

AN ABSTRACT OF THE THESIS OF

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Title A CASE STUDY IN THE EVALUATION OF PUBLIC DOMAIN
IN A BUREAU OF LAND MANAGEMENT TRANSFER AREA

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The problem of this thesis is to evaluate small tracts of public domain land as to their best use in an area where the Bureau of Land Management desires to terminate managerial responsibilities. The area chosen is located in the Prineville District, Bureau of Land Management and is within the environmental complex of Bend and Redmond, Deschutes County, Oregon.

During early Oregon development, much of Deschutes County remained in public ownership. Numerous Federal Acts especially the Carey Act permitted this public land to be transferred to private ownership. Following the Carey Act and the government's public domain disposal period, many of the small tracts in the Bend-Redmond vicinity remained in public ownership because they had little agricultural value. Modern agricultural technology and changing land use values have resulted in these tracts being in increased demand by residents in the area.

A case study tract was selected to portray the evaluation

procedures followed on 96 individual tracts of public domain. This case study identifies the factors influencing these small tracts and discusses the current goals of the Bureau of Land Management. The problems of managing these small tracts are being eliminated through selective disposal of public land that can better be managed in private ownership. This policy of public land management is evidence of mature administrative goals.

The study determines the events which led to the designation as a transfer area, examines the influences responsible for the changing concepts of land value within the transfer area, and discusses the means and problems involved in realizing the final goal. The evaluation conclusions are summarized on a map.

A CASE STUDY IN THE EVALUATION OF PUBLIC DOMAIN
IN A BUREAU OF LAND MANAGEMENT TRANSFER AREA

by

ROBERT ADLING BARNEY

A THESIS

submitted to

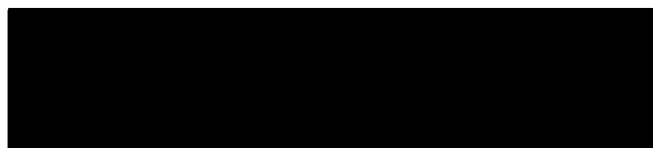
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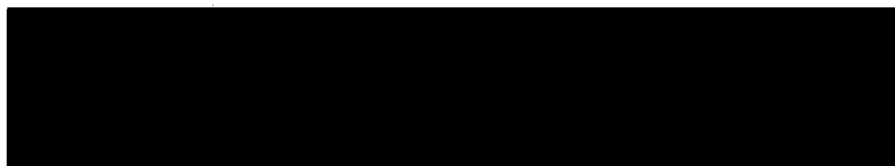
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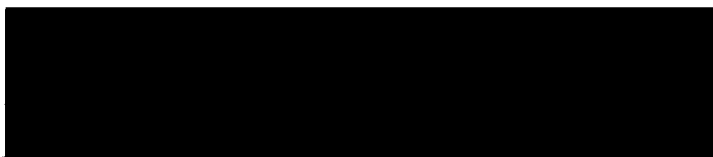
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A CASE STUDY IN THE EVALUATION OF PUBLIC DOMAIN IN A BUREAU OF LAND MANAGEMENT TRANSFER AREA

CHAPTER I

INTRODUCTION

This thesis is a case study in the problem of land evaluation as the basis for decision making involving public domain in a Bureau of Land Management transfer area. The author's interest in land evaluation as a basis for transfer decisions stems from direct involvement with land evaluation procedures and problems while employed as a Lands Assistant by the Prineville District, Bureau of Land Management. Knowledge of the intricacies of public policy and decision making acquired while employed by the Bureau of Land Management was an asset in formalizing research and organizing the data. Close contact with the people in the study area also provided valuable insight into the problems and economic potential of the area.

The Study Area

The study area, in Deschutes County, Oregon, at the eastern base of the Cascade mountain range, encompasses 238 square miles of the 3,027 in the county. The area is bordered on the west and south by the Deschutes National Forest. The eastern boundary is defined in part by the Deschutes-Crook County line, the North Unit

Main Canal east of Redmond, and the Dalles-California Highway (US 97) between Redmond and Bend. The remaining eastern boundary follows the western edge of a lava field located south of the Redmond Airport. The northern limit is defined by a large block of public domain land and the Deschutes-Jefferson County line (Figure 1).

Physical Description

The area, located on the Harney High Lava Plain, is characterized by cinder cones and basaltic Pressure ridges, and has an average elevation of 3000 feet. The Deschutes River traverses the area but is generally entrenched in a 50 to 100 foot deep gorge. Surrounding land surfaces slope very little toward this drainage channel.

The micro-climatic details are largely determined by location in respect to physical features. The Cascade mountain range to the west partially blocks the moisture laden air moving inland from the Pacific Ocean which results in a meager 12 inches yearly precipitation average. The area experiences double maximum precipitation with the major amount in the winter months and a lesser peak in late May and early June. A short growing season, averaging 90 days with frost danger a reality in every month of the year, limits cropping possibilities.

The soils are generally light in texture and porous as a result of a geologically young mantle of pumice. The small amount of

STUDY AREA AND VICINITY

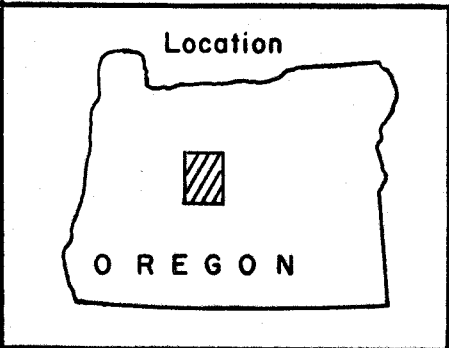
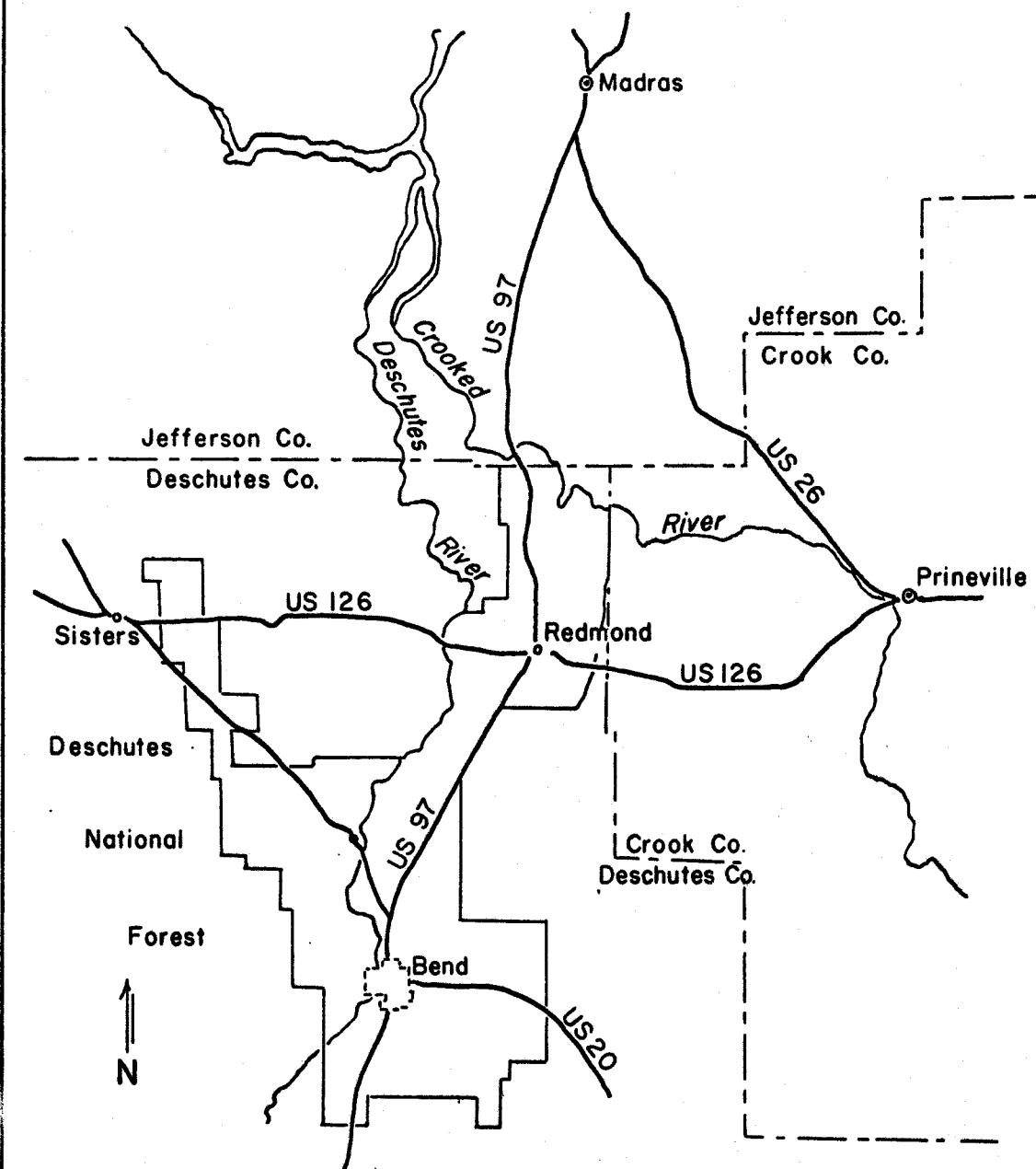


Figure 1

leaching in the dry climate has preserved the inherent fertility of the soil and most of the soils contain a moderate to large amount of plant nutrients.

Biotic Cover

The native vegetation is xerophytic in character. The overstory is comprised almost wholly of western juniper (Juniperus occidentalis) with some scattered pine species in the higher reaches of the area or where adequate moisture is available. An intermediate story is comprised of the various shrubs in accordance with the micro-environment; chiefly, big sage (Artemesia tridentata), rabbit brush (Chrysothamnus spp.), and bitter brush (Purshia tridentata). The understory is made up of numerous native grasses, the main species being: needle grass (Stipa spp.), Idaho fescue (Festuca idahoensis), bluebunch wheatgrass (Agropyran spicatum), squirrel tail (Sitaniam hystrix), Sandburgs bluegrass (Poa secunda), and cheat grass (Bromus tectorum).

Cultural Landscape

The study area is within the urban environmental complexes of Bend and Redmond. These centers are linked by highway US 97 and have access by major highways in Madras, Prineville, and Sisters. Bend is the southern terminal of the Seattle, Portland and Spokane

rail service and the northern terminal of the Great Northern Railroad. These are the only major rail lines serving Central Oregon.

Approximately 95 percent of the population of Deschutes County lives in the study area with 60 percent living within the city limits of Bend and Redmond. Smaller population concentrations are at Tumalo and Terrebonne. Natural vegetation is broken by irregularly shaped fields of pasture, alfalfa, and grains. These fields are connected by a lattice of irrigation canals. The area also has a network of paved county roads serving the rural population. Cinder mining and communication facilities are associated with the many cinder cones scattered throughout the landscape.

Terminology Definitions

Throughout this thesis a number of terms are used. The more important terms are defined in this section.

The Bureau of Land Management, created in 1946 within the Department of Interior, became the successor to both the General Land Office and the Grazing Service. This Federal agency is charged with the management of public domain lands in the United States. The agency is hereafter referred to as the BLM.

Land evaluation, as defined by the BLM, is the process of judging the quality of the resources and determining the possible uses of the land that will be most in the public interest. Evaluation

differs from land appraisal in that less emphasis is put on monetary aspects.

Public Domain is that part of the original public lands of the United States that has not been reserved or withdrawn for specific uses such as national forests or parks. These lands are under the managerial jurisdiction of the BLM.

A transfer area is defined as an area in which the BLM plans to terminate managerial responsibilities. Such an area is determined by the character of the resources, management problems, and ownership patterns. Public lands in this type area are usually in isolated tracts that can be more efficiently managed by other agencies or individuals. Unless lands in a transfer area have inherent public value, they are expected to be classified for disposal.

Research Procedures

Research for this thesis was done during the summer and fall of 1965 while the author was employed by the BLM. The basic data were obtained through field observations, interviews, and by searching public records.

The locations of Federal ownership was obtained by searching the State Land Office Records. County status was acquired from the Deschutes County Assessor's plat books. Zoning and planning data was obtained from the Deschutes County Planning Commission.

Local, state, and Federal agencies that have jurisdiction in the study area were also information sources.

Field work entailed the inspection of each tract of public land in the transfer area. Each tract was field inventoried using an aerial photo base map. Mapped items included the cultural features affecting the tract such as rights of way, access, surrounding land uses, and improvements, and the physical characteristics such as soil depth, texture, and slope. The second aspect of field work was overall observation with personal interpretation as to how existing phenomena affected uses of the tracts. Once the field work was completed, each tract was evaluated in terms of its physical capability for potential use and its compatability with surrounding land uses. Recommended land uses were based on this criteria and involved the correlation of all the gathered data and forecasting future land use developments.

Thesis Organization

This thesis is divided into five chapters. Following the introduction, chapter two examines the processes of land tenure changes that resulted in the study area being designated a transfer area. The chapter also examines the various acts of congress that provided for Federal land to pass into private ownership. Chapter three is concerned with the changing perception and concepts of land values which

have influenced the government to dispose of lands in the study area.

This chapter also includes a brief economic and social profile.

In chapter four the background material presented in chapters two and three is drawn together for an actual case study in evaluating a public domain tract. The chapter is concerned with the actual evaluation procedures and the factors that lead to a classification decision. A personal appraisal of the procedures and findings form the conclusion of the study.

Chapter II

LAND TENURE AND FEDERAL REGULATIONS IN THE STUDY AREA

Land tenure in the study area evolved from almost total public ownership to scattered tracts of public land intermixed with private lands in a period of 75 years. This chapter examines the process of the evolution and subsequent designation as a transfer area. The change was dependent on three interrelated factors; temporal sequence of development, Federal public land policies, and Acts of Congress. These factors are examined and the impact they have had on land ownership patterns are described.

History of the Study Area

In the history of Central Oregon, one important facet of development stands out, specifically, that in comparison to the development in Western Oregon, the Deschutes Plateau was developed relatively recently. A large portion of the historical background here presented is based on East of the Cascades by Philip Brogan (1964).

Period 1800-1850

During the first fifty years of the nineteenth century, the natural landscape remained unchanged. Before the Oregon Compromise with

Great Britain in 1846, only a few trapping parties in search of beaver and wagon trains destined for the Willamette Valley crossed the Deschutes Area. Peter Skene Ogden made the first recorded exploration of Central Oregon while in search of beaver for the Hudson Bay Company in 1825.

Period 1850-1900

In the period from 1850 to 1900, the area began its development. During the late 1850's, miners began to arrive, attracted by the rumors of gold. A railroad survey party traversed the plateau in 1855 searching for a rail route from The Dalles to Northern California. The incipient development of Central Oregon, then was curbed by an Army order in 1856 prohibiting settlement east of the Cascades because of Indian unrest. This order was revoked in 1858 when it became apparent that more difficulties were being created by trying to keep settlers out of the Deschutes Country than by suppressing Indian uprisings.

The first influx of people into the Deschutes Area began in 1862 when the McKenzie Pass was discovered. The Santiam Pass, discovered in 1859, and the McKenzie Pass, opened the area to the populous of the Willamette Valley. Incentive to settle on the Deschutes Plateau was further sharpened with the passage of the Homestead Act of 1862 which enabled a person to acquire 160 acres

of public domain. A wagon road built in 1866 over the Santiam Pass further facilitated settlement and elimination of Indian raids removed one of the major factors inhibiting settlement in the area. The establishment of the Farewell Bend Ranch at the present site of Bend in 1877 was the start of permanent development.

Period 1900-Present

Urban centers started to evolve in 1904 with the platting of Bend and its incorporation as a city in January, 1905. During this period, major activity resulted from the Carey Act of 1894 which granted the states patent to public domain land with irrigation potential. Approximately 100,000 acres of public land in the study area were segregated and patented to Oregon under these provisions (Oregon, 1911). Redmond was platted near such a Carey Act segregation in 1906 and incorporated as a city in 1910.

Throughout the early development, the economy was based on agricultural pursuits. A rail line from The Dalles to Bend was completed in 1911 establishing Bend as the rail center for Western Oregon markets. With the advent of rail transport, the vast ponderosa pine forests on the eastern slopes of the Cascades were tapped and the first sawmill was established in Bend in 1916. The completion of the Great Northern rail line from California to Bend further aided the economy and made Bend the rail center for shipment of Central

Oregon goods to California markets. Timber based industries and agricultural production have continued to form the base of the economy. Recreation has been increasing in importance since 1950 and has had a definite impact in stabilizing the economy.

Public Policy Toward Public Lands

Public land policy has evolved through three basic phases; acquisition, disposal, and management. In order to understand the evolution of the transfer area, it is necessary to examine these phases as they influenced the ownership patterns in the study area.

Period of Acquisition

The period of acquisition began with the establishment of the nation when the first states ceded their western lands to the government, and continued through the Louisiana Purchase, Oregon Compromise, Mexican Cession, to end with the purchase of Alaska in 1867 (Coote and Hochmuth, 1958). All land so acquired became public domain. At its greatest extent, there were approximately one billion, 442 million acres of public domain in the conterminous United States and 365 million acres in Alaska. (Coote and Hochmuth, 1958). Thus, the lands of the study area came into Federal ownership as part of the public domain.

Period of Disposal

The government began to dispose of land as early as 1785 through a system of land sales. The disposal period actually began in the early 1800's and continued through 1934, ending with the passage of the Taylor Grazing Act. During this period, pursuant to the policy of transferring public domain to private ownership, more than one billion acres of the original public domain were involved in sales and grants to war veterans, to states for education and internal improvements, to railroads, to homesteaders, and others (Coote and Hochmuth, 1958)

Between 1862 and the passage of the Taylor Grazing Act, the Congress enacted numerous public land laws enabling ownership transfer of public land. The most notable laws that have had an effect in the study area are the Homestead Act of 1862, the Desert Land Act of 1877, and the Carey Act of 1894. Except for the Carey Act, these land laws are still in effect and are administered by the BLM.

Period of Management

The establishment of the Grazing Service under the provisions of the Taylor Grazing Act ended the disposal period. This Act, the result of misuse and lack of management which had seriously

deteriorated many acres of public land, changed the pattern of use and disposal of more than 180 million acres of public domain and provided for the establishment of grazing districts and management of the range resource.

In 1946, the BLM was formed through provisions of the Reorganization Act of 1945. The General Land Office, which had been established in 1812, primarily for the purpose of land disposal and record keeping, and the Grazing Service were combined to form the new agency in the Department of the Interior.

Selective disposal of public land continues but the need to conserve public land for recreation parks, and other public uses has been increasingly recognized by the Federal Government. Disposal procedures are now performed under criteria that is in accordance with present day problems.

Federal Acts that have Influenced the Study Area

Several Federal Acts dealing with public domain have directly influenced the Bend area. The following review of the major Federal Acts is based on regulations published in the Code of Federal Regulations, Book 43 (1963).

Homestead Act - 1862

The Homestead Act of 1862 enabled a citizen of the United

States to acquire 160 acres of public domain. The basic requirements were that a person live on the land five years, make his home on it, cultivate the ground, and pay an application fee of 25 dollars. The entryman could gain title after 14 months by paying a minimum of \$1.25 per acre. All unappropriated surveyed public domain adaptable to agricultural uses was subject to homestead entry if it was not mineral in character. Presently there is little unappropriated public domain in Oregon and none in the study area subject to entry under the Homestead Act.

Although the original Homestead Law and its many refinements are still in effect, they are very seldom used. The Taylor Grazing Act has generally superseded the Homestead Laws by withdrawing lands for management purposes. The Homestead Law, however, was a major influence in the settling of the Bend area.

Desert Land Entries - 1877

It is the purpose of the Desert Land Act to encourage and promote reclamation, by irrigation, of the semi arid and arid public lands of the Western States through individual effort and capital. It was assumed that settlement would follow when the lands were rendered more productive.

This Act enables a person to acquire 320 acres of public desert land outside of an irrigation area or 160 acres if within a reclamation

project. The lands so opened for entry must require irrigation for agricultural pursuits, must be susceptible to irrigation practices, and be surveyed, unreserved, unappropriated, non-mineral, and nonforested. If a land tract is susceptible to dry farming practices, it is not subject to entry under this law.

The Desert Land Act is still in operation but seldom used because the lands easiest to develop for irrigation have been patented and because the cost of providing new water sources is high. It is often less expensive for a person to purchase developed land rather than to construct a new irrigation system.

Carey Act - 1894

The Carey Act granted each western state up to one million acres of arid or semi-arid public domain. The state was then to assume the responsibility of reclaiming the land and selling small tracts to settlers. Oregon applied for seven segregations in Central Oregon totaling 279,199 acres after private companies decided to construct irrigation systems. Each company contracted with the state to provide reclamation and was to pay the cost by selling reclaimed tracts to individuals. If after a period of ten years from the date of withdrawal, the land was not reclaimed, it was to be reconveyed to public domain (Oregon, 1911). This act was the most important single factor in transferring public land to

private ownership in the study area and vicinity. Not all the land segregated under this act was reclaimed and some was reconveyed to the government. The impact this Act had is evident in comparing figures 2 and 3.

Other Acts

Numerous other Acts of Congress have influenced ownership in the study area. These laws are not as widely known but were important in the overall evolution.

The Recreation and Public Purposes Act of 1926, amended in 1954 and 1959, made it possible for public domain to be sold for a nominal fee to public or non-profit organizations provided that uses would be in the public interest. These uses include parks, schools, and refuse sites. This law has not resulted in major transfer of land as did the earlier mentioned laws.

Passage of the Taylor Grazing Act provided for management of public land and ended the disposal period. Hereafter, the government retained the responsibility of managing the public lands with selective disposal policies.

In 1965, the passage of the Classification and Multiple Use Act, and the Public Sale Act, allowed the BLM to classify and sell public lands for purposes other than those outlined in the Taylor Grazing Act. Lands sold under these acts are classified for a

OWNERSHIP 1859

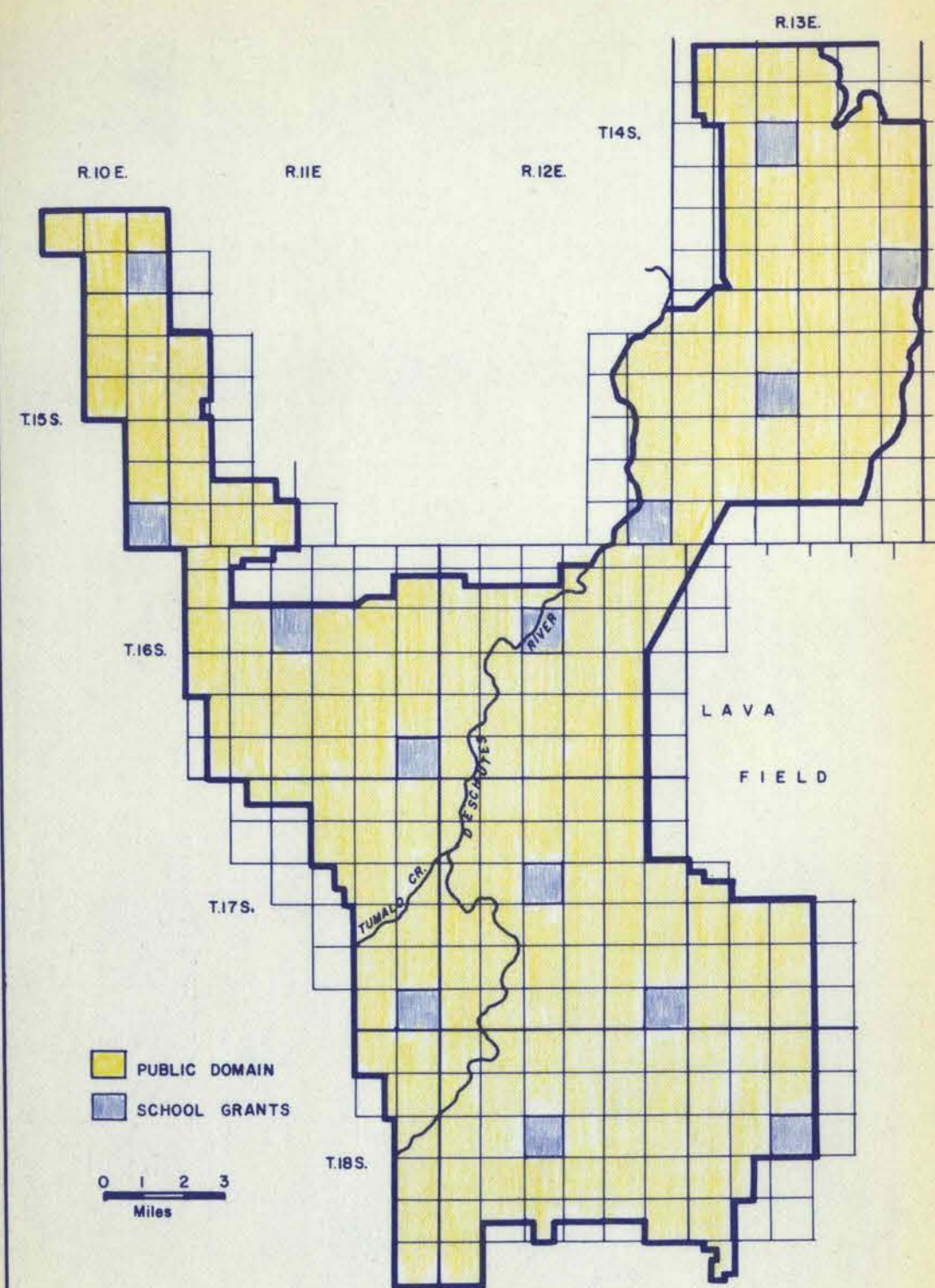
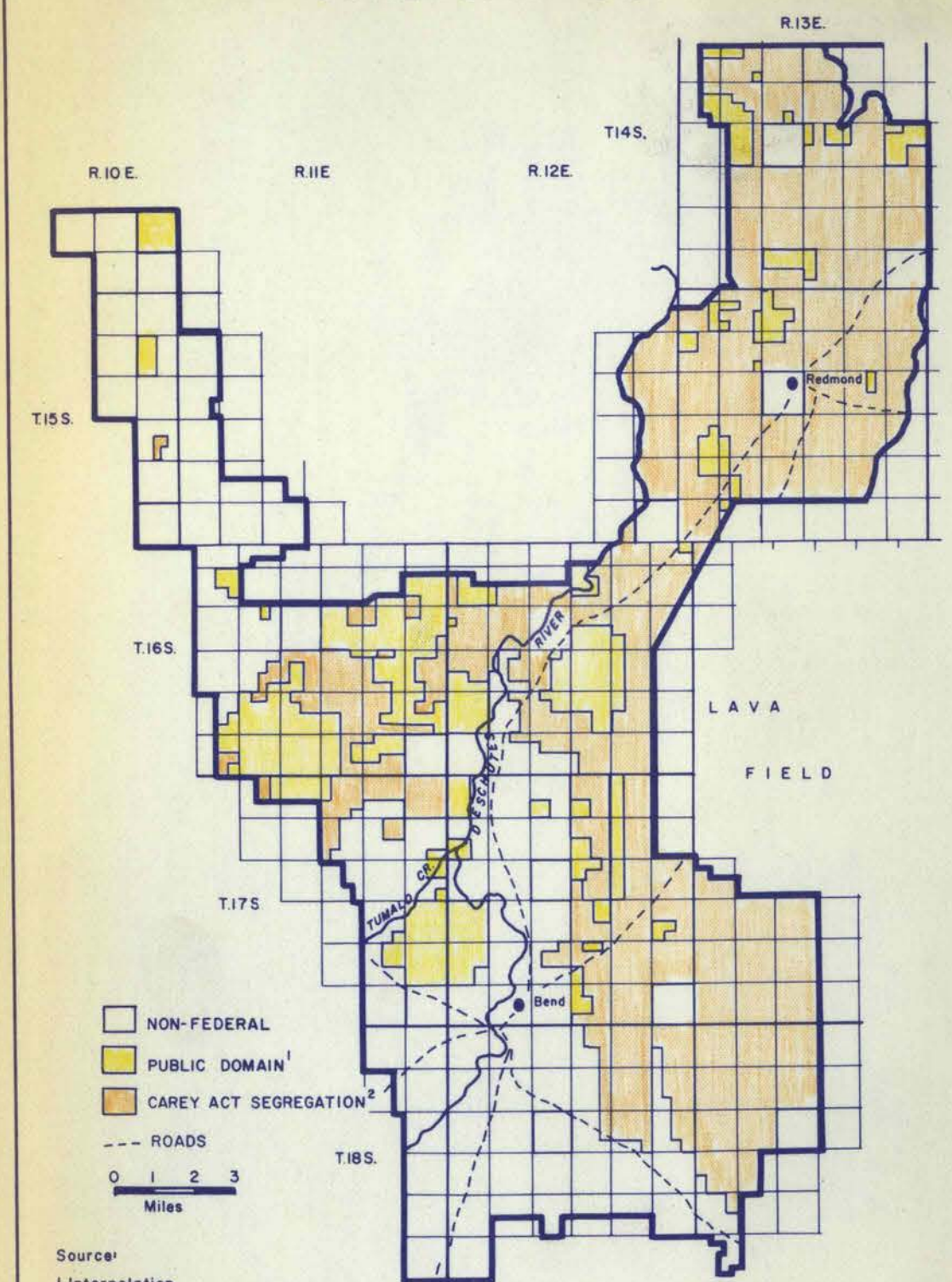


Figure 2

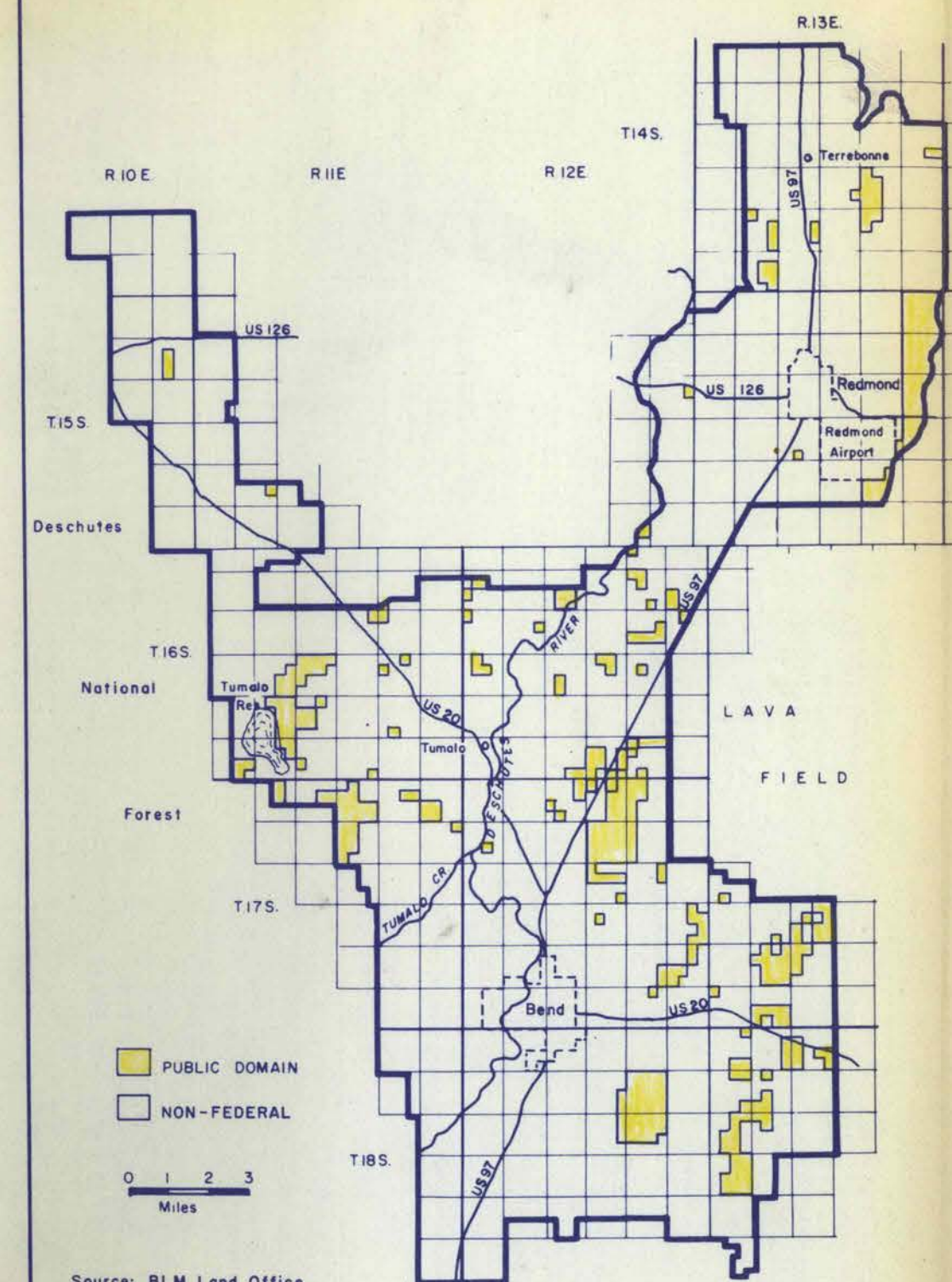
OWNERSHIP 1907



Source:
 1. Interpolation
 2. Desert Land Board

Figure 3

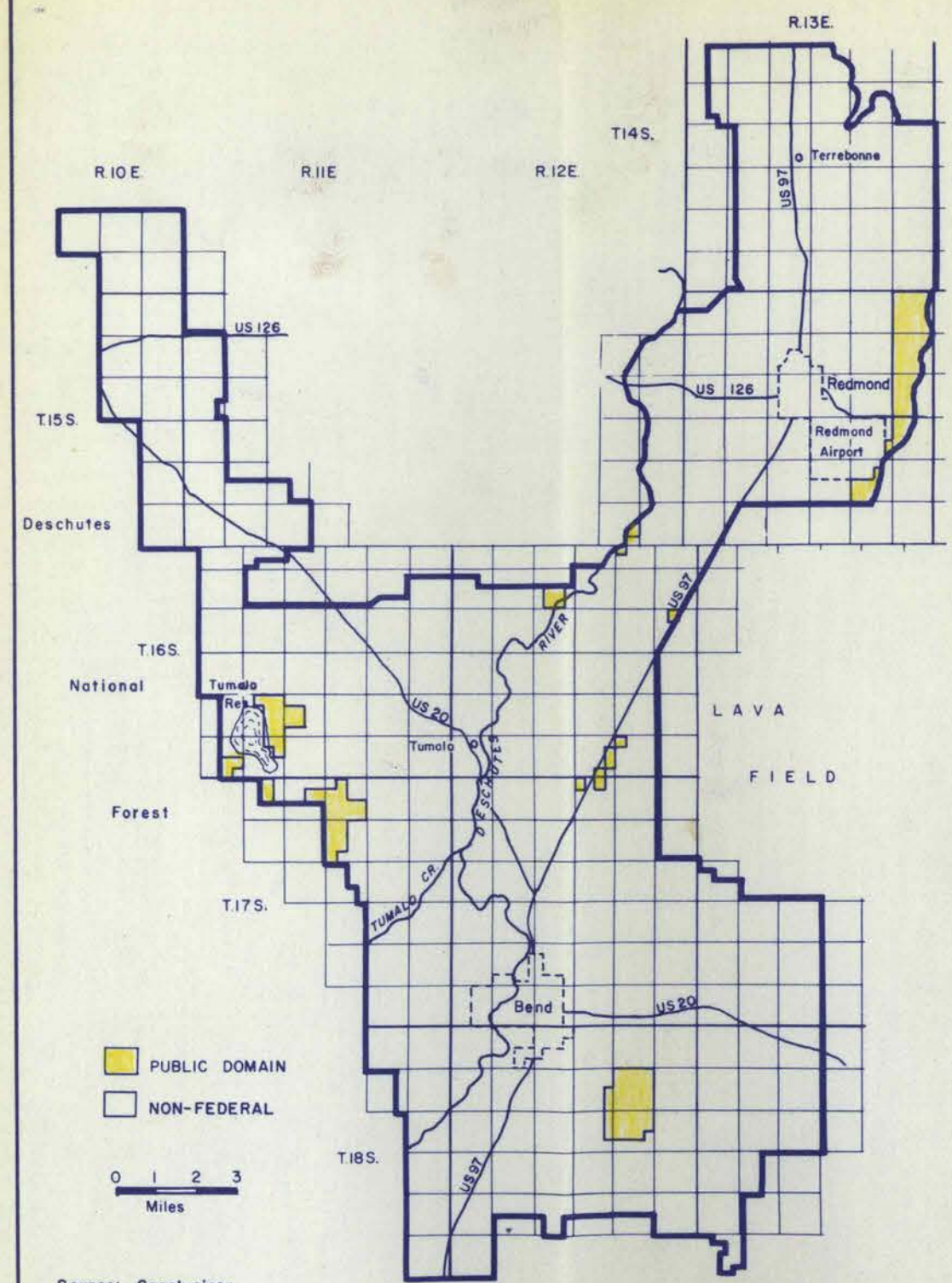
OWNERSHIP 1965



Source: BLM Land Office

Figure 4

OWNERSHIP 1980



Source: Conclusions

Figure 5

importance of distance. Today Bend is only a two and one-half hour drive from the Willamette Valley, Oregon's area of population concentration.

An increase in land investment and promotion, especially by California interests, will likely create an increasingly favorable economic situation. As more people see possibilities in the area, it will experience a population increase. Land speculation, however, may have adverse effects on the area if it continues to take the limited amount of agricultural land out of production. Present day speculative practices interfere with orderly land use development. Speculation practices have had their most important effect by forcing land values to rise.

Existing Land Use Patterns and Trends

Existing land uses affect the surrounding land uses and consequently the evaluation of public domain. Figure 7 shows the location of public land in the study area that will be influenced by existing and probable future land uses.

Industrial development is most pronounced in the Bend environment but Redmond also has a potential. Presently, Bend has two pine sawmills and five lumber remanufacturing firms. A particle board plant is under construction. The two sawmills are located south of the city limits. The majority of the lumber remanufacturing

LAND USE

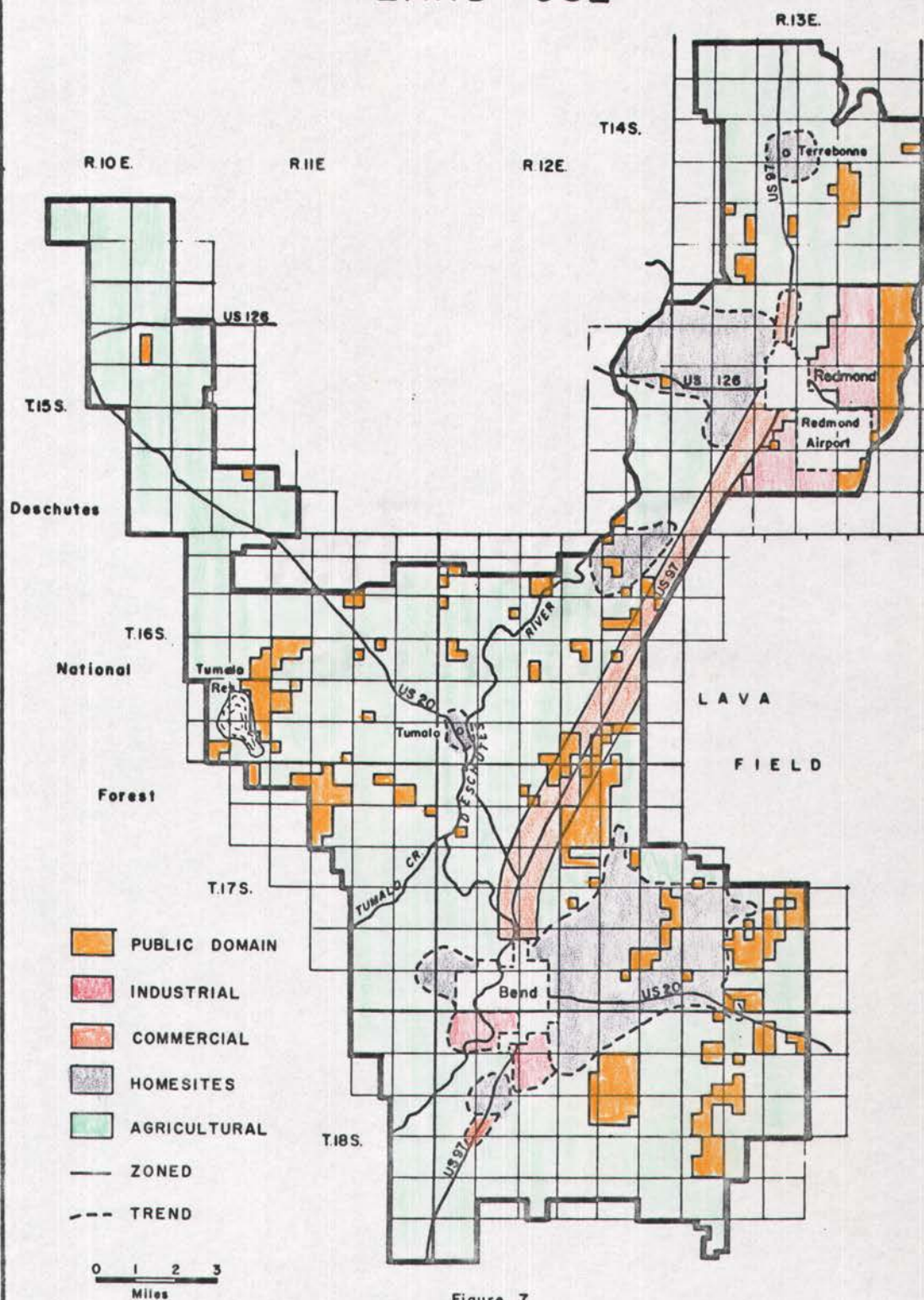


Figure 7

firms are also located south of Bend with two located along the railroad right of way. Other industrial development is taking place to the north of Bend. This is especially true for firms that import raw materials by rail and ship the finished product by the same method. The reason is the character of the rail service in the area. The Great Northern Railroad links Bend to California markets while the Oregon Trunk Line links to the Union Pacific and eastern markets. The cost involved in switching from one railroad to the other in Bend can be eliminated by strategic location. As a result, it is probable that wood products will continue to develop south of Bend while other manufacturing will develop to the north. Most manufacturing within the Bend city limits will develop to the southwest due to zoning regulations. Industry in the Redmond environment has and will continue to develop east of the city limits primarily as the result of county zoning which has designated this area for industrial uses. Commercial development outside the Bend or Redmond city limits will be along US Highway 97 as the land is zoned for this use up to one-half mile on both sides of the roadway.

Residential expansion in Deschutes County is mainly around Bend and Redmond. The tendency for people to move outside the city limits has created changes in the land use pattern. In the Bend area, residential development is extending to the west and east of the city. Expansion to the west is probably due to the sylvan setting

setting and the construction of Central Oregon College on Awbrey Butte. The land in this area is not in agricultural use and is best utilized for home construction.

East of Bend, the topography is more level than to the west and most of the level land is in agricultural uses. This level land has facilitated residential development and agricultural land has been taken out of production as sub-divisions and small tract development has taken place. Acreages in this area that are not suitable for agriculture have been the first to be sold for speculative purposes. This has raised land values. The increased land value and associated tax increase will eventually force the agricultural land to be used for uses rendering a higher economic return. Present lack of zoning in this area could result in a disarray of housing development with tracts between the city and places of development remaining idle.

Residential growth in the Redmond environment has been to the southwest. The land in this area is level and water is available from the City of Redmond's water distribution system. Development will probably continue in this direction; the main reason being that water systems can be less expensively installed here than in lava field areas where blasting is required for installation.

Future Land Needs

The future land needs of an area are a major consideration in public land evaluation and classification procedures. Because the economy and population in the study area is expanding, much of the public land is needed for orderly growth. Deschutes County does not have a comprehensive land use plan so future land needs in the categories recognized by the Classification and Multiple Use Act were identified from personal observations and interviews with county officials.

Public Needs

Public needs for land include open space, school sites, refuse disposal sites, communication sites and other uses that will benefit the general public. The important aspect of these land needs is that they are in areas predicted to be developed for residential, commercial, or industrial growth. Bend is the focal point for recreation activities within and outside the study area. As the recreation economy grows, more land area will need to be developed to meet the recreationist's demands. In particular these demands will include space for access to natural phenomena and development of recreation sites in locations with unusual natural features.

Urban sprawl and associated problems are expected to become

more acute in the future. This will increase the demand for schools and for refuse disposal sites. Other public needs for land may include communication sites, stock driveways, water reserves, and building material sites. Communication sites on public lands within the study area are very limited and demand for them on public domain will not likely arise because more suitable locations can be found on private land. Stock driveways and public water reserves will become of less importance due to changing land use patterns and economies. Sites for mining building materials for road material will gain in importance as urban and suburban growth demands more paved roads.

Private Needs

Future private needs for land within the area will be dependent mainly on location and surrounding land uses. Industrial sites, residential tracts, grazing lands, and irrigated farm lands will be increasingly in demand. The need for industrial sites is not expected to have a direct effect on public land, as most of the site potential for this use is already in private or county ownership.

Commercial development outside city boundaries is expected to increase, especially along the main highways, where in fact the county has zoned land for this usage. As a result, public domain lands along these rights of way will increasingly be desired.

Although agriculture is not the major factor in the present

economy, it will continue to play an important role. It is evident that the need for agricultural land will continue to press on available public domain. In addition, growth of cities and the process of urbanizing the area will increasingly require more land. Thus, there is existing pressure from private enterprise to secure public domain.

CHAPTER IV

THE EVALUATION OF A PUBLIC DOMAIN TRACT: THE CASE STUDY

The purpose of this chapter is to analyze the procedures of land evaluation as they relate to management decisions. The tract case study utilizes the material discussed in chapter three and is representative of the processes followed on all the tract evaluations in the study area.

Resource Evaluation Policy

The BLM analyzes six surface resources: Watershed, timber, native range, wildlife habitat, recreation, and industrial-commercial uses. In addition, mineral resources are evaluated as a separate factor. The completed individual resource analysis identifies and documents the social and monetary values the land base has for the possible uses cited in the Classification and Multiple Use Act and thus provides a basis for classification under that act.

Evaluation procedures for the individual resource values are outlined in six steps. 1. The present production capability of a particular resource is established. This is computed from available data and estimates of amount of the resource that exists and is available for use in a specific area. In the case of renewable

resources, production capability is estimated in terms of sustained yield. In the case of non-renewable resources, production capability is stated in terms of total quantities present.

2. Actual use of this resource is established. Present uses of renewable resources may be less or greater than quantities indicated available. Also, when present use is being derived, the existing condition of the resource is estimated.

3. Potential production is estimated. Although potential production is chiefly a physical limits concept, economic and social factors are considered to keep estimates within a liberally defined range of feasibility. Because concepts of potentials vary widely among individual examiners, a basis for the estimate must be clearly explained in his report. Potential production is expressed in the same terms as present production to facilitate comparisons.

4. An estimate of demand for the resource is made. This estimate is based on existing conditions and also on conditions expected in 1980. The conditions are in turn identified in terms of anticipated prices, public pressure, economic changes, and other agency's programs.

5. Miscellaneous considerations are identified, such as cooperation with users and other agencies, encumbrances, access, and land use patterns.

6. Finally an evaluation is made on the basis of all the data.

Authorization for Disposal

Authorization for the BLM to classify public domain for disposal is granted in section 7 of the Taylor Grazing Act of 1934. The uses outlined in this section are centered around agriculture. The Classification and Multiple Use Act of 1965 further outlines possible uses for which a disposal policy can be made which will still be in the public interest. Disposal of public lands through the regulations of the Classification and Multiple Use Act requires the concurrence of the county as to the lands ultimate use and development.

Authorization for exchange of public lands for privately held lands by the BLM is granted in section 8 of the Taylor Grazing Act. The exchange is based on equal value and not necessarily equal area.

Once the lands selected by the BLM and the county are identified, a notice of disposal and exchange must be published once a week for four consecutive weeks in a newspaper serving the area where the exchange is to take place. The BLM and the county each pay one-half the advertising cost. This procedure allows for the public to air any grievances about the proposed exchange with either the BLM or the county. If at the end of this period, it is still decided by the BLM that exchange is in the public interest and in accordance with district management policies, the exchange is finalized.

Land Classification Criteria

Classification results from an evaluation of possible land uses and the public interest. Usually land within a best blocked area, defined as an area where the BLM has or desires at least 80 percent ownership, is broadly classified for retention. Public lands within all areas are classified according to the Classification and Multiple Use Act when applicable. This was the first act that authorized the BLM to classify lands for multiple use or important single uses not outlined in other regulations.

Lands classified for retention and associated management are dependent on four factors; 1) existing and future demand for the resource use, value, or commodity, 2) coordination and cooperation with the resource use and management programs of state and local government, public organizations, and private land owners, 3) national programs, and 4) compatibility of possible uses. Thus, any evaluation of present and future uses is based not only on existing local phenomena but also on nation-wide programs. This aspect has made some management policies difficult to justify to local persons.

In a transfer area the land is classified not only by the effectiveness of management but also with reference to community needs. Much of such classification is made in conjunction with local planning commissions, using the opinion of experts to identify important land uses.

Evaluation and Classification Factors in the Study Area

In a transfer area two possible classifications result from the evaluation process: a) retention and management, or b) disposal. The implementation of each of these classifications has an influence on existing and future land uses as well as on BLM management. Therefore, the effect of the classification and how it will affect management and land uses is an integral part of the evaluation process. This section further discusses factors in the evaluation of public land in the study area and indicates how existing land uses influence actual classification.

The economic circumstances of a ranch unit, the size of its grazing allotment that is within a transfer area, and the amount of public land involved are important factors of consideration. The BLM in evaluation of tracts weighs carefully the effects of its decision on ranch units.

Public access and location in respect to major transportation facilities have a major influence on possible land uses and on classification. If a parcel is "landlocked" and has no specific public value, a disposal classification may be justified. However, if a tract is readily accessible and subject to undesirable development, retention, pending zoning and master planning, may be imperative to prevent such land use. Therefore, all possible land uses are

examined and the desirability of each is considered in respect to compatability with surrounding land use.

Such factors as withdrawals, easements, BLM projects, present management, and physical characteristics also are considered. Withdrawn lands have previously been designated for a specific use and unless this use is no longer deemed important, retention will probably be the decision. BLM projects have some bearing on classification because of existing developments and improvements that should be maintained. Present management is an important consideration in evaluation leading to classification. The natural characteristics of the land are especially important in determining possible physical land use.

The following case study is an example of the application of these principles.

The Case Study

This case study is representative of the processes followed in evaluating 96 individual tracts of public domain. In the actual evaluation, the study area was divided into seven areas on the basis of land uses and environmental conditions. This procedure limited the amount of discussion necessary in identifying the influences exerted on each individual land tract.

General Characteristics in the Case Study Area

Encompassing a large land area east of Bend, the area is characterized by a generally dissected land surface with limited agricultural possibilities. The climate definitely limits intensive agriculture. Situation near Bend has influenced the spatial organization and resulted in diversity of land use. An ever increasing demand for small tract homesites has had a serious effect on agriculture with marginal farms succumbing to the urban sprawl of Bend. Although many of the public domain lands in this area are not physically suitable for agricultural use, they are, because of location, suitable for uses not dependent on the agrarian land base. The public domain tracts are generally larger than those found in other sub-areas. The grazing allotments are of sufficient size to warrant close examination before a classification decision is made.

Tract Characteristics

The public domain tract selected for the case study is approximately $3\frac{1}{2}$ miles east of the city of Bend. The legal description is: NE $\frac{1}{2}$ NE $\frac{1}{2}$, S $\frac{1}{2}$ NE $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$, and SE $\frac{1}{4}$ section 29, township 29, township 17 south Willamette Base Line, range 13 east Willamette Meridian. It is located in the environmental influences

of Bend and is experiencing changing land uses.

Encompassing 480 acres, the tract has land included in capability classes ranging from class IV to class VII. Slopes range from 0 to 15 percent and some lava cliffs are present. The elevation varies from 3430 to 3530 feet above sea level. Soil depth varies from 10 to over 60 inches deep and has a light to medium texture. In the interior of the tract is a large basin with sharp lava breaks on the western side. The existing vegetation association is composed mainly of western juniper, sagebrush, and cheat grass.

Figure 8 is a replica of a field map and shows the location of land classes. There are approximately 35 acres of class IV land, 70 acres of class V land, 95 acres of class VI land and 100 acres of class VII land. The predominance of class IV and V land in the basin portion of the tract is the result of less wind erosion and more wind deposited soil.

The tract is in a 760 acre grazing allotment of which 240 acres are in private ownership. The tract is well fenced with barbed wire, has paved access on the west and south, and has two irrigation canals crossing it. Utilities are located along the two access roads. A system of dirt roads exists throughout the interior of the tract.

Existing Land Uses

The land use in the vicinity of the case study tract is primarily

THE CASE STUDY TRACT

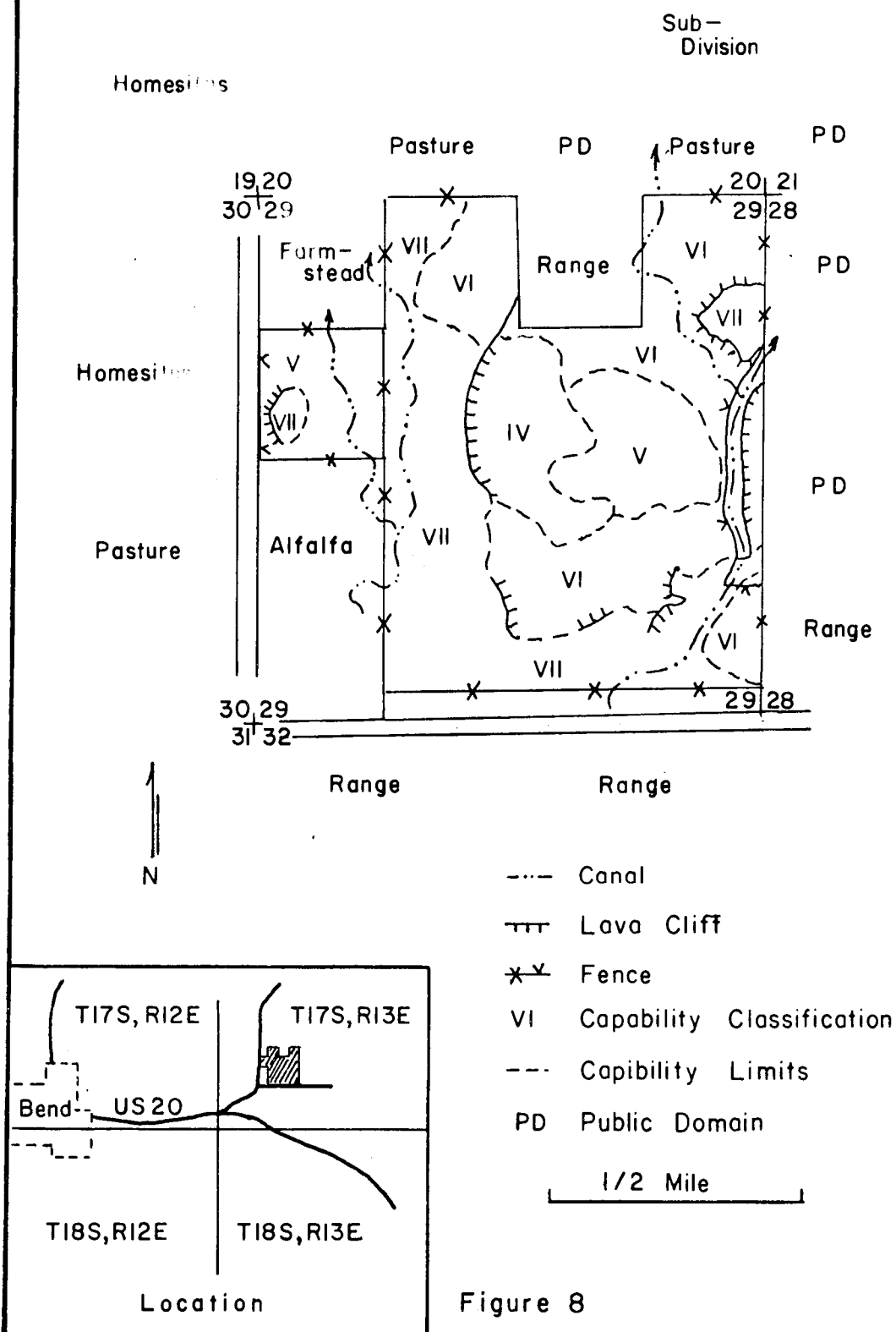


Figure 8

agriculture with some small tract residential development. Agricultural enterprises include alfalfa, hardy grains, and irrigated pasture. The elevation and short growing season in this area limits more intensive agriculture. Where the land base is not suitable for irrigation, native range dominates. Residential development is along paved roads with the land behind the homesites remaining in native range or extensive agricultural use. Public domain adjacent to the tract has remained in native range due to the Federal laws regulating development. Figure 8 shows the land uses adjacent to the case study tract.

The case study tract is presently used for range forage production. The class IV land has been planted to rye by the grazier but may not be harvested for commercial sale. The remainder of the tract has been left in native vegetation. The present grazier's operation is the breeding of quarter horses with income supplemented by the management of a summer boys' camp on his private land. The public domain is used in conjunction with 200 acres of irrigated hay and pasture. Forty acres of the grazing allotment is owned by the Central Oregon Irrigation District but the District is not reimbursed by the grazier for its use nor does the acreage receive any management except from the grazier. The contract between the BLM and the grazier has previously been the basis for loans for the ranch operation indicating that the public land is an

integral part of the operation. The ranch operation is the grazier's only economic activity and is an economic unit.

Possible Uses and Suitability

Land use trends east of Bend indicate that the case study tract is on the eastern fringe of small farm and homesite development. Paved access on two sides of the tract within short distance to US highway 20, a main artery into Bend, is a factor of importance in considering possible land uses. Development on surrounding tracts indicates that increasing land value may force a higher use from the land than is possible with agricultural pursuits.

The SW $\frac{1}{4}$ NW $\frac{1}{4}$ portion of the section is suitable for irrigation, agriculture and homesite development. The grazier has filed a Desert Land Entry on this forty acres in an attempt to block his holdings. The water rights to irrigate the land have been purchased from another land owner who is sub-dividing his land and has no need for the water. This acreage is also desirable for homesites because of fairly level terrain, a view of the Cascades, commonly called the "million dollar skyline", and access to a major transportation route. The Desert Land Entry applicant desires the land for agriculture. The BLM cannot dispose of this tract until the application has been approved or rejected.

Class VII land on the western and southern borders of the

interior basin were evaluated to be best suited for residential development. Only the southern portions, however, have existing public paved access. The alternative use would be for the land to remain in native range which under existing trends would not be the "highest and best use".

The interior basin is not suitable for homesites because of interior drainage and the cost of acquiring access and utilities. The basin could be more intensively used for agriculture. Surplus water from other parts of the allotment could conceivably be used to irrigate pasture or hay crops. Without additional water, this portion of the tract could easily be cleared and reseeded to crested wheatgrass or native bunch grasses for increased forage production which under present conditions would be the best use.

Evaluation and Classification

The case study tract has no inherent public value that warrants retention classification. The size of the tract, management problems of the BLM, and location adjacent to areas of intensifying land use justify disposal classification. Disposal is possible through two channels, public land sales and exchanges.

The method of disposal depends on the provisions of each alternative. Public sale laws require that the land for sale be classified for disposal. The land is sold at public auction to private

individuals or profit organizations for not less than fair market value. The most important provision of this law affecting the study area is that the owners of contiguous lands have a preference right for a period of 30 days after the high bid is received. The adjacent land owner may purchase the land by meeting the high bid or by paying a maximum cost of three times the appraised price. This provision is important to landowners wishing to increase and block their land holdings. It also discourages fragmentation of the land. In the case study farm operation the ranch operator thus has a means to protect his operation if the land is disposed through public land sale proceedings.

Current goals of the BLM to block holdings throughout the district favor disposal by exchange and often require consideration of factors which may conflict with individual desires. Deschutes County on the other hand desires to have the tracts of public domain on the tax roles because they have developmental potential and are increasing in value. The BLM wishes to block up public domain holdings for more efficient management. The goal is, then, to trade scattered public domain tracts in the study area to the county for county lands elsewhere. This will eliminate most of the public domain in the transfer area but will increase the amount of public domain in other areas because of an exchange ratio in favor of the BLM. The impact on the present user of the case study tract by this

disposal policy would be dependent on the goals of Deschutes County and its responsibilities to its residents.

Residential use on parts of the case study tract would be a higher land use than grazing. Although residential use may return more money to the county through increased tax value, it would be undesirable for the farm operator and from a long range view, might be undesirable for orderly county growth and development. Development could be directed through the disposal policy, but the BLM must consider its goals over a much larger area. It is the consensus of BLM personnel that the responsibility of directing orderly land use in the study area is rightfully in the realm of county government.

The final conclusions concerning the classification of the tract is that disposal is in accordance with BLM goals. Disposal through county exchange is recommended because it most enhances effective and efficient BLM district-wide management.

CHAPTER V

CONCLUSIONS

The realities of public domain management are complex and often governmental personnel directly concerned with the procedures disagree on the interpretation of the land laws. The problems of land evaluation and classification as they relate to the management and the general public, are made even more complex because the lands examiner does not have a detailed outline to follow and has to use considerable personal judgement in the procedures. Finally, the decisions reached by the lands examiner can have a great influence on the economy in a specific area. The problems in implementing the evaluation conclusions, the decisions, and the impact they have on the study area are the subject of this concluding chapter.

Summation of Tract Evaluations

When the analysis of the 14,306 acres of public domain in the study area was completed, it was determined that 9,250 acres were suitable for disposal under the existing regulations concerning the transfer of public domain to private ownership. The remaining 5,056 acres were evaluated to be retained for Federal management. Figure 5 shows the amount and location of public domain land that

will remain in the study area when the evaluation conclusions are implemented.

The reasons for recommending retention of 35 percent of the public domain in the study area are indicated in the following. The large area of 1400 acres east of the Redmond Airport is recommended for retention because it is part of a necessary stock driveway. It also adjoins a large block of public domain outside the study area. All tracts adjacent to the Deschutes River are recommended for retention because they have recreation potential and access value. The 640 acres in the Tumalo Reservoir were also recommended for retention for recreation purposes. These tracts will be desirable for recreation if the Bureau of Reclamation succeeds in developing and sealing the old reservoir site. Public domain tracts located adjacent to the Deschutes National Forest boundary have stands of ponderosa pine on them and are recommended to be retained for forest management. The tracts along US Highway 97 are recommended for retention to complement the existing State of Oregon Juniper Waysides and to provide a measure of open space. The 1240 acre tract southeast of Bend was determined to be valuable for a BLM administrative site and is recommended to be retained for this purpose.

Impact of Land Disposal

All growth trends of population and the economy indicate that

the area will continue to develop as a result of interior and exterior factors. Assuming all the evaluation conclusions are implemented, the BLM will have no further responsibility to the residents in the study area to provide land for orderly community growth. The public domain that is retained by the BLM will be developed for the use for which it was classified unless demands in the future are no longer in accordance with the original classification.

The disposal of the many small tracts of public domain in the study area will eliminate for the BLM the need to process the many inquiries from individuals who desire to obtain these lands. Once the land is transferred to private ownership, the value of the tax base of Deschutes County will be increased as improvements are made on these tracts. Many of these tracts will be used for purposes that bring higher economic return from the land. Those that remain in agricultural use will increase the income from agriculture.

Problems in Implementing Evaluation Conclusions

Once an evaluation conclusion is reached, there are many problems to solve before they can be implemented. This is especially true if a disposal classification is made. The method of disposal entails the determination of the Act and regulations that will best serve the resource potential, the area, and the public.

The method of disposal determined to be best suited for goals

of the BLM for the majority of public land in the study area is county exchange. This method allows the BLM to obtain a better ownership pattern for management and keeps the capital in the area. Through public sale methods, the money received would go into a general fund in Washington D. C. The county exchange disposal method does, however, create a problem in personnel requirements at the district level, because it requires that the public domain and county lands be appraised by the lands examiner instead of only the public domain that is to be disposed. This extra appraisal requires additional man-hours. A lack of personnel to perform the appraisal work requires that the exchange be worked on while performing every day functions in the management of other lands elsewhere in the district and delays the actual implementation of the conclusions.

When the proposed exchange is balanced for monetary value, users of public domain must be notified and the proposal advertised in a local paper for one month. All grievances of the public must be considered before the actual exchange is made. Once the disposal classification is made, it may be several years before the BLM actually disposes of the land through exchange procedures. This delay is often unfortunate because BLM personnel may be transferred and different county officials may be elected. This often requires a duplication of work and the need to familiarize new personnel with the proposal. The change in county officials may make an exchange

impossible because of different and changing county views.

The Transfer Concept as Mature Management

Selective disposal of the public domain by the BLM has become an important facet of its land management program and reflects administrative maturity. The recognition of the potential value of public domain for purposes other than forage or timber production undoubtedly result in transfers that lead to higher utilization.

Urban centers in the study area are the focal point for the major portion of the economic activity in Deschutes County. Bend and Redmond serve the hinterland in providing retail and wholesale services, by processing forest and cattle resources, and by providing recreation services. As the county's economic base expands, the need for public domain land in private enterprise in the study area for these provisions will increase. These demands are currently being met by the BLM's selective disposal policy. The disposal of public domain that can best be managed by private individuals through county exchanges will be beneficial to both the county and the BLM. Although this method requires more man-hours than disposal through public sale, the monetary savings in management resulting from creating larger blocks of public domain elsewhere in the county offsets the initial cost of the exchange.

The Classification and Multiple Use Act will continue to be a

valuable supplement to the Taylor Grazing Act in classifying and disposing of selected tracts of public domain in an area of changing land uses and expanding economies.

Evaluation methods prescribed by the BLM proved to be adequate. Ample consideration is given to the need to emphasize the importance of surrounding land uses and use potential of the land rather than only the physical capabilities as they relate to the production of natural resources such as forage, wildlife, or timber growth. Although the consideration of cultural and societal variables are not directly outlined in the evaluation procedures, they are implicit. The recognition of the need to consider public interest is a check on indiscriminate classification.

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specific use and must be zoned or have the approval of county officials. Lands are sold at public auction to private parties at prices not less than appraised market value.

Impact of Acts and Policies
on Ownership in the Area

At the time of the Oregon Compromise in 1846, the entire areal extent of the study area became public land. During this period, it was the policy of the government to grant the state two sections in every township for educational purposes. These sections, 16 and 36, came to be known as school lands. When Oregon became a state in 1859, these sections were granted to the state for school purposes unless they were encumbered by homesteads or other private ventures authorized by the government.

The period immediately before the twentieth century saw little change in the ownership pattern. Except for scattered homesteads or desert land entries and the school grants, most land in the study area remained in public ownership. Although the Carey Act was passed in 1894, no lands were withdrawn under this act until 1902 (Oregon, 1911).

Following the first Carey Act segregation in 1902, the ownership pattern entered a period of rapid change. Seven segregation lists cumulating in 1915 resulted in substantial reduction in Federal

ownership. When much of the Carey Act land segregated was examined for reclamation, it was discovered that much of the land chosen was not suitable for irrigation practices and was reconveyed. This in turn led to a fragmented ownership pattern including small tracts of public land (see figure 4, page 18).

The Carey Act segregations were the last large ownership transfers of public land in the study area. Small public land transfers, however, continue to occur through the procedures outlined in the Taylor Grazing Act and the Recreation and Public Purposes Act.

TABLE 1 Land Ownership in the Study Area, 1965

Status	Acres	Percent
Private	128,753	84.42
Public Domain	14,306	9.38
Reconveyed Carey Act	(760)	(.50)
Existing public domain	(13,546)	(8.88)
County	8,152	5.35
State	704	.46
Other Federal land	600	.39
	152,515	100.00

The data in Table 1 reveals that in 1965, less than ten percent of the areal extent was in public ownership. Moreover, many of the public domain tracts were less than 80 acres in size and thus difficult to manage efficiently under present economic conditions. As a result, in 1965, the BLM administration designated the area a transfer

area as a solution to the management problem. Under the Federal Laws, before a public domain tract can be transferred into non-federal ownership, the land must be classified in terms of optimum use potential. The actual procedure of evaluation is detailed in chapter four. The next chapter is an analysis of the changing land values and human perceptions of the resource potential in the study area.

CHAPTER III

INFLUENCES OF CHANGING PERCEPTIONS AND CONCEPTS OF LAND VALUE

The most important factor influencing the BLM to designate the study area a transfer area was the evolution of new concepts of land use potentials. These new concepts and actual monetary values are the result of the interrelationships between population growth and economic development. The purpose of this chapter is to examine the temporal changes in the main variables of the man-land system as they influenced the transfer area.

Population Distribution

The dynamics and distribution of population in Deschutes County is an important aspect influencing changing land values in the study area. Deschutes County encompasses 3,027 square miles and is sparsely populated with a population density of 8.6 persons per square mile (1964). This density average, however, is not representative because approximately 60 percent of the total population is located in Bend and Redmond. It is estimated that another 15 percent of the population is situated in other urbanized areas and in the suburban zones of Bend and Redmond. Sisters has a current population of 600 with another 600 in the immediate vicinity. In

total, another 1000 persons are estimated to live in the LaPine District south of Bend and on the high desert area east of Bend around Brothers and Hampton. Out of a population of 26,131 in Deschutes County, 24,000 or 92 percent live in the study area (1964).

This population concentration is an important factor affecting the future of the study area. Population density is 99.3 persons per square mile in the study area, indicating the intensity of existing pressure on the included public lands.

Population Growth Trends

All indications today suggest continued population growth for which a projection was made as part of the evaluation procedure. The methodology used in forecasting population growth in the study area utilized two assumptions: 1) that population increases due to natural factors will continue and 2) that there will continue to be an increase due to in-migration. A high and low increase assumption was made for each of these factors. For natural increases, a low assumption of one percent and high assumption of two percent net yearly increase were used. A high and low increase due to in-migration was four persons per thousand population and two per thousand yearly, respectively. These factors were combined and future population in 1980 projected from a 1964 State of Oregon Census Bureau population estimate for Deschutes County, Bend,

Population Trends and Projections

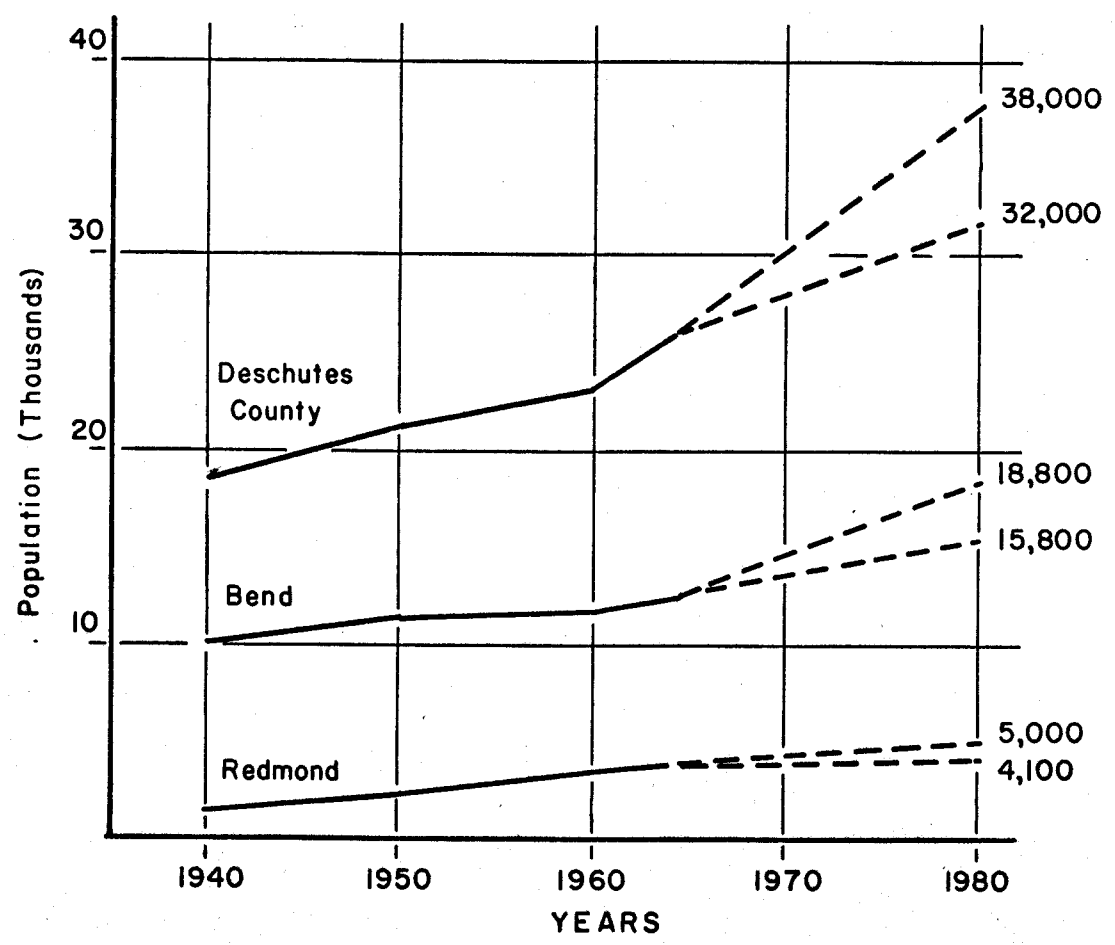


Figure 6

Source: US Census and Projections

and Redmond. It is speculated that any major positive change in the economy would result in the estimates shown in figure 6 being conservative.

The important fact is that 92 percent of the county population is now located in the study area. If this percentage is assumed to remain at the present level, the maximum and minimum number of persons in the area in 1980 would be approximately 33,000 and 28,500 respectively. However, this percentage figure is expected to be higher in 1980 because the promotion of recreational service facilities, industrial development, and an influx of money for housing tract development will very likely all take place in the study area before taking place in other localities in the county. Because most suburban development is expected to take place in the vicinities of Bend and Redmond, perhaps 96 percent of the population in the county will be located in the study area by 1980.

Factors and Trends in Economic Development

A number of conditions of the physical and societal environment are important considerations in the evaluation procedure. These include, in particular, climate and landform characteristics, resource availability, and development potential.

Climatic and landform characteristics each contribute to the growth limitations and possibilities of the area. Although the

climate is not extreme, it is more severe than that found at lower elevations in Western Oregon. The cold winters may adversely influence many people, but the lesser number of days with rainfall is attractive to those who dislike a damp climate.

The climate has been a limiting factor in the growth of agrarian segments of the economy. The short frost free season and meager precipitation seriously limit agricultural cropping possibilities. The need for irrigation to support crop agriculture has limited expansion because the water supply available for this use is entirely appropriated. Proposed water storage projects on the Deschutes River are not expected to increase the amount of irrigable land but are intended to eliminate water shortages during the late growing season.

Water has also had an effect on industrial expansion. Industries that require a large amount of water in the manufacturing process find that location on the Deschutes Plateau is not feasible. Lumber mills are not affected to such an extent as other heavy industries but it is presumed that water shortage has inhibited development of integrated mill complexes.

The production of timber products is the major economic activity in the area and could conceivably increase in importance. New developments in wood products associated with modern methods of processing the timber resource could have beneficial effects on

the economic and social growth of the area. Moreover, it is believed by BLM foresters that the Deschutes National Forest, the chief timber source of the area, could withstand an increased allowable cut within a sustained yield policy. Were the allowable cut increased, timber based industries would almost certainly expand. This would increase employment opportunity and probably would foster in-migration.

Although mining activity is presently of relative unimportance to the economy and employs only a few persons, increasing uses of pumice and other volcanics could expand the mining economy.

Recreation possibilities contribute most to the economic growth potential. This land use, being a relatively recent contributor to the economy, has not yet been developed to its fullest capabilities. The recreation opportunities surrounding the area are many and are underdeveloped. Further development and promotion will increase the importance of recreation to the economy and require more people to serve the recreationist's needs.

The location of the area, far from the state's economic centers, at one time was a deterrent to economic expansion. Although this distance still affects manufacturing activities negatively through transportation costs, it is an advantage for recreation development. Increased leisure time, modern highways, improved modes of transportation, and a desire to avoid crowds have minimized the

importance of distance. Today Bend is only a two and one-half hour drive from the Willamette Valley, Oregon's area of population concentration.

An increase in land investment and promotion, especially by California interests, will likely create an increasingly favorable economic situation. As more people see possibilities in the area, it will experience a population increase. Land speculation, however, may have adverse effects on the area if it continues to take the limited amount of agricultural land out of production. Present day speculative practices interfere with orderly land use development. Speculation practices have had their most important effect by forcing land values to rise.

Existing Land Use Patterns and Trends

Existing land uses affect the surrounding land uses and consequently the evaluation of public domain. Figure 7 shows the location of public land in the study area that will be influenced by existing and probable future land uses.

Industrial development is most pronounced in the Bend environment but Redmond also has a potential. Presently, Bend has two pine sawmills and five lumber remanufacturing firms. A particle board plant is under construction. The two sawmills are located south of the city limits. The majority of the lumber remanufacturing

LAND USE

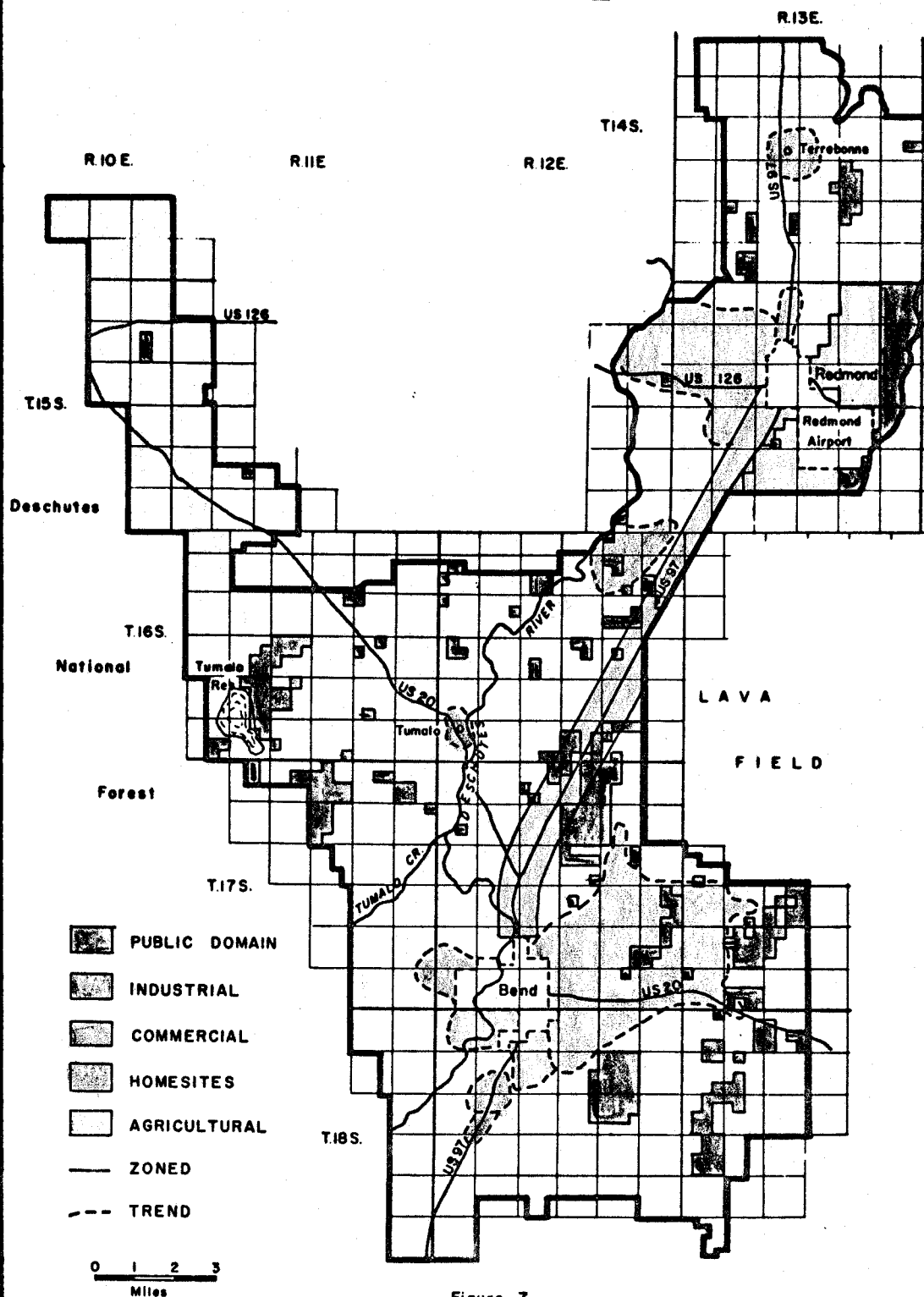


Figure 7

firms are also located south of Bend with two located along the railroad right of way. Other industrial development is taking place to the north of Bend. This is especially true for firms that import raw materials by rail and ship the finished product by the same method. The reason is the character of the rail service in the area. The Great Northern Railroad links Bend to California markets while the Oregon Trunk Line links to the Union Pacific and eastern markets. The cost involved in switching from one railroad to the other in Bend can be eliminated by strategic location. As a result, it is probable that wood products will continue to develop south of Bend while other manufacturing will develop to the north. Most manufacturing within the Bend city limits will develop to the southwest due to zoning regulations. Industry in the Redmond environment has and will continue to develop east of the city limits primarily as the result of county zoning which has designated this area for industrial uses. Commercial development outside the Bend or Redmond city limits will be along US Highway 97 as the land is zoned for this use up to one-half mile on both sides of the roadway.

Residential expansion in Deschutes County is mainly around Bend and Redmond. The tendency for people to move outside the city limits has created changes in the land use pattern. In the Bend area, residential development is extending to the west and east of the city. Expansion to the west is probably due to the sylvan setting

setting and the construction of Central Oregon College on Awbrey Butte. The land in this area is not in agricultural use and is best utilized for home construction.

East of Bend, the topography is more level than to the west and most of the level land is in agricultural uses. This level land has facilitated residential development and agricultural land has been taken out of production as sub-divisions and small tract development has taken place. Acreages in this area that are not suitable for agriculture have been the first to be sold for speculative purposes. This has raised land values. The increased land value and associated tax increase will eventually force the agricultural land to be used for uses rendering a higher economic return. Present lack of zoning in this area could result in a disarray of housing development with tracts between the city and places of development remaining idle.

Residential growth in the Redmond environment has been to the southwest. The land in this area is level and water is available from the City of Redmond's water distribution system. Development will probably continue in this direction; the main reason being that water systems can be less expensively installed here than in lava field areas where blasting is required for installation.

Future Land Needs

The future land needs of an area are a major consideration in public land evaluation and classification procedures. Because the economy and population in the study area is expanding, much of the public land is needed for orderly growth. Deschutes County does not have a comprehensive land use plan so future land needs in the categories recognized by the Classification and Multiple Use Act were identified from personal observations and interviews with county officials.

Public Needs

Public needs for land include open space, school sites, refuse disposal sites, communication sites and other uses that will benefit the general public. The important aspect of these land needs is that they are in areas predicted to be developed for residential, commercial, or industrial growth. Bend is the focal point for recreation activities within and outside the study area. As the recreation economy grows, more land area will need to be developed to meet the recreationist's demands. In particular these demands will include space for access to natural phenomena and development of recreation sites in locations with unusual natural features.

Urban sprawl and associated problems are expected to become

more acute in the future. This will increase the demand for schools and for refuse disposal sites. Other public needs for land may include communication sites, stock driveways, water reserves, and building material sites. Communication sites on public lands within the study area are very limited and demand for them on public domain will not likely arise because more suitable locations can be found on private land. Stock driveways and public water reserves will become of less importance due to changing land use patterns and economies. Sites for mining building materials for road material will gain in importance as urban and suburban growth demands more paved roads.

Private Needs

Future private needs for land within the area will be dependent mainly on location and surrounding land uses. Industrial sites, residential tracts, grazing lands, and irrigated farm lands will be increasingly in demand. The need for industrial sites is not expected to have a direct effect on public land, as most of the site potential for this use is already in private or county ownership.

Commercial development outside city boundaries is expected to increase, especially along the main highways, where in fact the county has zoned land for this usage. As a result, public domain lands along these rights of way will increasingly be desired.

Although agriculture is not the major factor in the present

economy, it will continue to play an important role. It is evident that the need for agricultural land will continue to press on available public domain. In addition, growth of cities and the process rurbanizing the area will increasingly require more land. Thus, there is existing pressure from private enterprise to secure public domain.

CHAPTER IV

THE EVALUATION OF A PUBLIC DOMAIN TRACT: THE CASE STUDY

The purpose of this chapter is to analyze the procedures of land evaluation as they relate to management decisions. The tract case study utilizes the material discussed in chapter three and is representative of the processes followed on all the tract evaluations in the study area.

Resource Evaluation Policy

The BLM analyzes six surface resources: Watershed, timber, native range, wildlife habitat, recreation, and industrial-commercial uses. In addition, mineral resources are evaluated as a separate factor. The completed individual resource analysis identifies and documents the social and monetary values the land base has for the possible uses cited in the Classification and Multiple Use Act and thus provides a basis for classification under that act.

Evaluation procedures for the individual resource values are outlined in six steps. 1. The present production capability of a particular resource is established. This is computed from available data and estimates of amount of the resource that exists and is available for use in a specific area. In the case of renewable

resources, production capability is estimated in terms of sustained yield. In the case of non-renewable resources, production capability is stated in terms of total quantities present.

2. Actual use of this resource is established. Present uses of renewable resources may be less or greater than quantities indicated available. Also, when present use is being derived, the existing condition of the resource is estimated.

3. Potential production is estimated. Although potential production is chiefly a physical limits concept, economic and social factors are considered to keep estimates within a liberally defined range of feasibility. Because concepts of potentials vary widely among individual examiners, a basis for the estimate must be clearly explained in his report. Potential production is expressed in the same terms as present production to facilitate comparisons.

4. An estimate of demand for the resource is made. This estimate is based on existing conditions and also on conditions expected in 1980. The conditions are in turn identified in terms of anticipated prices, public pressure, economic changes, and other agency's programs.

5. Miscellaneous considerations are identified, such as cooperation with users and other agencies, encumbrances, access, and land use patterns.

6. Finally an evaluation is made on the basis of all the data.

Authorization for Disposal

Authorization for the BLM to classify public domain for disposal is granted in section 7 of the Taylor Grazing Act of 1934. The uses outlined in this section are centered around agriculture. The Classification and Multiple Use Act of 1965 further outlines possible uses for which a disposal policy can be made which will still be in the public interest. Disposal of public lands through the regulations of the Classification and Multiple Use Act requires the concurrence of the county as to the lands ultimate use and development.

Authorization for exchange of public lands for privately held lands by the BLM is granted in section 8 of the Taylor Grazing Act. The exchange is based on equal value and not necessarily equal area.

Once the lands selected by the BLM and the county are identified, a notice of disposal and exchange must be published once a week for four consecutive weeks in a newspaper serving the area where the exchange is to take place. The BLM and the county each pay one-half the advertising cost. This procedure allows for the public to air any grievances about the proposed exchange with either the BLM or the county. If at the end of this period, it is still decided by the BLM that exchange is in the public interest and in accordance with district management policies, the exchange is finalized.

Land Classification Criteria

Classification results from an evaluation of possible land uses and the public interest. Usually land within a best blocked area, defined as an area where the BLM has or desires at least 80 percent ownership, is broadly classified for retention. Public lands within all areas are classified according to the Classification and Multiple Use Act when applicable. This was the first act that authorized the BLM to classify lands for multiple use or important single uses not outlined in other regulations.

Lands classified for retention and associated management are dependent on four factors; 1) existing and future demand for the resource use, value, or commodity, 2) coordination and cooperation with the resource use and management programs of state and local government, public organizations, and private land owners, 3) national programs, and 4) compatibility of possible uses. Thus, any evaluation of present and future uses is based not only on existing local phenomena but also on nation-wide programs. This aspect has made some management policies difficult to justify to local persons.

In a transfer area the land is classified not only by the effectiveness of management but also with reference to community needs. Much of such classification is made in conjunction with local planning commissions, using the opinion of experts to identify important land uses.

Evaluation and Classification Factors in the Study Area

In a transfer area two possible classifications result from the evaluation process: a) retention and management, or b) disposal. The implementation of each of these classifications has an influence on existing and future land uses as well as on BLM management. Therefore, the effect of the classification and how it will affect management and land uses is an integral part of the evaluation process. This section further discusses factors in the evaluation of public land in the study area and indicates how existing land uses influence actual classification.

The economic circumstances of a ranch unit, the size of its grazing allotment that is within a transfer area, and the amount of public land involved are important factors of consideration. The BLM in evaluation of tracts weighs carefully the effects of its decision on ranch units.

Public access and location in respect to major transportation facilities have a major influence on possible land uses and on classification. If a parcel is "landlocked" and has no specific public value, a disposal classification may be justified. However, if a tract is readily accessible and subject to undesirable development, retention, pending zoning and master planning, may be imperative to prevent such land use. Therefore, all possible land uses are

examined and the desirability of each is considered in respect to compatability with surrounding land use.

Such factors as withdrawals, easements, BLM projects, present management, and physical characteristics also are considered. Withdrawn lands have previously been designated for a specific use and unless this use is no longer deemed important, retention will probably be the decision. BLM projects have some bearing on classification because of existing developments and improvements that should be maintained. Present management is an important consideration in evaluation leading to classification. The natural characteristics of the land are especially important in determining possible physical land use.

The following case study is an example of the application of these principles.

The Case Study

This case study is representative of the processes followed in evaluating 96 individual tracts of public domain. In the actual evaluation, the study area was divided into seven areas on the basis of land uses and environmental conditions. This procedure limited the amount of discussion necessary in identifying the influences exerted on each individual land tract.

General Characteristics in the Case Study Area

Encompassing a large land area east of Bend, the area is characterized by a generally dissected land surface with limited agricultural possibilities. The climate definitely limits intensive agriculture. Situation near Bend has influenced the spatial organization and resulted in diversity of land use. An ever increasing demand for small tract homesites has had a serious effect on agriculture with marginal farms succumbing to the urban sprawl of Bend. Although many of the public domain lands in this area are not physically suitable for agricultural use, they are, because of location, suitable for uses not dependent on the agrarian land base. The public domain tracts are generally larger than those found in other sub-areas. The grazing allotments are of sufficient size to warrant close examination before a classification decision is made.

Tract Characteristics

The public domain tract selected for the case study is approximately $3\frac{1}{2}$ miles east of the city of Bend. The legal description is: NE $\frac{1}{2}$ NE $\frac{1}{2}$, S $\frac{1}{2}$ NE $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$, and SE $\frac{1}{4}$ section 29, township 29, township 17 south Willamette Base Line, range 13 east Willamette Meridian. It is located in the environmental influences

of Bend and is experiencing changing land uses.

Encompassing 480 acres, the tract has land included in capability classes ranging from class IV to class VII. Slopes range from 0 to 15 percent and some lava cliffs are present. The elevation varies from 3430 to 3530 feet above sea level. Soil depth varies from 10 to over 60 inches deep and has a light to medium texture. In the interior of the tract is a large basin with sharp lava breaks on the western side. The existing vegetation association is composed mainly of western juniper, sagebrush, and cheat grass.

Figure 8 is a replica of a field map and shows the location of land classes. There are approximately 35 acres of class IV land, 70 acres of class V land, 95 acres of class VI land and 100 acres of class VII land. The predominance of class IV and V land in the basin portion of the tract is the result of less wind erosion and more wind deposited soil.

The tract is in a 760 acre grazing allotment of which 240 acres are in private ownership. The tract is well fenced with barbed wire, has paved access on the west and south, and has two irrigation canals crossing it. Utilities are located along the two access roads. A system of dirt roads exists throughout the interior of the tract.

Existing Land Uses

The land use in the vicinity of the case study tract is primarily

THE CASE STUDY TRACT

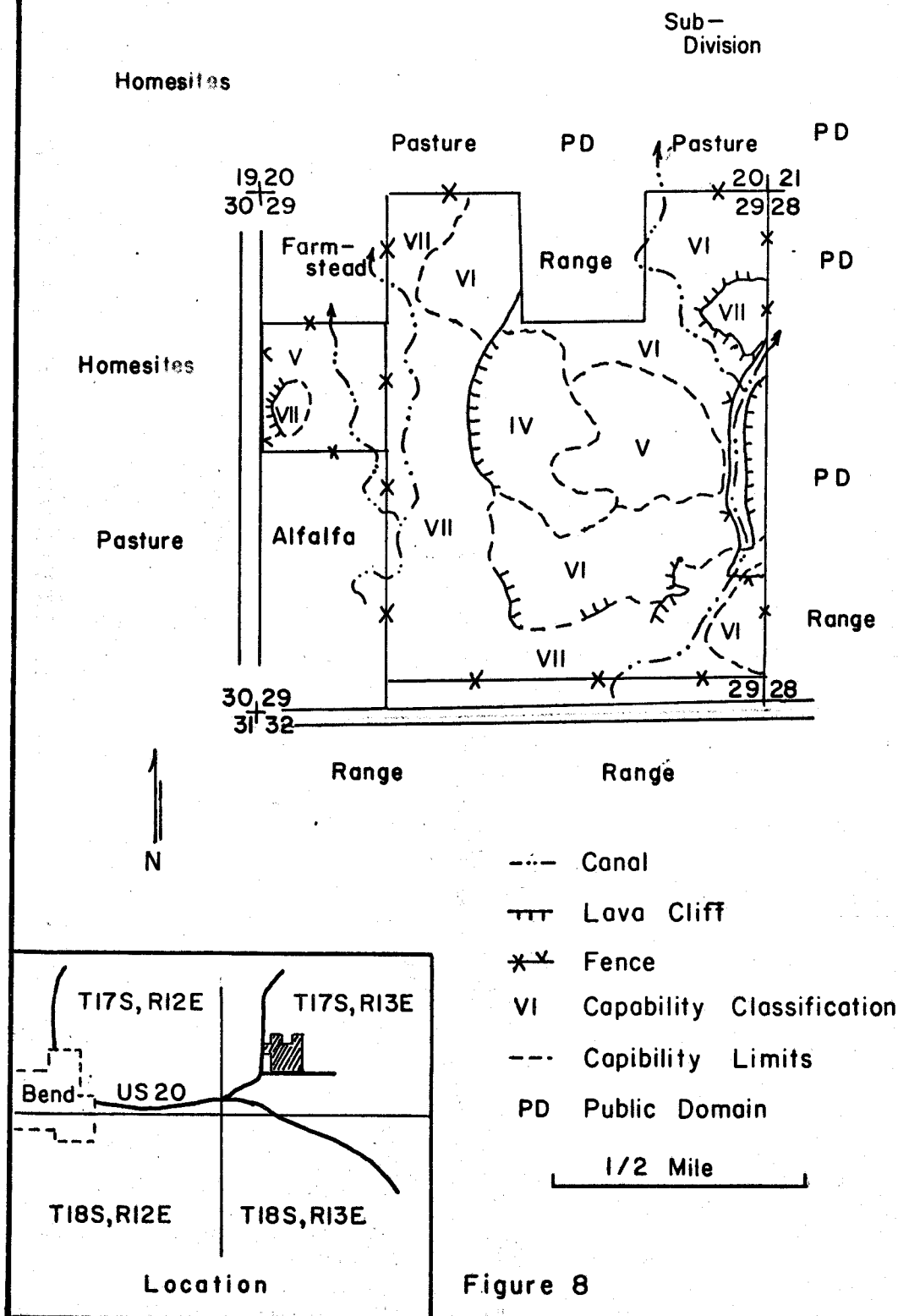


Figure 8

agriculture with some small tract residential development. Agricultural enterprises include alfalfa, hardy grains, and irrigated pasture. The elevation and short growing season in this area limits more intensive agriculture. Where the land base is not suitable for irrigation, native range dominates. Residential development is along paved roads with the land behind the homesites remaining in native range or extensive agricultural use. Public domain adjacent to the tract has remained in native range due to the Federal laws regulating development. Figure 8 shows the land uses adjacent to the case study tract.

The case study tract is presently used for range forage production. The class IV land has been planted to rye by the grazier but may not be harvested for commercial sale. The remainder of the tract has been left in native vegetation. The present grazier's operation is the breeding of quarter horses with income supplemented by the management of a summer boys' camp on his private land. The public domain is used in conjunction with 200 acres of irrigated hay and pasture. Forty acres of the grazing allotment is owned by the Central Oregon Irrigation District but the District is not reimbursed by the grazier for its use nor does the acreage receive any management except from the grazier. The contract between the BLM and the grazier has previously been the basis for loans for the ranch operation indicating that the public land is an

integral part of the operation. The ranch operation is the grazier's only economic activity and is an economic unit.

Possible Uses and Suitability

Land use trends east of Bend indicate that the case study tract is on the eastern fringe of small farm and homesite development. Paved access on two sides of the tract within short distance to US highway 20, a main artery into Bend, is a factor of importance in considering possible land uses. Development on surrounding tracts indicates that increasing land value may force a higher use from the land than is possible with agricultural pursuits.

The SW $\frac{1}{4}$ NW $\frac{1}{4}$ portion of the section is suitable for irrigation, agriculture and homesite development. The grazier has filed a Desert Land Entry on this forty acres in an attempt to block his holdings. The water rights to irrigate the land have been purchased from another land owner who is sub-dividing his land and has no need for the water. This acreage is also desirable for homesites because of fairly level terrain, a view of the Cascades, commonly called the "million dollar skyline", and access to a major transportation route. The Desert Land Entry applicant desires the land for agriculture. The BLM cannot dispose of this tract until the application has been approved or rejected.

Class VII land on the western and southern borders of the

interior basin were evaluated to be best suited for residential development. Only the southern portions, however, have existing public paved access. The alternative use would be for the land to remain in native range which under existing trends would not be the "highest and best use".

The interior basin is not suitable for homesites because of interior drainage and the cost of acquiring access and utilities. The basin could be more intensively used for agriculture. Surplus water from other parts of the allotment could conceivably be used to irrigate pasture or hay crops. Without additional water, this portion of the tract could easily be cleared and reseeded to crested wheatgrass or native bunch grasses for increased forage production which under present conditions would be the best use.

Evaluation and Classification

The case study tract has no inherent public value that warrants retention classification. The size of the tract, management problems of the BLM, and location adjacent to areas of intensifying land use justify disposal classification. Disposal is possible through two channels, public land sales and exchanges.

The method of disposal depends on the provisions of each alternative. Public sale laws require that the land for sale be classified for disposal. The land is sold at public auction to private

individuals or profit organizations for not less than fair market value. The most important provision of this law affecting the study area is that the owners of contiguous lands have a preference right for a period of 30 days after the high bid is received. The adjacent land owner may purchase the land by meeting the high bid or by paying a maximum cost of three times the appraised price. This provision is important to landowners wishing to increase and block their land holdings. It also discourages fragmentation of the land. In the case study farm operation the ranch operator thus has a means to protect his operation if the land is disposed through public land sale proceedings.

Current goals of the BLM to block holdings throughout the district favor disposal by exchange and often require consideration of factors which may conflict with individual desires. Deschutes County on the other hand desires to have the tracts of public domain on the tax roles because they have developmental potential and are increasing in value. The BLM wishes to block up public domain holdings for more efficient management. The goal is, then, to trade scattered public domain tracts in the study area to the county for county lands elsewhere. This will eliminate most of the public domain in the transfer area but will increase the amount of public domain in other areas because of an exchange ratio in favor of the BLM. The impact on the present user of the case study tract by this

disposal policy would be dependent on the goals of Deschutes County and its responsibilities to its residents.

Residential use on parts of the case study tract would be a higher land use than grazing. Although residential use may return more money to the county through increased tax value, it would be undesirable for the farm operator and from a long range view, might be undesirable for orderly county growth and development. Development could be directed through the disposal policy, but the BLM must consider its goals over a much larger area. It is the consensus of BLM personnel that the responsibility of directing orderly land use in the study area is rightfully in the realm of county government.

The final conclusions concerning the classification of the tract is that disposal is in accordance with BLM goals. Disposal through county exchange is recommended because it most enhances effective and efficient BLM district-wide management.

CHAPTER V

CONCLUSIONS

The realities of public domain management are complex and often governmental personnel directly concerned with the procedures disagree on the interpretation of the land laws. The problems of land evaluation and classification as they relate to the management and the general public, are made even more complex because the lands examiner does not have a detailed outline to follow and has to use considerable personal judgement in the procedures. Finally, the decisions reached by the lands examiner can have a great influence on the economy in a specific area. The problems in implementing the evaluation conclusions, the decisions, and the impact they have on the study area are the subject of this concluding chapter.

Summation of Tract Evaluations

When the analysis of the 14,306 acres of public domain in the study area was completed, it was determined that 9,250 acres were suitable for disposal under the existing regulations concerning the transfer of public domain to private ownership. The remaining 5,056 acres were evaluated to be retained for Federal management. Figure 5 shows the amount and location of public domain land that

will remain in the study area when the evaluation conclusions are implemented.

The reasons for recommending retention of 35 percent of the public domain in the study area are indicated in the following. The large area of 1400 acres east of the Redmond Airport is recommended for retention because it is part of a necessary stock driveway. It also adjoins a large block of public domain outside the study area. All tracts adjacent to the Deschutes River are recommended for retention because they have recreation potential and access value. The 640 acres in the Tumalo Reservoir were also recommended for retention for recreation purposes. These tracts will be desirable for recreation if the Bureau of Reclamation succeeds in developing and sealing the old reservoir site. Public domain tracts located adjacent to the Deschutes National Forest boundary have stands of ponderosa pine on them and are recommended to be retained for forest management. The tracts along US Highway 97 are recommended for retention to complement the existing State of Oregon Juniper Waysides and to provide a measure of open space. The 1240 acre tract southeast of Bend was determined to be valuable for a BLM administrative site and is recommended to be retained for this purpose.

Impact of Land Disposal

All growth trends of population and the economy indicate that

the area will continue to develop as a result of interior and exterior factors. Assuming all the evaluation conclusions are implemented, the BLM will have no further responsibility to the residents in the study area to provide land for orderly community growth. The public domain that is retained by the BLM will be developed for the use for which it was classified unless demands in the future are no longer in accordance with the original classification.

The disposal of the many small tracts of public domain in the study area will eliminate for the BLM the need to process the many inquiries from individuals who desire to obtain these lands. Once the land is transferred to private ownership, the value of the tax base of Deschutes County will be increased as improvements are made on these tracts. Many of these tracts will be used for purposes that bring higher economic return from the land. Those that remain in agricultural use will increase the income from agriculture.

Problems in Implementing Evaluation Conclusions

Once an evaluation conclusion is reached, there are many problems to solve before they can be implemented. This is especially true if a disposal classification is made. The method of disposal entails the determination of the Act and regulations that will best serve the resource potential, the area, and the public.

The method of disposal determined to be best suited for goals

of the BLM for the majority of public land in the study area is county exchange. This method allows the BLM to obtain a better ownership pattern for management and keeps the capital in the area. Through public sale methods, the money received would go into a general fund in Washington D. C. The county exchange disposal method does, however, create a problem in personnel requirements at the district level, because it requires that the public domain and county lands be appraised by the lands examiner instead of only the public domain that is to be disposed. This extra appraisal requires additional man-hours. A lack of personnel to perform the appraisal work requires that the exchange be worked on while performing every day functions in the management of other lands elsewhere in the district and delays the actual implementation of the conclusions.

When the proposed exchange is balanced for monetary value, users of public domain must be notified and the proposal advertised in a local paper for one month. All grievances of the public must be considered before the actual exchange is made. Once the disposal classification is made, it may be several years before the BLM actually disposes of the land through exchange procedures. This delay is often unfortunate because BLM personnel may be transferred and different county officials may be elected. This often requires a duplication of work and the need to familiarize new personnel with the proposal. The change in county officials may make an exchange

impossible because of different and changing county views.

The Transfer Concept as Mature Management

Selective disposal of the public domain by the BLM has become an important facet of its land management program and reflects administrative maturity. The recognition of the potential value of public domain for purposes other than forage or timber production undoubtedly result in transfers that lead to higher utilization.

Urban centers in the study area are the focal point for the major portion of the economic activity in Deschutes County. Bend and Redmond serve the hinterland in providing retail and wholesale services, by processing forest and cattle resources, and by providing recreation services. As the county's economic base expands, the need for public domain land in private enterprise in the study area for these provisions will increase. These demands are currently being met by the BLM's selective disposal policy. The disposal of public domain that can best be managed by private individuals through county exchanges will be beneficial to both the county and the BLM. Although this method requires more man-hours than disposal through public sale, the monetary savings in management resulting from creating larger blocks of public domain elsewhere in the county offsets the initial cost of the exchange.

The Classification and Multiple Use Act will continue to be a

valuable supplement to the Taylor Grazing Act in classifying and disposing of selected tracts of public domain in an area of changing land uses and expanding economies.

Evaluation methods prescribed by the BLM proved to be adequate. Ample consideration is given to the need to emphasize the importance of surrounding land uses and use potential of the land rather than only the physical capabilities as they relate to the production of natural resources such as forage, wildlife, or timber growth. Although the consideration of cultural and societal variables are not directly outlined in the evaluation procedures, they are implicit. The recognition of the need to consider public interest is a check on indiscriminate classification.

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