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THE LAND USE PROBLEMS ON AN AREA

in the

NW $\frac{1}{4}$, SECTION 35 T7N R5W


By

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SUMMARY

In 1919 this farm was logged and burned over by the Benson Timber Company. Since that time it has been burned over several times and the remaining stand of Douglas-fir and western red cedar is very sparse and of very low quality. In order to finance the improvements the owner desires he has been forced to sail with the United States Maritime Service nine months out of the year. He has built a moderate home and has utilized the land only to the extent of providing himself and his family with fresh vegetables and fruits.

At the present time most of the farm is covered by red alder, mixed Douglas-fir and western red cedar, and hardwood brush. The owner has not been financially qualified to make improvement cuttings on either of the first two, nor has he been in a position to eradicate the brush problem facing him.

In the future this farm should be divided into areas according to the best uses. Holly should be planted on a five-acre plot. The spaces between the holly trees should be sown with some type of cover crop. This cover crop should be suitable for grazing. The red alder should be removed and replaced with croplands or pastures. The area possessing Douglas-fir and western red cedar should be underplanted with two-year-old Douglas-fir stock, and the remaining area will be left to regenerate naturally.

TABLE OF CONTENTS

Introduction	page 1
Location	1
Present Uses	2
Garden Area	2
Red Alder Area	2
Douglas-fir Area	3
Remaining Area	4
Recommended Land Uses	4
Holly Area	5
Garden Area	6
Cropland Area	6
Pasture Area	7
Douglas-fir Area	7
Figures:	
1. Red Alder Stand	2
2. Douglas-fir Area	3
3. Western Red-Cedar	4
4. Lower Portion of Holly Area	5
5. Present Land-use Map	9
6. Soil and Topography Map	10
7. Recommended Land-use Map	11

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This report has been written to offer some solutions to the land use problems facing the owner of the area covered in it. This farm has been more of a liability to the owner than an asset. During the past few years he has had to seek employment with the United States Maritime Service in order to obtain sufficient funds to continue the improvements he desires. The owner was born on this farm and has lived there all of his life, except for the time spent sailing as a first mate aboard various merchant ships. Under the proper type of land utilization and management practices, this area should become a profitable enterprise, satisfying the owner's economic needs. This report will consider the present use to which the land is being put to and recommendations for future use.

LOCATION

This farm is legally on an area in the NW $\frac{1}{4}$, Section 35 T7N R5W. It lies approximately five miles due east of Clatskanie, Oregon in Columbia County. A gravel road, which is maintained by the county, makes this farm accessible at all times of the year. A school bus passes directly by this farm carrying all of the children in that region to the schools

in Clatskanie. Geographically this farm is located in the lower foothills of the Clatskanie River Drainage District.

PRESENT USES

Figure 5 shows the layout of this farm and the extent to which it has been utilized. With the exception of the small one-acre tract to the northeast of the house, none of the land has been put under cultivation or developed to any appreciable degree.

Garden Area

The area northeast of the house has been used for the past several years as a family garden. The soil type of this area is Olympic Silt Loam which is deep and fairly productive, but frequently lime and phosphate are needed. This portion of the farm possesses a five percent slope and has sustained light surface erosion. The Land-use Capability Class of this area is II.

Red Alder Area

Figure 1 shows the near-mature stand of Alnus rubra, red alder, that is present on this area. Covering approximately 45 acres, the



Figure 1. Red Alder Stand

red alder stand runs in an east and west direction nearly through the center of the farm. The stand is moderately dense and is growing quite tall and straight. The soil type found on this area is Olympic Silt Loam and varies from two to three feet to hard rock; a permanent cover is necessary to prevent slope erosion. The percentage of slope in this red alder stand varies from eight percent to forty-five percent and there is no sign of erosion at this present time. Most of this area falls into Land-use Capability Class VI.

Douglas-fir Area

Figure 2 shows an area of 65.5 acres of the farm. As a whole this area is in very poor condition. Most of the area is very poorly stocked and additional natural regeneration has been hampered by the dense ground cover of devils club, blue elderberry, red elderberry, vine maple, wild cherry, and bigleaf maple. Mixed with the Douglas-fir is some western red cedar which is of the same low quality as the Douglas-fir. The soil of this area varies from deep and fairly productive Olympic Silt Loam to Olympic Stony Loam.



Figure 2. Douglas-fir Area

The percentage of slope varies from five percent to sixty-five percent, and the Land-use Capability Class varies from II to VIII.

Remaining Area

The remaining area of this farm is occupied by the house, barn, and various species of hardwood brush. Small portions of the remaining area are open, and in these openings green grass is the predominating vegetation. The soil types found on this area vary from deep and fairly productive Olympic Silt Loam, to Olympic Silt Loam that is only two to three feet deep. The percentage of slope varies from three percent to forty-five percent and the Land-use Capability Classes vary from II to VI.

RECOMMENDED LAND USES

Figure 7 shows the recommended land uses for this farm. This program has been set up to provide the owner with an income while he is carrying on his improvements. Figure 3 also shows the product that may be derived from the moderate amount of cedar that has been left lying on the ground.



Figure 3. Western Red-Cedar Posts

The cedar fence posts may be used to fence the different areas of this farm; the remaining posts might be sold to farmers living nearby.

Holly Area

Figure 4 shows the lower portion of the area in which the owner plans to grow holly commercially. The area is well drained, having a slope that varies from 22 percent to 38 percent. Olympic Silt Loam is the predominating soil type and varies in depth from three feet to an undetermined depth above hard rock.

The cost of clearing this area will be approximately twenty dollars per acre. Trees and planting costs will run about \$3.50 per tree;



70 trees per acre Figure 4. Lower Portion of Holly Area is advised as being the optimum number.

Each year this entire area must be disced and planted with some type of cover crop. The species of cover crop to be used will depend upon the price and availability of seed. Vetch, legumes, cow peas, and several other cover crops may be used. Controlled grazing may be carried on in this area as soon as the holly is tall enough to prevent browsing of

the tender succulent leaves by stock. The total yearly costs for this operation will vary from \$6 to \$8 per acre.

Another annual expense is spraying. Holly must be sprayed each year to prevent infection by fungi and defoliation by insects. This yearly cost runs about \$5 per acre.

The first harvest cannot be expected until the holly has been transplanted for about ten years. The price per pound of holly will vary from \$0.15 to \$1.50 depending on the species, condition of the holly, available market, and whether it is sold wholesale or retail. The amount of holly that can be removed from each acre profitably will depend upon the size of the trees, species, price, available market, and the cost of the labor.

Garden Area

The garden area is to remain at its present location; however, lime and phosphate should be added to replace some of the minerals that have been depleted.

Cropland Area

Although the soil of this area is predominately Olympic Silt Loam, it is limited in use because it is only two to three feet deep and requires a permanent cover crop in order to prevent slope erosion. The Land-use Capability Classes found on this area are II and III. The slope varies from five percent to thirteen percent, and at the present time, very little erosion has taken place.

Most of this area is covered by red alder, vine maple,

and willow, of which the cost of clearing will be approximately forty dollars per acre. After this area has been cleared and fenced it should be fertilized and planted in cereal-legume hay. As soon as the former has become established, a rotation between cereal-legume hay and pasturing may be put into effect.

During the clearing process, all red alder that is merchantable should be bucked into eight or 16-foot logs and trucked to one of the nearby mills.

Pasture Area

The Land-use Capability Class of the pasture area is VI, and the area is suitable for pasture with minor limitations. Olympic Silt Loam is found on this area and varies in depth from two to three feet. A permanent cover is required in order to prevent slope erosion.

This area must be cleared of the red alder, vine maple, and willow that is present. The cost of clearing will be comparable to that encountered in clearing the area used for cropland, that is, approximately forty dollars per acre. After this area has been cleared, it should be fenced, fertilized, and seeded with a perennial grass. The merchantable red alder removed from this area should also be bucked and hauled to one of the mills nearby.

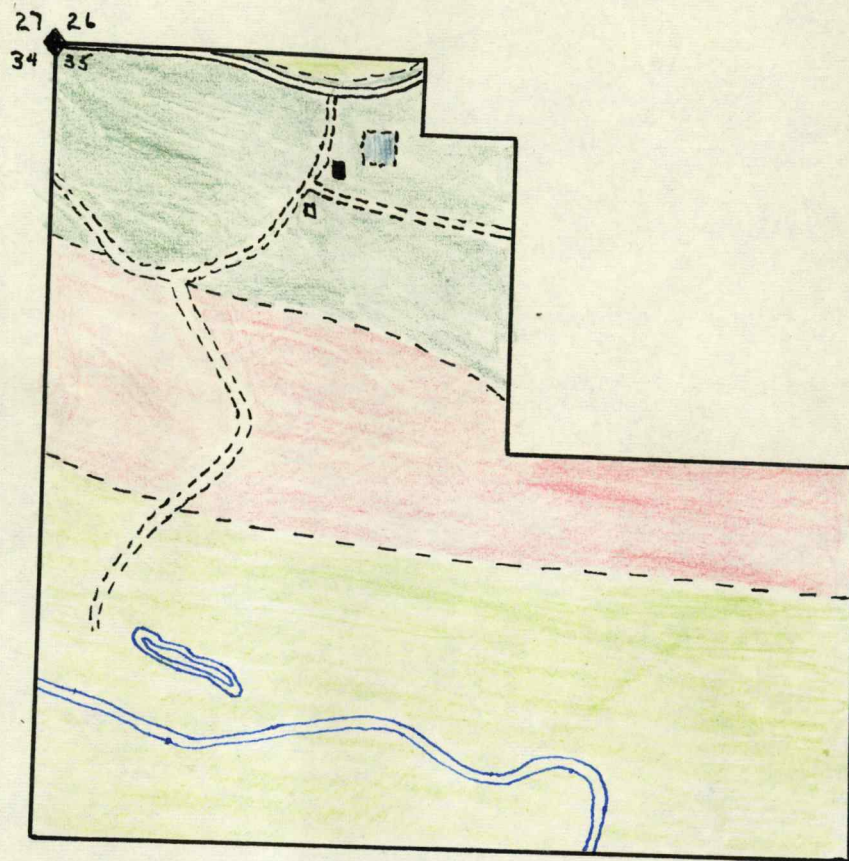
Douglas-fir Area

The entire Douglas-fir area is relatively steep, possessing slopes that vary from 17 percent to 65 percent. The

existing Douglas-fir and western red cedar stand is sparsely stocked; a large portion of the remaining area is occupied by devil's club, red elderberry, blue elderberry, wild cherry, vine maple, and red alder. The Land-use Capability Class predominating on this area is class VII and the Olympic Silt Loam is relatively shallow, being two to three feet deep.

To clear this entire area of all of the undesirable vegetation would be too expensive. It is recommended that all of the open space be planted with two-year-old Douglas-fir stock. These plants added to the existing stand will crowd out the undesirable vegetation. The cost of planting plus the cost of stock will be approximately forty-five dollars per thousand seedlings. Sufficient roads are present at this time to make all portions of this area readily accessible in case of fire.

Figure 5. Present Land-Use Map



Scale 1"=660'

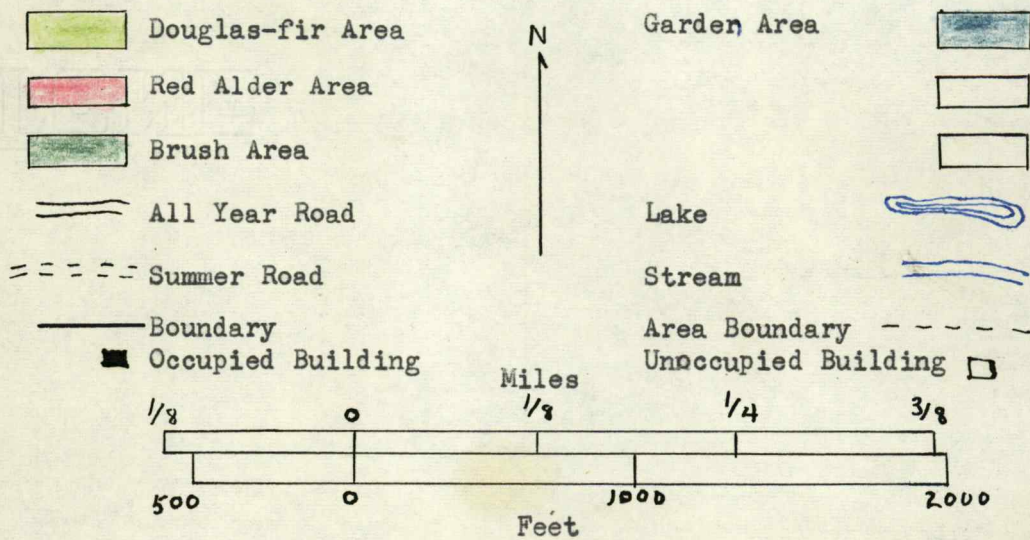
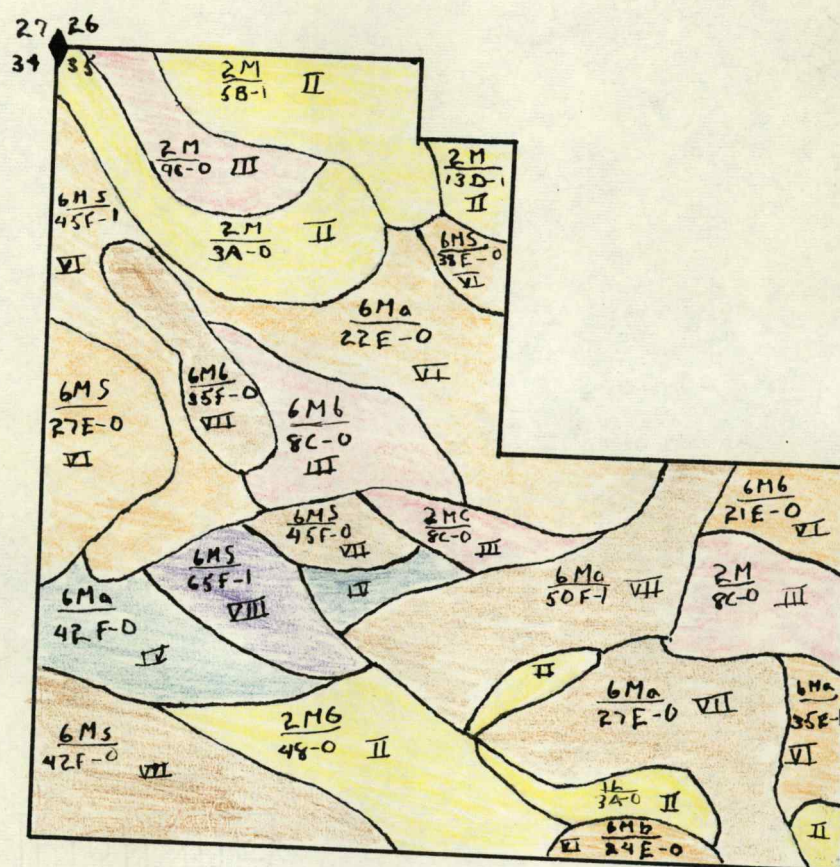
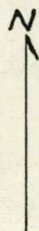


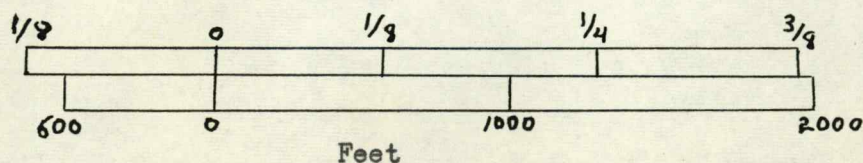
Figure 6. Soil and Topography Map



Scale 1"=660'



Miles



LEGEND

SOILS DESCRIPTIONS AND LIMITATIONS

- (Columbia Sandy Loam-Deep, light textured, easily worked alluvial; usually found along stream banks; often needs fertilization.)
- II (Olympic Silt Loam-Deep, fairly productive; lime and phosphate needed frequently.)
(Olympic Gravelly Loam-(Same as above).)
- (Olympic Silt Loam-Hill soil; 3 to 5 feet deep over hard rock; permanent cover necessary to prevent slope erosion.)
- IV (Olympic Silt Loam-Hill soil; 2 to 3 feet deep to hard rock; permanent cover necessary to prevent slope erosion; safe use is pasture or woodland.)
(Olympic Stony Loam-Stony hill soil; suitable only for forest or grazing.)

LAND-USE CAPABILITY CLASSES

Land Suitable for Cultivation

- I Without limitation in use.
- II With minor limitations in use.
- III With major limitations in use.
- IV Severe limitations in use.

Land Not Suitable for Cultivation

- V Suitable for range or woodland without limitation.
- VI Suitable for range or woodland with minor limitations.
- VII Suitable for range or woodland with major limitations.

Land Not Suitable for Productive Vegetation

- VIII Suitable only for watershed, wild life, recreational or similar usage.

Figure 7. Recommended Land-Use Map

