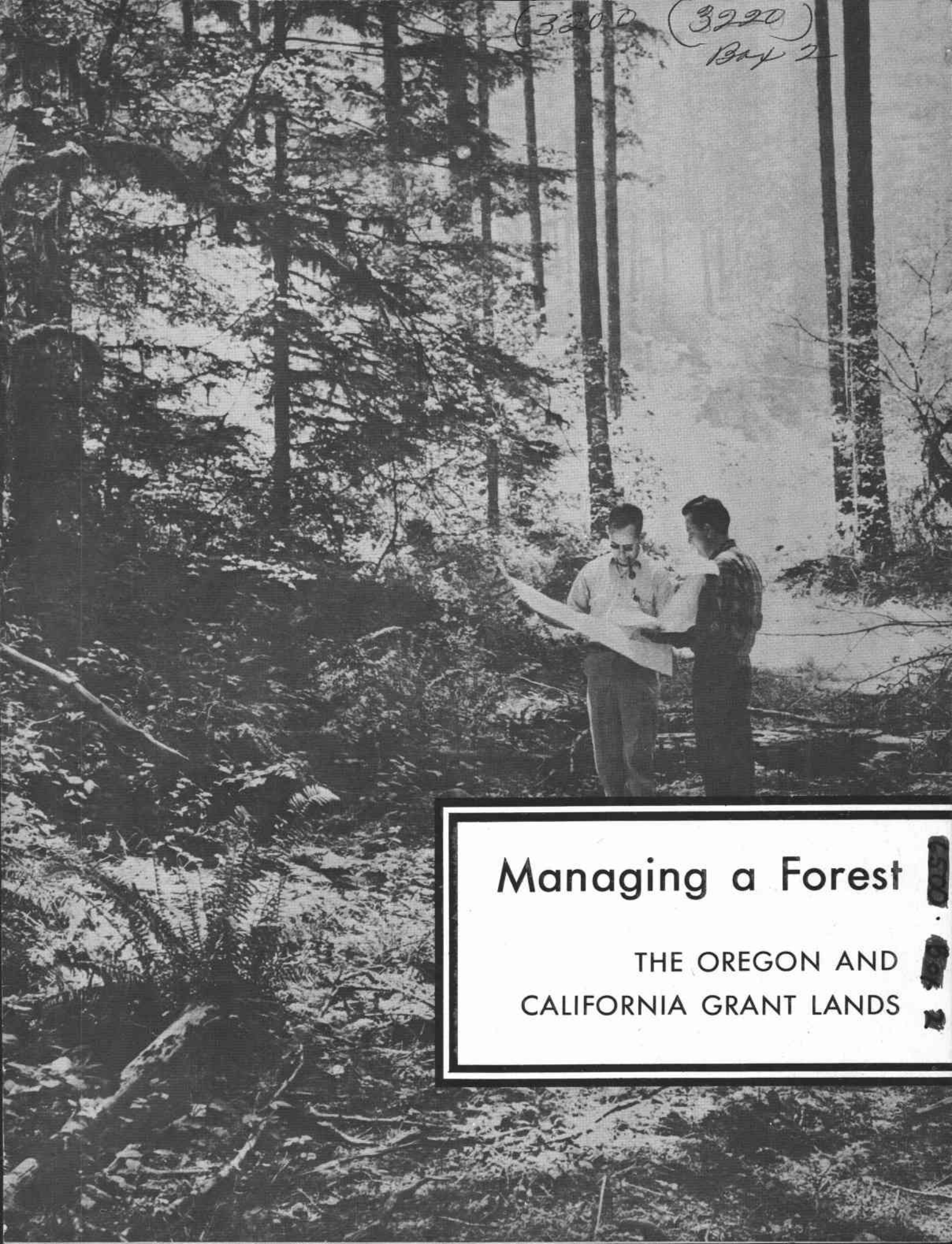
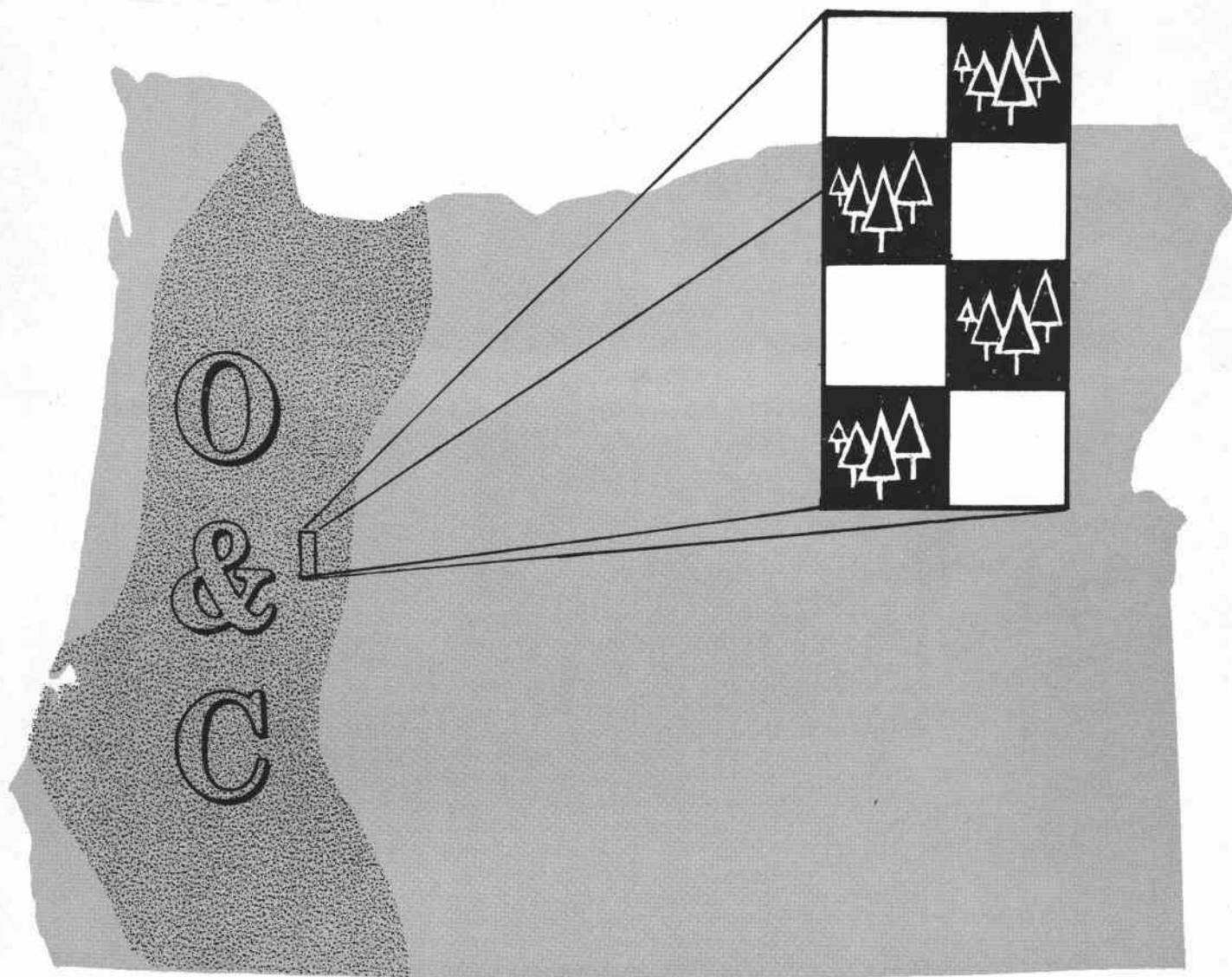


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Box 2



Managing a Forest

THE OREGON AND
CALIFORNIA GRANT LANDS



The O&C lands administered by the Bureau of Land Management in western Oregon.

History of the O & C

"AMERICA'S LARGEST CHECKERBOARD" is how the ownership pattern of the Oregon and California (O&C) Grant Lands of western Oregon have been appropriately described. This scattered ownership extends from California to Washington, and from the Pacific Ocean eastward to the Cascade mountain range. Within these bounds is located some of the most productive forest land in the world. Today the importance of this vital natural resource is apparent, but this was not always the case.

Abandoned homestead cabins attest to the fact that the O&C lands are not suited to agriculture



The checkerboard pattern of ownership causes many problems in administering these lands, and most people ask how such a complex puzzle could have ever originated. This is the story, and a fascinating story it is.

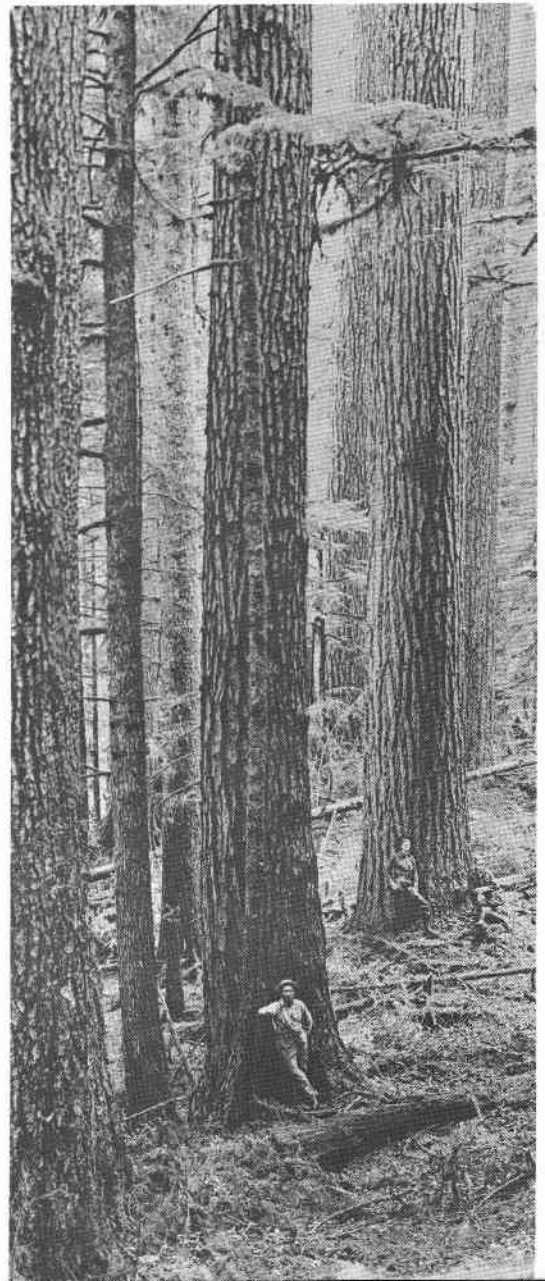
Back in 1866 Congress passed a law whereby the Oregon and California Railroad Company would be given all odd numbered sections, non-mineral in character, in a strip extending 20 miles on each side of the railroad right-of-way. Much of the land within the 40-mile strip had already been patented through sale or homesteading, so the company was granted additional odd-numbered sections in a strip extending 10 miles farther on each side of the original grant. This swath of grants through western Oregon encompassed over 3,728,000 acres—an area about the size of the State of Massachusetts.

Congress intended that the railroad company dispose of the grant lands to speed the settlement of the country. However, as time passed, the stipulations of the grant were grossly violated, and in 1916 Congress revested the lands to the United States.

Initially in administering these lands, the old policy of rapid land disposal for homesteading purposes prevailed, but it eventually proved unsuccessful because the lands were not suited for agriculture. Today many abandoned homesteads attest to this fact.

Early examples of forestry operations made it difficult to persuade the owners of private forest lands that sustained yield management would pay. There was a need of a practical demonstration of the financial success of sustained yield forest management. The O&C lands provided an opportunity for such a demonstration.

Fortunately there were enough optimistic individuals among professional foresters, civic leaders and Government administrators to secure enactment of the Sustained Yield Act on August 28, 1937. This act is today viewed as the most significant event occurring in the history of the O&C lands. It was not expected to pay large dividends to the U. S. Treasury so much as it was designed to protect dependent communities by assuring a permanent supply of forest resources. Also, it was designed to be a model in multiple use management and sustained yield timber production for the private owners of intermingled lands to follow. Now, at last, the forests were considered a valuable resource.



A stand of old growth timber in the early days of O&C management.

Progress Through Management



ADMINISTRATION of the O&C is big business. There are five district offices on the O&C strip, each staffed with professionally trained personnel. These professional resource managers carry out programs including timber production, recreation, wildlife, watersheds, range, reforestation, and engineering. About one billion board feet of timber are sold from the O&C public lands every year, providing annual revenues of about \$30 million. Accomplishing such a program on public lands requires a great deal of coordination between the public and BLM.

In 1937 an O&C advisory committee was formed from industry and local government representatives. The committee was later reconstituted to make it multiple use in character and named the O&C Advisory Board. The present board represents the general public, local government, labor, industry, news media, education, recreation, mining, agriculture and others. The State O&C Advisory Board advises BLM and makes recommendations on general policies of administration and the need for development of new plans and programs. It has been very instrumental in making multiple use resource management and sustained yield timber production on public lands a success.

District advisory boards make recommendations to BLM on program procedures and work at the local level.

Another important cooperative activity in the management of the O&C public lands is county government participation in the financing of resource development. Under the O&C Sustained Yield Act the counties in which O&C lands are located receive 75 percent of the receipts from the lease and sale of O&C resources. Congress provided for this to offset the counties' loss of taxes because the O&C lands were once in private ownership. The O&C revenues are an important source of funds for public schools, roads, and other services.

For many years the counties have declined to accept one-third of their O&C revenues and Congress has appropriated an equal amount to BLM for construction of roads, reforestation, recreation development, and other activities to improve the forests. This has been an important capital investment in public lands brought about through the foresight of local government.



Cooperation between BLM and local government is one of the keys to the successful O&C management program.

ALLOWABLE CUT

BLM HAS INTENSIFIED its timber management program to keep pace with the increased public demand for forest products. Trees are harvested from BLM lands in such a way as to protect soil, water, and other natural resources. The harvest program objective is to balance timber cut against timber growth. This is sustained yield timber management.

BLM has maintained a continuous inventory of the O&C forests since passage of the O&C Act. Inventory procedures are constantly refined to keep track of timber growth and to reflect increasing wood utilization standards. Since 1937 the annual allowable cut on the O&C has risen from about 500 million board feet on 2.5 million acres to a billion board feet on 2 million acres.

There are presently over 2,500 permanently established inventory plots on the O&C. Scientific information from these tracts of lands systematically located throughout the forest is gathered and recomputed every 10 years so that the allowable cut will constantly reflect the sustained yield timber capacity of the lands. Old growth timber is being replaced by younger stands of trees in many areas and inventories must take into account differences in growth rates and utilization of forest products.

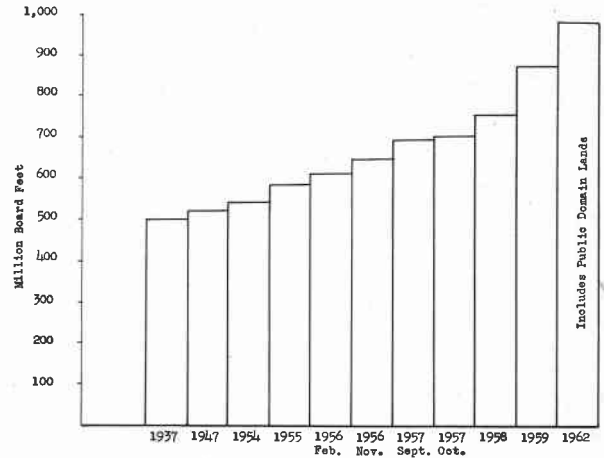
In northwestern Oregon, in Tillamook and Yamhill counties, there are 56,000 acres of young growth Douglas fir forests. BLM has launched an intensive study on this young timber to see how it can be most profitably managed.

Following are some of the objectives of this study—termed the Tillamook Project:

- (1) To determine thinning potential and thinning schedules.
- (2) To search out present and potential markets for young growth timber.
- (3) To determine the effect of thinning on rotation age as related to volume production and financial returns.
- (4) To determine the economic and silvicultural aspects of commercial release thinning.
- (5) To determine road standards for servicing thinning and final harvests.
- (6) To develop the best logging techniques in young growth timber.
- (7) To develop the best methods for forest stand improvement.

Intensive young growth timber management is becoming increasingly important in western Oregon as the supply of virgin timber diminishes. The Tillamook Project will provide both private and public land management agencies with valuable information about the management of young growth timber.

Reforestation is also an important element in timber management. BLM maintains an active reforestation program on O&C lands. It includes planting, seeding (aerial and hand), brush removal and control, rodent control, and removal of dead trees.



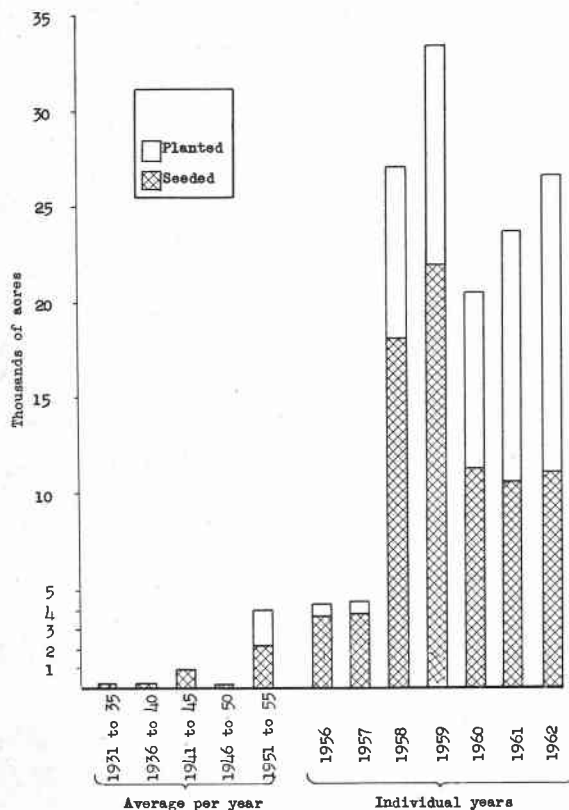
ALLOWABLE CUT ON BLM LANDS IN WESTERN OREGON

Timber

This reforestation program, currently the largest in Oregon, will be expanded until all non-stocked and inadequately stocked commercial timber land is in full production. This calls for an increased supply of nursery seedlings to plant and an increased supply of seed to be dispensed by helicopter. If natural regeneration does not occur immediately following logging, plans are made to seed or plant the area promptly to prevent brush encroachment.

Mice, rabbits, deer, and other wildlife sometimes take a toll of newly established seedlings. BLM cooperates with the Fish and Wildlife Service and the State Game Commission in developing methods of limiting wildlife damage on regeneration areas.

REFORESTATION PROGRESS



REFORESTATION ON BLM LANDS IN OREGON

RESEARCH IS THE TOOL BLM uses to pave the way to improved natural resource management. It unlocks doors to new methods of growing tree seedlings, greater utilization of wood fibers, cleaner and more abundant water, methods of reducing conflicts between wildlife and forest regeneration, and ways of alleviating other management problems.

BLM is participating in many cooperative research projects on the O&C. For many years BLM has been trying to develop a blister rust resistant sugar pine. In cooperation with the Forest Service, BLM has selected rust resistant trees and from them scientists are now trying to grow rust resistant seedlings. The present blister rust control program on the O&C uses modern techniques to arrest the spread of the disease, but development of a new resistant variety of tree will make it possible to push ahead and intensify management of sugar and white pine timber on the O&C.

Research is also being carried out to improve seed and seedling survival. BLM and Oregon State University are engaged in projects to find better methods of seed collection and storage. Douglas-fir seed from the entire range of the species have been collected and are being studied in many ways.

In reforestation work BLM is using paper mulch around seedlings to prevent loss of moisture and competition from invading plants.

The Fish and Wildlife Service and BLM are jointly testing methods to repel animals from seed and seedlings. BLM has initiated the use of hemp—a practice used in Europe—to repel deer from the tender young seedlings. Thousands of seedlings have had non-toxic hemp fiber applied to the needles and they are now being observed. This very economical repellent may mean a substantial increase in seedling survival on the public forests without injury to wildlife.

BLM and Oregon State University are engaged in finding answers to the problem of brush control on forest lands. The use of herbicides sprayed from aircraft and by hand is being field tested. These chemicals are used to remove brush competition in areas where coniferous seedlings are established, and may be used to remove brush prior to establishment of a forest plantation. Increased seedling growth and reforestation of thousands of acres of non-forested lands may be accomplished by the use of herbicides.

BLM and the State Game Commission are engaged in stream clearance projects to improve stream habitat for fish. BLM cooperates with the timber industry in developing improved logging practices that will minimize damage to fish and wildlife habitat.

In the future there will be more research to further intensify natural resource management in order to meet increasing social and economic demands. Development of seed orchards, pruning young timber stands, forest soil fertilization, methods of increasing water yields and other new practices will be thoroughly explored. BLM resource managers and scientists will continue to work hand in hand in meeting new conservation challenges.

Rust resistant sugar pine research.





HERBICIDES sroyed from helicopters to control brush on reforested oreos.

Research

PAPER MULCH around young ponderoso pine seedlings on the O&C.





MORE AMERICANS than ever before are looking toward the Nation's forests for outdoor enjoyment. Increasing population in the future will cause this situation to intensify. BLM resource managers are aware of the growing need for more forest recreation areas and are continually seeking out potential recreation sites.

Throughout the O&C lands, scattered over 18 counties of western Oregon, may be found some of the most scenic forest land in the Pacific Northwest. To date, BLM has developed 25 recreation sites, two of these in cooperation with local counties. Over 400 potential recreation sites have been identified by BLM in western Oregon. The O&C lands comprise a very small portion of the public land managed by BLM across the Nation, but only on the O&C have funds been made available for recreation development.

Some of these recreation areas are designed for overnight camping where one can pitch a tent beneath majestic, centuries-old Douglas fir. Other areas accommodate picnickers. Long, scenic trails have been developed for those who seek relaxation hiking deep into the forest.

Whatever type of recreation the public desires, whether it be camping, picnicking, hiking; or be it fishing, hunting, or mountain climbing, BLM's management program is geared to help meet the demand. BLM cooperates fully with counties, municipalities, and other appropriate groups in: making suitable recreation land available for ownership transfer; and gaining cooperative access through lands of other ownership to public recreational areas. As funds are made available, BLM will continue to develop and maintain campsites, picnic areas, and other recreational facilities.

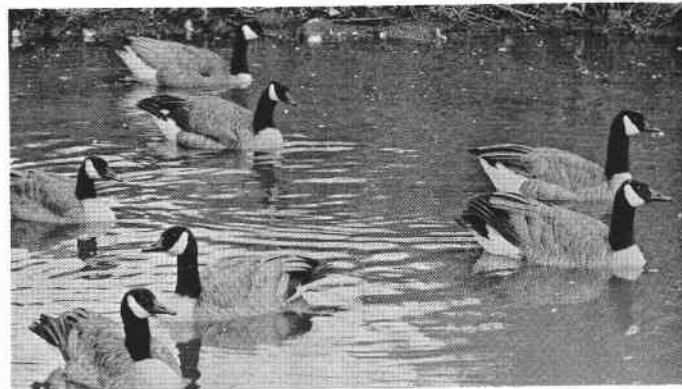


WILD ANIMALS that live in Oregon are owned by the public and managed by the State, but much of their habitat is administered by the Federal Government. Close cooperation between these three groups is necessary for wildlife conservation.

Contrary to most thinking, the virgin old-growth forests actually have little animal life. Once these great forests are opened up, they form excellent wildlife habitat. BLM multiple use programs encourage the production of wildlife as a valuable, renewable resource. Every year thousands of people visit the O&C forest to hunt and fish, photograph and enjoy wildlife.

The O&C lands are the home of the magnificent Roosevelt elk and the shy, illusive black tailed deer. The staggered, clear-cut method of logging BLM employs for sustained yields of Douglas fir, creates excellent habitat for large and small mammals. Strips of broad-leaved trees are left along streams for the benefit of fish, streams that are famous for steelhead and salmon. BLM cooperates with the State Game Commission in clearing streams of debris from logging operations and protects spawning gravel bars. Many birds, including mountain quail, band-tailed pigeons, blue and ruffed grouse inhabit the O&C lands.

The habitat of the O&C is so good that sometimes there are population booms of mice, rabbits, and deer. Then it is necessary to use certain controls to reduce the conflict between wildlife and forest regeneration. Management must insure a permanent supply of both wildlife and timber.



Recreation & Wildlife





A BLM forester inspects a dying ponderoso pine for insect damage.

PROTECTION OF THE PUBLIC'S INTEREST in the O&C lands is a consideration foremost in the mind of every BLM resource manager. BLM conducts a program of continuous vigilance, preparation, and training to safeguard the public lands. Protection problems include fire, disease, insects, animals, weather, and man.

Fire protection on the O&C is accomplished through contracts with the State and the Forest Service, U. S. Department of Agriculture. BLM personnel administer the contracts, carry on prevention activities, reduce fire hazards, and actively participate in suppression of major fires.

Fire is a spectacular destroyer of natural resources but it is not the greatest. The silent attack of insects and disease is often more devastating. BLM forest protection programs seek to prevent epidemics of disease and insects. Each year thousands of infected trees are removed from the forest. Logging debris is reduced immediately after the timber is harvested to prevent build-up of insects.

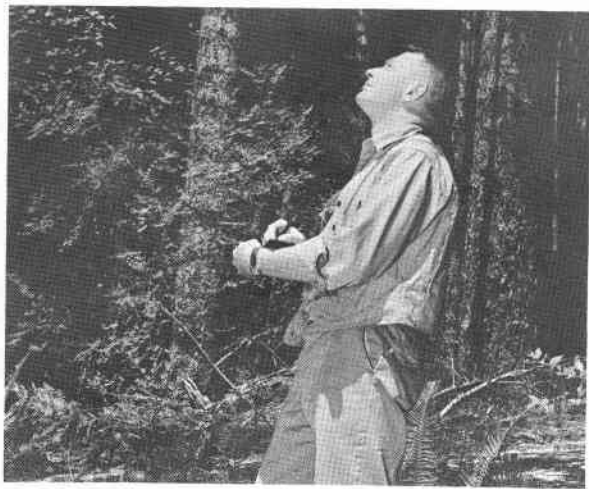
O&C timber sales are laid out giving careful consideration for the protection of remaining trees. Without this consideration walls of trees left along a timber sale boundary may be blown over by the wind. Wind damage is an important consideration in determining the extent of thinning in young forests. By applying proper silvicultural practices (to be studied on the Tillamook Project) losses from wind damage will be reduced in future young forests.

Unauthorized use of publicly owned natural resources is in effect trespass. On the O&C this takes the form of timber cutting, occupancy, road use, grazing, agricultural, fire, and others.

BLM efforts to control timber cutting trespasses on the O&C have been expanded to control all types of unauthorized use. The present BLM program includes prompt determination of damages in all identified trespass cases, collection, and settlements. Also, it acquaints the public with trespass regulations and continues to confirm the corners and boundaries of O&C public lands.

With the O&C valued in billions of dollars adequate protection is essential. BLM administrators are constantly expanding protection measures on public lands.

Resource managers on the O&C are constantly on the alert for signs of disease in the forests.



GRASS in a forest may not be as impressive as a majestic Douglas fir, but it is an important resource managed by BLM.

Each year BLM manages grazing on about 400,000 acres of O&C lands. Livestock numbers are kept in balance with available forage. Efforts are extended to protect the soil and prevent excessive water run-off on grazed lands.

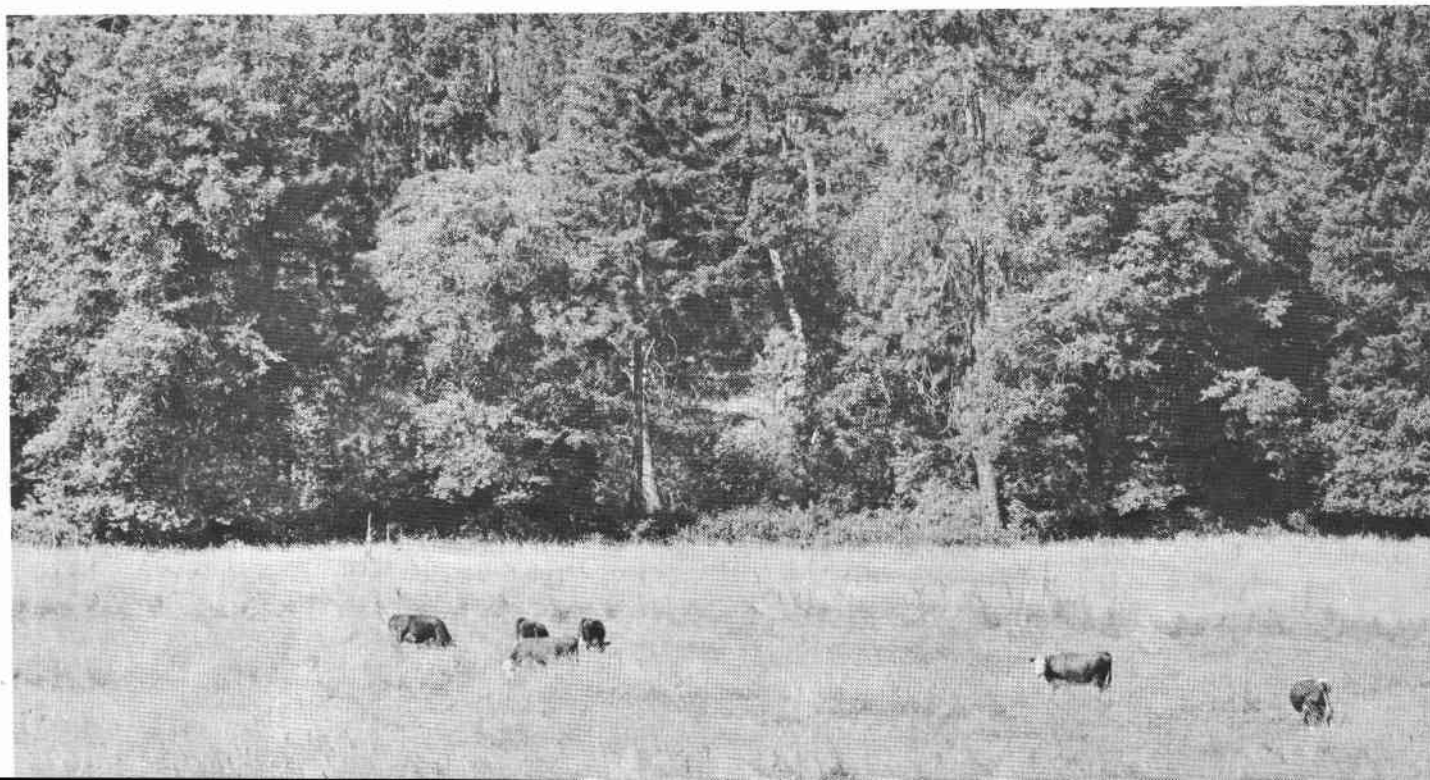
The productivity of the O&C public grazing lands is important to many local communities. These lands are used to supplement the forage needs of many ranchers in western Oregon.

BLM is striving to improve public range grazing capacity through cooperation with range users. Before grazing leases are issued on the O&C, the area is examined on the ground and through the use of aerial photographs. When resource managers have gathered all available information, a carrying capacity is determined.

The need for livestock products is increasing. Meat consumption is expected to double by the end of the century. All available forage must be improved and efficiently used to meet this demand. Grass as timber, will be put on sustained yield production.

Protection & Range

Several areas on the O&C are suited to grazing.



THE CHECKERBOARD ownership pattern of O&C lands has presented a difficult problem in effective land management. In 1939, Congress recognized this problem of intermingled ownership, and authorized exchange of land with private owners to help consolidate the O&C public forest. Exchanges are also made with other government agencies when they will facilitate administration of publicly owned resources.

Under the Recreation and Public Purposes Act BLM can lease or sell public lands to local governments and non-profit organizations for such permanent public uses as schools, parks, hospitals, and others.

Occasionally small tracts of public land are leased or sold to individuals for homesite and recreation use. Such tracts must first be classified as best suited for such uses.



Under the Recreation and Public Purposes Act BLM can lease or sell lands to local governments for public recreation development.



The multiple use management of the 2 million acres of O&C public lands requires highly technical skills in field and office.



IN ADDITION to contributing to the economy of the State through sustained yield timber management, the O&C public lands are a source of wealth to the mineral industry. A variety of minerals including gold, silver, chromite, mercury, and limestone are found on the O&C.

BLM is responsible for examining, reporting, and processing applications for patents filed under the mining laws.

Misunderstanding and neglect of the laws has sometimes resulted in occupancy of mining claims for non-mining purposes. BLM encourages the search for minerals on public lands, but will not condone any abuse of the mining laws.

At the time basic mining laws were written, in the late 19th century, there was an abundance of renewable natural resources such as wood, water, wildlife, and forage. The objective of the mining laws was to encourage discovery of mineral resources. Today many of the renewable resources are equally or more important than mineral resources.

The combination of the O&C Act of August 28, 1937 and the O&C mining act of 1948 recognized the importance of all natural resources and gave public agencies the right to manage the surface resources on mining claims on O&C lands forever. Following this wisdom, Congress passed a law in 1955 which gives the Government the right to manage the surface resources on other public land mining claims until patented. New claims can no longer restrict management of the surface resources by public agencies. All old claims are being examined on O&C lands to determine their validity.

Lands & Minerals





HIGH QUALITY, well integrated road systems have been an important part of BLM's intensive forest management program on the O&C. Over 2,500 miles of road have been developed on BLM lands in western Oregon—through construction, purchase, or right-of-way contracts. The O&C has one of the most highly developed systems of permanent multiple use access roads of any public forest in the Nation.

Most BLM roads are constructed by timber sale purchasers at the time timber is removed from the forest. Each year about 250 miles of road are constructed in this manner. At the same time, the Bureau of Public Roads constructs many miles of access roads.

While an extensive road construction program is essential, so is an effective maintenance program. Forest roads are maintained by the timber sale operators using the roads—either directly or through maintenance fees paid to BLM. Over 1,000 miles of the BLM road network is maintained each year by the Bureau of Public Roads.

Access rights across the intermingled private lands are always a problem confronting BLM. A concerted effort has been made in the past three years to gain public access to many of the 7,000 scattered parcels of O&C public lands. BLM's multiple use access program is working well ahead of the timber sale program so that public access to the lands will be gained before timber is sold.

Each year ahead will demand increased road development and maintenance on BLM lands. Many new roads will be constructed to gain access to previously untouched forests. Many old roads must be reopened or improved to provide forest protection or expanded opportunities for recreation.



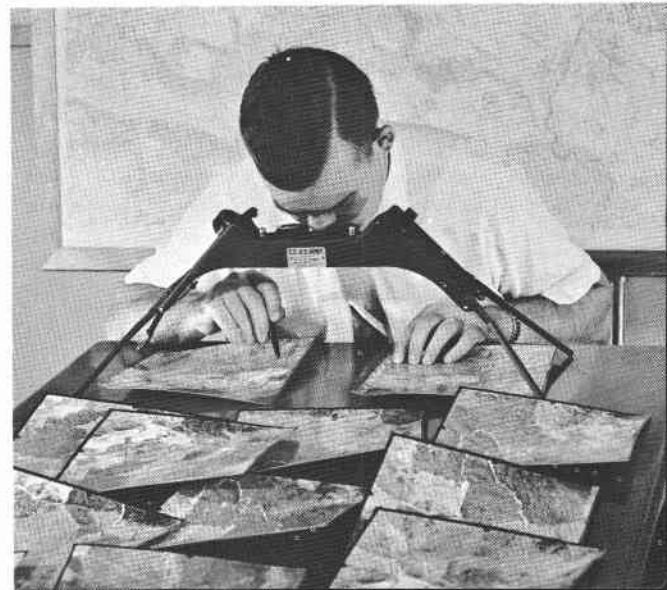


Other important engineering functions of BLM are surveying and mapping. BLM cadastral engineers are the official surveyors of the U. S. Government, responsible for all public land surveys. Identification of the O&C public lands is an essential step in land management. The service of cadastral engineers is basic to BLM's management program. Each year they establish boundaries of approximately 25,000 acres of public lands in western Oregon.

The BLM mapping program produces large-scale forest and forage type maps as a tool in developing resource programs. Large scale contour maps supply information to the engineers for planning roads. Ownership maps serve both the public and BLM.

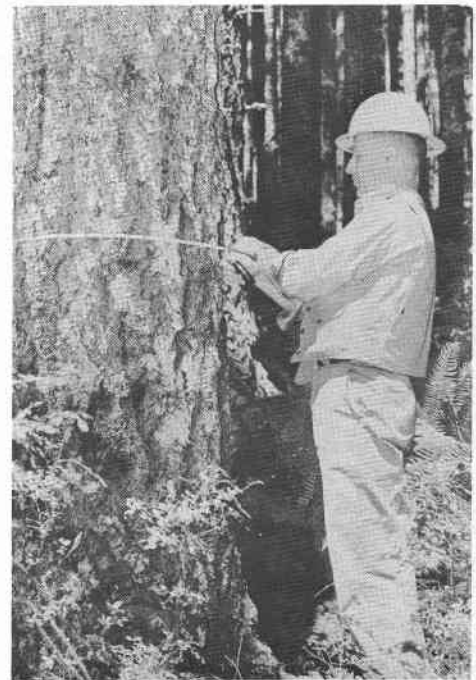
New and more accurate methods of mapping are continually being developed to keep pace with progressive management.

Roads & Surveys





BLM



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STEWART L. UDALL, SECRETARY
Bureau of Land Management
 Charles M. Stoddard, Director