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Land Ownership Dynamics in the Big Elk Valley in Oregon During the 20th Century

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Cover photograph of Big Elk Valley circa 1990 courtesy of Oregon Coast History Center, Newport, OR.

Abstract

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Land ownership is a key link between society and natural resources. The dynamics of landowner patterns are demonstrated by the examination of five land ownership maps in the Big Elk Valley of the central Oregon Coast Range. These patterns are further illustrated with the presentation of a land patents map of the Big Elk Valley. We selected this watershed because of its high diversity of ownership classes and the ability of the resulting dynamics to capture many aspects of ownership dynamics. Maps of land ownership are presented for 1907, 1930, 1956, 1979, and 1998. We also provide brief, illustrative descriptions of processes underlying the changing ownership patterns.

Keywords: Land ownership, Big Elk Valley, Oregon.

Introduction

Land ownership is a primary social institution by which society is linked to the land. To understand relations between humans and ecosystems, it is necessary to understand the role of land ownership in these interactions. Land ownership patterns are linked to the well-being of resource-dependent communities (Bliss and others 1998, Geisler 1993, Heasley and Guries 1995, Sisock 1998) and to landscape structures (Crow and others 1999, Medley and others 1995, Spies and others 1994, Turner and others 1996). Still lacking from these studies, however, is a detailed analysis of land ownership changes over time.

Changes in land ownership are occurring throughout the United States, most notably in rural areas (Bliss and others 1998), areas along the urban-wildland interface (Azuma and others 1999), and areas with a high proportion of privately owned lands (Alig and others 1986). The nonindustrial private forest area in western Oregon declined by roughly 750,000 ac between 1961 and 1986; one-third of it was converted to nonforest land uses, and two-thirds were acquired by the forest industry (MacLean 1990). Often accompanying changes in land ownership are shifts in land use or management objectives affecting forest lands. The parcelization of tracts along the urban-wildland interface and the concentration of ownership in more rural areas continue to affect the character of ecological and human communities. The more researchers learn about how, where, and why land ownership changes, the more we will be able to help planners and policy-makers anticipate and respond to the social and ecological effects of these changes.

Landscape models are increasingly used to understand the relations between humans and the land. Baker (1989) categorizes landscape models based on spatial resolution with most models categorized as either distributional or spatial models. Distributional landscape models examine how a given set of resources, such as land, are distributed among categories, such as agriculture, forest, and urban. Distributional models have been around for at least the last quarter century (Beuter and others 1976). They have been increasingly refined so that land use (Alig and Wear 1992), land cover, and ownership (Alig and others 2000; Butler and Alig, n.d.) are all dealt with to varying degrees. Although distributional models are useful for broad analyses, more explicit spatial detail is required to incorporate spatial interactions and to provide information at finer spatial scales.

Spatial landscape models incorporate not only the distributions of resources but also the allocation of these resources across a landscape, such as the locations of forests. Owing to the parallel development of the earliest spatial landscape models and remote sensing, land cover is continuously the most frequent landscape attribute studied (Cohen and others 1995, Spies and others 1994). Although methods for estimating, categorizing, and modeling land cover are constantly refined, the next major innovation in spatial landscape models was the inclusion of land use data (Iverson 1988, Turner 1988). As spatial landscape models became further refined, land ownership was another attribute included (Turner and others 1996, Wear and Bolstad 1998). Spatial landscape models that include ownership variables consider ownership as static and unchangeable over time, whereas spatial landscape models that include land cover routinely treat land cover as both spatially and temporally dynamic.

To illustrate the dynamics of ownership over time and present a method for obtaining this type of information, we used current and historical data sources and a geographic information system (GIS) to investigate land ownership change in the Big Elk Valley during the 20th century. Although we do not present a holistic model encompassing land cover, land use, and ownership, we try to highlight the utility of ownership data and point out some of the potential contributions that this refinement can make to landscape models in general. The Big Elk Valley was selected because of its high diversity of ownership classes and the ability of the resulting dynamics to capture many aspects of ownership dynamics. Although our data are limited to a single watershed in the central Oregon Coast Range, these data allow investigators to explore relations between potential causes and consequences of land ownership change—sociocultural, economic, or environmental—which can later be tested over larger areas.

Study Area

The Big Elk Valley is on the western slope of the central Oregon Coast Range (fig. 1). It encompasses all land that drains into Big Elk Creek and its tributaries (fig. 2). The highest point in the watershed is the summit of Mary's Peak, from which water drains northwest to the town of Harlan and then to Elk City where it joins the Yaquina River.

Forest land dominates land cover in the Big Elk Valley. Land covers associated with agricultural and residential land uses are prevalent in the valley bottoms. The potential vegetation or the pristine land cover is the western hemlock (*Tsuga heterophylla* (Raf.) Sarg.) potential vegetation zone (Franklin and Dyrness 1988). This zone is named after western hemlock because it is one of the most shade-tolerant regional trees and, in theory, will eventually dominate undisturbed stands. Nonetheless, Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) dominates most of the forests of this region. Western hemlock and western redcedar (*Thuja plicata* Donn) also are important conifers, and red alder (*Alnus rubra* Bong.) and bigleaf maple (*Acer macrophyllum* Pursh) are the most common hardwoods. Understories in the Big Elk Valley, as in many other parts of the region, are often dominated by salal (*Gaultheria shallon* Pursh) and swordfern (*Polystichum munitum* (Kaulf.) Presl).

Ownership of this 56,981-ac watershed is highly diversified. Land-owners include the USDA Forest Service, the state of Oregon, and many private incorporated and non-incorporated owners. The Big Elk Valley was selected for this study primarily because of its highly mixed ownership pattern; it allowed us to study all the major ownership classes within a single landscape.

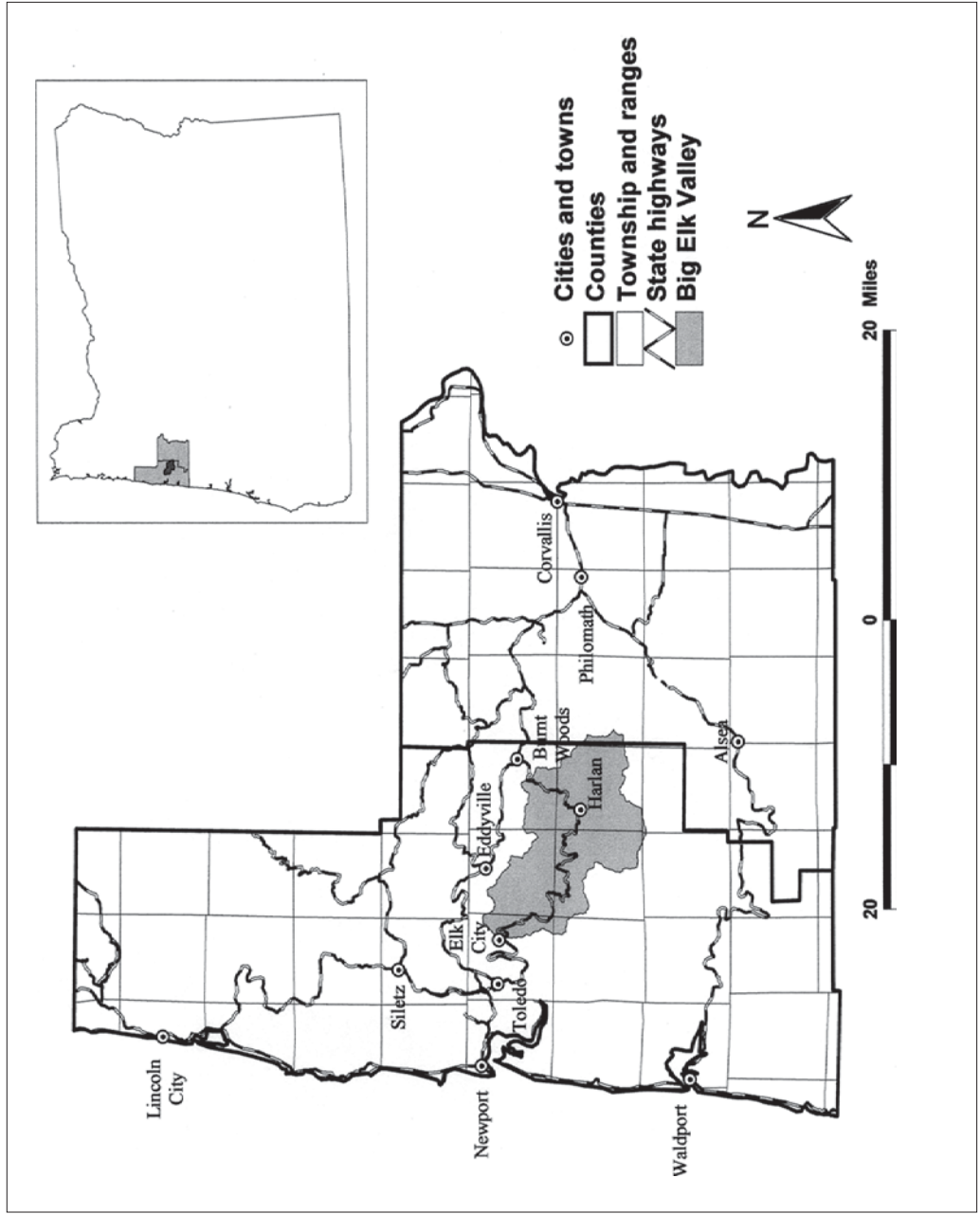


Figure 1—Location of the Big Elk Valley in Lincoln and Benton Counties and the state of Oregon.

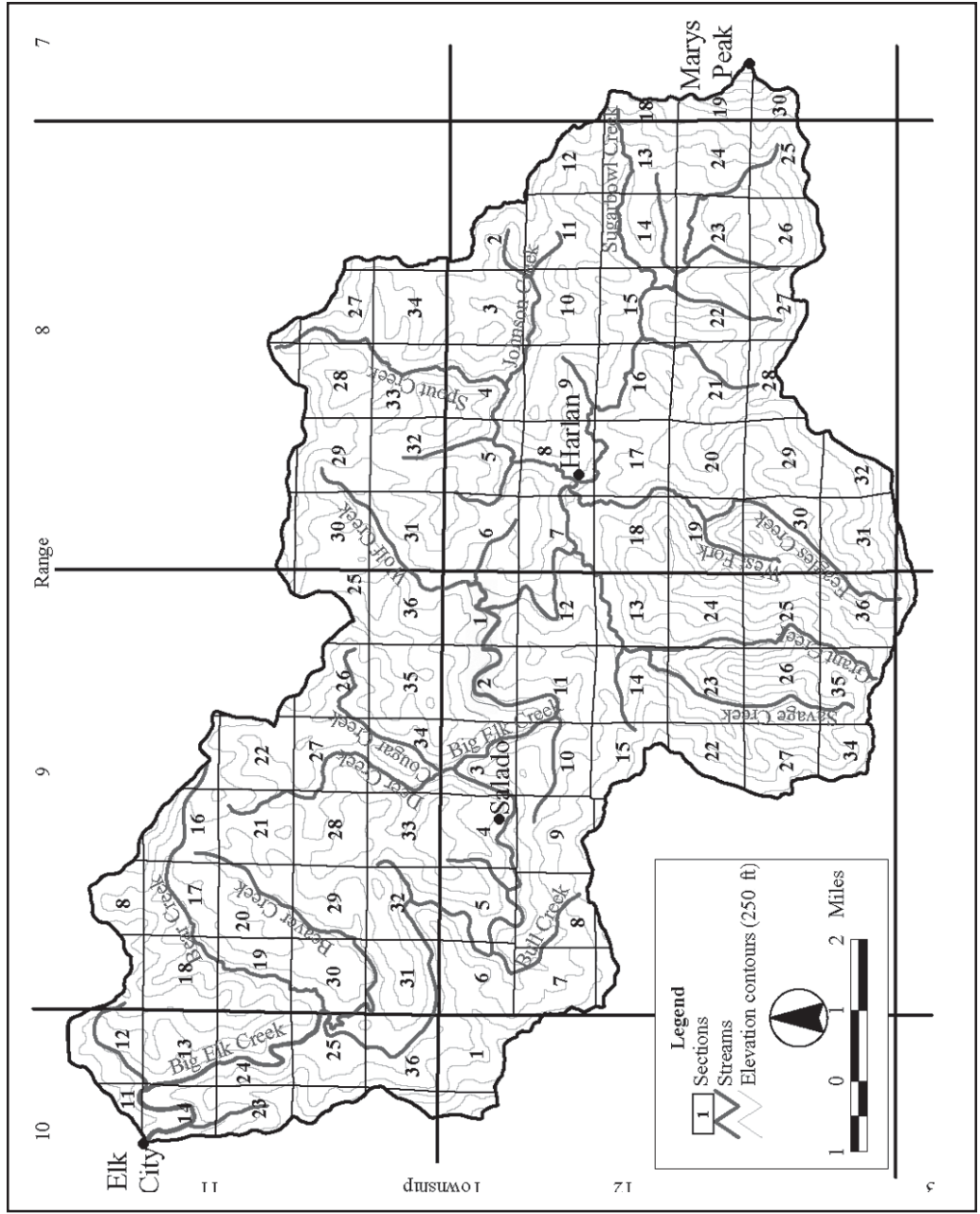


Figure 2—Streams, topography, and major places in the Big Elk Valley, Oregon.

Methods

Land Ownership Coverages

By using various data sources, ownership GIS coverages or layers were created for 1907 (Anon. 1907), 1930 (Metsker 1930), 1956 (Metsker 1956), 1979 (Erdman 1979), and 1998 (Benton County Tax Assessor's Office 1998, Lincoln County Tax Assessor's Office 1998). These dates were selected based on data availability and our goal of obtaining approximately equal time intervals among data sources.

To minimize map registration errors, we used a common digital base map to enter all ownership data. We selected the 1998 ownership coverage for this base map because the data sources for this layer were mostly digital with a high degree of precision (Lincoln and Benton County Tax Assessors' Offices 1998). This high degree of precision was obtained by entering the coordinate geometry of land deeds into spatial databases. We digitized, using 1:24,000 county tax assessor maps, the area that was not available in digital format from the county tax assessors.

To develop a consistent nomenclature for the names of landowners and to categorize landowners, we created a master list of all the landowners from the five ownership maps. When possible, we gave a single consistent name to individual owners or companies whose names were listed differently within or across maps (e.g., George Franklin on the 1956 map and George O. Franklin on the 1979 map were listed as George O. Franklin on the master list). The acres owned by each of the ownership categories are summarized in table 1. To protect the identity of individual and family ownerships, names of specific ownerships are only provided for public and private incorporated ownerships.

Among the five ownership maps, we categorized landowners into one of six ownership classes: federal, state, county, private incorporated, private nonincorporated, and other. Two other categories were added: "public domain" for the 1907 map and "no data" for any land that lacked ownership information. The "federal" category represented USDA Forest Service and USDI Bureau of Land Management land. The "state" category represented land owned or managed by the state of Oregon. The "county" category represented land owned by Lincoln or Benton Counties. We assigned owners that were listed as companies or other business entities to the "private incorporated" category. Because some companies owned and managed land listed under the name of the company's president, medium- and large-sized tracts (i.e., greater than 10 ac) listed under the name of a known company president, founder, or timber purchaser also were categorized as "private incorporated." We categorized all other private owners as "private nonincorporated." The "other" category represented miscellaneous tracts owned by such entities as churches and cemeteries that consistently represented a small proportion of the watershed. Before 1907, all lands that were not yet patented were considered part of the "public domain."

Inconsistencies in the ownership patterns were observed in eight instances where ownerships on tracts of land went from federal in 1956 to state in 1979 and back to federal in 1998. In the maps published in this report, recategorizing the inconsistent tracts in the 1979 map as federal lands resolved these inconsistencies.

Land Patent Coverage

In addition to these temporally explicit ownership coverages, we created a coverage of all land patents made in the Big Elk Valley before 1907 (U.S. Department of the Interior, Bureau of Land Management 1999). This information was from the "Historical Indices" of the General Land Office (now the Bureau of Land Management), which lists all entries and patents on public lands. The cut-off year for this map was 1907 because that was

Table 1—Summary of land ownership (acres) in the Big Elk Valley of Oregon for 1907, 1930, 1956, 1979, and 1998 by ownership category

Category	Code ^a	Owner name	1907	1930	1956	1979	1998
Public domain	0		19,151	—	—	—	—
Federal	1	U.S. government	—	14,966	19,300	19,607	20,251
State	2	State of Oregon	—	1,340	8,220	8,239	7,897
County	3	Lincoln County	77	7,706	95	1	208
Private incorporated	10	3G Lumber Co.	—	—	42	58	—
	11	Benton Lumber Co.	—	—	479	—	—
	12	Bittler Brothers	—	—	—	40	40
	13	Cascadia Lumber Co.	—	—	515	—	—
	14	Chicago City Bank & Trust	—	157	—	—	—
	15	CL&L Co.	684	—	—	—	—
	16	Clemens, Rex	—	—	960	—	—
	17	Coast L & L Co.	3,321	—	—	—	—
	18	Courect	—	—	—	—	2
	19	Fed. Land Bank of Spokane	—	392	—	—	—
	20	First National Bank of Albany	160	—	—	—	—
	21	Freres Lumber Co. Inc.	—	—	—	406	409
	22	Gates, H.	—	—	39	—	—
	23	Gates, R.G.	—	—	205	—	—
	24	Georgia-Pacific	—	—	—	6,247	6,242
	25	Great Western Lumber	838	—	—	—	—
	26	Guy Roberts Lumber Co.	—	131	880	—	—
	27	Harlan Logging Co.	—	—	215	57	—
	28	Higgins, Ross & Co.	—	80	—	—	—
	29	Johnson Lumber Co.	—	—	2,030	—	—
	30	J.R. Gates Timber Co.	—	—	244	901	—
	31	Lane Coose Land Co.	333	—	—	—	—
	32	Larson Lumber Co.	—	—	78	—	—
	33	Larson, G.T.	—	—	—	78	—
	34	Leigh, C.E.	4,201	—	—	—	—
	35	Lexington Realty Co.	—	76	—	—	—
	36	Luoto	—	—	—	—	320
	37	Moser Lumber Co.	—	—	622	—	—
	38	Northside Lumber Co.	—	—	—	427	—
	39	O&C RR Co.	7,200	—	—	—	—
	40	Oregon and Indiana Land Co.	55	—	—	—	—
	42	Oregon Lumber & Export Co.	—	—	—	419	—
	43	Philomath College Corp.	—	209	—	—	—
	44	Philomath State Bank	—	84	—	—	—
	45	Pioneer Telephone	—	—	—	—	0
	46	Poulsen Lumber Co.	—	—	1,678	—	—
	47	Poulson, Ellen	—	166	—	—	—
	48	Publishers Paper Co.	—	—	—	8,783	—
	49	R.D. Gates Timber Co.	—	—	1,887	2,568	2,169
	50	Simpson Timber Co.	—	—	—	—	6,688
	51	Starker Forests Inc.	—	—	384	629	629
	52	Taylor Collins Land Co.	—	1,954	—	—	—
	53	Thompson Tree Farms Inc.	—	—	—	—	1,966
	54	Three Bs	—	—	—	—	154

Table 1—Summary of land ownership (acres) in the Big Elk Valley of Oregon for 1907, 1930, 1956, 1979, and 1998 by ownership category (continued)

Category	Code ^a	Owner name	1907	1930	1956	1979	1998
	55	Title and Trust Co.	—	955	—	—	—
	56	Vaneck, F.	—	—	—	—	1,541
	57	Weyerhaeuser	—	—	—	—	159
	58	Willamette Industries	—	—	12	227	793
	59	W.O.W. Lumber Co.	160	—	2,719	—	—
		Total	16,951	4,204	12,987	20,839	21,109
Private							
nonincorporated	100-553		20,143	28,297	16,247	7,602	7,351
Unknown	-999		660	469	132	694	165

^a Codes correspond to parcels in figures.

when all public domain became federally owned and because 1907 also coincides with the earliest available ownership map for the area. This coverage only includes homestead entries that were successfully patented and does not include entries where individuals were unable to obtain title (i.e., patent) to the land because of failure to meet specific requirements.

To create this coverage, the legal descriptions of the patents were used to join the information from the Historic Indices with an existing GIS coverage. The patents were categorized as cash entry, homestead entry, military grant, military wagon road or railroad grant, school grant, indemnity list, miscellaneous federal, and unappropriated public domain. The cash entry class represents claims that were patented by private individuals or companies by using cash payment. The homestead entry class represents lands that were patented by private individuals who acquired title to a property after proving that they made the required improvements (Prior 1998). The military grant class was primarily used as part of the government’s agreement to reward soldiers for service. The military wagon road or railroad grant class represents land grants in which private companies were given alternating sections of land by the federal government in exchange for the construction of transportation routes (Richardson 1980). The school grant class represents land granted by the federal government to the state to provide revenue for schools. The indemnity list class represents “in lieu” lands where the federal government granted the recipients lands other than those specified in a given law because the lands specified in the law were already occupied. The unappropriated public domain class represents land not patented by 1907.

Historical Context Land Patent Era (Before 1907)

Most of the land patents in the Big Elk Valley were awarded to recipients of wagon road and railroad grants and homesteaders (figs. 3 and 4). Euro-American settlement of the central Oregon Coast Range region began around 1865. Part of the land opened for homesteading in 1866 was land withdrawn from the Siletz Indian Reservation. Ferns and charred snags dominated the Big Elk Valley land the first Euro-American settlers occupied because the “Yaquina Fire” of 1850 consumed a significant portion of the forests in the region

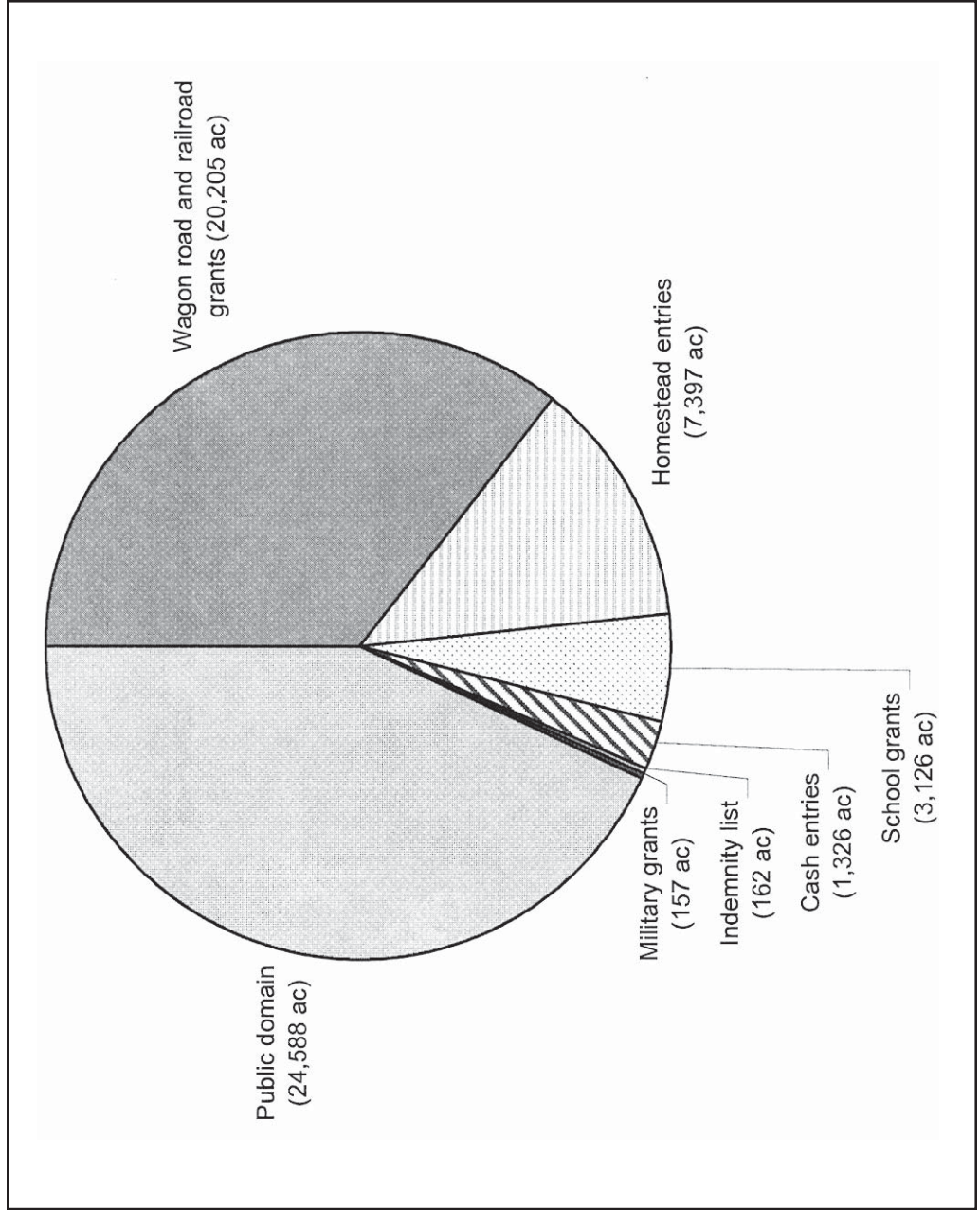


Figure 3—Distribution of land patents in the Big Elk Valley, Oregon, as a percentage of the total land area in the valley.

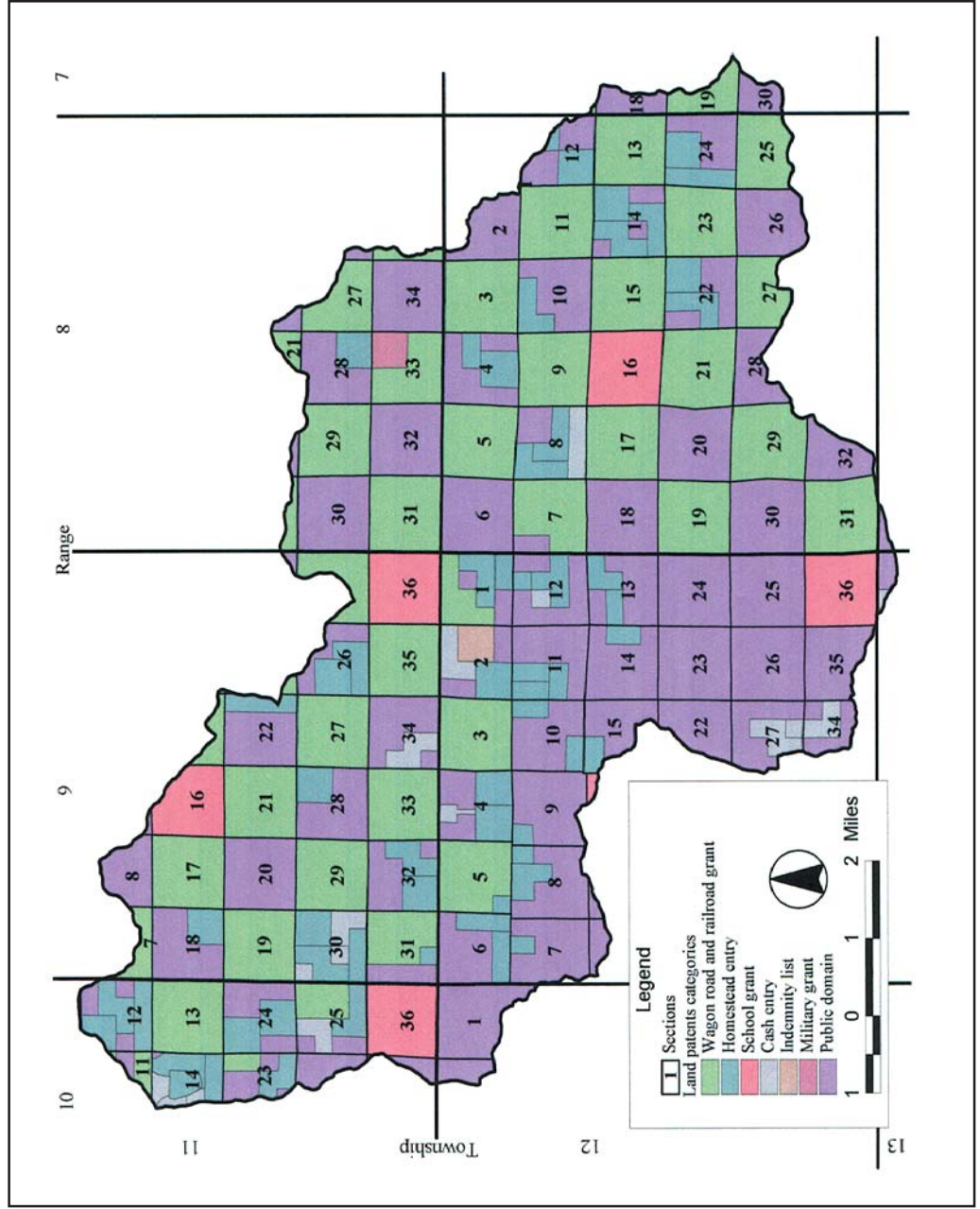


Figure 4—Land patents in the Big Elk Valley before 1907.

(Impara 1998, Prior 1998, Zymbach 1988). This large-scale disturbance played an important role in shaping early ownership and land use patterns in the Big Elk Valley that are still evident today. Homesteaders, in search of land for grazing livestock and for growing subsistence crops, typically preferred land that had been cleared of trees, was relatively flat, and was close to water (Prior 1998). Individuals that tried to homestead on the steeper terrain were less likely to succeed (Prior 1998).

Since 1862, the year the Homestead Act officially opened the Coast Range for settlement, several major social, political, and economic developments have influenced patterns of land ownership and use. In the late 1800s, federal wagon road and railroad land grants awarded alternating 640-ac sections of land to companies that built transportation routes into the region (Richardson 1980). Although the Big Elk Valley reportedly had little old-growth timber after the Yaquina Fire, roughly a fourth of the watershed's total area was granted to private corporations by 1907 (U.S. Department of the Interior, Bureau of Land Management 1999). This is significant because it contradicts one of two generally held beliefs: either timber companies were solely interested in old-growth timber or few merchantable old-growth trees survived the Yaquina Fire.

The Forest Service and the Great Depression (1907-30)

The pattern of land ownership in the Big Elk Valley in 1907 (fig. 5) was largely a product of the land patents granted during the previous 45 years. Over 90 percent of the private incorporated lands were originally granted to groups building wagon roads and railroads in the region (fig. 6). The most common ownership category in 1907 was "private nonincorporated." This group controlled land originally granted to homesteaders or individuals purchasing land for cash and land that was part of the public domain.

Between 1907 and 1930 (fig. 7), the greatest changes in land ownership in the Big Elk Valley were the large increases of federal and county lands and the shifts in ownership from private incorporated to federal, private nonincorporated, and county ownerships (fig. 8). Although both federal and county agencies were acquiring lands during this time, they acquired their lands through different processes with different objectives. The federal government became a significant landowner in the Big Elk Valley starting in 1907 when the Umpqua Forest Reserve was established. This executive order put most of the "public domain" acres in this area into the Forest Reserve, which later became the Siuslaw National Forest.

By the 1930s, private nonincorporated owners were the most widely established ownership class in the Big Elk Valley as they cleared lowlands and burned hillsides for grazing. Their dominance was short lived, however, as economic effects of the depression and county property taxes caused many in the Big Elk Valley to forfeit their land to Lincoln County. Tax delinquency was a statewide phenomenon during the Great Depression as millions of acres of private land were forfeited to counties throughout Oregon (Dreesen 1940).

The large increase in county ownership shown in the 1930 ownership map was primarily associated with land seizures that resulted from tax delinquency. Early on, these seized lands came largely from struggling homesteaders and other individuals and families. In later years, these lands would come from forest industry companies practicing "cut-and-run" logging. "Cut-and-run" logging involved sawmill owners purchasing blocks of land and over the course of 2 to 3 years harvesting trees, relinquishing the land, and then relocating to new timbered properties.

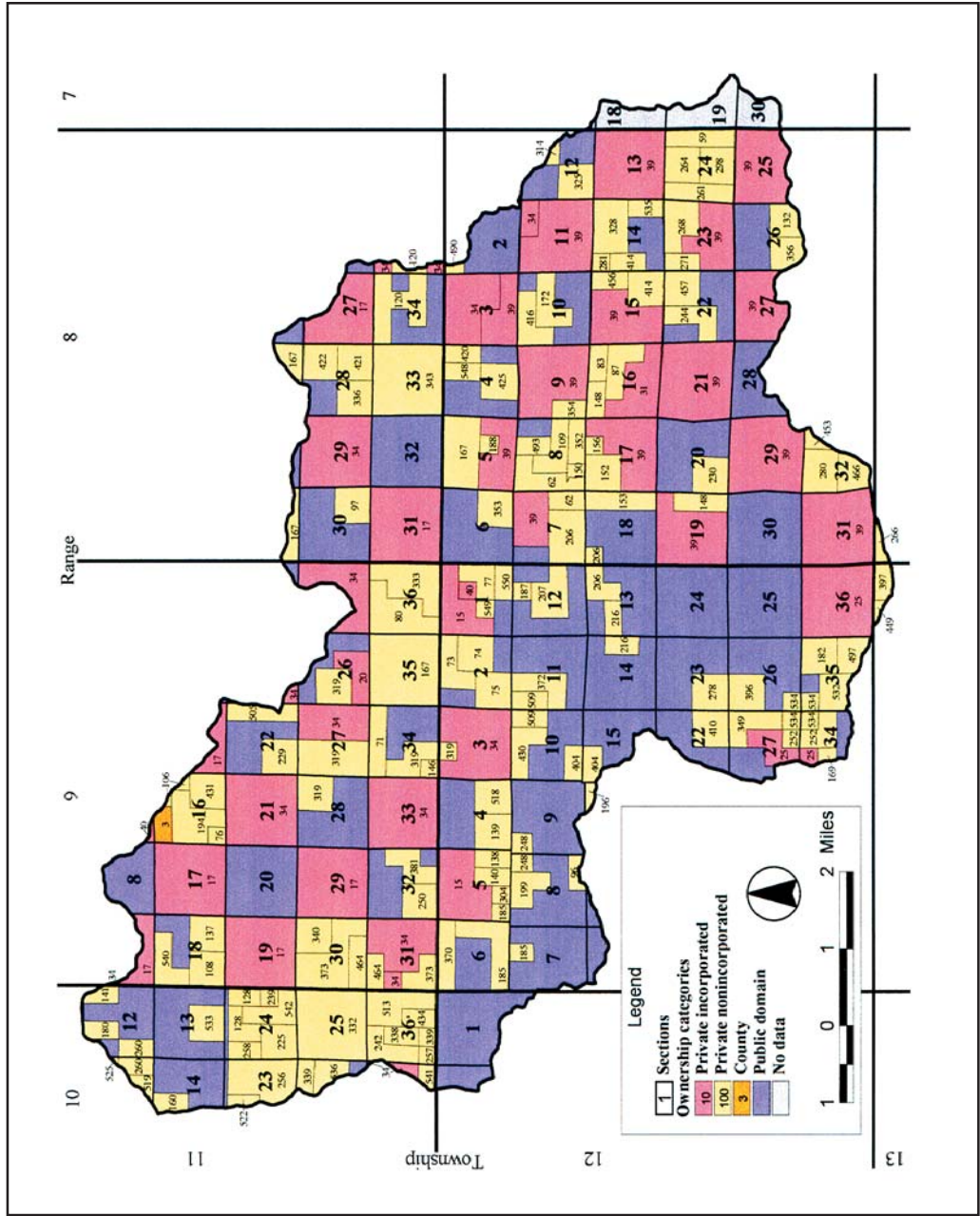


Figure 5—Land ownership in the Big Elk Valley, 1907. Each ownership code corresponds to a unique owner. Codes are consistent with other ownership maps in this report.

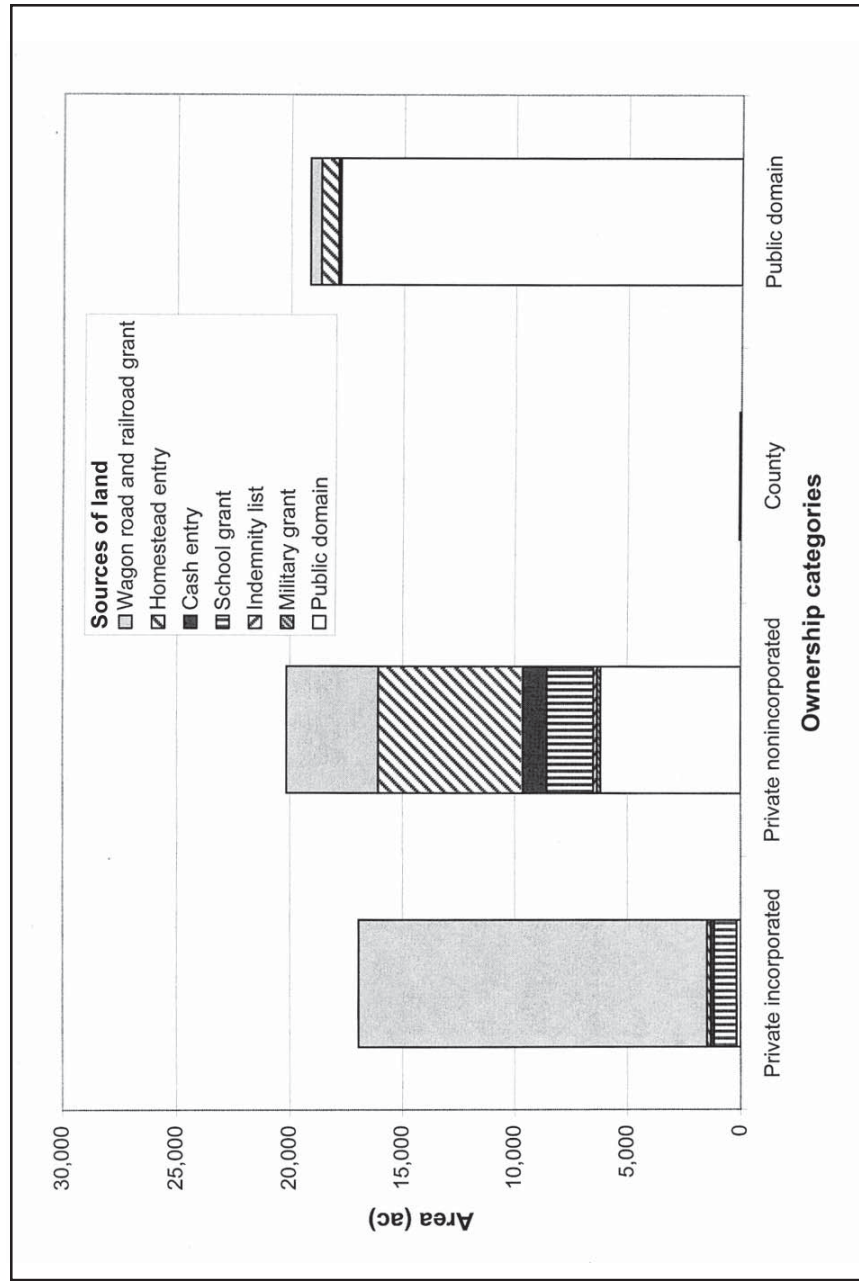


Figure 6—Distribution of land ownership in the Big Elk Valley, Oregon, 1907, including sources of land by previous land patent categories.

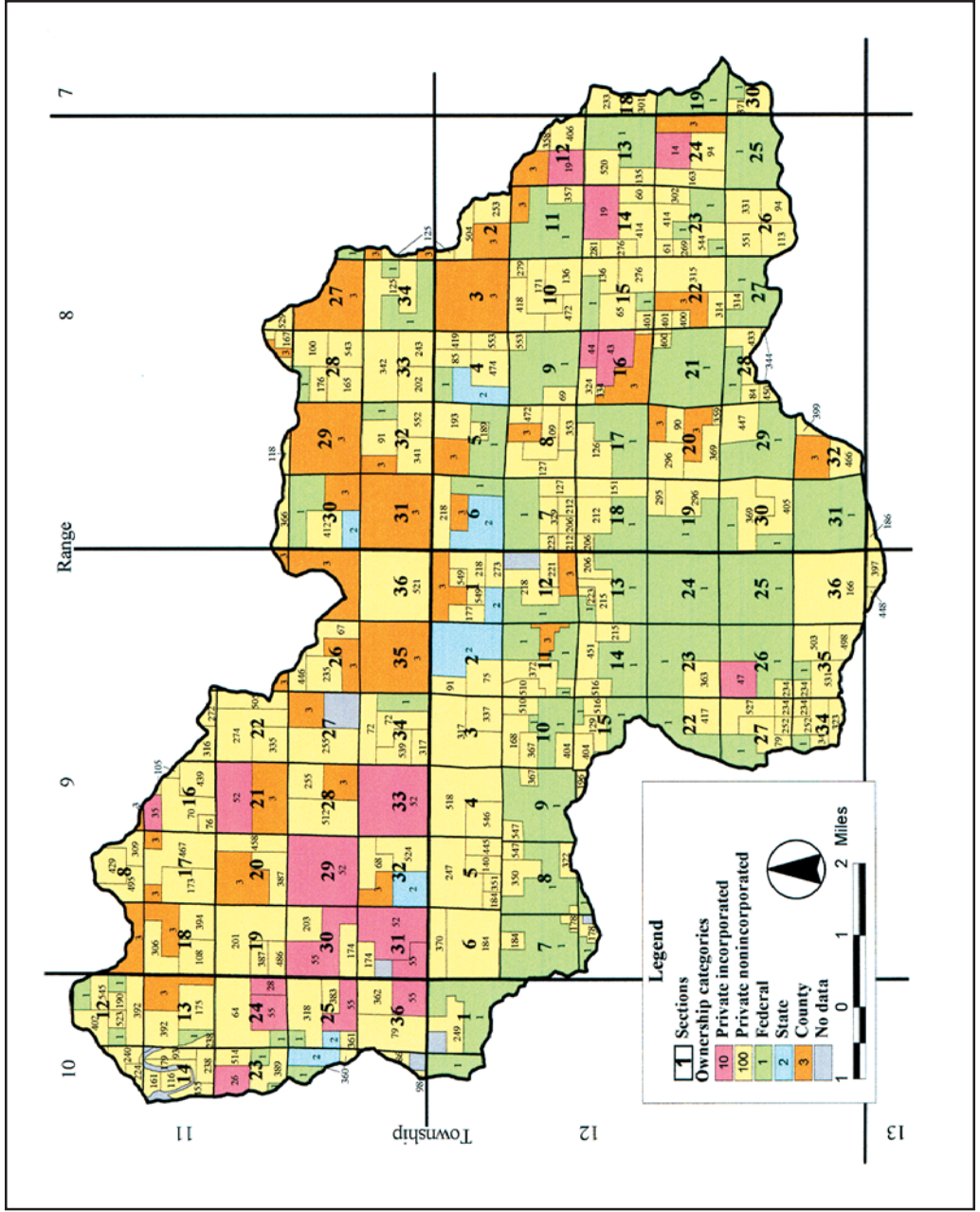


Figure 7—Land ownership in the Big Elk Valley, 1930. Each ownership code corresponds to a unique owner. Codes are consistent with other ownership maps in this report.

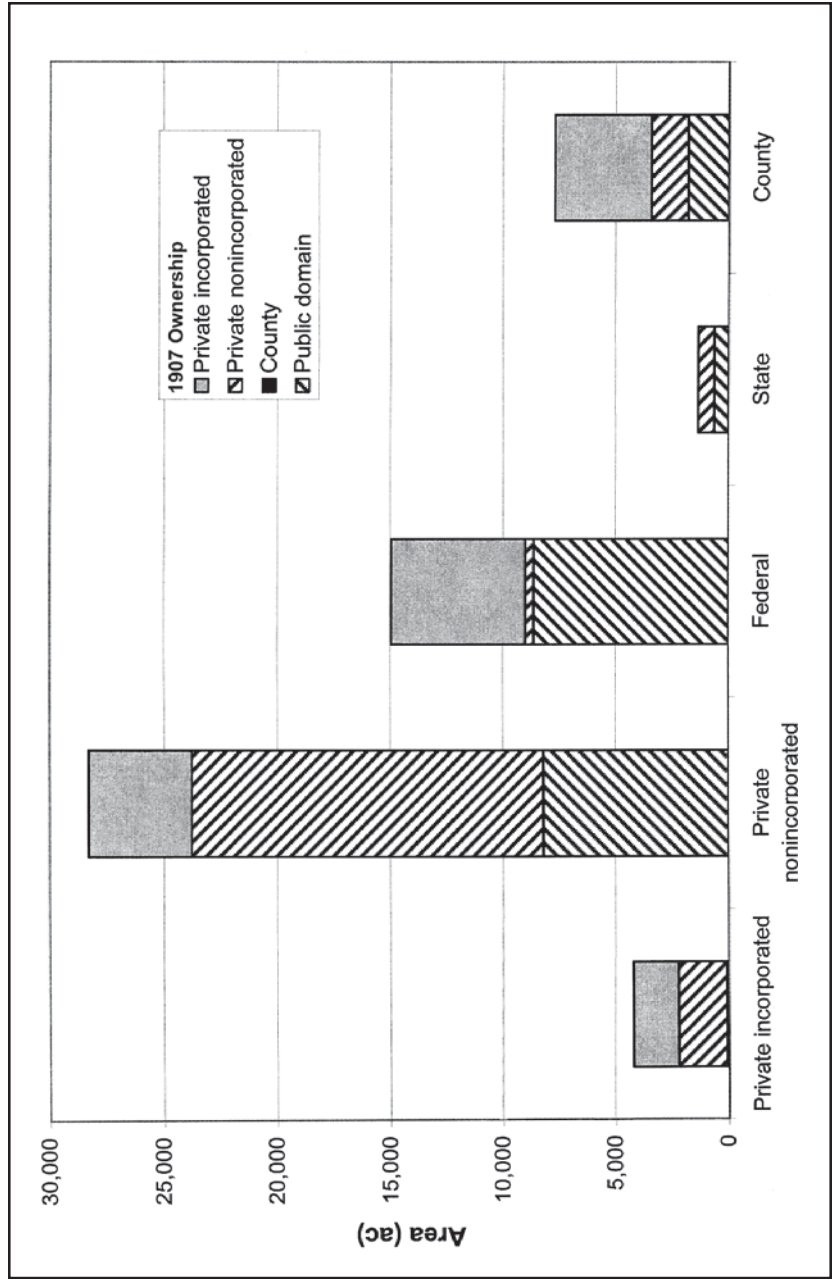


Figure 8—Distribution of land ownership in the Big Elk Valley, Oregon, 1930, including sources of land by ownership categories in 1907.

The State of Oregon and the Forest Service (1930-56)

Between 1930 and 1956 (fig. 9), the largest land ownership changes were a transfer of over 10,000 ac from private nonincorporated ownerships to private incorporated ownerships and a transfer of over 5,000 ac of land from county to state ownership (fig. 10). Much of the influx of lumber and timber companies probably followed the increased prosperity that followed World War II. Companies such as the W.O.W. Lumber Co. and the Johnson Lumber Co. began buying up large tracts of land in the Big Elk Valley that were probably well occupied with second-growth timber useful for supplying the country's increasing demand for building materials.

Despite many attempts made by Lincoln County to sell its tax delinquent land that it gained from "cut-and-run" loggers and the economic devastation that followed the Great Depression, thousands of acres in the Big Elk Valley remained unclaimed with little interest from private parties. By 1956, Lincoln County had opted to deed its holdings to the state in an agreement that would provide the county a stable source of revenue from subsequent timber harvests.

Another trend during this time was the USDA Forest Service's attempt to consolidate its land holdings. Some of this consolidation was accomplished through land acquisitions, such as those authorized by President Roosevelt's Submarginal Lands Program (Prior 1998), and other consolidations were accomplished through land swaps.

The first land purchases were also made in the Big Elk Valley with the purpose of future timber yields. Countering the trend of "cut-and-run" logging, speculators, such as T.J. Starker, began buying tax-delinquent land from Lincoln County exclusively for growing trees (Fisher 1991).

The Forest Industry (1956-79)

By the early 1960s, prices for second-growth timber had climbed to \$50 per thousand board feet (Adams and Haynes 1996). During the 1960s and 1970s, prices continued to rise, causing land ownership in the Big Elk Valley to undergo a rapid transformation (figs. 11 and 12). Large corporations, such as Willamette Industries and Georgia-Pacific, began buying out other timber companies for their timberland. For the first time, large investor-driven corporations began purchasing open pasture and cut-over land in order to plant trees for future timber supplies. By 1979, Publisher's Paper, a subsidiary of the Los Angeles Times corporation, owned more land in the Big Elk Valley than any other private landowner.

With unprecedented land values, some smaller owners gladly sold their land. Many others had no viable alternative but to sell. Of the nonincorporated landowners that did remain, most shifted their management emphasis to growing conifers, whereas others, despite the increasing economic benefits associated with timberland ownership, continued to use their lowland portions for ranching.

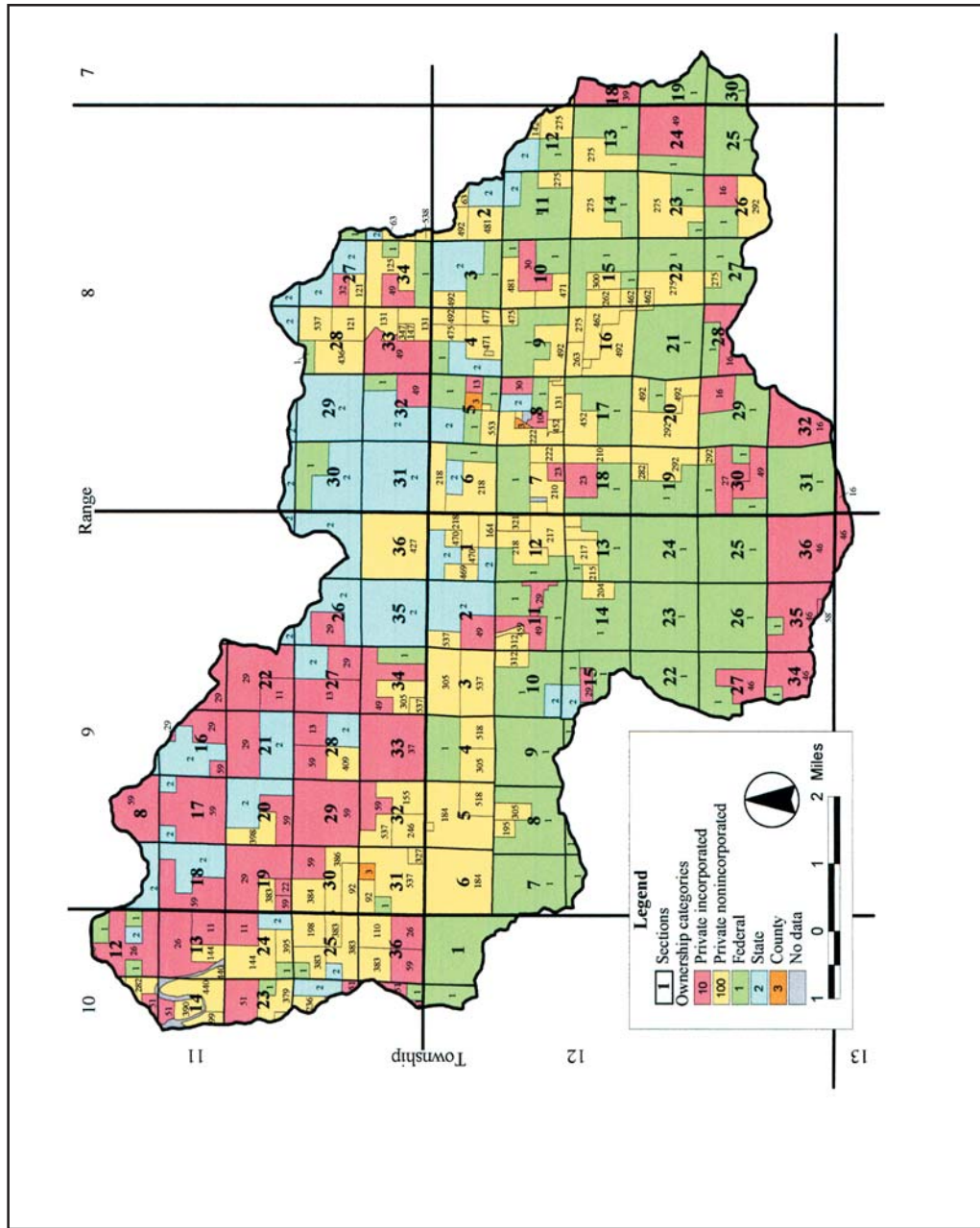


Figure 9—Land ownership in the Big Elk Valley, 1956. Each ownership code corresponds to a unique owner. Codes are consistent with other ownership maps in this report.

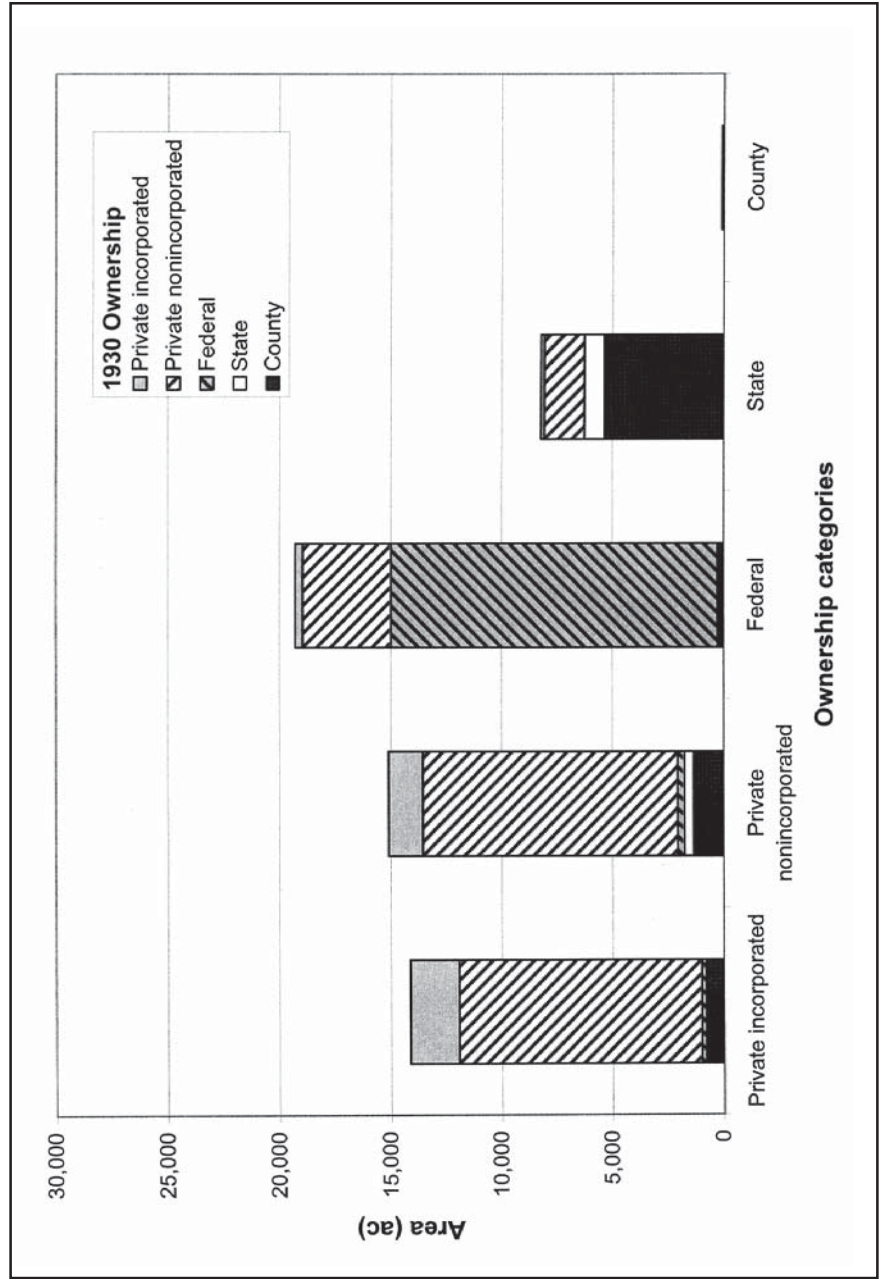


Figure 10—Distribution of land ownership in the Big Elk Valley, Oregon, 1930, including sources of land by ownership categories in 1930.

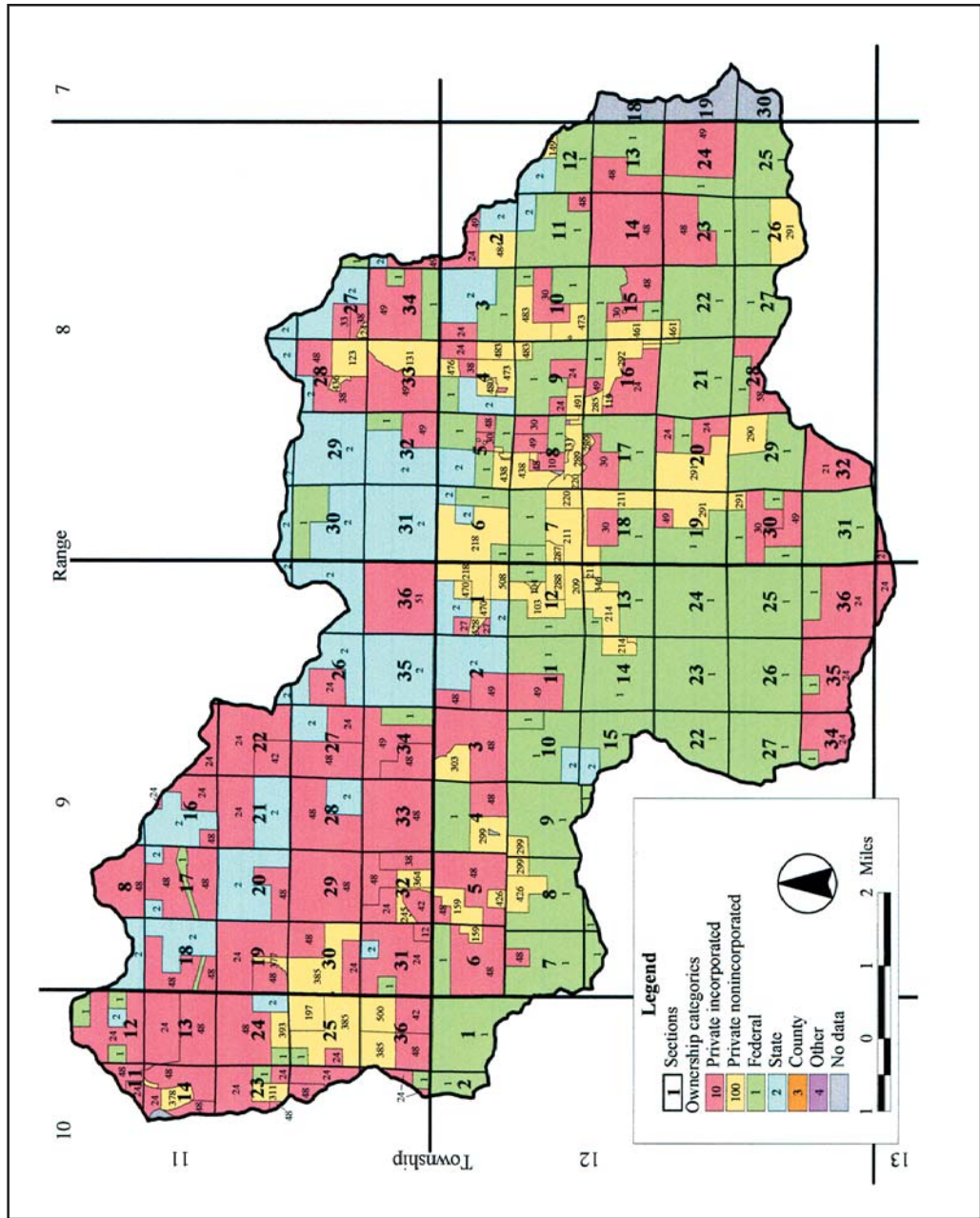


Figure 11—Land ownership in the Big Elk Valley, 1979. Each ownership code corresponds to a unique owner. Codes are consistent with other ownership maps in this report.

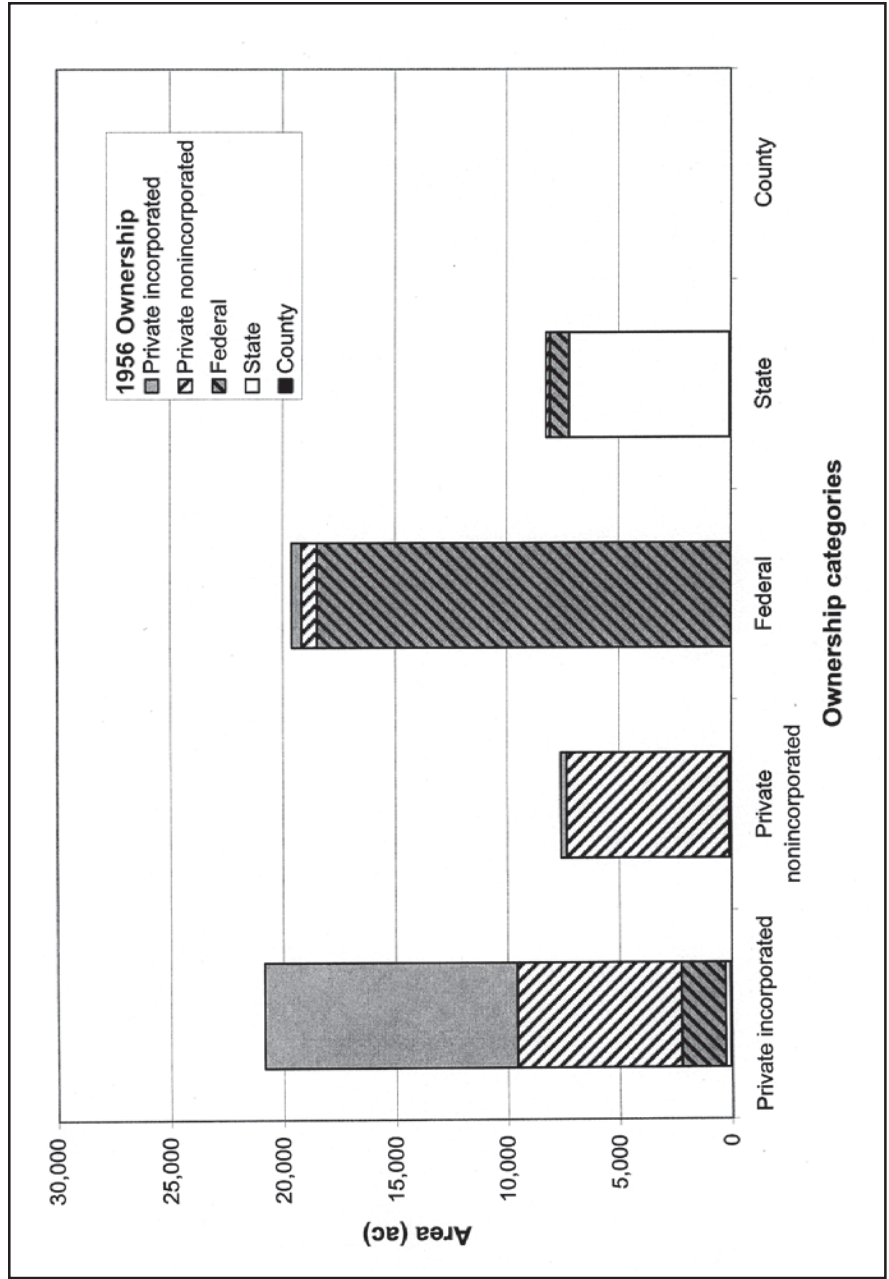


Figure 12—Distribution of land ownership in the Big Elk Valley, Oregon, 1979, including sources of land by ownership categories in 1956.

Parcelization and Continued Consolidation (1979-98)

The 1980s and 1990s saw two divergent trends in the land ownership patterns of the Big Elk Valley, parcelization and consolidation, but relatively small transfers of land among ownership groups. Relatively high turnover rates occurred on the private nonincorporated lands between 1979 and 1998 (figs. 13 and 14). These turnovers resulted in an increased number of landowners and a decreased average parcel size within this ownership class. Owners in the private incorporated class have likewise experienced turnover, yet the average tract size in this class increased. The results of economic factors on these ownership trends is difficult to examine in this data set because there was a dramatic price drop in the early 1980s and then a dramatic price increase in the early 1990s (Sohngen and Haynes 1994). To compound these issues, an increase in the regulation of forestry activities and a reduction of harvests from national forests also occurred during this period. Dramatic price fluctuations and increasing regulations cause a greater uncertainty in the profitability of owning timberland. This uncertainty is probably one of the reasons why there were few transfers of land between ownership categories during this period.

Conclusions

Land ownership is a dynamic process that affects how natural resources are used and the beneficiaries of these resources. Although landowner objectives and knowledge of the current state of the resources are important, the historical context of these patterns is necessary for a full understanding of the underlying processes. For example, the current ownership patterns in the Big Elk Valley are strongly related to the distribution of the earliest land patents in the valley. Although the pattern of original patents reflected the condition of this valley in the mid-1800s, this pattern of ownership still strongly influences the condition of the landscape today.

Viewing ownership as a dynamic social variable enables researchers to improve their understanding of the flow of goods and services from forests and the distribution of these resources within our society. Ultimately, studying the temporal patterns of land ownership is a first step in understanding the social, ecological, and physical processes that underlie these patterns. These processes and the subsequent patterns they create will have the greatest hand in guiding the future of our forest resource.

Acknowledgments

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Metric Equivalents

1 acre (ac) = 0.4047 hectare

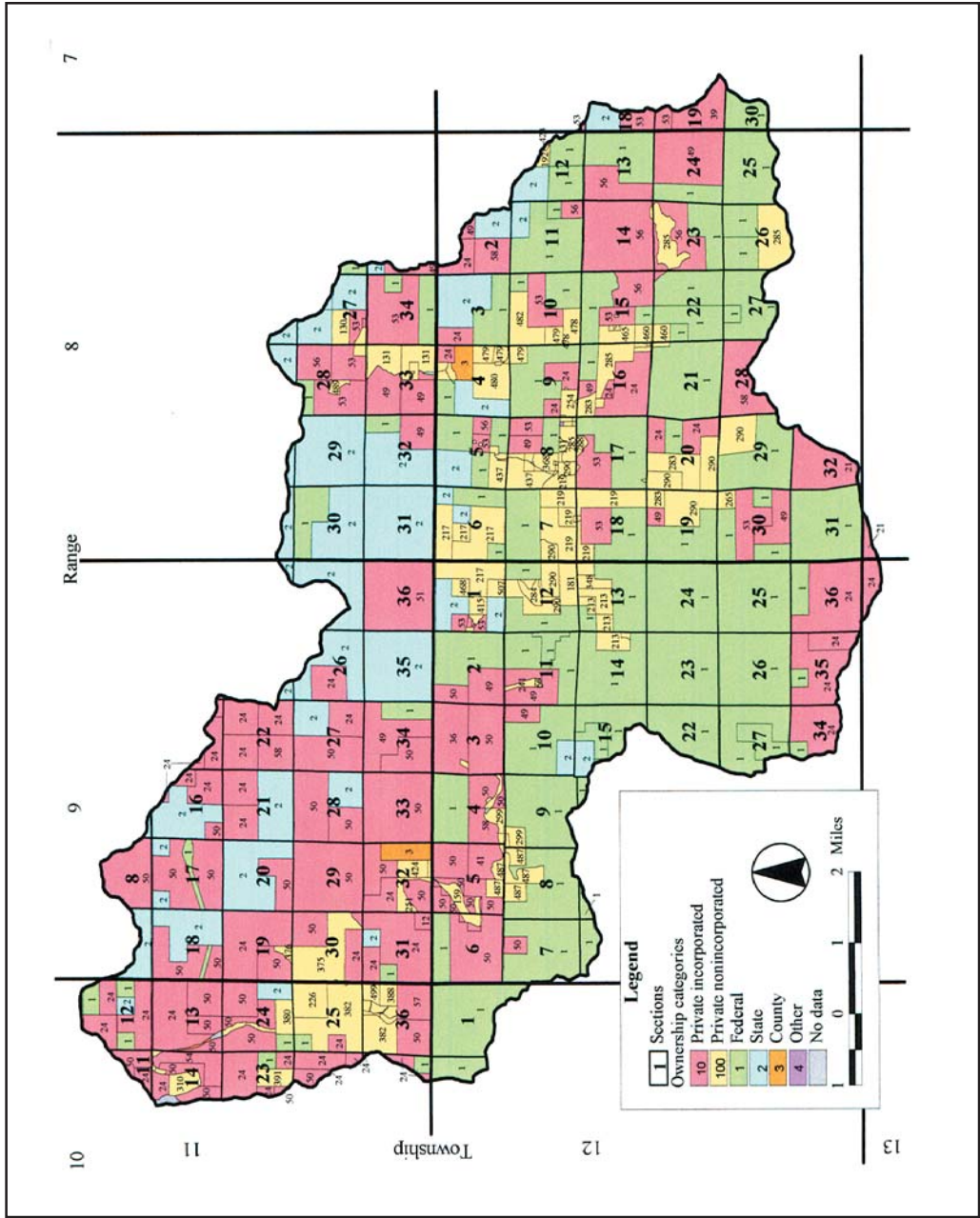


Figure 13—Land ownership in the Big Elk Valley, 1998. Each ownership code corresponds to a unique owner. Codes are consistent with other ownership maps in this report.

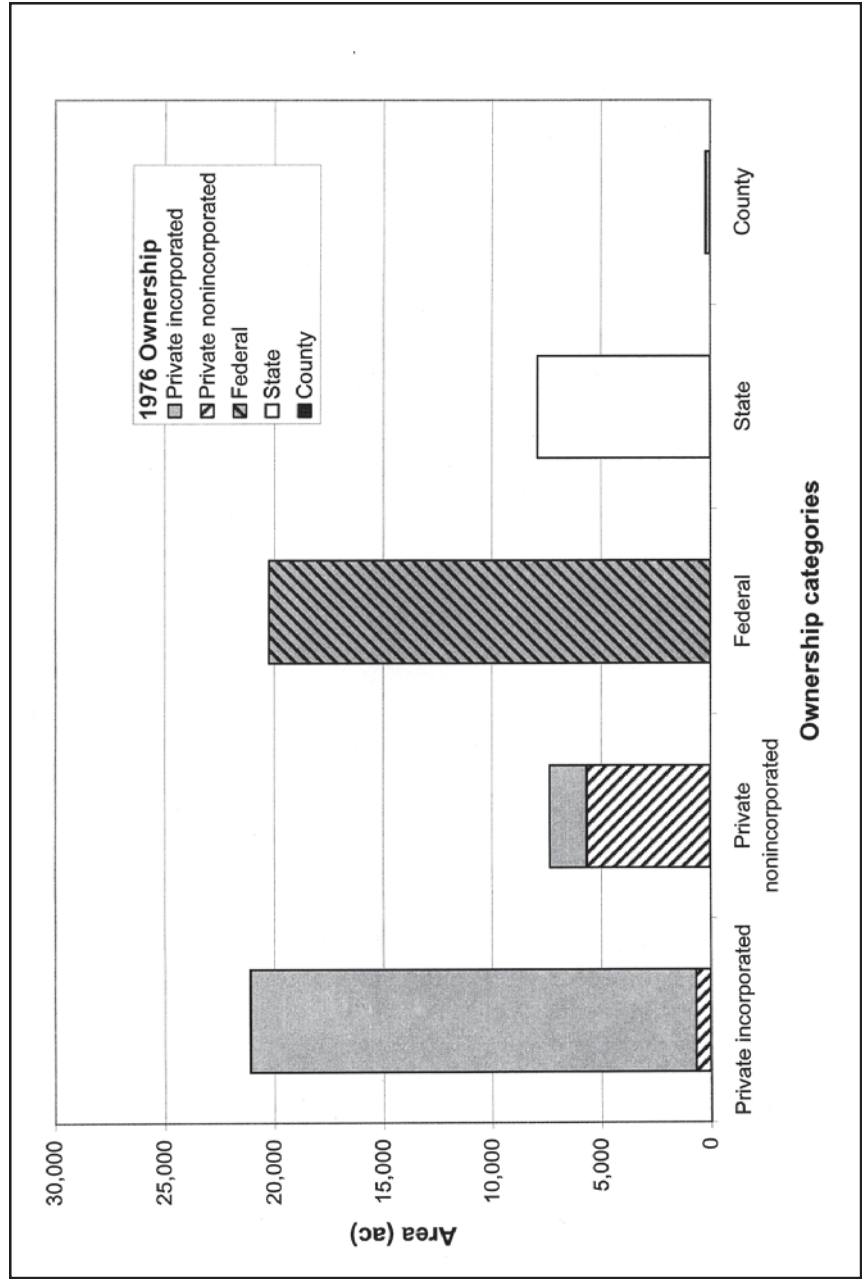


Figure 14—Distribution of land ownership in the Big Elk Valley, Oregon, 1998, including sources of land by ownership categories in 1976.

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