yards).

⁵⁵ Gilbert H. Kneiss, Redwood Railways, (Howell-North, Berkeley, 1956), 130.

⁵⁶ Ibid., 133.

⁵⁷ Carranco, Redwood Lumber Industry, 139.

The Conclusion of the Redwood Era

The effects of the Depression, combined with the relentless expansion by the majors during the 1920's, resulted in large, integrated sawmills that raised the capital requirements for individuals that could have entered into the lumber trade, effectively barring their entry into the lumber business. The notable exception to this was Arcata Redwood Company, which incorporated in 1939 and built the company's first mill one mile north of Arcata.⁵⁸ The site is now occupied by the Sunset Avenue/Highway 101 interchange. Howard Libbey, the former manager of Little River (and Hobbs, Wall & Co. after the merger with Hammond), was able to pull together the financing for a new lumber company as the nation gradually emerged from the Depression, allowing Arcata Redwood to join the ranks of major lumber producers.

During the 1940's the efforts of the mills were directed towards production for wartime orders. Because these orders were in such demand, and nearly any grade of redwood was acceptable, the government orders were also extremely profitable, allowing the companies to liquidate their reserves of marginal timber. This, in conjunction with the effects of the five year long restriction on building and the rationing of materials such as steel (which was integral for mill and rail construction), hindered the formation of start-up operations.

Although the heavy government demand for wood during WWII should have stimulated the lumber companies to expand into the harvest of Douglas-fir, the railroad logging transportation system within the county was specifically designed for the harvest of redwood. At the same time, the old-growth stands of fir in Oregon and Washington were still in the process of liquidation, thus making the capital expansion into the fir resource

⁵⁸ Melindy, One Hundred Years..., 214.

within the county unprofitable. But all of this was to change immediately following World War Two.

CHAPTER THREE

“BOOM”: THE SCRAMBLE FOR OLD-GROWTH FIR

An Emerging Industry

Beginning in 1947, the complexion of the Humboldt County lumber industry began to change radically. The major factors involved in rapid increase in the number of mills and the levels of mill activity were; 1) the post-war housing boom, 2) sudden marketability of coastal Douglas-fir (*Pseudotsuga menziesii*) as a result of that boom, 3) unusual land ownership patterns where Douglas-fir occurred and, 4) rapid changes in the type (and rate of implementation) of logging technology.

On the surface, the “Gyppo Era” appears to be the progression of the industrial system of timber utilization, following a standard industrial pattern of settlement, agglomeration, and finally, reversion to smaller industries. These smaller, latent industries frequently use the same resources as larger operations, but fill labor intensive “niche” markets that are not as profitable for larger companies.

However, gyppos did not fit this model. As will be described later, coastal Douglas-fir logs, although available, did not become a standard, marketable resource until after 1947. Even if the marketability of Douglas-fir had existed prior to the housing boom, the existing log transportation networks, mainly railroads, of the major timber companies were not directed towards this species. The natural distribution of fir showed a higher degree of diffusion than redwood, and made railroad logging unfeasible based upon location. After World War II, the lower cost of logging roads, both in initial construction and upkeep, combined with the expansion of road networks in general, made truck logging possible, and thus, made logging of Douglas-fir feasible.

It was the unique ownership patterns of the fir resource that were to form a more lasting hindrance against the formation of an integrated industry. These patterns of resource ownership, fragmented between many different owners, made them unconsolidated. This precluded the larger companies from making speedy purchases of the resource base in large units. Simply, timberland ownership of Douglas-fir forests did not merge as readily with manufacturing (sawmills) as redwood. The major timber companies response to the “Douglas-fir boom” was to concentrate their efforts into plywood manufacture.

The lack of competition from the major timber companies allowed independent gyppo operators to quickly move into specific sectors of lumber production. Surprisingly, independent gyppo operators covered the entire range of production, as each operator became horizontally integrated within his own specialty. This, in combination with the overall amount of wood harvested, contributed to the massive growth in number of timber operators from 1945 to 1959.

The National Housing Boom

Figure 15 depicts the level of national non-farm housing starts in comparison to the amount of timber harvested within Humboldt County. Data for the amount of housing starts covers the entire time series, while data showing the amount of timber harvest begins in 1940 and continues through 1952 (at which point consistent data becomes unavailable until 1959).

From an extreme low of 93,000 housing starts in 1933, the trend for housing construction gradually increased as the nation emerged from The Great Depression. The onset of WWII in 1941 producted wartime rationing, and the resultant prohibition on new construction reversed this upward trend until the end of the war.

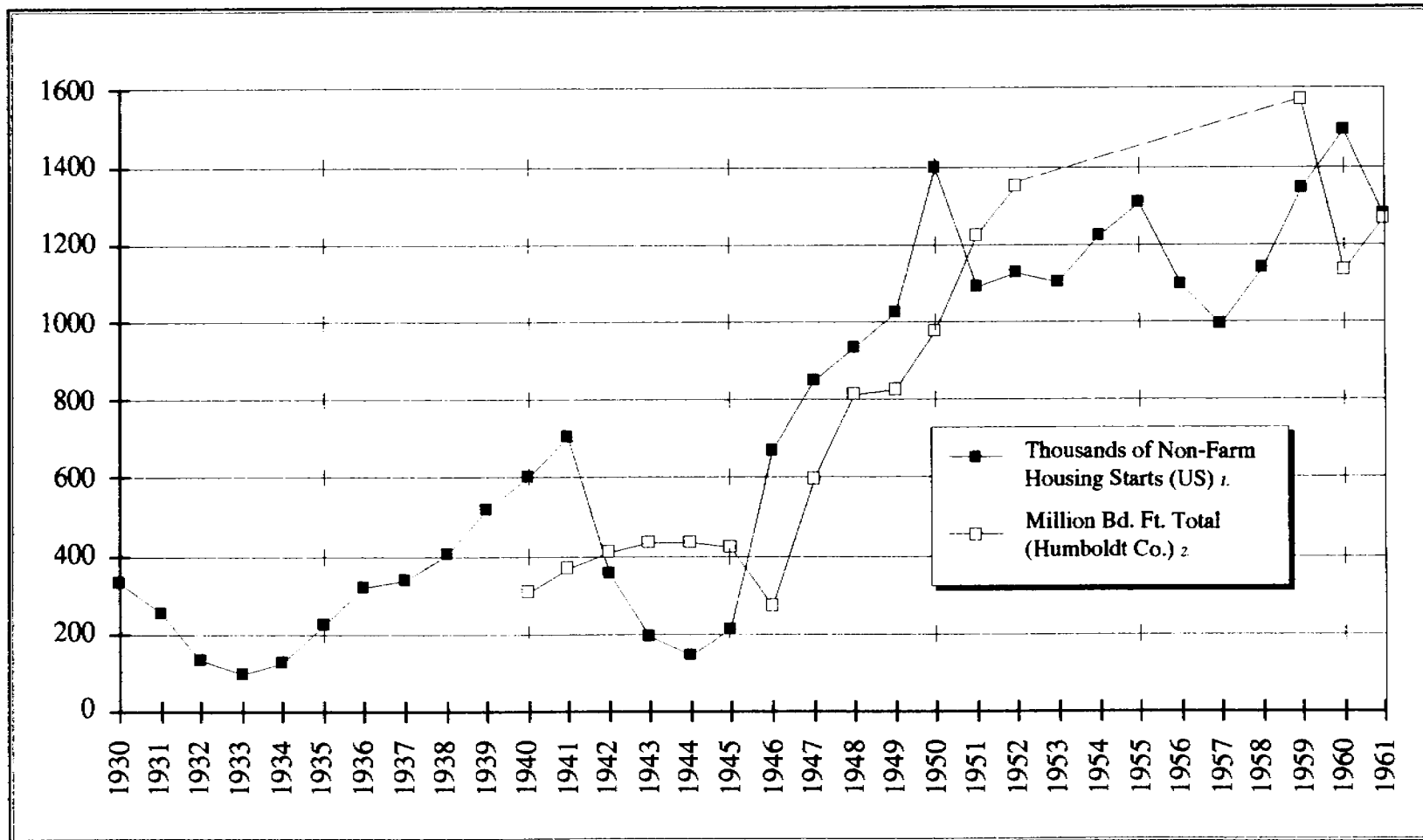


Figure 15. National Housing Starts and Humboldt County Timber Production

(Data Series 1930 - 1954): 1955 Historical and Descriptive Supplement to Economic Indicators, 43; (Data Series 1954 - 1961): Economic Indicators, 11/1962, 20 Both Pub: USGPO.; Henry J. Vaux, Timber In Humboldt County, 44.

As the major redwood companies obtained wartime contracts for lumber, demand for lumber increased, despite the repressed construction market. As mentioned in the previous chapter, the reemergence of Northern Redwood (through a government sponsored loan) brought this company's production back on-line in 1942. Also, by 1944-45, all major redwood mills were producing at or near top capacity for wartime orders, explaining the gentle rise in production during WWII.⁵⁹

On the first of January 1946, a strike that lasted for twenty-seven months was called by the Lumber & Sawmills Workers Union at all major redwood mills by workers attempting to form unions and secure better wages.⁶⁰ At this time, lumber production within Humboldt was almost exclusively geared to redwood production, and appears to be the major factor why timber production fell so markedly between 1945 and 1946. Also, as mentioned in the previous chapter, a major forest fire in 1945 brought a major, albeit temporary, halt in timber harvesting.

The post-war housing boom began in 1946-47 and continued a rapid, unabated increase until 1950, at which point recessionary pressures took hold, and starts for housing construction resumed a more cyclical nature. However, this recession only slowed the trend. By 1960, housing starts were still at record levels (1,494,600 nationally).⁶¹ With the beginning of the early 1960's recession, both housing starts and timber production began to decline. As will be explained later, 1959 proved to be the watershed year for the Humboldt lumber industry, as both the number of timber operators and production figures fall away after that date.

⁵⁹ Melindy, One Hundred Years..., 217.

⁶⁰ Ibid., 218.

⁶¹ Economic Indicators, 11/1962, 20.

The role of the labor strike prevented the redwood industry from taking immediate advantage of the new opportunities that Douglas-fir offered and allowed some unemployed workers to form new mills with the experienced fir workers then moving into the county from the depleted old growth fir areas of Oregon and Washington.

The Shift to Douglas-fir

Before fir became a marketable product, loggers and timber companies who came across incidental stands put it to other uses.

Pete Peterson: ...When they started logging the fir, even then, a lot of it was overripe. They'd cull it on you if you sent it to the mill. So consequently, I've seen cold decks[†] stay right in the woods. I think that Cal Barrel left two or three cold decks in the woods, they weren't large cold decks, but it was timber that they couldn't use, you know....

Ben Young: ...California Barrel logged a lot of fir, or *cut* a lot fir to make plank roads with. Because it was cheaper to put the fir down, 'cause they couldn't sell it, than it would be to build the road out of gravel." (Personal Interview, Vol. 1, March 17 1994.)

Until 1946, coastal Douglas-fir within Humboldt County was not regarded as "merchantable[†]" because it was believed to have a lower intrinsic quality than Douglas and other firs obtainable in Oregon and Washington. Furthering the reinforcement of this disdain was the remote location of Douglas-fir in the interior of the county, making even its mere extraction uneconomical. In addition, a substantial percentage of Douglas-fir (within private ownership) happened to be situated upon lands owned by persons least likely to have a financial interest in timber production.

[†] Cold deck: Timber industry term referring to a stack or pile of logs, near the harvest site. "Cold" (in the context of Northern California) is also used to denote the season (winter) when the logs are stored in the woods.

[†] Merchantable: An industry term referring to standing timber or logs which can be harvested economically under current conditions.

The major landowners of the Douglas fir resource in 1948, comprising roughly twenty-two percent of the commercial forest land within the county comprised the Federal government, with 292,000 acres, and the various Indian Reservations, with 99,000 acres. In 1948, all public lands accounted for 446,000 acres, or 25.6 percent of the total commercial timber area of the county (27,000 acres of state parks were excluded from this figure due to their permanent protection from logging).⁶² Both the Hoopa Valley Indian Reservation (centered on the town of Hoopa) and the Six Rivers National Forest (which transcends the eastern boundary of the county), comprise the bulk of the previously mentioned acreage, and are classified as either hardwood or Douglas-fir producing areas.

The significant shift in the marketability of coastal Douglas-fir occurred as a result of the post-war housing boom. Spending for housing, which had been pent-up during the depression and the war years, suddenly released after 1946 as the nation emerged from post-war recession. By this time, a scarcity in supply of pine in the southern states (due to over-harvesting which had begun in the early 1900's), and the depletion of true firs elsewhere in the Northwest caused a shortage in structural-grade building materials. When combined with market forces for housing construction (especially in California), Douglas-fir suddenly became a tree species that had market value.

A survey of 22% of Douglas-fir mills was conducted by the Humboldt County Department of Forestry in 1953 to determine the destination of lumber products (the summary of this survey is shown in the column entitled "Douglas Fir" on Table 1).

⁶² Henry J. Vaux & Eugene A. Hofsted, An Economic Appraisal of Forest Resources and Industries in Humboldt County, California. (Humboldt County (Calif) Dept. of Forestry. Prepared for the Humboldt County Forestry Committee by (the) School of Forestry, University of California and (the) Humboldt County Department of Forestry in cooperation with (the) Calif. Agricultural Extension Service, 1954), 55.

Table 1
Geographic distribution of Redwood and Douglas-fir lumber shipments, 1953⁶³

<u>Destination Area</u>	<u>Redwood</u>	<u>Douglas Fir</u>
California	49	74
Other western	3	18
Rocky mountain	2	
Central and Plains	25	0
South	11	8
East	8	0
Offshore and export	2	0
Total	100	100

Note the limited geographic distribution of Douglas-fir shipments in relation to redwood. As a rule, structural-grade lumber is not shipped farther than is absolutely necessary due to its inherent weight and bulk. Redwood lumber shipments were more evenly dispersed throughout the country, due to redwood having a higher intrinsic value than fir. The shortage of pine becomes apparent in that shipments to the Southern states comprised eight percent of Douglas-fir shipments, despite being as equally isolated from Humboldt County as the Eastern markets. Presumably, the Central and Plains states, and the East were still being supplied at this time with lumber coming from elsewhere in the US.

Land Ownership Patterns And Douglas-fir

The Vaux report(s) of the early 1950's clearly showed that a majority of the old-growth fir resource, in contrast to redwood, was held by a wider range and number of persons, and that units were generally smaller (by ownership class). "Timber holders" generally did not maintain an interest in sawmills, and held timber mainly for speculation

⁶³ Henry J. Vaux, Timber In Humboldt County, (Berkeley: Second Printing, California Agricultural Experiment Station, Division of Agricultural Sciences, University of California, February 1955), 46.

purposes. Livestock farmers possessed old growth timber as a result of incidental stands being located on their ranches.

Table 2
Private old-growth forest by type of ownership,
redwood and fir zones, 1948⁶⁴

Type of Ownership	Redwood zone	<u>Percent of private old growth</u>	
		Fir zone	All areas
Timber Operator	55	21	37
Timber holder	32	35	33
Range livestock farmer	6	33	21
Other farmers	4	5	4
Recreational owner	1	2	2
Others	2	4	3
	100	100	100

Table 3
Per cent of forest land in private ownerships of various size, 1948⁶⁵

Size of total land ownerships (acres)	<u>Percent of all commercial forest land</u>		
	Redwood areas	Non-redwood Areas	County Total
Small: 0-699	17	37	28
Medium: 700-9,999	20	44	34
Large: 10,000 and over	<u>63</u>	<u>19</u>	<u>38</u>
All sizes	100	100	100

These ownership patterns affected the development of the fir sawmill industry in several ways. First, the pattern of land distribution within the fir zone ensured that the mills that developed would be small to medium sized. Since ownership of the basic

⁶⁴ Vaux, Economic Appraisal, 49.

⁶⁵ Vaux, Timber, 51.

material (logs) was diffuse, individual mills that used fir could not count on a stable, high volume supply. This forced the mills to work on an individual contract basis, without backward linkages to a land (and resource) base. As the number of mills increased, competition for logs began to bid up prices for “stumpage[†].”

At the time, the motivations behind the harvest of trees for small timber holders and ranchers tended to run counter to those of larger timber operators. Basically, small timber holders retained land for speculation and/or recreation, and livestock operators concerned themselves with the enhancement of productive grazing land, not sustained timber production. “Sustained yield[†],” which was becoming a major harvesting philosophy behind the larger, integrated timber companies was a foreign concept to smaller non-timber operators. As will be discussed more fully in the next chapter, these land owners, unlike the large timber operators, were now facing significant new and unfamiliar tax burdens as a result of the addition of Douglas-fir being placed onto the tax roles in the late 1940’s.

Fir and Mill Distribution- 1942

Figure 16 shows several important aspects of the Humboldt County’s timber industry as it appeared in 1942[†]. The choropeth shading denotes the location of forest types, and indicates a major inland distribution of coastal Douglas-fir. This distribution is the southern limit of the Pacific Northwest fir belt, which extends as far north as British Columbia. The climate in the fir region is typical of a Mediterranean climate; with mild, wet winters and warm, dry summers.

[†] Stumpage: An oxymoron; The term “stumpage” refers to standing timber, or live trees, not stumps.

[†] Sustained Yield: a term used in forest management to regulate cutting levels so that the land will continue to produced marketable timber indefinitely.

[†] Figures 16 and 17 have intentionally been placed together to facilitate easy comparison.

Distribution of redwood within the county begins in the southern-central area, along the south fork of the Eel River, and follows inland valleys extending northwest towards the coastline. These coastal valleys generally retain longer cool periods during the spring and early summer, providing a more suitable climate for redwood during the dry summers. This moderate climate during the summer months is a result of fog and low clouds which form in response to differences in pressure and temperature between the inland areas and the cool Humboldt Current (which runs south along the coastline).

Dispersed throughout the fir zone are hardwoods, consisting mainly of alder, madrone, live oak, tanoak and broadleaf maple. The category "other" denotes agricultural floodplains, and urban areas immediately surrounding Humboldt Bay. Areas away from the immediate coastline mainly consist of upland chaparral and grassland.

Of course, any display of distribution is based on the dominant species residing within a given area; there can be significant amounts of hardwoods within fir areas, and fir in redwood areas, etc. In a study conducted for the county in 1977 by Natural Resources Management Corporation, the estimate for "whitewoods" (i.e., Douglas fir, Spruce) residing in redwood stands was "about 20%."⁶⁶

Stands of fir were widely dispersed within scattered groves of the Humboldt county interior, whereas redwood tended to be densely concentrated within and along the coastal valleys. The Douglas-fir region was not a dense forest cover, but "...rather an alternation of grassy ridges and openings with timbered draws, canyons and north slopes."⁶⁷

⁶⁶ John G. Miles, Humboldt County Timber Supply and Predicted Production Rates, 1965-2025, (Eureka: Natural Resources Management Corporation, 1977), 9.

⁶⁷ Larry T. Marshall, "Douglas Fir Brings New Industries to the Region," Western Conservation Journal, Vol. XIV, No. 3. (May-June, 1957), 45.

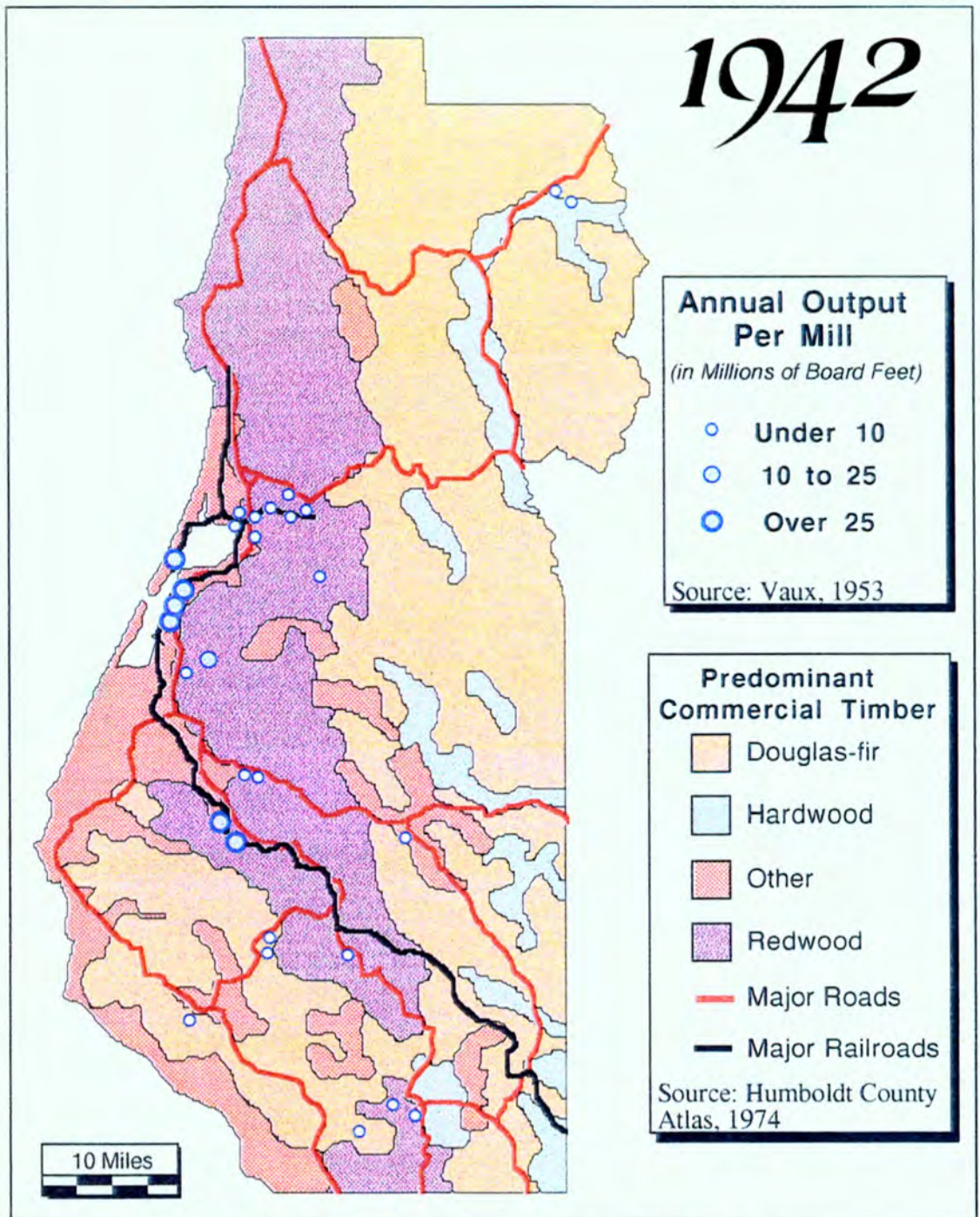


Figure 16. Humboldt County Lumber Mills, 1942.

The location of mills is tied to the predominant economic resource (redwood). Small mills in the southern part of the county provide lumber for local use, but not for export. Highly capital intensive, few operators could gain a foothold into commercial redwood timber ownership or redwood lumber production.

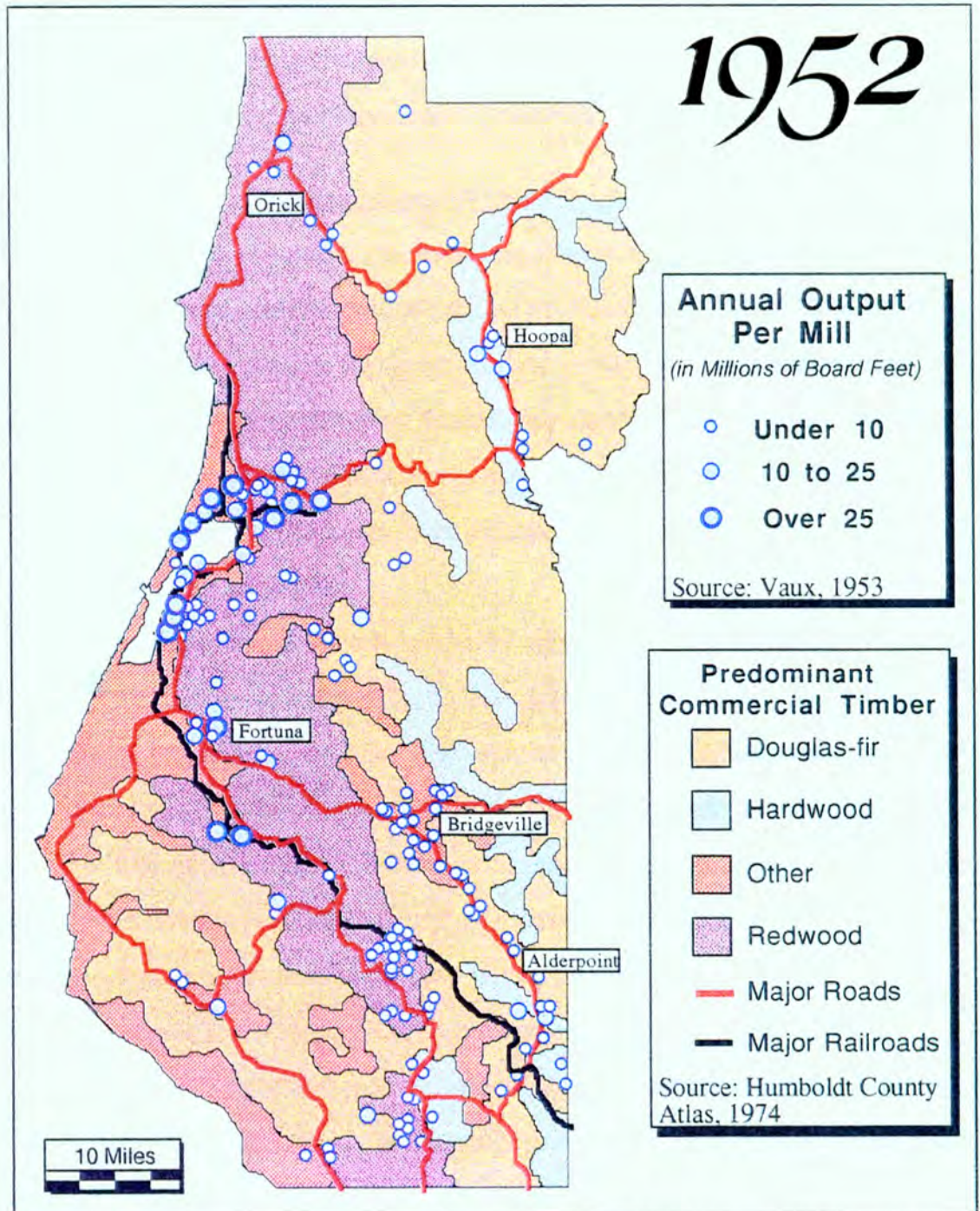


Figure 17. Humboldt County Lumber Mills, 1952.

The demand for lumber makes Douglas-fir a commercially viable timber species, and creates the "boom." Pioneer mills locate closer to the resource. The logging railroads decline due to high fixed costs and the lower overall costs of using roads. But 1952 was just the start. By 1956, there were over 200 sawmills in operation throughout the county.

The natural distinctions between redwood and fir distribution further precluded the major timber companies from oligopolistic control of the resource base.

Changing Patterns of the Mills 1942-1952

It is interesting to note from the 1942 map (Figure 16) the cluster pattern around the Humboldt Bay area, and farther south, the mills in Scotia and Rio Dell. The mills displayed, in particular, those with large values, had several things in common. First, they processed almost exclusively redwood. Second, they all were located within immediate access of the Northwestern Pacific main (rail) line, explaining their linear distribution. Within the southern part of the county, there are relatively few mills, even though a major source of forest cover exists there.

Comparison between the 1942 and 1952 maps shows striking changes in both the number and the distribution of sawmills. Small mills began to appear in major clusters around Arcata, Bridgeville, and Garberville. For the most part, the design of gyppo mills located in the hinterland was to cut bolts or cants (large, square or rectangular first cuts off a log). By 1952, mills located much closer to the resource, and became less dependent on a developed, permanent infrastructure (such as railroads) to move the raw material to a central manufacturing location. By the early 1950's, truck logging had come into widespread use, and this affected the mills proximity to roads. Although the roads displayed were (and for the most part, still are) primary routes within the county, they were not developed highways. The only continuously paved routes by 1952 were Highways 101 and 299, which were torturous, two lane roads for most of their length.

As the 1950's progressed, a few mills developed larger capacity in response to the explosion in the number of gyppo logging contractors. Ray Koniche's description of his activity during the 1950's illustrates the relationship between the larger gyppo mills and independent logging contractors.

Well, I delivered redwood logs off my property in Jacoby Creek; it was the first logging I ever did. I delivered them to him [Bernard Kirsh- McIntosh Lumber] for \$25 a thousand. I had a self-loading truck, and when they were shut down for lack of logs, I would deliver logs out there, and put them in a pile, and they didn't get scaled until they started (milling). Then they scaled them and paid me. (Personal Interview, Vol. 2, April 21, 1994.)

Although supply issues were a more or less a constant problem for all the gyppo mills, the sheer number of logging operators reinforced the divisions within the industry, and ensured that only a few gyppo operations would become vertically integrated. Agreements between larger gyppo mills and the large number of logging operators allowed some the gyppo mill operations to rival the output of the established mills, as shown in Table 4.

Table 4
Leading Lumber Producers in Humboldt County, 1953⁶⁸
(production in Million board feet)

The Pacific Lumber Company	106.1
Hammond Lumber Company	91.3
McIntosh Lumber Company	56.4
Eureka Redwood Lumber Company	55.7
California Barrel Company	51.8
Dolly Varden Lumber Company	50.0
Fortuna Sawmills, Inc.	43.0
Sound Lumber Company	33.1
Brix Lumber Company	32.2
Arcata Redwood Lumber Company	31.6
Northern Redwood Lumber Company	30.0
Western Studs Company	30.0
Holmes-Eureka Lumber Company	28.3
Sugar Pine Lumber Company	24.0
G.L. Spier	21.3

Since the gyppo logging and primary milling operations were non-consolidated, there was an incentive for the creation of a secondary manufacturing complex, commonly

⁶⁸ Vaux, Economic Appraisal, 24.

referred to as “remanufacturing.” Remanufacturing plants basically performed the role of adding value to the green slabs coming from the primary mills. A remanufacturing operation could have been a stud mill using leftover peeler cores[†] from a nearby plywood operation, or a planer operation, or dry kiln, or simply a re-saw outfit that cut dimension-sized lumber. Adaptability to both range of lumber products and different tree species were the keys to a successful operation. But from the late 1940’s to the mid-1960’s, most secondary manufacturers remained small and concentrated on a single operation, as shown in Table 5.

Table 5
Number of Active Sawmills and Lumber Production by
Species and Mill Size, Humboldt County, 1951⁶⁹
(In Million Board Feet)

Size of Mill*	Number of Active Sawmills	Redwood	Douglas-fir	Other Species	Total
Large	13	271.2	252	8.6	531.8
Medium	22	55.3	279.5	6.0	340.8
Small	<u>139</u>	<u>67.6</u>	<u>278.5</u>	<u>4.7</u>	<u>350.8</u>
Total	174	394.1	810.0	19.3	1223.4

*Large- 25 million board feet or more
 Medium- 10- 24.9 million board feet per year
 Small- Less than 10 million board feet per year

Companies that already existed before 1940 dominated the production of during the early post-war period. For all lumber produced within the county in 1942, Vaux used 85%, divided among six unspecified mills.⁷⁰ Using a rough calculation from Table 4, the

[†] “Peeler cores” are the remaining material of a log which has been peeled for plywood veneer.

⁶⁹ Vaux, Economic Appraisal, 22.

⁷⁰ Vaux, Timber, 9.

leading redwood mills (Pacific Lumber, Hammond, Eureka Redwood, Arcata Redwood, Northern Redwood) in 1953 milled 79.9% of the total redwood harvest.⁷¹ Direct comparison for Douglas-fir and other species, using the same method, is impossible because the proportion of species processed for the listed mills is not known. For example, California Barrel had known production of species other than redwood, but accurate proportions are not available. However, if one assumes that the combined output of Douglas-fir by the leading known fir mills (Dolly Varden, McIntosh, Sound Lumber, Brix Lumber, and G.L. Spier), that is only 23.8% of the fir harvest for 1953.

Small and medium sized mills were milling the majority of Douglas-fir from small and medium sized lands. Because the large redwood companies had consolidated their redwood timber holdings in the years before WWII, and did not rely heavily upon small sources, they were able to maintain their overwhelming dominance of the redwood production within the county⁷². The fir mills, relying chiefly upon small landowners and their own sources, could not maintain the same sustained and concentrated output within so few companies.

Figure 18 shows both the number of timber operators and the total harvest within Humboldt County from 1940 to 1970. Both trends increased gradually until 1945. Due to the millworkers strike previously mentioned, 1946 was a severely reduced production year. As the strike wore on, more mill workers either became self-employed or were hired in the new mills, explaining the sharp rise in the number of operators after 1947. With the resumption of production at the large redwood mills (as a result of the settlement with labor), the timber harvest skyrocketed after 1949. At the same time, the market for

⁷¹ Vaux, Economic Appraisal, 24.

⁷² Melindy, One Hundred Years..., 205.

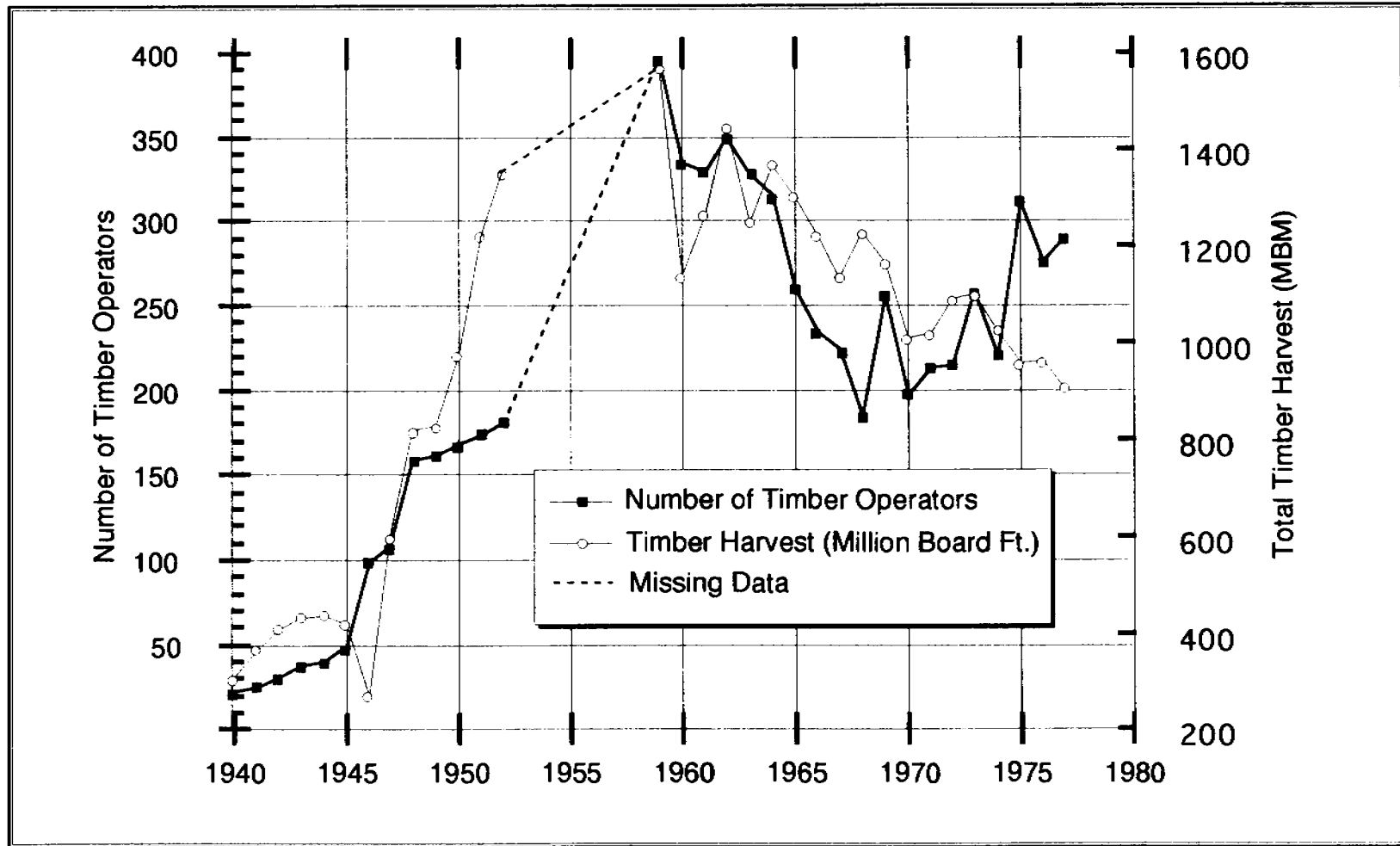


Figure 18. Number of Timber Operators and Total Timber Harvest: Humboldt County, 1940-1977.
 (Henry J. Vaux, *An Economic Appraisal of Forest Resources and Industries in Humboldt County, California*. 1954.; State Forest Notes 1961-1979).

Douglas-fir products produced by the Humboldt county gyppos became more firmly established as a standard for building construction.

Beginning in 1947, a sharply increasing trend continues in both series until 1959, at which point the boom in housing construction is effectively over, and the building returns to a normal, cyclical pattern. Another reason for the dramatic fall in production after 1959 was the role of stumpage prices. The overheated expansion of the gyppo industry during the 1950's had caused a sharp increase in the price of stumpage, driving smaller operators out of the lumber business.

By the height of the boom in 1959, the more labor-intensive remanufacturing industry was firmly developed, making employment fairly easy to obtain. This was the particularly the case in those areas around Humboldt Bay that had a concentration of smaller primary and secondary mills.

An unusually high turnover in employees has resulted from the near-boom in the lumber industry this year, according to C.J. Clarke of the Clarke Employment Agency of Arcata.

Clark described the turnover as "something terrible" in the logging industry, and added that some frms [sic] are having difficulty holding men due to "long crummy rides."

"Getting a new job is easy this year," Clarke said, "and men will leave a job to hunt for another one after working only two or three days."

He described conditions locally as far better than last year- equal to the "boom years of 1953 and 1954." However, Clarke said that the demand for labor will probably level off more rapidly than in those years.

"The dry winter has made conditions extremely good, economically, at ths [sic] time," he said. "However," he added, "the dry winter may result in a handicap this summer when extremely dry conditions may halt woods operations." ("Turnover High In Logging Workers; Near Boom Blame," Arcata Union, June 26, 1959, 1)

The climate of expansion from 1946 to 1959 removed the economic barriers that had been a hindrance for entry into mill operations. Mill operators could now afford to start up and operate nearly any phase of lumber production they wished. Most mills concentrated on a single phase, such as cutting cants[†], or planing, or kiln operations. A few had forward linkages to other business interests, such as construction, which made them, in effect, miniature vertically integrated companies from the very beginning.

Ray Branscomb: The McIntosh mill, right in the town of Blue Lake, was built by Bernard Kirsch. His boy owned a furniture factory out in New York. Bernard Kirsch was the one that built Grizzly Park Lumber Company[†], which later became McIntosh....

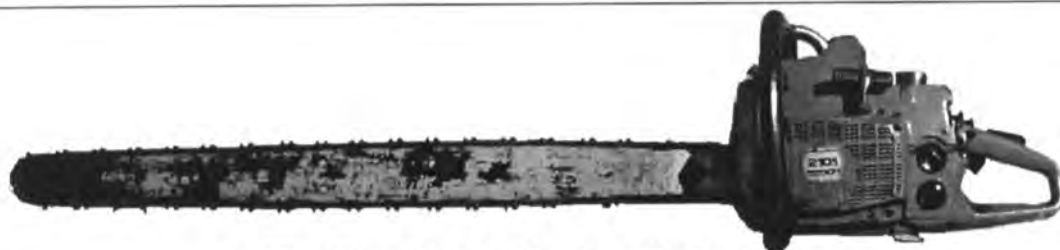
Pete Peterson: ...Kirsch, he owned a lot of redwood. He bought a lot of redwood up there around Orick. Ninety percent of his lumber went to Levittown. He was married into the family. They sent him out here to buy lumber. He had trucks, too. They hauled it to the mill, and then they hauled it back to Levittown. Pennsylvania, I think. (Personal Interview, Vol. 2, April 21, 1994)

Changes In Technology

While the changes in the “ease of access” into the logging and lumber business were driven by the unusual nature of resource distribution and market demand, new extraction technologies developed during the 1940’s and 1950’s made them possible. After World War II, major changes in type, cost, and mode of logging and transportation equipment allowed the gyppo operators to establish low-cost means of timber extraction. Without the changes made possible by the development and implementation of the internal combustion engine within the logging process, the gyppo era would not have been possible. The combination of the chain saw, the crawler tractor/bulldozer, and the logging

[†] Cants: the interior portion of a log after the bark and sapwood have been trimmed.

[†] As of this writing, the former site of the McIntosh Lumber Company is occupied by a materials yard for Ultra Power, Inc., a medium-sized, wood-fired power plant.



A. The Two-Stroke Engine Chain Saw



B. A Case "Terratrak" base model
(attachments optional)



B1. A Caterpillar D-9 equipped with
Hyster D98A Yarder attachment



B2. An Allis-Chalmers HD-11 using
a wheeled "Log-Arch"



C. The Logging Truck

Figure 19. Equipment That Made the "Gypso Era" Possible.

(A: Personal photo; B: Loggers Handbook, Portland: Pacific Logging Conference, Vol. XVIII, 1958, 96A; B1: Ibid., 93; B2: Ibid., 88; C: Ibid., 47).

truck formed a new technological basis for the industry. The application of these three devices allowed more extensive access to the forest, with less manpower and capital.

The Chain Saw

Ray Branscomb: Then, in the forties, come the fir mills; most of them came from up in Oregon, because they knew how to log fir. Most of the fallers found out that they had to go to school all over again when they started falling redwood, because it's so brittle. You have to make a landing, a bedding for it, to land on, otherwise it'd break up. A lot of fallers went down the road because they broke up so much redwood. When you get a tree, say twenty foot through, coming down, it's got such a tremendous weight, if you didn't have any bedding for it to land on, it'd just shatter. Of course, at that time, they were falling by hand, just a crosscut saw. Eventually, they got the small drag saws that they could fall timber with, but it was still kind of a headache. Then the big chain saws come into effect along in the forties. Big Titans and Mercurys. I mean, they were mankillers too, they had to have a man on each end of them.⁷³

A major shift in logging technology came from developments in the type and methods of the basic saw. The first drag saws mentioned by Branscomb were cumbersome, heavy (more than 125 pounds), and subject to frequent breakdowns. First developed in 1886, drag saws used a reciprocating cross cut blade, adapted from the standard cross-cut hand saws. Mainly used in a process called "bucking," the blade and engine, when mounted on a frame, would make cuts in fallen logs (to make their length and subsequent handling more manageable). Through the use of metal support bars attached to a tree trunk, the saw was later adapted for use in the felling process. This reduced the need for the massive undercuts required by hand falling, but also raised the capital requirements for production logging.

Beginning in the 1940's, a rapid series of developments in mechanical saw technology reduced the cost, and improved the reliability of chain saws. In 1949, "stinger tips" (small metal cages at the end of chainsaw bars) were abandoned. The direct outgrowth of this change in design, called a "bucking bar," allowed fallers to plunge their

⁷³ Op. Cit., Personal Interview, Vol 1.

saws directly into the trees to make undercuts.⁷⁴ This eliminated the need for extraordinarily long bars, and the excessively large engines required to power them. Second, the implementation of the two-cycle engine made substantial gains in horsepower and reductions in overall weight. Advertisements in logging trade journals of the period indicate that the initial application of two-cycle engines was made by companies that had prior experience manufacturing these engines; at that time, producers of marine outboard engines. By the early to mid-1950's, the major elements in the evolution of the modern chain saw was complete and ideally suited for the gyppos.

The Crawler Tractor

The use of tracklaying crawler tractors in the skidding process, as mentioned in the previous chapter, was becoming a more common practice within Humboldt county towards the late 1930's. In particular, Hammond became interested in tractors for use in the Big Lagoon area (following the acquisition of The Little River Lumber Company in 1931). The impetus for the development of blade forward "bulldozers" has been attributed to the United States Forest Service, which showed interest in the use of bulldozers for fire suppression throughout the 1920's. After several demonstrations, the USFS bought a small number of tractors from small manufacturers, who bought tractors and had added their particular blades to them.⁷⁵ By the 1930's, these tractors were proving their utility in the large construction projects created by the New Deal. However, the blade manufacturers seemed to function independently of the tractor manufacturers.

⁷⁴ Carranco, Redwood Lumber Industry, 48.

⁷⁵ James A. Young and Jerry D. Budy, "Adaptation of Tracklaying Tractors for Forest Road and Trail Construction," Journal Of Forest History, Vol. 31, No. 3. (July, 1987), 122.

The failure of the major tracklaying-tractor companies to develop their own brand of bulldozer blades before World War II resulted partly from patent rights, but more important, from the companies' attitude that they were primarily tractor makers and making attachments diluted their manufacturing facilities and expertise. After World War II the major companies rushed to buy the patent rights of such companies as LaPlante-Choate (purchased by Allis Chalmers) and to manufacture brand-name attachments for their own tractors.⁷⁶

The main problem with the early implementation of tractors was that most early tractors lacked adequate horsepower to drag logs over the ground. To combat this, tractors with smaller horsepower began using tracklaying or wheeled "log arches," as illustrated in Figure 19 (B2). When compared with railroad logging, the use of the crawler tractor (now equipped with blades and winches) eliminated the need for steam trains, railroads, and most bridges. It also dramatically reduced the need for manpower in logging operations. The Logging Truck had come into widespread use during the 1950's as a complement to the crawler tractor and the chain saw. The rapid decline of logging railroads, and the wider availability of crawler tractors allowed logging trucks access to areas that had previously only been accessible by railroad inclines or crawler tractors.

Continuation Of The Large Redwood Companies

At the same time, the large redwood companies were also shifting to the new technology by tearing out rail lines, and converting them to logging roads. This allowed the large companies almost immediate access to stands of old-growth redwood. The Klamath, Hoopa, Board Camp, Blocksburg, Garberville and Mattole geographic divisions (used by Vaux and Hofsted in their 1954 report), comprised 530 thousand acres, accounting for 69 percent of all old-growth within the county in 1948. Unfortunately, the map that delineates all of these divisions is no longer available. Therefore, comparison of total land area within each subdivision to all the other subdivisions is impossible.

⁷⁶ Ibid.

However, this does give a rough approximation of where all types of old growth occurred in 1948. Of the percentage of all old-growth within the county, 17% occurred in Klamath, 17% in Hoopa, 11% in Board Camp, 7% in Blocksburg, 6% in Garberville, and 11% in Mattole. The remaining divisions of Arcata, Orick, Fortuna and Dyerville contained 3%, 16%, 6%, and 6%, respectively; 31% of the total.⁷⁷

What makes these figures interesting were the relatively low figures for Arcata, Fortuna, and Dyerville, which lie within the redwood zone. Klamath, Hoopa, Board Camp and Mattole lie mainly within the fir zone. Orick, in the redwood zone, still had a significant percentage of old-growth, while all other subdivisions within the redwood zone had seen major logging activity by 1948.

Isolated from the main processing centers around the Humboldt Bay Area, the Orick subdivision was the last of the predominantly redwood subdivisions with a major percentage of old-growth. Located between Crescent City and Arcata, large scale logging in this area never became economically feasible until after World War Two, mainly due to lack of adequate transportation from the woods to the mills. It was in this subdivision that M&M Woodworking Industries (based out of Portland, Oregon) owned a sizable stand of redwood (some 2.5 billion board feet). Northern Redwood, Arcata Redwood, and Hammond held other nearby stands. By 1956, Simpson Timber Company had acquired both Northern Redwood and M&M, and added the holdings of these two companies to Simpson lands that it had originally bought in the Redwood Creek and Klamath area in 1948.⁷⁸

⁷⁷ Vaux, Timber, 47.

⁷⁸ Robert Spector, Family Trees, Simpson's Centennial Story, (Bellevue, Wash., Documentary Book Publishers Corp., 1990), 218.

The Simpson acquisitions of property in the Orick area during the late 1940's and early 1950's appear to have been a continuation of the redwood era, in that a large, integrated company was doing most of bidding for land. However, the Redwood Creek basin offered more than just old-growth redwood to the major timber operators. Particularly at its higher elevations, the Redwood Creek basin offered M&M, Arcata Redwood, Hammond, and Simpson a fair amount of old-growth Douglas-fir, then an excellent raw material for the production of plywood.

The Advent of Plywood

By the end of World War II, the tendency of the larger timber companies continued to be select acquisition of exclusively redwood stands. Within these stands, and especially those at higher elevations, there remained sizable volumes of old growth Douglas-fir, which by then was becoming a marketable product.

Directly after the war, the technical capabilities of plywood manufacturing industry were yet to be explored. Consequently, the primitive technology for plywood production demanded high quality, old-growth fir. In order to maintain production, sizable volumes of fir were needed to produce a sufficient selection of logs to meet the high quality restrictions.

The previously mentioned land ownership patterns of Douglas-fir greatly contributed to the problems of a stable supply of raw material to the plywood and veneer plants. Unfortunately, the initial developers and owners of the early Humboldt plywood industry repeated many of the same mistakes made by poorly managed manufacturers in Oregon and Washington during the 1930's. By obtaining logs on the open market, this system of procurement usually entailed paying higher prices to other timber producers and/or logging firms (rather than an individual plant logging for itself). Forced to secure its

supply under market conditions, the plywood industry was highly susceptible to fluctuations in supply and price.

Prior to WWII, plywood was considered a novelty, and production never really accounted for any sizable volume in home construction.⁷⁹ However, this situation had changed with the tremendous boom of residential construction during the late 1940's and early 1950's. The pressure to build single-family residential homes quickly resulted in a shortage of construction labor. This prompted the development of materials that saved on labor, such as plywood. The movement from solid wood to plywood exterior sheathing reduced labor costs by some forty percent since construction workers could easily nail into place a sheet of plywood rather than strips of wooden siding, sheathing, or lath. It also lowered the materials cost when compared to 3/8" solid wood stock. As a result, the market for plywood as a standard utility product was firmly established within a few years, and by 1953, about forty percent of the plywood produced nationally was used as roofing, and twenty-five percent as sheathing and facing.⁸⁰

The major lumber companies' interest in plywood manufacturing was also motivated by the prolonged strike at the sawmills. Plywood required less labor per unit than sawn lumber, and it was natural that the majors showed an early interest in the purchase and development of plywood facilities within the county. Faced with a labor strike that showed little hope of being resolved in the near term, and possessing a resource

⁷⁹ John A. Zivnuska, Economic Factors In The Organization Of The Forest Products Industries, (Presented at the Sixteenth Industrial Forestry Seminar by The Yale School of Forestry and Oregon State College School of Forestry, Corvallis, January 16-27, 1961), 13.

⁸⁰ Stanford Research Institute, America's Demand For Wood 1929-1975, (Weyerhaeuser Timber Company, 1954), 63-64.

that required large amounts of labor to process, the majors moved rapidly into the plywood business.

Humboldt County did not see the arrival of plywood manufacturing until 1947, but by 1953, four plywood mills and three veneer plants were in operation. A majority of these mills were referred to as “co-operatives,” suggesting regional alliance, but in reality this was a misnomer, for they were actually employee-owned companies. Suppression of company rivalry became commonplace in the early years of the plywood industry when sales of old growth fir were made. In October of 1947, M&M Woodworking and Hammond entered into a partnership in which Hammond would guarantee to sell fifteen million board feet (eight million of which was redwood) to M&M's Eureka Plywood Company mill, located at Hammond's Plant 2 site in Samoa.⁸¹

By the mid 1950's, Hammond managers appeared to have had second thoughts, and renegotiated the contract, cutting back log sales to only eight million feet per year, and eliminating redwood log sales altogether.⁸² Hammond also retained the right to buy the plant if M&M was to sell its share of the joint venture. With the buyout of M&M by Simpson, Hammond obtained a plywood facility at a lower, pre-negotiated price. From these actions, it seems that the leadership of Hammond realized the trend plywood was taking within the building materials market. Plywood was moving towards a utility-grade product, not a high value decorative commodity (such as interior paneling), as the original agreement with M&M suggests. Hammond began construction on a new plant immediately following the sale of M&M, and built a nearby stud plant (which used the leftover “peeler

⁸¹ Mengel, 158.

⁸² Ibid.

cores," or remaining material log material from the plywood process) both of which opened in 1959[†].

Simpson Timber Company was interested in buying M&M Woodworking, ostensibly for gaining improved access to Simpson lands near Requa (that were purchased by Simpson in 1948), and to consolidate their holdings in that area[†]. Simpson appeared interested only in the land that M&M possessed in California, especially M&M's stands near Orick. Bill Reed, Simpson's negotiator with M&M, outlined plans to sell off the manufacturing facilities and land in Oregon, and retaining the land in California way to expand its redwood lumber operations.^{83†} After the purchase of M&M, and being assured that it would be able to maintain its old-growth resource base, Simpson then built and operated a large old-growth redwood mill at Klamath, until its closure in the early 1980's.

[†] A similar complex of stud mills locating in close proximity to plywood and veneer mills evolved around the other operations elsewhere in the county, although there seems to be little evidence of veneer and plywood operations owning an interest in the stud mills like Hammond.

[†] Simpson Timber also purchased Sage Land and Developement (which held tracts along the lower Klamath River and Usal in Mendocino County) in addition to Northern Redwood (Korbel) and finally, M&M Woodworking. These purchases triggered an investigation from the Federal Trade Commission, since Simpson had surpassed the ten percent holding allowance for a basic commodity, and thus was considered a potential monopoly. The suit by the FTC culminated in a series of out of court settlements throughout the early 1960's, and Simpson agreed to sell either logs or land for the next fifteen years. In 1957, the company agreed to sell twenty-five million board feet of redwood logs on the open market for the next five years.

⁸³ Spector, 107.

[†] Simpson was also involved in the acquisition of both the Roddiscraft (purchased from Weyerhaeuser) and US Plywood interests, effectively making Simpson a member (along with Georgia-Pacific) of a plywood oligopoly that emerged fairly rapidly during the early 1960's within the county.

The Problems With “Underutilization” and Teepee Burners

The means of sawdust and mill scrap disposal left definitive impacts upon the cultural and physical landscape of the county. It is important to stress the enormous amount of waste that mills, particularly the gyppos, created during the 1950's and early 1960's. The isolated nature of Humboldt county during the gyppo period greatly contributed towards this waste, politely referred to as “underutilization.” Until the mid-1960's, no pulp facilities existed within the county, and thus, no market for wood chips made from mill scraps (and unmerchantable logs considered unfit for sawn lumber) existed. By the early 1950's, the mere cost of transporting “pulp logs” to the closest wood chip using facility, the Masonite plant in Ukiah, proved uneconomical.⁸⁴

The easiest and simplest way to handle the mill waste was to burn it in large metal structures called “teepee burners,” an example of which is highlighted in Figure 20. Larger burners, such as Hammond's 1949 teepee, was ninety feet high and ninety feet in diameter, but most burners were approximately thirty to fifty feet in diameter. Some incinerators that operated in close proximity to lumber drying yards or mills were covered with asbestos sheeting; but most were simply covered with the sheet metal, which would tend to glow red hot throughout the day and night as they were fed mill waste by conveyor belt. Nearly every mill throughout the 1950's and 1960's possessed a burner.

Disposal of mill wastes was not a new problem. Difficulty with mill waste disposal had been encountered as far back as the 1860's, when the first redwood mills unsuccessfully tried to feed wet redwood sawdust into the boilers as fuel (eventually, the waste was deposited as fill in what is now downtown Eureka).⁸⁵

⁸⁴ Vaux, Economic Appraisal, 32.

⁸⁵ Lynwood Carranco, Redwood Lumber Industry, 79.



Figure 20. Medium-Sized Fir Mill with "Tepee" Incinerator.
(HSU Library Photograph, Humboldt County Photograph Collection, #2698).

However, at the height of the gyppo boom in late 1950's, the concentrated number of mills, and thus, tepee burners located within (and immediately bordering) urban areas inevitably began to cause conflict between the mills and their residential and commercial neighbors.

Mere mention of these burners to residents living in Arcata during the Gyppo period brings forth attestations to the intensity of the "bombardment." Along with the particulate matter from smoke, airborne sawdust posed fire hazard conditions for neighbors adjacent to the mills.

A change in roof construction for the Arcata High additions was approved by the Arcata Union High School District Board of Trustees at their regular meeting Monday night.

The change in roof construction was deemed necessary because of the acute sawdust conditions at the site. According to a recent state survey more sawdust falls in the high school campus than any other location in the state.

Gravel had been specified for the roof covering, but because of the problem this would present in hosing and sweeping the sawdust from the roof, a change to a smooth surface roof was advocated by Business Manager Frank Gruhn. *Gruhn told the board that in one month's time Arcata High School maintenance personnel had removed 10 one-hundred pound gunny sacks of sawdust from just the perimeter of the present high school roof [emphasis added]. (Arcata Union, October 14, 1960, 1.)*

The brevity of Arcata Union article in mentioning the "state report" is fairly understandable when considering the severity of that report's conclusions. Conducted by the Bureau of Air Sanitation during the week between August 27 and September 3, 1959, the final report was published by that department in 1961. In the concluding comments, "The concentrations of settleable particulate matter at the Arcata High School were higher than those for any other California city for which data are available and well above that for any known American city."⁸⁶

⁸⁶ Norman E. Waggoner, The Eureka-Arcata Ambient Air Quality Study, Bureau of Air Sanitation, Berkeley, 1961, 24.

The 1960 article mentions sawdust, and newspaper photos from the mid-1950's show the mill directly adjacent to the northern part of the campus, Twin Parks, had minimal sawdust collection devices during its early years of operation (such as a cyclonic separator).⁸⁷ Sawdust created by the mill was fed directly out of the mill house and onto a conveyor belt (unprotected by the wind) leading to the tepee burner.

Two dustfall monitors at the high school were located on the wood working shop and metal shop roofs, downwind from the prevailing northwest wind. The results proved to be nothing less than astounding. The weekly average of total dustfall and unburned sawdust calculated from these two monitors averaged 1391.1 tons per square mile daily during the week. Of that, 34.5 percent was unburned sawdust, which created fire hazards on the rooftops and rain gutters of surrounding structures⁸⁸.

The intensity of particulate matter fallout was not the only problem. The two more southerly stations (located on the roofs of the Arcata Fire Station and the Arcata Sewage Treatment Plant) in the study were affected by "drainage winds off the inland hills."⁸⁹ When emissions trapped by thermal inversion and/or low wind speeds during the night and morning hours, the smoke from the burners in the south Arcata area allowed pollution to lie close to the ground, and "around populated areas." The thermal inversion experienced during the low wind speeds of August 28 "probably limited the upward extent of natural mixing to about 2500 feet on the average."⁹⁰

⁸⁷ The Humboldt Standard. "Twin Parks Mill" June 21, 1952. Humboldt County Collection.

⁸⁸ Waggoner, 19.

⁸⁹ Ibid., 23.

⁹⁰ Ibid.

Figure 21 uses a 1974 air photo as its base, and is roughly centered on the Arcata High School campus. Considering the proximity of incinerators to the campus, as shown in Figure 21, and the data collected from the air quality report, it comes as little surprise that Gruhn had requested a “smooth surface” roof. Figure 21 shows five burners in Arcata in 1974. However, during the 1950’s, another mill was known to have operations within one thousand feet of the campus. The “Archie Smith” mill was located in vacant lot to the immediate upper-right of tree line bordering the campus. However, an exact location of this particular mill’s incinerator is not evident from the base photo, and was not including in the depiction of incinerator proximity. Included as reference is Figure 22.

Maximum Utilization As Expressed On The Landscape

From 1974, there are important clues that are discernable from the air. Figure 23, portrays the VanDeNor Mill, and the Ramey lathe mill. The VanDeNor site shows the typical layout of a small primary cut mill, with an extensive dry yard, or “infeed deck[†].” From the infeed deck, logs typically moved to the sawmill by large rubber wheeled “grapple loaders,” which pick up logs using metal tongs mounted on the front of the tractor. Logs that are longer and smaller in diameter are arranged in the large decks running north to south, while the less numerous larger diameter logs are arranged in the smaller decks running east to west, closer to the mill. No drying yard where rough, “green” lumber is stacked is visible at the VanDeNor site, so presumably lumber was shipped to a dry kiln, drying yard, or sold rough.

[†] “Deck” refers to a pile of logs which are awaiting either loading (cold deck), or processing (feed deck).



Figure 21. Proximity of "Tepee" Incinerators to Arcata High School. In 1974, five burners were evident. Circles are centered on the tepee burners using a 1000' radius. Note the convergence on the northwest boundary of the high school. The concentration of tepee burners in this residential area gave it the dubious distinction of being the area with highest airborne particulate measurements in the U.S. (1974 Airphoto Series, 4 17A 45).

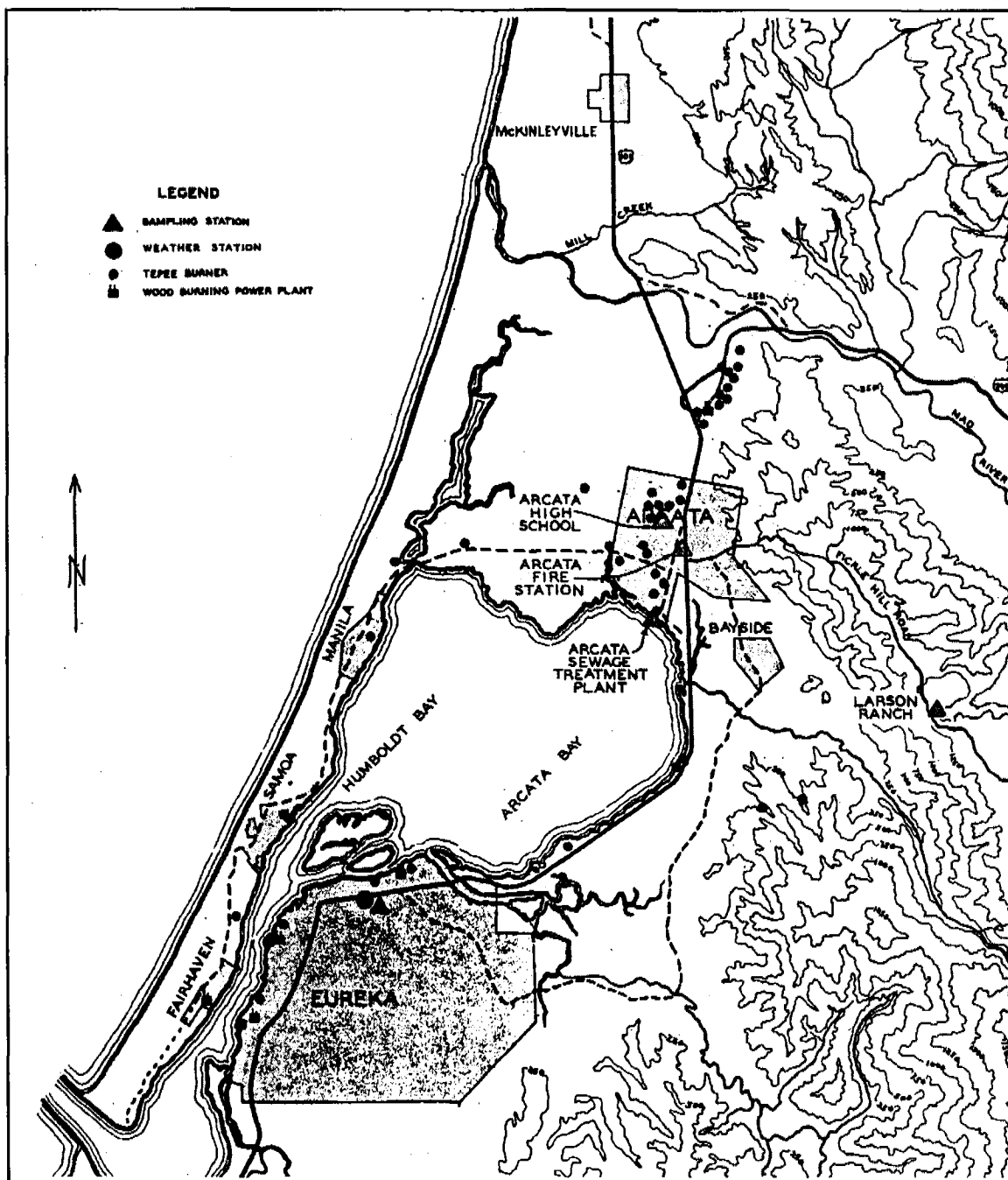


Figure 22. Location of Tepee Incinerators in the Humboldt Bay Area.
(from Norman E. Waggoner, *The Eureka-Arcata Ambient Air Quality Study*, Berkeley: Bureau of Air Sanitation, 1961), 2.

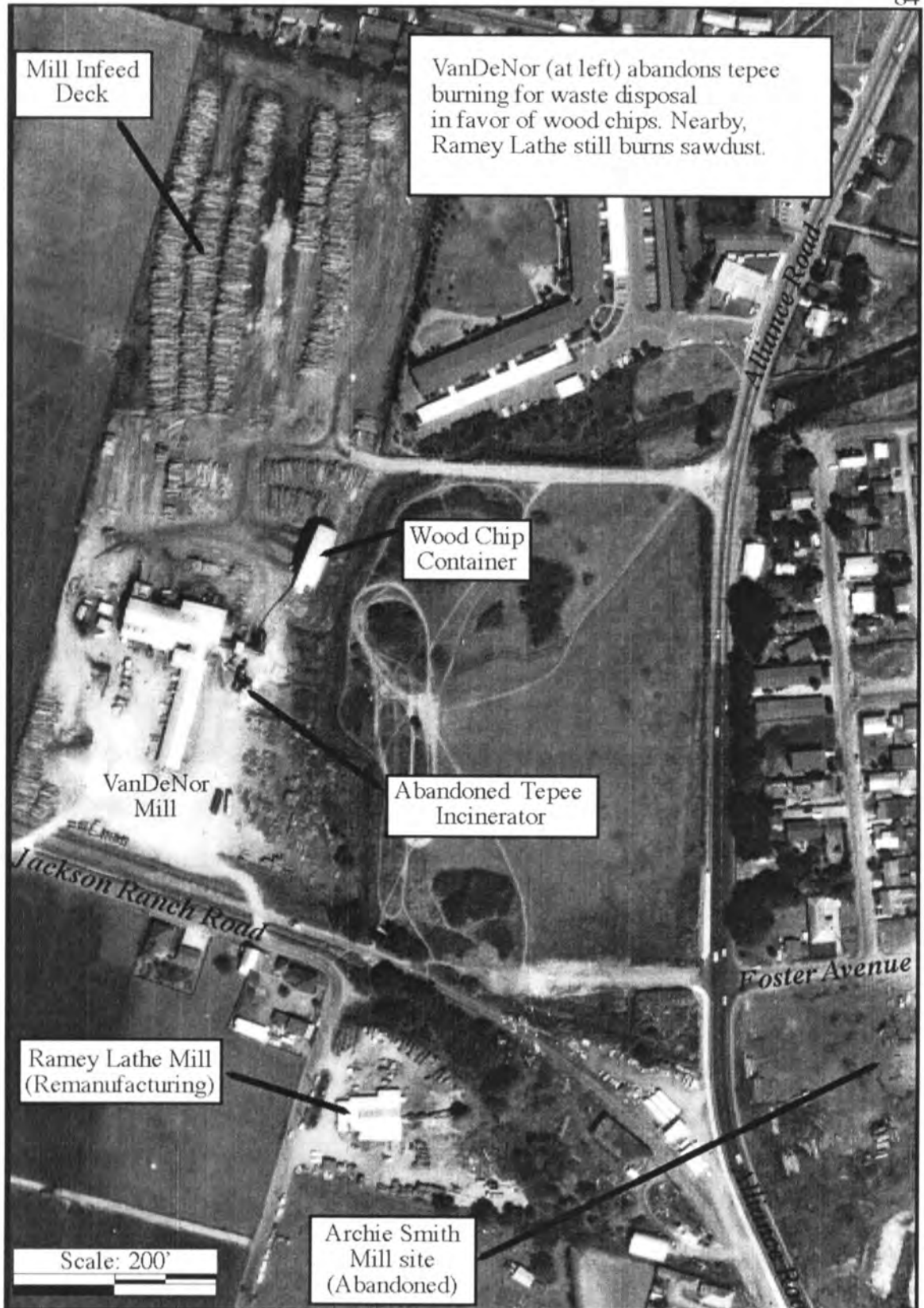


Figure 23. Infeed Deck (Log storage) and "Remanufacturing".

By 1974, the state requirements for improvements in air quality forced the abandonment of many tepee burners. However, the arrival of the Georgia-Pacific pulp mill in 1965 and Crown-Simpson in late 1966, provided the much needed market for chips. The tepee burner at VanDeNor (Figure 23) is replaced by a cyclonic separator (which separates sawdust from the larger wood chips), conveyor, and wood chip storage container. An interview with a former California Timber Tax assessor indicated that Simpson bought VanDeNor during the late 1960's to mid-1970's. During that time, Simpson's Korb and/or Klamath mill(s) were undergoing retooling and the company needed to have a small mill to continue to produce old growth redwood.

The ownership of the VanDeNor (in 1974) may explain why this facility is the only mill in this particular area with a chip storage set-up. Perhaps Simpson was interested in more than lumber and chips; VanDeNor had also purchased land in the Van Duzen River area from Georgia-Pacific in the mid-1950's.⁹¹

However, the nearby Ramey lathe mill shows no log deck, but has stacks of finished product arranged about the mill. Due to the tight restrictions on supply caused by the Redwood National Park expansion in the Spring of 1978, this small remanufacturing plant employed fifteen men in when it closed in the same year.⁹²

Figure 24 shows the Twin Parks mill (another casualty of the 1978 expansion). The log pond in which redwood logs were dumped and stored is visible to the immediate left of the mill complex. Although not the same mill, Figure 20 shows a depiction of how a log pond would appear at ground level. Primarily a redwood mill, the closure of Twin Parks in 1978 was a result of suspension of log sales by its major supplier, Simpson. Simpson cited log shortages due to the expansion of the Redwood National Park as the

⁹¹ Carranco, Redwood Lumber Industry, 164.

⁹² Ibid., 187.

main reason⁹³. The site of the original 1939 Arcata Redwood plant is visible at the extreme right of the picture. After the construction of the Brainard facility in 1952 and the construction of two new plants in Orick, the company abandoned this particular mill. Figure 25 depicts a drying yard, where lumber is stacked and allowed to dry by air.

⁹³ Ibid.



Figure 24. Log Pond and Sunset Avenue.

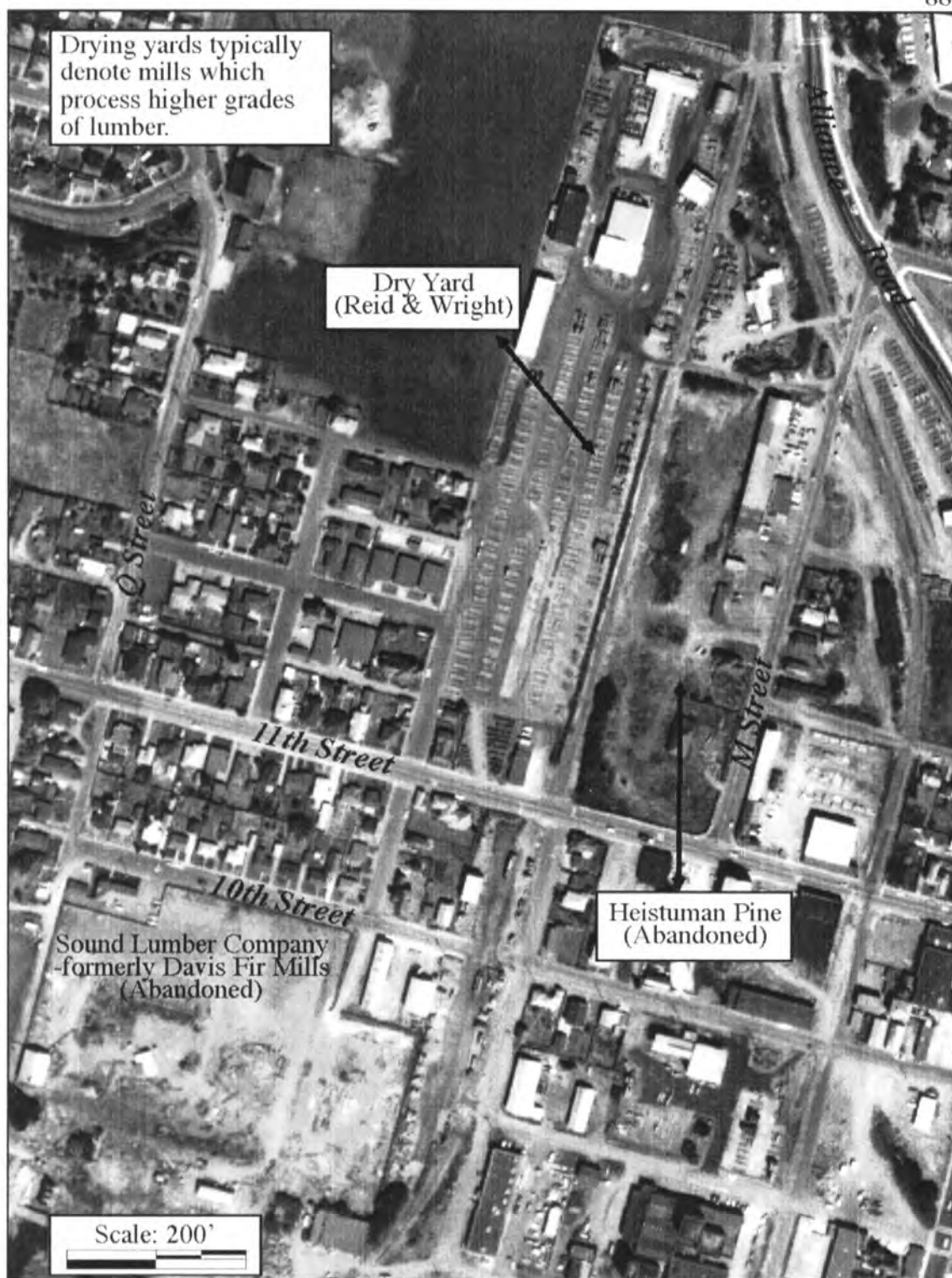


Figure 25. Drying Yard and Abandoned Mills.

As of 1996, Reid & Wright is the only mill still currently operating of all the mills shown in Figures 23 through 25. The former site of the Sound Lumber Company (the mill with the eighth largest output within the county in 1953) is visible just below 10th Street.

Summary

The heavy demand for lumber after World War Two created the market conditions which allowed Douglas-fir to become a part of the Humboldt lumber industry. This affected the marketability of Douglas-fir, which had not been considered as a natural resource until the market created demand. The diffuse land ownership patterns associated with Douglas-fir contributed to the rise in small to medium-sized operators. Finally, the developments of logging technology and transport systems allowed the operators a means to process Douglas-fir. This allowed the gyppos to become an established part of the timber economy in Humboldt county by the early 1960's. However, gyppos were functioning in a "de-regulated" harvest environment, and the rate of cutting proceeded throughout the 1950's with scant regard for future supply. In that sense, the gyppos had laid the groundwork for the "bust" side of the "boom and bust" economy.

CHAPTER 4

“BUST”: OVEREXPLOITATION AND COLLASPE

In the previous chapter, the combined effects of 1) demand for basic building materials, 2) small land ownership patterns, 3) the sudden change in the marketability of fir and 4) the changing technological and financial requirements of starting up mill operations all played upon one another to create the explosive growth in both the number of timber operators and in the amount of timber produced. The intention of this final chapter is to explain the causes of sharp decline in the employment potential of the gyppo industry, and to relate what state the gyppo industry has evolved to in Humboldt County.

Employment

Employment in the Lumber and Wood Products industry, shown in Figure 27, indicates a downward trend for all forms of primary lumber employment. The peak year is 1956, with the exception of secondary manufacturing (Millwork, Plywood & Prefabricated Products). While the figures that support this graph are good for spotting the general employment trend in the industry, they cannot explain yearly fluctuations, because the reporting period is approximately every five years, and categories that appear in some years do not appear in others. However, the overviews do provide a glimpse into the shift away from high employment levels in the primary extraction and processing sector. The slight increase in employment for the forest industry during the late 1980's seems to be a result of increased building activity as the country moved out of the 1981 recession. The faster rate of growth in employment within the manufacturing sector between 1985 and 1990 is

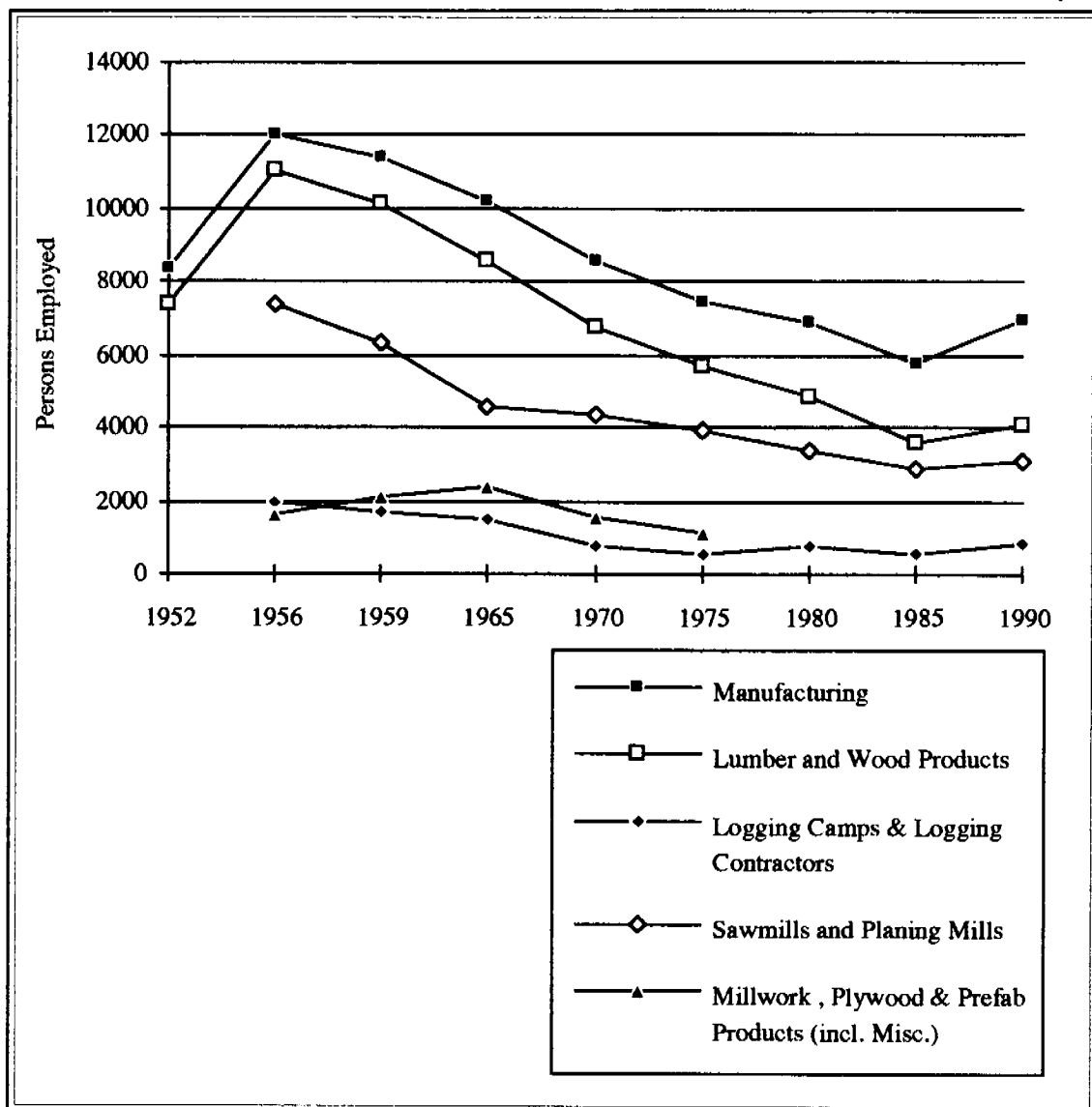


Figure 26. Employment in Lumber and Wood Products Industry Humboldt County, 1952-1990. (County Business Patterns, 1952-1990).

reflective of other non-forest products manufacturers (such as Moonstone Products, Yakima, and Holly Yoshi) and is beyond the scope of this study.

Figure 27 shows the same categories, except that percentage changes in employment are tied to 1956 as the base year (actual value minus base value divided by actual value). This graph better depicts the percentage changes in each of the employment categories. The plywood industry is the only category to gain percentage during the gyppo period. However, this sector lost those initial gains within fifteen years, as the supply situation deteriorated throughout the 1960's. By the early 1980's, the closure of the Simpson and L-P plywood plants signaled an end to the plywood and veneer mill industry the county⁹⁴. Since there were only four to five plywood manufacturing facilities within the county, the closure of even one or two mills substantially affected the levels of employment in this sector of the industry.

Employment trends during this period are fairly interesting. Figure 27 shows that by 1956, the number of people employed by the lumber and wood products industry had reached its peak and was beginning its long period of decline. However, the peak in employment was four years ahead of peak of production. During this period, larger companies were making commitments to the gyppo logging contractors. It seems that the small operators, while becoming more numerous, were employing fewer persons, and becoming more adept at implementing labor saving machinery.

Throughout the 1950's, the class size of mills moved towards larger operations. In 1956, the number of mills employing eight to nineteen persons was the most fashionable. By 1959, there was a major reduction in the number of mills in the lower class size. By 1965, most mills were in the twenty to forty and fifty to ninety range.

⁹⁴Jeffrey R. Lustig, Community and Property: The Deeper Implications of Plant Closures. Western Social Sciences Association. Albuquerque. Working draft. April 29, 1983. 15

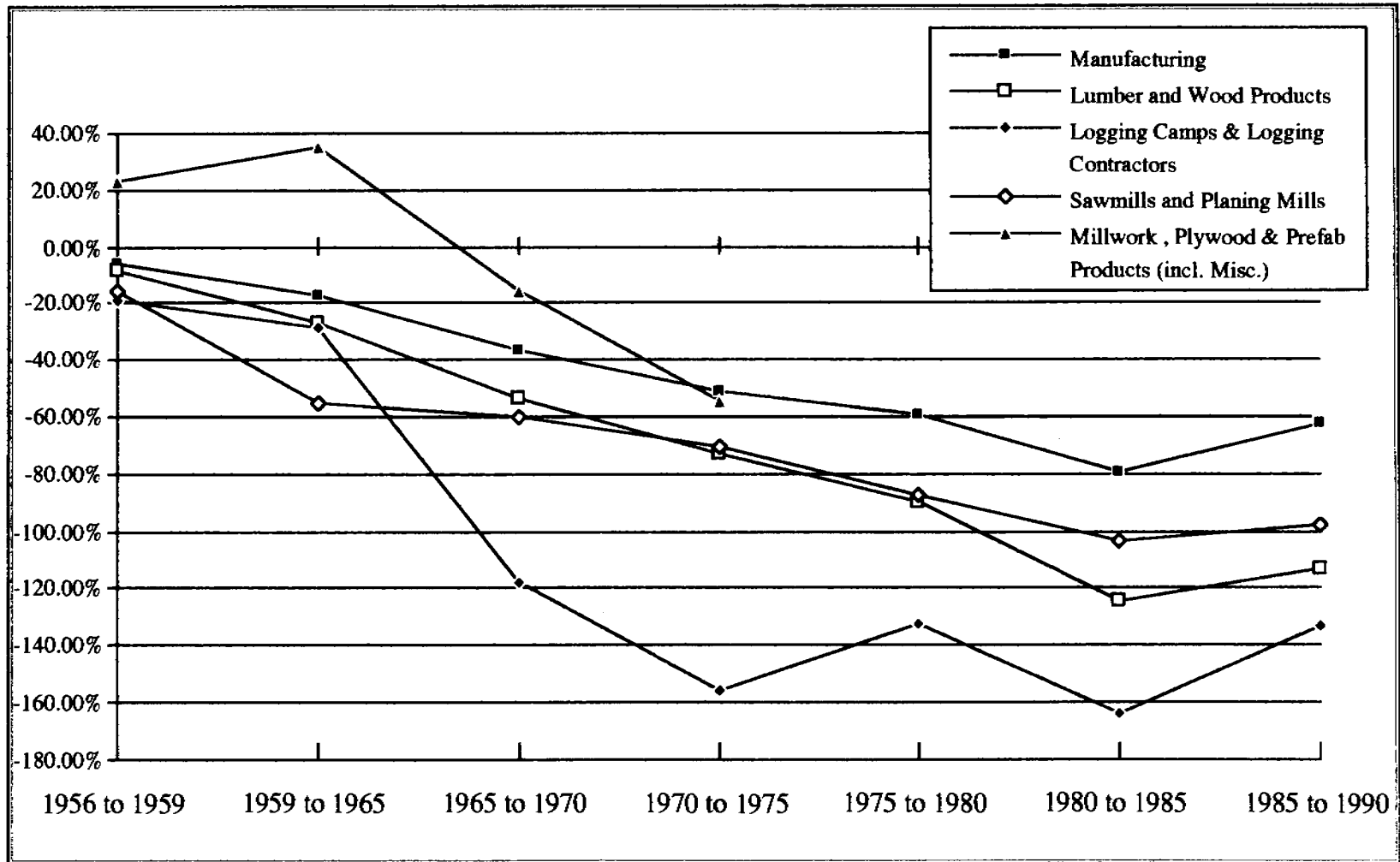


Figure 27 Percentage Change in Employment by Manufacturing Sector: 1956 base consonant.
(County Business Patterns, 1952-1990).

1970 bought a shift to the higher and lower range mills. Overall, the range for the years from 1950 to 1990 seems to fall into the range of between twenty and one hundred⁹⁵.

Problems With Log Supply

By the early 1960's, it was becoming apparent that the majority of old-growth fir had already been logged from most of the available private lands. In terms of government timber sales within the Six River National Forest, the volume of stumpage required for the initial bid was beyond the means of most small operators, especially in a climate of rising prices.⁹⁶

As mentioned in the previous chapter, a downward trend for both the number of operators, and the total timber harvest began in 1959 (Figure 18). When comparing this data with Figure 28, it is little wonder why so many mills went out of production during this time. Between 1947 and 1967 there was nearly a fifty-three percent reduction in the total area of Douglas-fir available for harvest. During the same period, there was only a twenty-four percent reduction in the amount of redwood acreage.

The comparison between the mill employment and the type of log processed also gives a glimpse to what was happening with the log supply. As previously discussed, the timber processed from the late 1940's into the late 1950's was nearly all old-growth fir. As a rule, it takes more labor to process old-growth timber than second-growth or immature timber, because of the additional bulk of the timber harvested. This bulk-to-employment relationship also applies redwood when compared to fir (due to the higher moisture content of redwood). By 1956, as the supply of large old-growth logs became scarcer (as a result

⁹⁵ County Business Patterns, 1952-1990.

⁹⁶ Interview, Frank Schmidt, April 12, 1994.

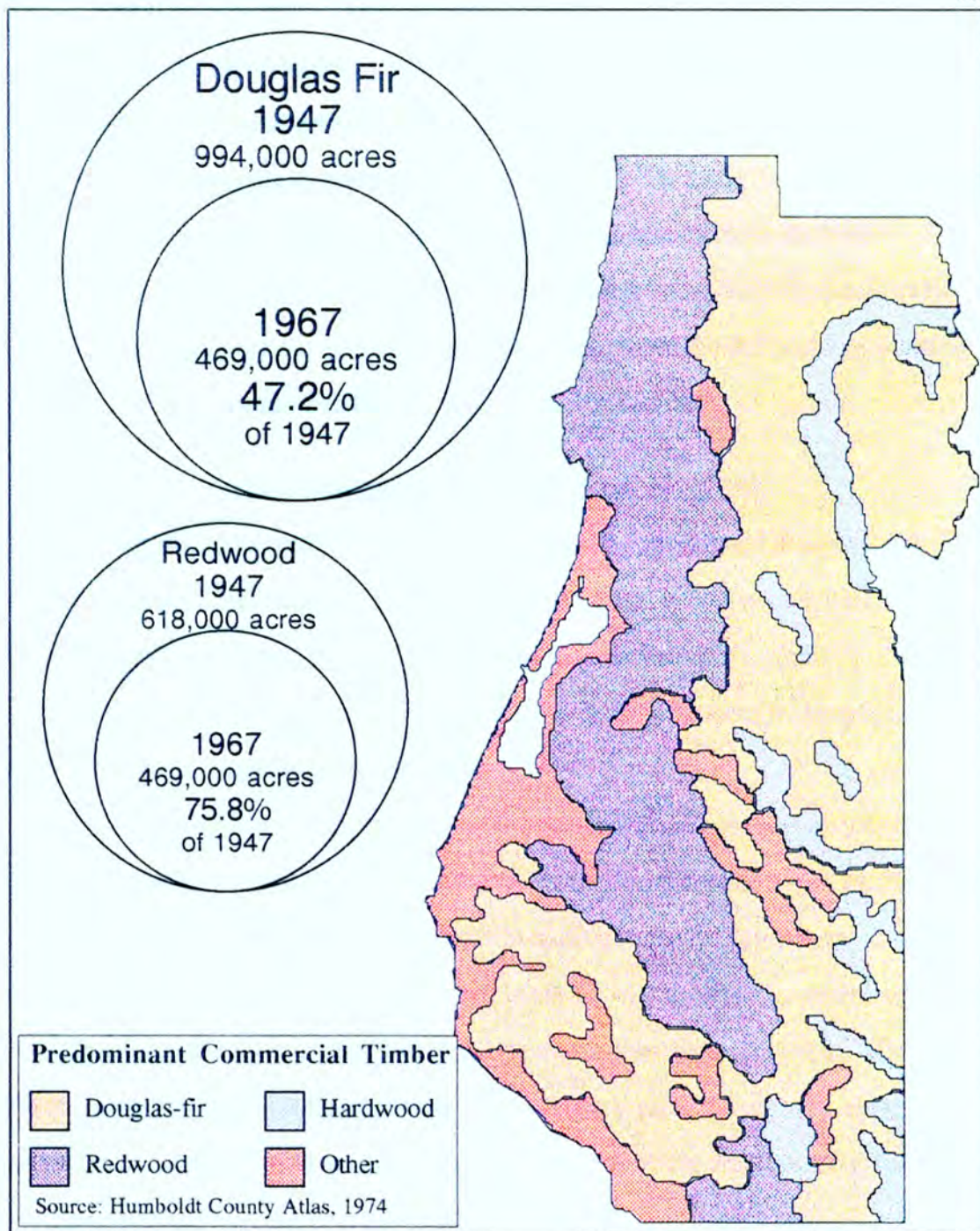


Figure 28. Comparison of Commercial Forest Area Available during 1947 & 1967.
1947 Data- Vaux, Humboldt's Timber; 1967 Data- Oswald, Preliminary Timber Resource Statistics For Humboldt County.

of demand from the plywood mills), sawmills began to use smaller logs, and employment declined. As the facilities to process a wider variety of products developed at the larger mills, and sales of raw logs to independent mills declined. By the early to mid-1960's, smaller mills began to encounter a severe shortage of logs coming from the larger companies who sold logs on the open market.⁹⁷ As mentioned at the end of chapter two, those mills that were the most affected were ones which purchased the excess production from the major landowners (mainly Simpson and Pacific Lumber).

Local Government's Role in the Boom-Bust Cycle

One of the most important factors which caused the accelerated depletion was the "ad valorem" timber tax. Land taxes, and thus, timber taxation, was written into the California State Constitution as a way for counties to receive operating funds. As implemented within the county after 1946, all trees over sixteen inches in diameter and/or over forty years old were subject to the timber tax.⁹⁸

During the mid-1940's, a popular way to evade the timber tax was to cut any trees approximating forty years of age, along with a seventy-percent liquidation of the standing old-growth on an individual property (in order to receive "cutover" tax status). Theoretically, it was possible to harvest stands in such a way as to pay no timber tax at all, and still have a productive stand of timber. This practice was slowed down in 1955, when the first county timber maturity board observed that young growth trees were being harvested, and declared young growth timber to be merchantable and thus, taxable.⁹⁹

⁹⁷ Personal Interview, Vol. 1

⁹⁸ Gerald Partain, "Timber Taxation in Humboldt County" (Ph.D diss., Syracuse University, April 1972), 32.

⁹⁹ Ibid., 32-34

The problem with the taxation structure concerning Douglas-fir for small landowners was primarily caused by the sudden imposition of taxation onto lands which held old-growth Douglas-fir. This affected livestock ranches in particular, which had previously been economically useful as extensive agricultural land. Suddenly, these ranches were taxed at a level which reflected that of a timber operator.

Suggested alternatives to eliminate the “destructive” effects of taxation upon the stability of the lumber industry was present in every county timber summary issued during the 1950’s and 1960’s. In identifying the problem, the Vaux report and the Gerald Partain dissertation states the concern most eloquently-

A situation is developing in the County in which the tax burdens in some areas may become destructive for the planning of better forest management.

As we have stated in page 7, forest and forest industries provide one of the major financial sources for County government. However, some important changes have taken place in the timber taxation situation during the last two decades. The illustration on page 32 shows that the total assessed timber acreage in the County *increased* by 64 per cent between 1931 and 1952. Yet the total volume of assessed timber decreased by 37 per cent. Here is the reason why: In 1931 practically all of the assessed timberland was old-growth redwood. Fir timber, having no market value, was not assessable. As fir values rose, such timber was placed in the tax rolls. The assessed timber acreage thus grew rapidly after 1946. At the same time, liquidation of old-growth timber- both redwood and fir- was removing assessed stands from the tax rolls in increasing volume every year. The newly assessed timber was of a lower intrinsic quality and value than that taken from the rolls by liquidation. This accounted for the reduction in the total assessed value.”¹⁰⁰

“The accumulated cost of timber taxation and the immediate, or annual, tax cost of holding the timber are the prime concerns of the nonindustry private owners. However, the former owners have harvested their timber with property tax reduction a strong motive, whereas the latter owners must plan for continuous supplies of timber for their mills and base their harvest rates more upon the market demand. As a result, the lands of nonindustry private owners have been heavily cut in the last 25 years, which helps explain why they contain such a small percentage of the taxable timber.”¹⁰¹

¹⁰⁰Henry J. Vaux, Timber in Humboldt County, previously cited, 31-32.

¹⁰¹ Op. Cit., Partain, 60-62.

In addition to the newly increased taxation, fir stumpage held by small landowners posed difficulties which were caused by simple unfamiliarity with the industry. At the time that fir became a marketable product, there was little in the way of advisory services that small landowners could rely upon for adequate information about harvesting. What occurred during this period of early fir sales was a proliferation of unusual deals.

Imagine a contract, if you can, which permitted the logger to leave the butts cuts in the woods to rot because the mill operating on the ranch was not large enough to handle them. The payments to the owners were based in the amount of lumber tallied at the mill. Or another contract which allowed the buyer 20 years to harvest timber, but left the seller paying the timber tax. (W.D. Pine, My timber is gone... What shall I do now?, University of California Agricultural Extension Service, Humboldt County, November 1956, 5-6.)

Relief from the ad valorem tax finally came in 1974 elections in the form of Proposition 8, which allowed the California legislature to construct a new timberland taxation method.¹⁰² The yield tax, so long advocated by critics of ad valorem, took effect in 1976 under the auspices of Assembly Bill 1258 (Z'berg- Warren-Keene-Collier Forest Taxation Reform Act of 1976). This bill also implemented the TPZ (or Timber Preserve Zone) concept, which allowed owners of forest property to register their parcels as productive timber producing areas and avoid excess taxation which emanated from the "highest and best use" ideology under ad valorem. Parcels which were located in active timber production areas seemed to be threatened by development (mainly in the form of second homes and other low intensity improvements) on neighboring parcels, thus making timber operations unprofitable for the landowners.

However, this act contributed to further consolidation in the land base in that it required that Timber Harvest Plans (THP) be submitted to the California Division of

¹⁰² Ramond J. Flynn, The ABC's Of TPZ, (Eureka: Pamplet, Humboldt County Assessor, 1976?), 1.

Forestry¹⁰³. This raised the cost of logging to smaller land owners in that THP's needed to be signed by a Registered Professional Forester (RPF). In addition, on all harvests, the CDF was also required to notify the public if a logging operation was to take place. With the growth of the "environmental consciousness" movement during the 1970's and 1980's, this allowed public input into the timber harvesting process. On larger operations, the delay caused by halts in logging also tended to result in suspension of log sales to gyppo mills, further tightening the supply.

Conclusion

To say that any few events or actions caused the downfall of the gyppo mill industry is an error. Critics of the current timber industry point to greed and over-cutting. Proponents of the industry claim that park expansions and "over-regulation" are to blame. Nevertheless, economic conditions in areas dependent upon basic industries are the result of a continuing series of many events, not just the availability of a particular resource. These events are the result of connections and actions between individuals, businesses and government. These events have varying degrees of impact. In reviewing every report written for, by, and about the Humboldt gyppo industry for this study, trends were spotted, and recommendations made. Unfortunately for the gyppos, the forecasted trends have proven to be more accurate. The various "calls to action" to avert supply problems went unheeded, and the result is a timber and lumber industry heavily dependent on second growth timber.

What remains is this- It is a practical impossibility to duplicate the high employment levels of the 1950's in the forest products industry. The natural resource supply and market demand do not match the conditions of the old-growth resource economy. Because of mill

¹⁰³ Henry J. Vaux, The Regulation of Private Forest Practices in California: A Case in Policy Evolution, Journal of Forest History, July 1986, 30-31.

automation and closures taken by Simpson and Louisiana Pacific, it is possible to process the same amounts of logs with fewer employees. The rise of regional processing plants, as opposed to more numerous and smaller mills, has reverted the timber industry to a state much like that of the 1930's and 1940's. The contrast between the redwood era and the present is the availability of a particular resource, and the technology which processes it. What remains is a highly automated industry, with an ever-shrinking employment potential for sawn lumber products.

However, there remains a place for the gyppo industry. Larger timber owners, such as Simpson and Louisiana-Pacific, have shifted their harvesting emphasis. Throughout the 1980's, a shift from company controlled operations to more reliance upon gyppo contractors was established. In this capacity, the gyppo's role becomes one of a "temporary" worker. As Simpson and Louisiana-Pacific trimmed their workforce in the mills during the 1980's, an "outsourcing" ideology was applied to logging phase.

This is not to say that all major landowners or mill operations were loathe to use gyppos from the outset. Some relied heavily upon them, and continue to do so. The creation of Redwood National Park in 1967 and subsequent expansion in 1974 forced Simpson and Arcata National to halt log sales to several gyppo sawmills. If these mills had no other major source of supply, they closed (such as Twin Parks). If they had access to government log sales, they survived, such as Sierra Pacific Industries (SPI). Even from within the industry, Sierra Pacific was identified as having "significant production" from government timber during 1965.¹⁰⁴ Sensing the pressure that was being applied by the Forest Service to reduce their cut in National Forests, Sierra Pacific began to take measures to expand their land base beginning the late 1960's. This culminated in their last major

¹⁰⁴ North Coast Timber Association. "Humboldt County Log Production- 1965." Association Memo. January 18, 1966. HSU Archive; Humboldt County Collection; Lumber Trade- 1960's and 1970's. TMs [photocopy].

purchase, the land holdings of Santa Fe Land Development, which had been supplying logs to SPI's Central Valley operation.¹⁰⁵ Incidentally, this purchase also gave Sierra Pacific the distinction of being the largest owner of private lands in California. Land purchases have dramatically lessened SPI's vulnerability to the vagaries of government timber sales. However, the company has not closed "marginal" plants; those with inadequate sources of company timber, such as its Hayfork facility. The company's public relations position is that since these mills are still operating profitably, it will not close them. A more cynical view is that the SPI uses its position as a major employer in troubled timber-dependent economies to generate political support for its policies of continued use of government timber.¹⁰⁶

But simple availability is not the only reason why Sierra Pacific and other continue to pursue government timber harvests. Overall, the reduction of Douglas-fir taken from poorly managed, private lands during the gyppo period has put more pressure on the Federal government to increase the old-growth cut. It has also increased the percentage of young-growth logs at sawmills and put more pressure on large, industrial landowners to intensify their land use policies towards "maximum sustained yield." The main problem is more fundamental. What guides the actions of large timber operations is the "guiding rate of interest," as articulated by Ray Raphael.

In economic terminology, we speak of the *opportunity cost* of capital: there is always an opportunity to do something else with your money. The opportunity cost of timber is extremely high because the capital is tied up for such a long period of time. Depending on the interest which could be made in other investments (called the

¹⁰⁵ James Walsh, California Business, Derailed: How Southern Pacific Transportation Co. was Sold, Vol. 23 ; No. 8 ; Pg. 22; ISSN: 0008-0926, August, 1988, Lexus/Nexus Information Retrieval.

¹⁰⁶ Mike Weiss, Mother Jones, Firetrail: are loggers behind the rush of fires in the West? federal timber politics. Vol. 18 ; No. 2. (March, 1993). Lexus/Nexus Information Retrieval.

guiding rate of interest, the *hurdle rate*, or, misleadingly, the *discount rate*), the opportunity can become a prohibitive factor in any long-term forest investment. For every dollar initially invested, a tree that takes 80 years to mature will have to return \$23 at 4% interest, \$224 at 7% interest, or \$2,048 at 10% interest. If the guiding rate of interest is high, investments in the future resource base become financially untenable, since they won't be able to compete with other capital investments. When the cost of interest is taken into account, there is no genuine "long term" in the practical world of business. (Ray Raphael, More Tree Talk, Washington, D.C., Island Press, 1994, 162-163.)

Raphael continues that dramatically shorter harvest cycles have become the standard way that forest companies operate, harvesting early because "the economic maturity of timber occurs long before the productive maturity¹⁰⁷". To not harvest at economic maturity places the company in an unsound financial condition. This makes for good forestry, but bad economics, and creates an ideal climate for polarization on either side of the "timber debate." Critics of the current timber industry uphold Pacific Lumber's timber harvesting policies before the 1986 buyout by MAXXAM as the "ideal." The current owners of PL would like the world to believe that accelerated cutting to pay "junk bonds" makes no difference on the forest. Nevertheless, private foresters have expressed to the author that Pacific Lumber's pre-takeover harvest philosophy was so far out of line with other forest operations that it virtually promoted the attractiveness of the company to the 1986 financiers.

In the interviews conducted for this study, the aspect of gyppo logging and mills that seems to be remembered most fondly was the economic autonomy which individuals could assert. Individuals regarded employment as plentiful and to dictated upon their terms. Unfortunately for skilled and semi-skilled workers, the skills used logging and mill employment does not translate well into other sectors of the economy, much less any other industry. The industry has changed, but the memories of gyppo logging remain.

¹⁰⁷ Op.Cit., Raphael, More Tree Talk. 163.

WORKS CITED

- Adams, Kramer A. Logging Railroads Of The West. Superior Publishing Company. Seattle. 1961.
- Arcata Union. "Turnover High In Logging Workers; Near Boom Blame." 1. June 26, 1959. microfilm.
- Arcata Union. "Sawdust problem necessitates roof change at AHS." 1. October 14, 1960. microfilm.
- California Division of Forestry. State Forest Notes. (January 1979. December 1977. No. 69.; July 1976. No.62.; December 1975. No.60.; December 1974. No. 56.; November 1973. No.53.; January 1973. No.51.; January 1972. No.47.; January 1971. No.44.; January 1970. No.39; January 1969. No.37.; January 1968. No.35.; January 1967. No.31.; January 1966. No.27.; January 1965. No.23.; January 1964. No.19.; February 1963. No.14.; February 1962. No.10.; April 1961. No.8.) 2.
- Carranco, Lynwood. Redwood Lumber Industry. San Marino. Golden West Books. 1982.
- Carranco, Lynwood and Henry L. Sorensen. Steam In The Redwoods. Caldwell, ID. Caxton Printers Ltd. 1988.
- Council of Economic Advisers. Economic Indicators November 1962. U.S. Government Printing Office. 87th Cong., 2nd sess., Washington, D.C. 1962.
- County of Humboldt. Atlas of Humboldt County, California. County of Humboldt. Eureka. 1975.
- Department of Public Health; State of California. The Eureka-Arcata Ambient Air Quality Study. Bureau of Air Sanitation. Berkeley. 1961.
- Haynes, Christopher S. "The Arcata Bottoms: Flooding on a Changing Landscape." Master's thesis. Humboldt State University. June, 1986.
- The Humboldt Standard. "Twin Parks Mill" June 21, 1952. Humboldt County Collection. [photocopy].
- Joint Committee on the Economic Report Staff and the Office of Statistical Standards, Bureau of the Budget. 1955 Historical and Descriptive Supplement to Economic Indicators. U.S. Government Printing Office. Washington, D.C. 1955.
- Kneiss, Gilbert H. Redwood Railways. Howell-North. Berkeley. 1956.
- MacKay, Donald. The Lumberjacks. MacGraw -Hill Ryerson Ltd. Montreal. 1978.

- Marshall, Larry T. "Douglas Fir Brings New Industries to the Region." Western Conservation Journal. Vol. XIV, No. 3. (May-June, 1957).
- McNairn, Jack and Jerry MacMullen. Ships of the Redwood Coast. Stanford University Press. 1945.
- Melindy, Howard Brett. "One Hundred Years of the Redwood Lumber Industry." Ph.D. dissertation. Stanford University. 1952.
- Melindy, Dr. Brett. "Misuse Of Land Laws." audio recording of speech before the Humboldt County Historical Society. March 24, 1959.
- Mengel, Lowell S. "A History Of The Samoa Division Of Louisiana-Pacific Corporation And Its Predecessors, 1873-1973." Master's thesis. Humboldt State University. 1974.
- Miles, John G. Humboldt County Timber Supply and Predicted Production Rates, 1965-2025, Eureka: Natural Resources Management Corporation. (1977).
- North Coast Timber Association. "Humboldt County Log Production- 1965." Association Memo. January 18, 1966. HSU Archive; Humboldt County Collection; Lumber Trade- 1960's and 1970's. TMs [photocopy].
- Oswald, Daniel J. The Timber Resources of Humboldt County, California. USDA Forest Service Resource Bulletin PNW-26. Pacific Northwest Forest and Range Experiment Station, US Department of Agriculture. Portland. September 1968.
- Pacific Logging Conference. Loggers Handbook. Vol. XVIII. Portland. (1958).
- Partain, Gerald L. "Timber Taxation in Humboldt County" Ph.D diss., Syracuse University. April 1972.
- Raphael, Ray. Edges. New York: Knopf, 1976; reprint, Lincoln: University of Nebraska Press, Bison Books, Inc. 1986.
- Raphael, Ray. More Tree Talk, Washington, D.C: Island Press, 1994, 162-163.)
- Spector, Robert. Family Trees, Simpson's Cenennial Story. Bellevue, WA. Documentary Book Publishers Corp. 1990.
- Stanford Research Institute. America's Demand For Wood 1929-1975, Weyerhaeuser Timber Company. 1954.
- Stindt, Fred A. The Northwestern Pacific Railroad. Redwood City, CA: By the Author. 3rd Ed. (1978).
- Tomascheski, J. "Bud" Sierra Pacific: A Family History. By the author. Arcata. 1991.
- Tooker, Richard H. "Two Views of the Dolbeer Donkey." Forest History. Vol. 14, No. 1. (April, 1970).

- Turner, Dennis W. Places Names Of Humboldt County, California. By the author. 1993.
- U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census. County Business Patterns- California. U.S. Government Printing Office. Washington D.C. (1st Quarter 1952, 1956, 1959, 1965, 1970, 1975, 1980, 1985, 1990).
- Vaux, Henry J. Timber In Humboldt County. Berkeley: California Agricultural Experiment Station, Division of Agricultural Sciences. University of California. Second Printing. February 1955.
- Vaux, Henry J. & Eugene A. Hofsted. An Economic Appraisal of Forest Resources and Industries in Humboldt County, California. Humboldt County (Calif) Dept. of Forestry. Prepared for the Humboldt County Forestry Committee by (the) School of Forestry, University of California and (the) Humboldt County Department of Forestry in cooperation with (the) Calif. Agricultural Extension Service. 1954.
- Waggoner, Norman E. The Eureka-Arcata Ambient Air Quality Study. Bureau of Air Sanitation. Berkeley. 1961.
- Weiss, Mike. "Firetrail: are loggers behind the rush of fires in the West? federal timber politics." Mother Jones. Vol. 18 ; No. 2. (March, 1993). Lexus/Nexus Information Retrieval Service.
- Young, James A. and Jerry D. Budy. "Adaptation of Tracklaying Tractors for Forest Road and Trail Construction." Journal Of Forest History. Vol. 31, No. 3. (July, 1987).
- Zivnuska, John A. Economic Factors In The Organization Of The Forest Products Industries. Presented at the Sixteenth Industrial Forestry Seminar by The Yale School of Forestry and Oregon State College School of Forestry, Corvallis. (January 16-27, 1961).

PERSONAL INTERVIEWS

- Personal Interview. Vol. 1. March 17, 1994. videotape.
- Personal Interview. Frank Schmidt. April 12, 1994. notes.
- Personal Interview. Vol. 2. April 21, 1994. videotape.

SECONDARY SOURCES

- Arcata Union. "Van De Nor Mill to be Completed in June." 8. March 30, 1951. microfilm.
- Arcata Union. "Prosperity Due To Big Lumber Industry Growth." 8. March 14, 1952. microfilm.

- Arcata Union. "Simpson-Korbel nears start-up of \$15 million young growth mill." October 16, 1980. microfilm
- Bolsinger, Charles L. California Forest: Trends, Problems, and Opportunities. Resource Bulletin PNW-89. Portland. US Department of Agriculture. Forest Service. Pacific Northwest Forest and Range Experiment Station. August 1980.
- The California North Coast Air Basin Air Pollution Coordinating Council. Air Pollution Control Plan for the California North Coast Air Basin. Sacramento (?). 1975.
- Cox, Thomas R. Mills and Markets. University of Washington Press. Seattle. 1974.
- Craig, George A. Public Timber Exports-- Until It Really Hurts! Western Lumber Manufacturers, Inc. File 1.22 X No. 5.111, Mimeo #2777. San Francisco. June 25, 1968 (?).
- Eureka and Humboldt County Chambers of Commerce. Lumber Mills in Humboldt County. Eureka. December 1951.
- Flynn, Raymond J. The ABC's of TPZ. Humboldt County Assessor's Office. Eureka. 1976 (?).
- Gibson, Henry H. Amercian Forest Trees. Hardwood Record. Chicago. 1913.
- Howard, James O. and Ward, Franklin R. California's Forest Products Industry: 1988. Resource Bulletin PNW-RB-181. Portland. US Department of Agriculture. Forest Service. Pacific Northwest Research Station. 1991.
- Humboldt County Board of Trade. The Pride of Humboldt. Pamphlet. Eureka. 1954 (?). TMs [photocopy].
- The Humboldt Times. "Coast Pacific To Build New \$250,000 Dock Next Month." 8. January 12, 1955. photocopy.
- Lustig, R. Jeffrey. Community and Property: The Deeper Implications of Plant Closures. Western Social Sciences Association. Albuquerque. Working draft. April 29, 1983.
- Ornsby, Warren. "Peeling the Tanoak." Forest History. Vol. 15, No. 4., 8-9. (January, 1970).
- Pelline, Jeff. San Francisco Chronicle. "Timber Shortage Chops Industry." Business; C1. July 13, 1992. Lexus/Nexus Information Retrieval Service.
- Pelline, Jeff. San Francisco Chronicle. "Opting for Efficient Forests; tree farms produce more with fewer workers." Business; C7. July 13, 1992. Lexus/Nexus Information Retrieval Service.
- Siegal, Richard A. The North Coast Forest Products Industry in 1975. Bank of America N.T.&S.A (?). June 14, 1965.

- Smith, Paul C. Some Factors Effecting Forest Income in Humboldt County. 1968 (?) TMs [photocopy].
- Gravelle, Marie. Times-Standard. "High tech hits Simpson's Korbel mill." October 13, 1987. [microfilm].
- The Greater Eureka Chamber of Commerce and Humboldt Board of Trade. List of Lumber- Logging and Forest Products Plants of Humboldt County, California. Eureka. August 1960.
- RDC Company Cross Index. Humboldt County Collection (Lumber Companies Directories). February 14, 1990. TMs [photocopy].
- Supervisors of Humboldt County and the Humboldt County Chamber of Commerce. Souvenir of Humboldt County. Times Publishing. Eureka. 1902.
- US Department of Commerce. Statistical Abstract of the United States- 1993. Economical and Statistics Administration. Bureau of the Census. 113th edition. 1993.
- Vaux, Henry J. "The Regulation of Private Forest Practices in California: A Case in Policy Formation." Journal Of Forest History. Vol. 30, No. 3. (July, 1986).
- Vaux, Henry J. Young Growth Timber Taxation in Mendocino County. University of California, Division of Agricultural Sciences, California Agricultural Experiment Station. Bulletin 780. December 9, 1960.
- Williams, Michael. "Industrial Impacts on the Forest of the United States 1860-1920." Journal of Forest History. July, 1987. Vol 31. No. 3. 108-121.
- Zivnуска, John A. "The North Coast Timber Economy in 1975." October 21, 1964. TMs [photocopy].