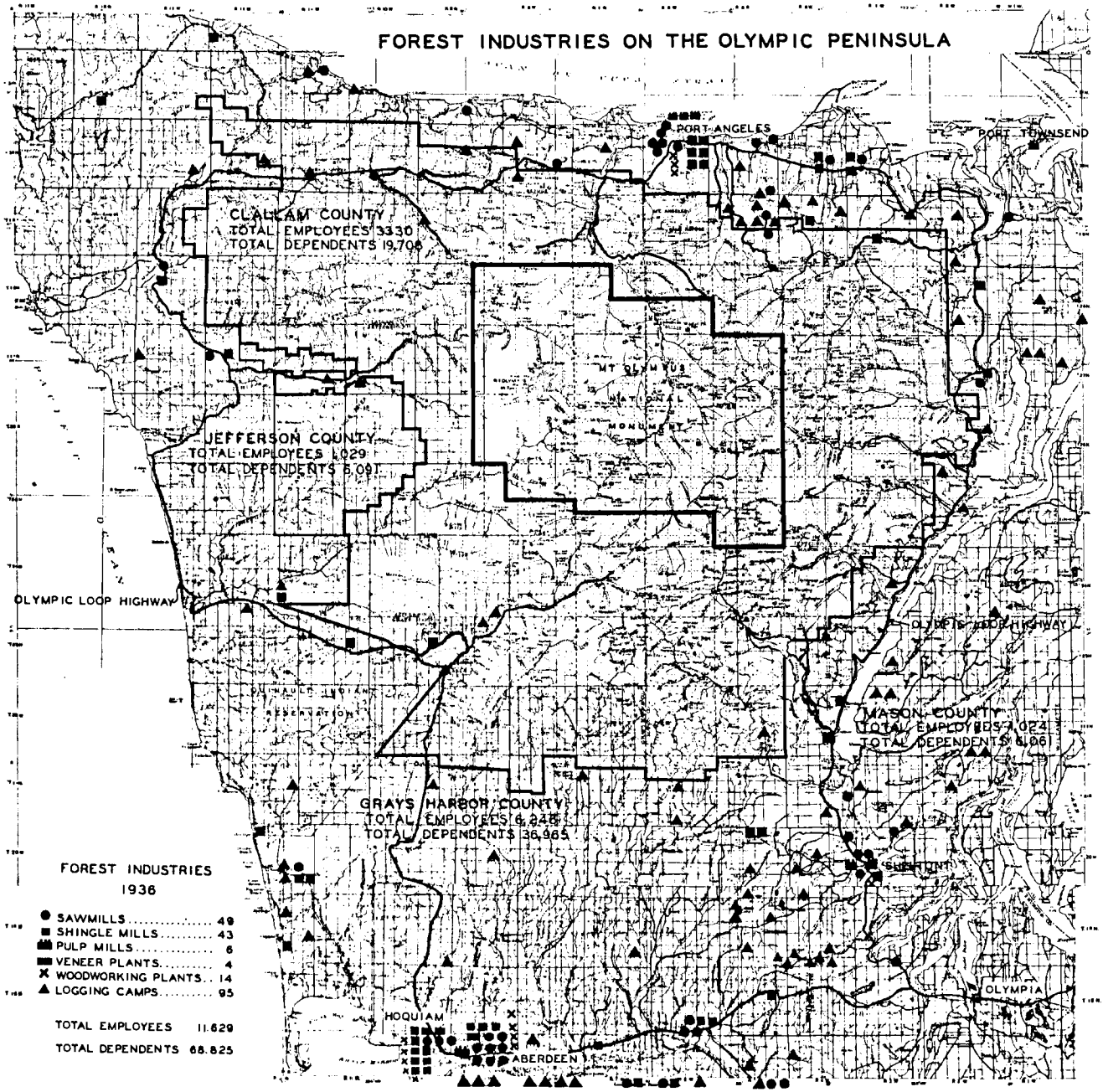
FOREST INDUSTRIES ON THE OLYMPIC PENINSULA
PORT ANGELES
PORT TOWNSEND
CLALLAM COUNTY
TOTAL EMPLOYEES 3330
TOTAL DEPENDENTS 19,706
MT OLYMPUS
NATIONAL
MONUMENT
JEFFERSON COUNTY
TOTAL EMPLOYEES 1,029
TOTAL DEPENDENTS 5,091
OLYMPIC LOOP HIGHWAY
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TOTAL EMPLOYEES 6,246
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SHELTON
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ABERDEEN
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1936
SAWMILLS 49
SHINGLE MILLS 43
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VENEER PLANTS 4
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LOGGING CAMPS 95
TOTAL EMPLOYEES 11,629
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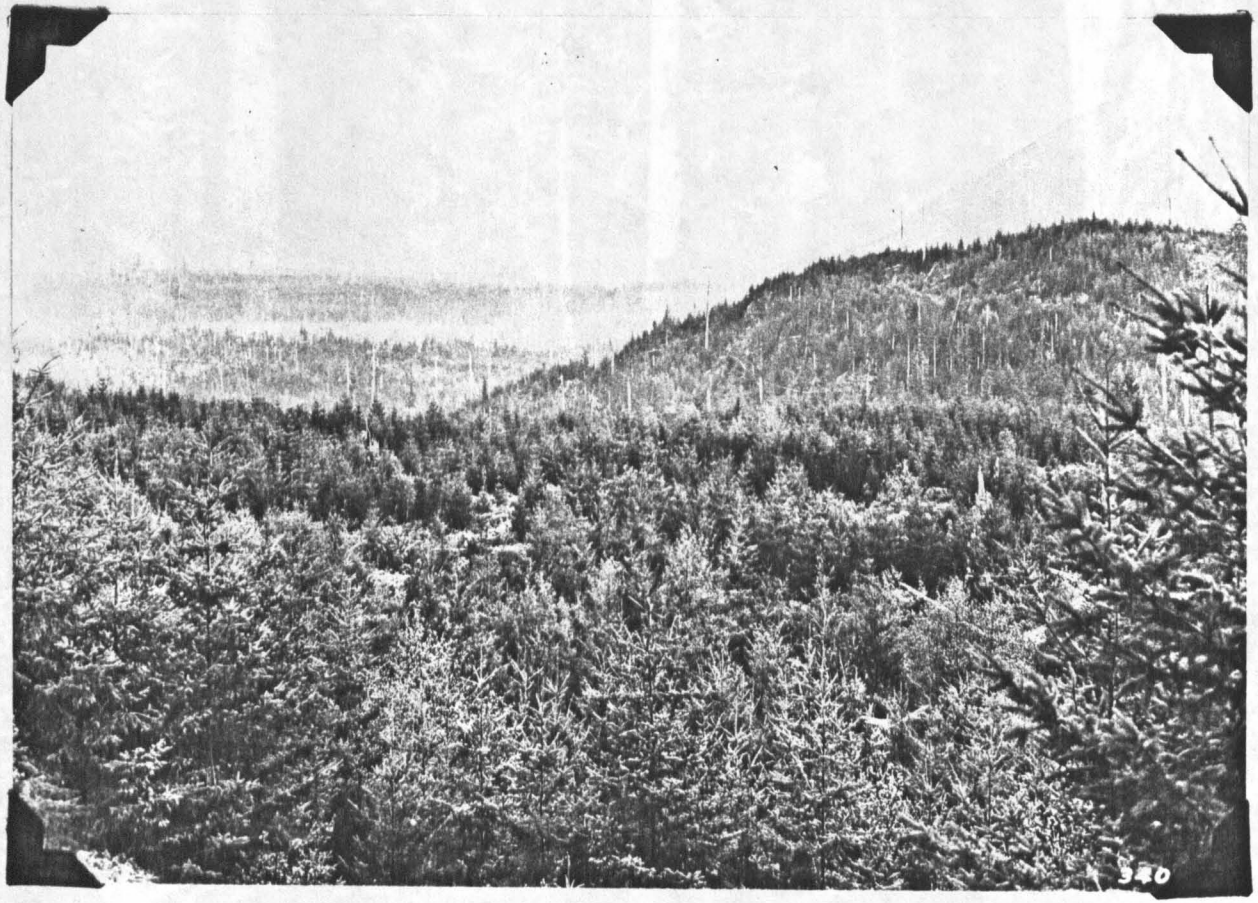
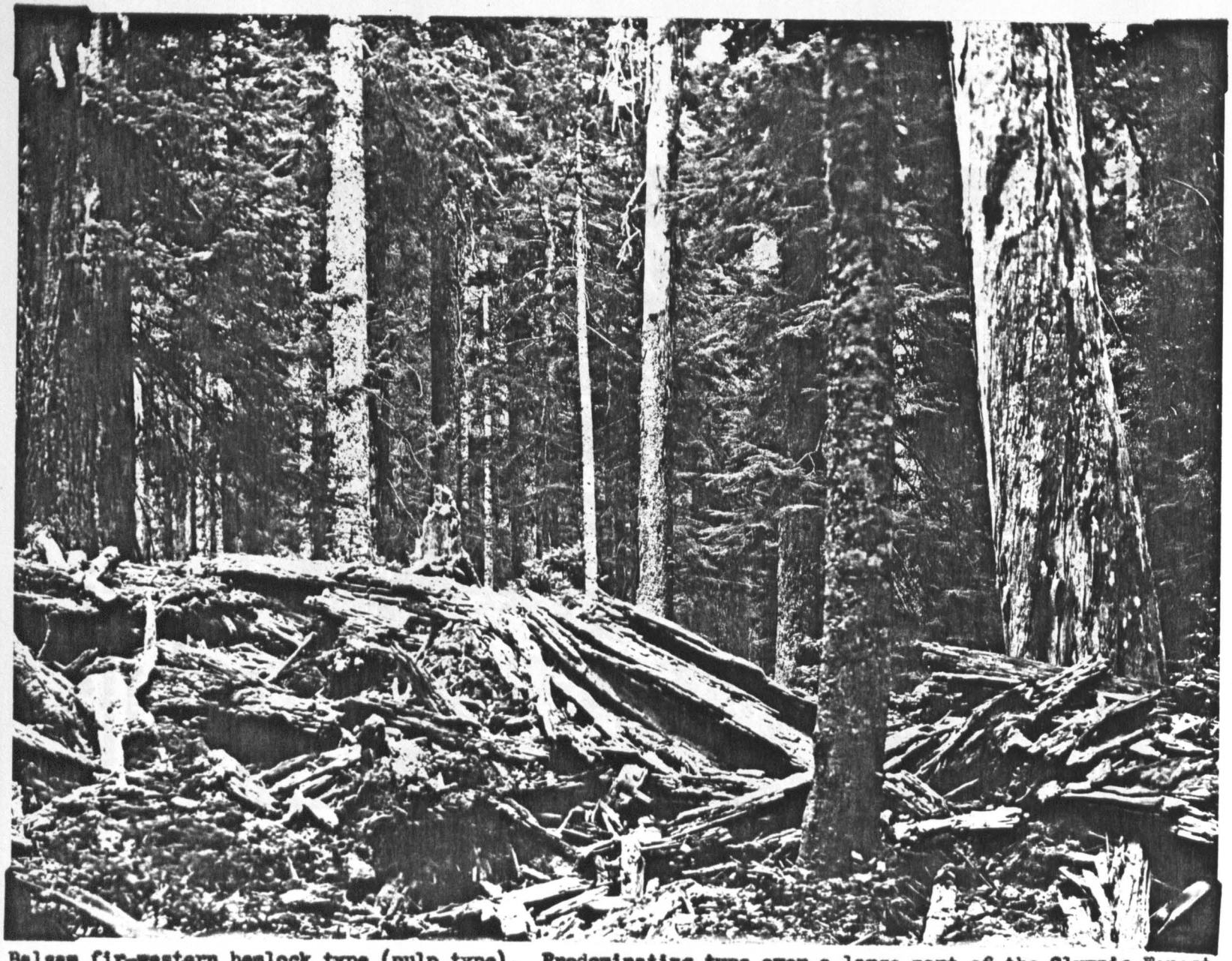
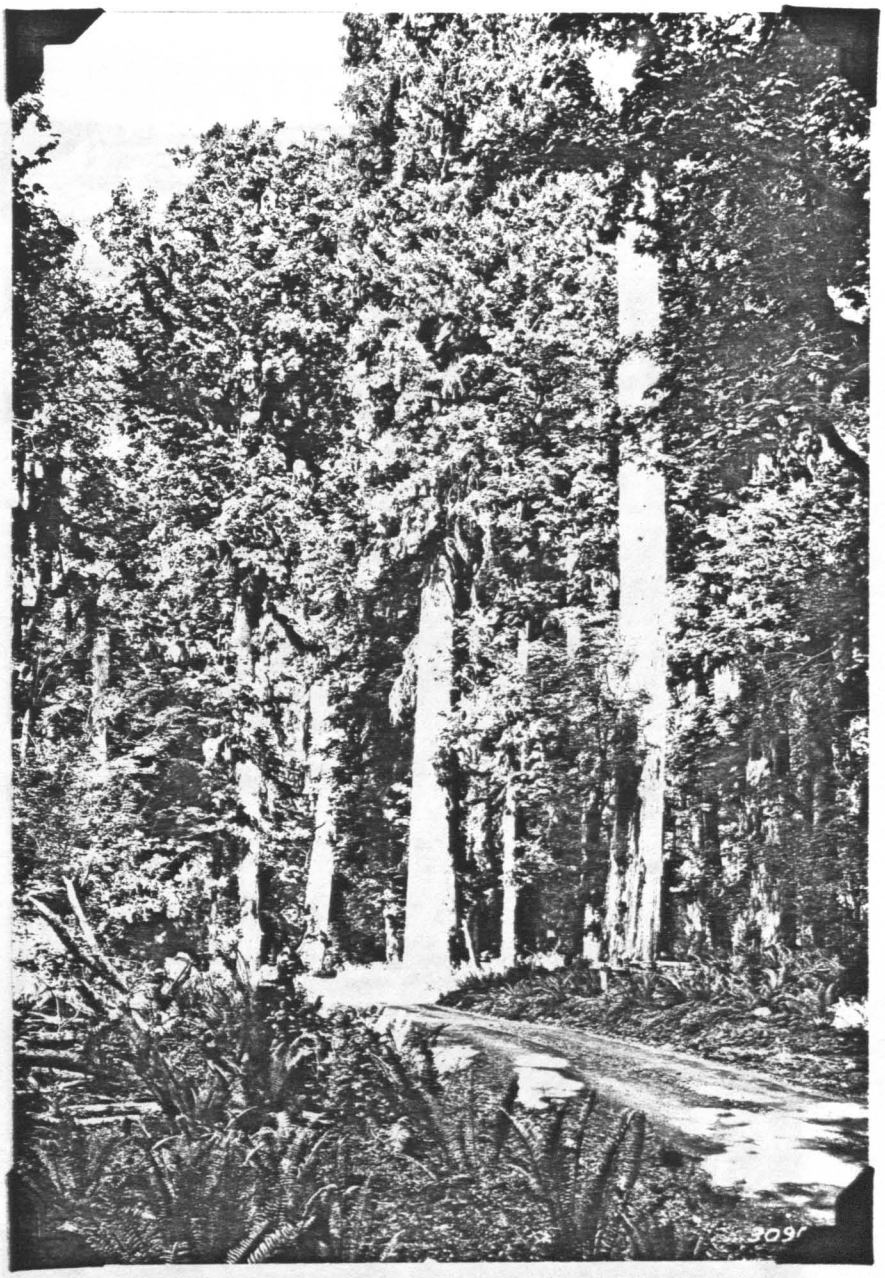


Soleduck plantation. Area burned over, 1907, in 13,000 acre fire. This part of area planted to Douglas fir in 1920, trees now 15 to 20 feet in height. Total area successfully restocked by planting on the Olympic Forest - 9,178 acres.



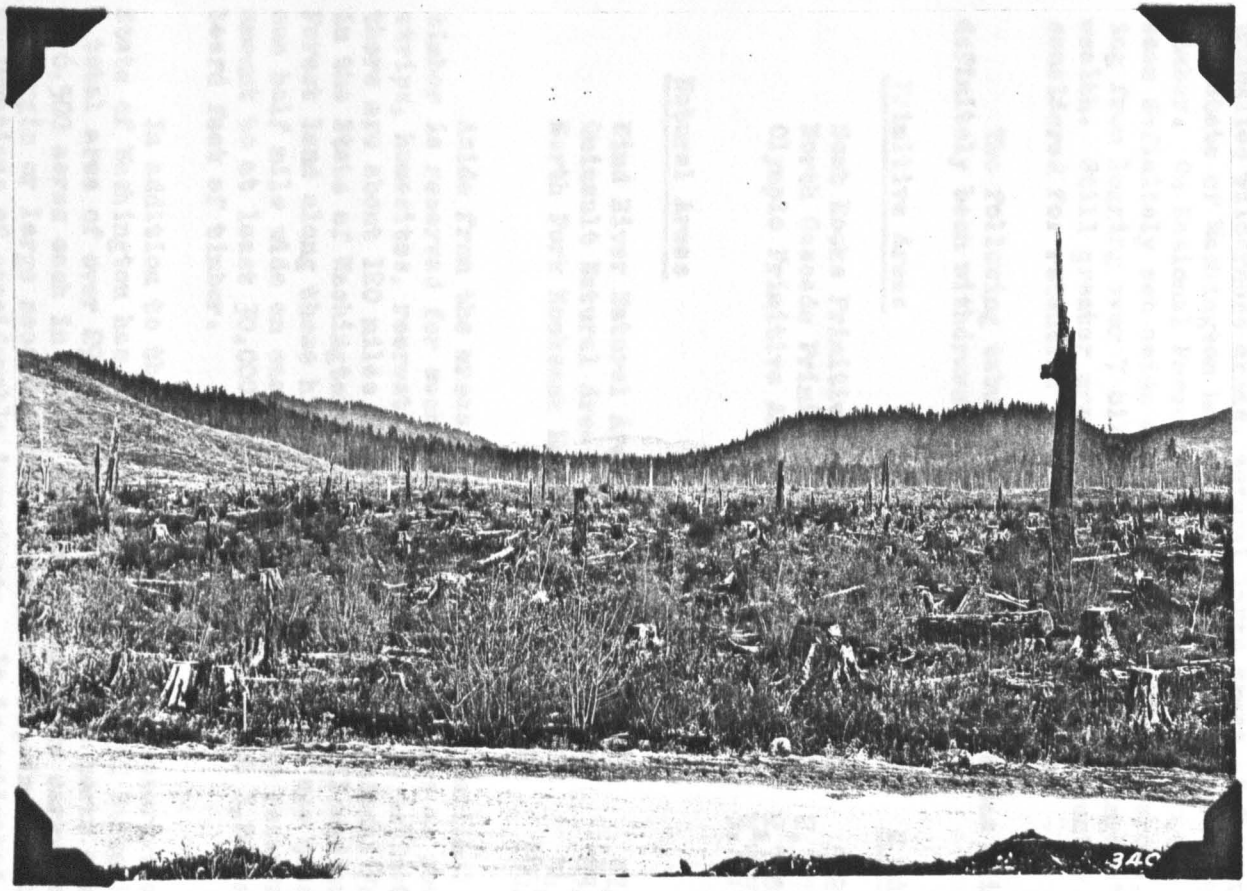
Balsam fir-western hemlock type (pulp type). Predominating type over a large part of the Olympic Forest.



74" Sitka spruce in center, with giant dead Douglas fir at right.

Decadence of forest types on Olympic Peninsula is important factor bearing on use and management. Because of advanced age, much of the forest is in a deteriorating condition.

View showing reserve stand after selective cutting on the Olympic National Forest.



Cut-over area on private land near Olympic Highway, with uncut National Forest timber in background. Practically all of the cut-over areas along the Olympic Highway were created under private ownership.

TIMBER RESERVATIONS

In the interest of future recreational needs for extensive unspoiled wilderness areas, several large areas of forest lands in the State of Washington have been reserved from exploitation of timber. On National Forest lands alone nearly 1,200,000 acres have been definitely set aside as Primitive and Natural areas, withdrawing from logging over 7 billion board feet of Washington's forest wealth. Still greater areas in the high Cascade country are being considered for retention in a primitive condition.

The following tabulation lists the major areas which have definitely been withdrawn by the Forest Service:

Primitive Areas	Acres	M Bd. Ft.
Goat Rocks Primitive Area	72,440	632,070
North Cascade Primitive Area	801,000	2,347,165
Olympic Primitive Area	238,930	2,748,008
	1,112,370	5,727,243
Natural Areas		
Wind River Natural Area	1,180	52,910
Quinault Natural Area	1,435	83,321
North Fork Nooksack Natural Area	1,787	54,018
	4,402	190,249

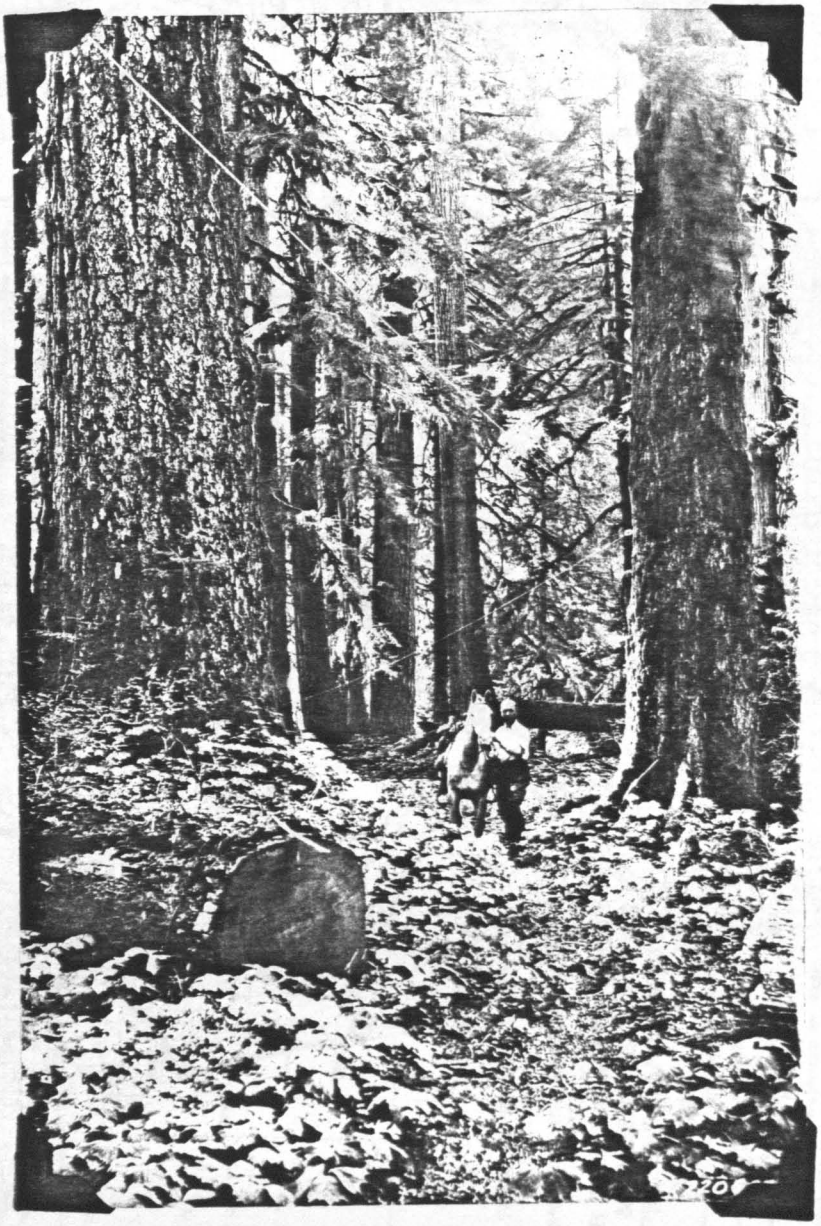
Aside from the areas listed, considerable National Forest timber is reserved for such other recreational uses as roadside strips, homesites, recreational areas, etc. It is estimated that there are about 120 miles of major highways on National Forest land in the State of Washington. No cutting will be allowed on National Forest land along these highways for a strip from one quarter to one half mile wide on each side of the road. This reservation will amount to at least 30,000 acres and carry at least 1,200 million board feet of timber.

In addition to the Forest Service timber reservations, the State of Washington has established a system of 52 State Parks, with a total area of over 29,000 acres. Six of these parks are from 1,000 to 6,500 acres each in area. Many of these parks carry good stands of virgin or large second growth timber and are, in effect, timber reservations of considerable importance. It is estimated that close to 800 million board feet of timber is reserved in these State Parks.

The Olympic Monument of 322,280 acres in the heart of the Olympic Peninsula carries an estimated stand of 3,155 million board feet of timber which is permanently withdrawn from all forms of cutting.

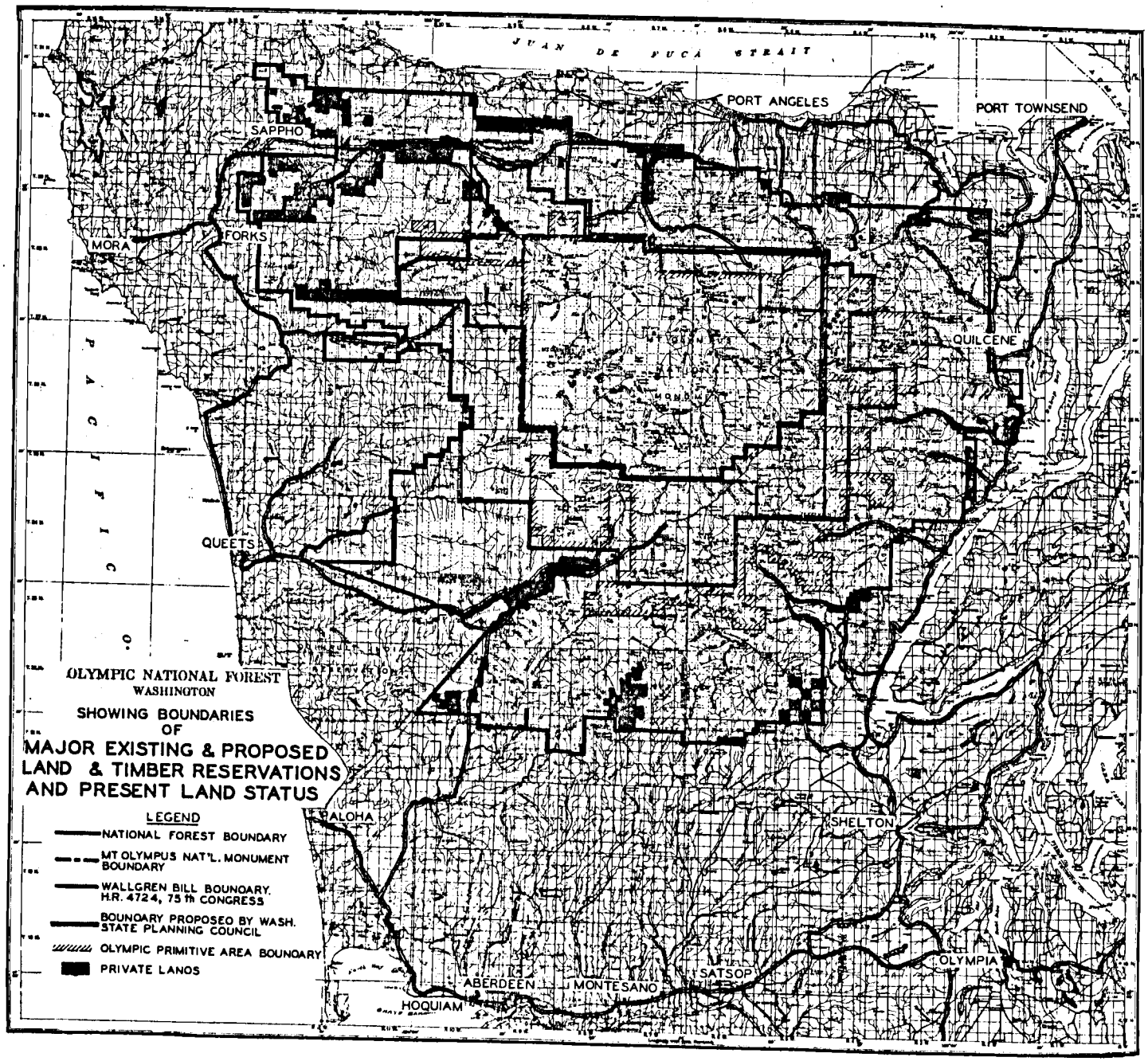
The Mount Rainier National Park also forms a timber reservation of importance. The 241,636 acres included in the Park carries a stand of 3,177,548 M feet B.M. This timber is, of course, permanently reserved from cutting or other commercial use.

Thus the major park, recreational and scenic areas in the Puget Sound-Grays Harbor region contain over 12 billion board feet of commercial timber permanently reserved from cutting. In addition to this there is a volume of at least 15 billion board feet of timber of commercial character which is considered to be permanently inaccessible, making a total of 27 billion board feet or over 13% of the total commercial stand of the area unavailable to industrial use.



Within the Primitive Area along the Quinault Trail, excellent specimens of Douglas fir and western hemlock. The Douglas fir tree at the left is over 500 years old and would produce sufficient plywood and lumber for a modern 5 to 6 home.

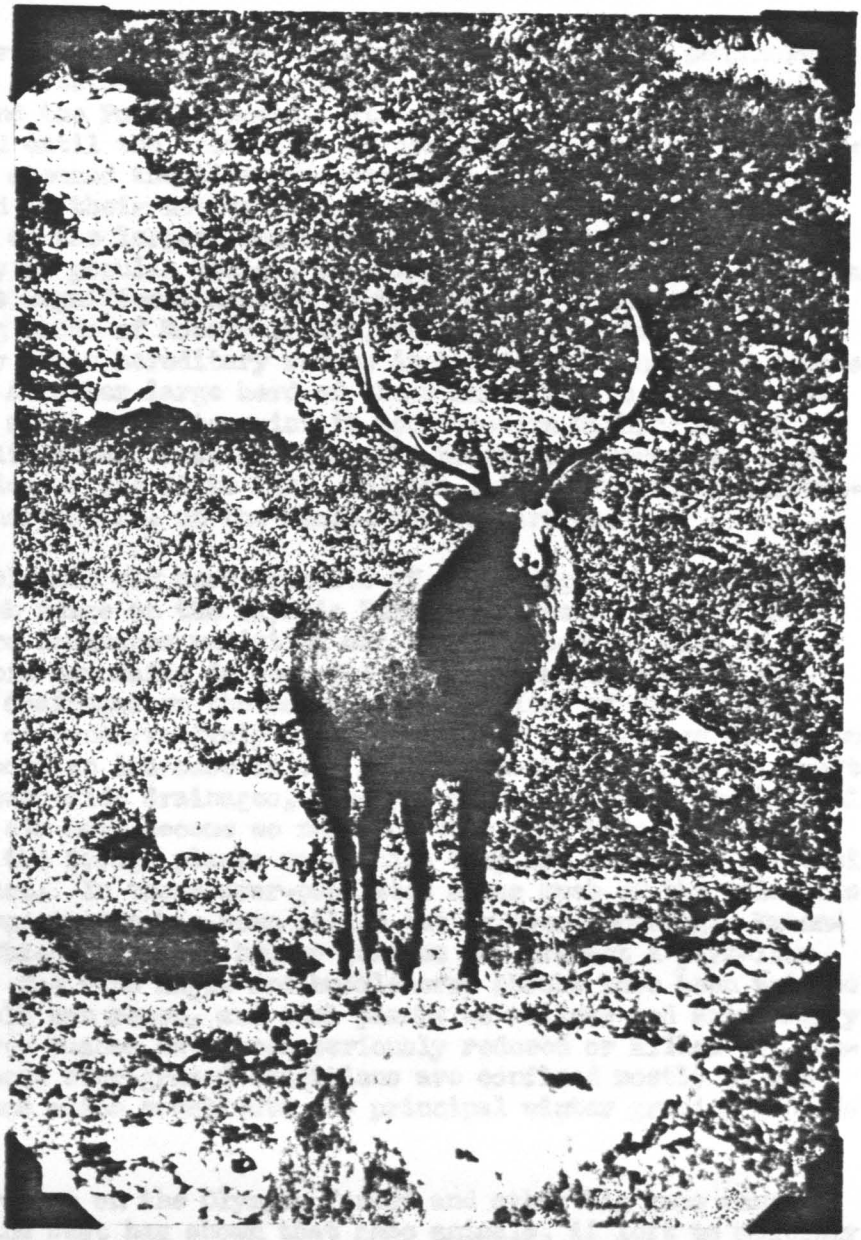
Thousands of acres of trees comparable to this are within the Monument and Primitive Area, as well as on other parts of the National Forest.


JUAN DE FUCA STRAIT
PORT ANGELES
PORT TOWNSEND
SAPPHO
MORA
FORKS
QUILCENE
QUEETS
PACIFIC
OLYMPIC NATIONAL FOREST
WASHINGTON
SHOWING BOUNDARIES
OF
MAJOR EXISTING & PROPOSED
LAND & TIMBER RESERVATIONS
AND PRESENT LAND STATUS
LEGEND
NATIONAL FOREST BOUNDARY
MT OLYMPUS NAT'L. MONUMENT BOUNDARY
WALLGREN BILL BOUNDARY. H.R. 4724, 75th CONGRESS
BOUNDARY PROPOSED BY WASH. STATE PLANNING COUNCIL
OLYMPIC PRIMITIVE AREA BOUNDARY
PRIVATE LANDS
ALOHA
SHELTON
OLYMPIA
SATSOP
ABERDEEN
MONTESANO
HOQUIAM

Looking down the Elwha River from Low Divide.

This expansive wilderness, all within the Monument, contains a very large quantity of fine timber and a wide variety of species. At the lower elevations are splendid commercial stands of Douglas fir.

Douglas fir type forest along the Olympic Highway west of Lake Crescent. Acquired by the Forest Service from private owners through land exchange in order that scenic values along the highway might be preserved.



Roosevelt Elk

THE ROOSEVELT ELK ON THE OLYMPIC PENINSULA

In primitive times the Roosevelt elk occurred in abundance over most of the forested area lying between the summit of the Cascade Mountains and the Pacific Ocean. Its retreat before civilization was rather rapid until the initiation of conservation measures about three decades ago stemmed the tide of destruction and afforded the elk a new foothold in their native forests. Today the Olympic Peninsula is the home of the largest and most famous herd of Roosevelt elk, but contrary to popular belief, the Olympic herd is not the last remnant of this magnificent denizen of the forest. A number of small but thriving bands of Roosevelt elk, totalling over two thousand head, occupy their hereditary ranges in the Cascade and coast ranges in Oregon. A rather large herd of these animals live on Vancouver Island, and small remnants exist in southwestern Washington and northern California. Most of these elk herds are increasing under the protection of the State laws, and the outlook for their perpetuation and increase is, on the whole, very favorable.

The Olympic elk herd consists of about eight thousand elk, most of which range on the Olympic National Forest. Each of the dozen or more drainages radiating out from the central mass of the rugged Olympic Mountains is occupied by one or more bands of elk. Most of the drainages on the north and east sides of the Peninsula are lightly or conservatively stocked with elk and produce sufficient food to support an increase in the game population. On certain parts of several west-side drainages, namely, the Hoh, Queets, and Quinault Rivers, the elk have become so numerous that they have seriously over-grazed the forage plants upon which they are dependent for their very existence. In those over-populated areas much of the palatable understory vegetation has been killed out by over-browsing. Extensive areas which were once brushy jungles now present a park-like appearance. The vine maple and huckleberry shrubs have been trimmed as high as elk can reach, and such plants as willows and salmonberry and elderberry bushes have been seriously reduced or killed out completely. Those over-grazed conditions are confined mostly to the canyon bottoms which constitute the principal winter grazing grounds of the elk.

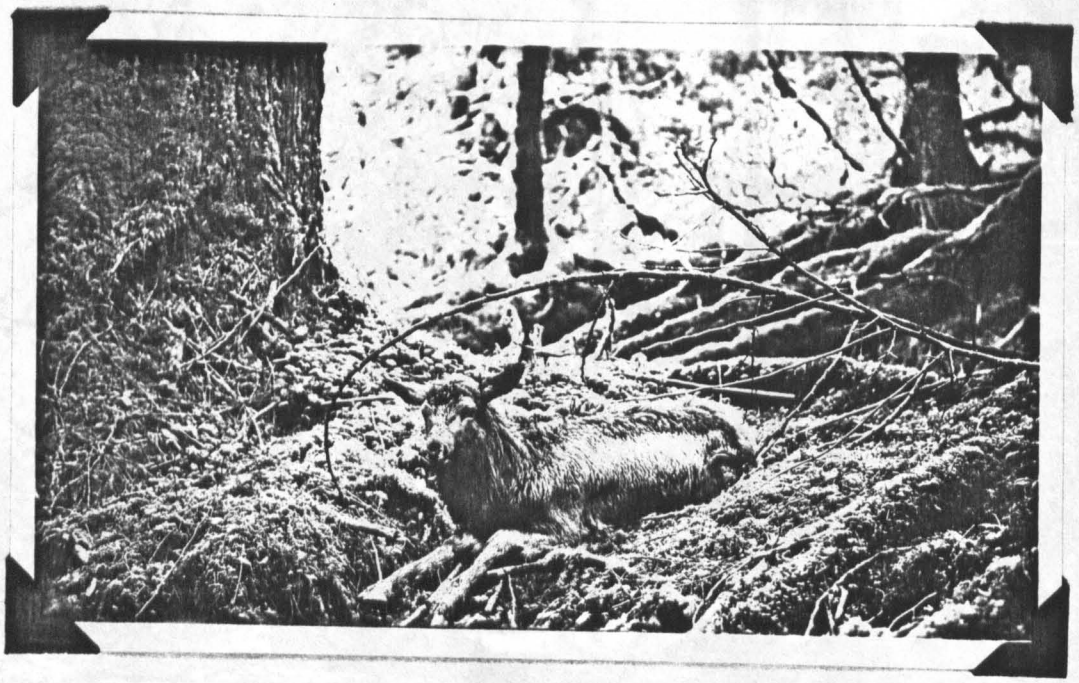
Experience on the Olympic Forest and other big game ranges throughout the West has shown that game animals, if left to multiply and increase without restrictions, are their own worst enemies, because continued over-grazing leads to self-destruction. Severe losses of elk have been occurring on the winter ranges in the Hoh, Queets and Quinault drainages for a number of years. Studies conducted by the Forest Service reveal that hundreds of elk die each winter from starvation or malnutrition, diseases, and parasite infestations.

The epidemics of diseases and parasite infestations are induced by congestion and malnutrition. Recent studies have revealed that a disease known as necrotic stomatitis, or calf diphtheria, is responsible for heavy losses of elk on the over-grazed areas. This disease consists of an infection of the tissues and bones of the animal's jaws. The organism which causes this deadly malady enters the tissues through injuries caused by eating harsh food, such as coarse brush and sticks which the elk are forced to consume on the over-grazed winter ranges. Another major cause of death is the lung worm which clogs the air passages in the animal's lungs. The eggs of this parasite are picked up on the forage plants. The chances for animals to become infected are, of course, much greater when animals are congested on a closely-utilized range. Animals weakened by starvation are not able to withstand the ravages of disease and parasite infestations. When disease strikes a weakened elk, it contaminates the ground, others get infected and an epidemic soon sweeps the herd like "flu" in an over-crowded tenement district.

In most instances there is ample winter range lying down stream from over-stocked areas. However, it seems to be a characteristic of the elk to cling tenaciously to their home range and, like several other species of the deer family, they will stay on over-grazed ranges and die of starvation rather than seek out new feeding areas even when these are close at hand. Summer ranges offer no problems at present because there is ample forage available in the high peaks and ridges during the period that these areas are occupied by elk. Most of the summer ranges could support much greater numbers of elk than are now using them.

The winter ranges are the key to the whole situation. The elk population must be kept within the available winter food supply. This condition can be obtained and maintained only through careful control of the elk herds by the application of the principles of game management. The Forest Service regards game as a renewable resource, just as timber and forage are, and believes that the annual game crops should be harvested when necessary. The plan of management advanced by the Forest Service provides for the controlled reduction of the elk in the congested areas down to the sustained carrying capacity of the range and the upbuilding of the herds in the under-populated areas through continued protection. Such a plan provides for the maintenance of the maximum number of game animals that the range can support without being overstocked.

There is conclusive evidence that the complete protection of Roosevelt elk on the over-populated ranges on the Olympic Peninsula, which is sometimes advocated, would only tend to accentuate the serious problems which now exist. The crying need is not for the continuation and enlargement of the present closures and restrictions, but for planned management which will provide for a sustained yield of game animals for the hunter and recreationist.



The destruction of the forage plants is accompanied by death. This yearling elk is in a dying condition. Its death was caused by malnutrition and a heavy infestation of lung worms. Occurrences of this kind are common on the overgrazed winter range areas on the Olympic Peninsula.

The over-populated winter elk ranges in the Hoh, Queets, and Quinault drainages, which were once brushy jungles, have been over-browsed until they now present a park-like appearance. The elk are literally eating themselves out of "house and home".

CONDENSED FOREST FACTS

Olympic National Forest

Forest created February 22, 1897.

Area

	Acres
Gross area inside National Forest boundaries as of June 30, 1937 . . .	1,559,721
Mt. Olympus National Monument . . .	322,280
Alienated lands inside boundary . . .	114,705
Net National Forest land	1,122,736

When created in 1897, the Forest contained 2,218,000 acres. The reduction to the present gross area of 1,559,721 acres came largely through elimination of lands alleged to be agricultural in character and subsequently taken up by private individuals as timber claims.

Prior to transfer of the Forest to the Forest Service, an area of 744,000 acres, containing over 17,000,000,000 board feet of timber was eliminated by presidential proclamations.

Timber Stand

	Board Feet
Commercial volume on net National Forest lands . .	33,895,000,000
" " " alienated lands inside boundary	3,024,000,000
" " " Mt. Olympus National Monument	3,155,000,000

Timber Reservations

	Acres	Board Feet
Forest Service Primitive Area	238,930	2,544,000,000
" " Natural Area	1,435	83,000,000
" " Recreation Withdrawals	7,029	1,235,000,000
Mt. Olympus National Monument	322,280	3,155,000
Wallgren proposal for National Park - additional from National Forest by H.R. 4724, 75th Congress	306,613	8,381,000,000
Washington State Planning Council recommendation for National Park	61,440*	2,880,000,000

*Net figures. Planning Council proposed addition of 94,700 acres to the present Mt. Olympus National Monument and return of 33,360 acres now included in Monument to the Forest Service.

(Olympic Nat. Forest, Cont'd)

Areas and Volumes Cut Over to Date

National Forest area cut to date is approximately .... 24,000 acres or approximately 2% of the total National Forest area.

Volume of timber cut from National Forest land approximately . . . . . 1,261,000,000 bd.ft.

Value of timber cut from National Forest lands as shown by timber sale receipts is over . . . . . $2,614,000.

Area of privately owned lands inside National Forest boundary which have been cut over amounts to over. . . . . 97,200 acres

Quinault Natural Area

A tract of 1435 acres, old growth Sitka spruce type. Located about 1 mile south of Lake Quinault along the Olympic Highway entirely inside Olympic National Forest. Intended to preserve the present virgin forest conditions of the spruce type for future research and study of the natural climax types of the region.

No cutting, grazing, or development will be permitted, with the exception of constructing and maintaining the minimum of foot trails necessary to fire protection and study.

Selective Logging

Special emphasis is being given by the Olympic Forest to the development of selective logging in the Douglas fir and spruce-hemlock forests of the Peninsula. Olympic Forest sales on Salmon Creek and Cook Creek are forming practical demonstrations of what may be accomplished by selective logging in the heavy forest types of this area.

Planted Areas

To date 9,178 acres have been successfully restocked by planting in the Olympic National Forest.

Road Mileage

390 miles of roads inside Olympic National Forest.

Trails

925 miles of trails have been constructed.

(Olympic Nat. Forest, Cont'd)

Recreation

Estimated number of persons visiting Olympic Primitive Area, year 1937, (to September 15)	5,880
Actual registrations at campgrounds on Forest, year 1937, (to September 15).	34,130
Special use summer homes, including guests, number of people, year 1937, (to September 15).	1,200
Permits for summer homes issued, 1937	108
Hotel and resort guests in and near National Forest, year 1936	140,000

Wild Life

Estimates of the numbers of various kinds of wild life on the Olympic National Forest are as follows:

Roosevelt elk	7000	Marten	1500
Columbian blacktail deer	6000	Mink	3000
Mountain goat	20	Fisher	100
Black bear	1200	Otter	300
Coyote	300	Weasel	4800
Cougar	200	Coon	1500
Wildcat	1400	Skunk	6600
Beaver	300	Muskrat	1000

Fire Facts

Protection force in 1937. On the five ranger districts in the Forest there are:

5 primary lookouts - do not leave the lookout during fire season.
5 lookout-firemen - serve as lookouts and also go to fires within their territory.
17 patrolman-firemen
6 fireman truck drivers
5 protective assistants
4 telephone operators
42 men in regular protective force

Radio

In order to avoid excessive telephone line construction, with its attendant depreciation of recreational values, and yet allow firemen to maintain contact with their headquarters, the Olympic National Forest is equipped for emergency communication with special portable short wave radio sets developed by the Forest Service.

(Olympic Nat. Forest, Cont'd)

The list of sets on the Forest is as follows:

65 PF sets - send and receive voice - weight 16 lbs. with battery and antenna.
6 SP sets - send and receive voice or code for semi-portable use.
2 M sets - send and receive voice and code for permanent installation as headquarters sets on which to base the network.

These sets are indispensable to the proper protection of the Forest from fire in this extremely rough country.

Annual burned acreage, average for last 5 years - only 614 acres per year.
Average value destroyed in annual burned acreage, last 5 year average - $1634.
Number of fires, average for last 5 years - 16.4 fires per year. Of these, 16.2 were man-caused.

Olympic Peninsula

Dependency

27,097 people (directly employed and dependents) supported by the timber industry.
41,728 workers and dependents in the allied service industries in addition to those directly employed in forest industries.
68,825 total number of people dependent on the forest industries of the Olympic Peninsula. This is about 70% of the total population of the 4 Olympic Peninsula counties.
90,000 persons would be more nearly the figure for a total of those whose economic security depends on the forests of the Olympic Peninsula, if the interdependence of agriculture, lumbering, and other businesses is considered. This would be nearly 99% of the total population.

Mineral and Oil

The mineral and oil resources of the Olympic Peninsula are but little explored. Large deposits of relatively high grade manganese ore, one of the metals essential to the iron alloy industry and vital to national defense, are known to exist throughout the north, east and south portions of the Olympic National Forest. A large mineralized area bearing gold and copper ores lies in the central southern portion of the Forest, and numerous permits for explorations for oil have been granted for the area in and adjacent to the state sustained yield unit on the western side of the Peninsula.

(Olympic Peninsula, Cont'd)

Olympic Highway

Entire loop - 343 miles. 45 miles inside National Forest boundary. 18 miles on National Forest lands.

Most scenic portions of the loop -

Approximately 50 miles bordering on Hoods Canal along east side of Peninsula.

Approximately 30 miles from Port Angeles west to western end of Lake Crescent.

Privately owned lands around Lake Crescent and elsewhere are being acquired by the Forest Service through exchange. Any of those lands, if not supporting timber or satisfactory reproduction, will be planted. A total of 4927 acres of land has been acquired through exchange and added to the Forest. This area supports a stand of 78,989,000 board feet of timber with a value of $130,236. An additional 9,000 acres of exchange land is pending, which has 15,665,000 board feet of timber valued at $27,590. 480 acres of mature timber at the west end of Lakr Crescent has been acquired.

Climate

Rainfall on the Olympic Peninsula is more easily measured in feet than in inches. Annual averages of 10 to 12½ feet are not unusual. Officially the figures show annual averages from 16 to 150 inches. The precipitation during the summer dry months from the middle of June to the early part of September averages from 1½ inches in July to 6 inches in September. During the remainder of the year the monthly average is from 6 inches to 20 inches, with a high level of 18 inches to 20 inches, mostly of rain, reached in November, December, and January.

This excessively high level of rainfall, distributed well throughout the year, accounts for the extreme density of vegetation and the rapid growth of forests in this region.

Water Power

508,590 horsepower is the estimated potential water power development for the Peninsula.

168,180 horsepower is the limit of present development.

(Olympic Peninsula, Cont'd)

Pulp Mills

6 large mills on Olympic Peninsula.

~~1422~~ 1547 tons pulp per 24-hour day capacity.

About 650 tons per day of sulphite pulp supplied to the rayon industry.

Cut-over and Uncut Areas

In the 4 Olympic Peninsula counties - all ownerships - the Forest Service estimates give the following figures:

3,425,358 acres of potentially commercial forest land.
1,099,709 acres cut-over - mostly restocking.
364,184 acres burned-over (not cut) mostly restocking.
1,961,465 acres yet uncut and unburned - 57% of total potential commercial forest land; of this remaining commercial forest land, over 600 thousand acres are National Forest land.

State Ownership

On the Olympic Peninsula the State of Washington holds title to approximately 335,000 acres with a stand of about 9,000,000,000 board feet of timber in addition to a considerable acreage of recently acquired cut-over lands.

Indian Ownership

There are about 209,000 acres of Indian land in the 4 Peninsula counties. These Indian lands carry about 4,000,000,000 board feet of timber.

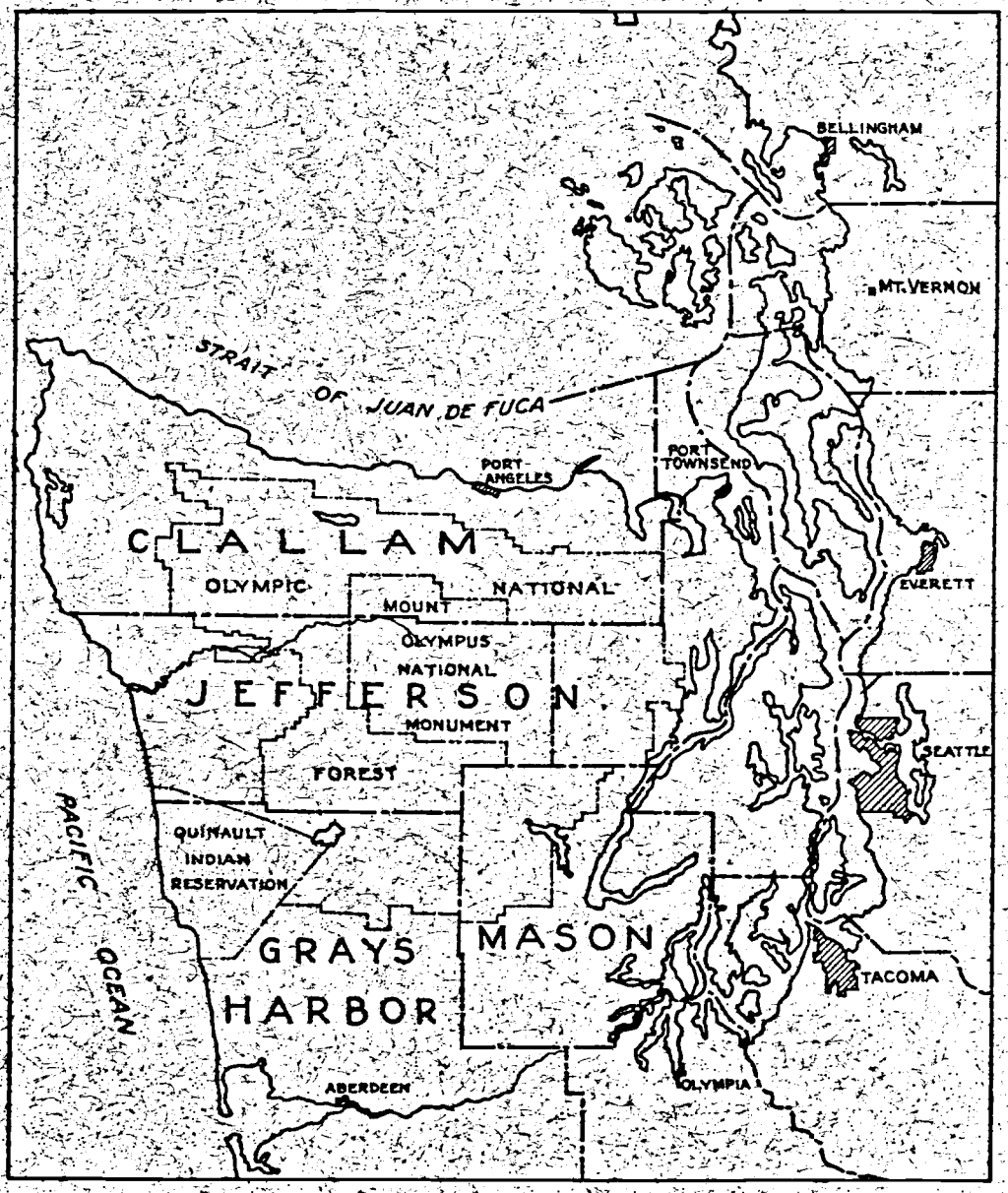
Olympic Blowdown

In February, 1921, a tornado approached the Peninsula from the southwest and blew down a strip of timber up to 30 miles wide, extending from Grays Harbor to Puget Sound on the west side of the Peninsula. Over 4,500,000,000 board feet of timber blown down, mostly on lands outside National Forest boundaries. Greatest damage in vicinity of Forks, Washington.

INDUSTRIAL DEVELOPMENT

OF

OLYMPIC PENINSULA COUNTIES



UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE, NORTH PACIFIC REGION

1937

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INDUSTRIAL DEVELOPMENT

of

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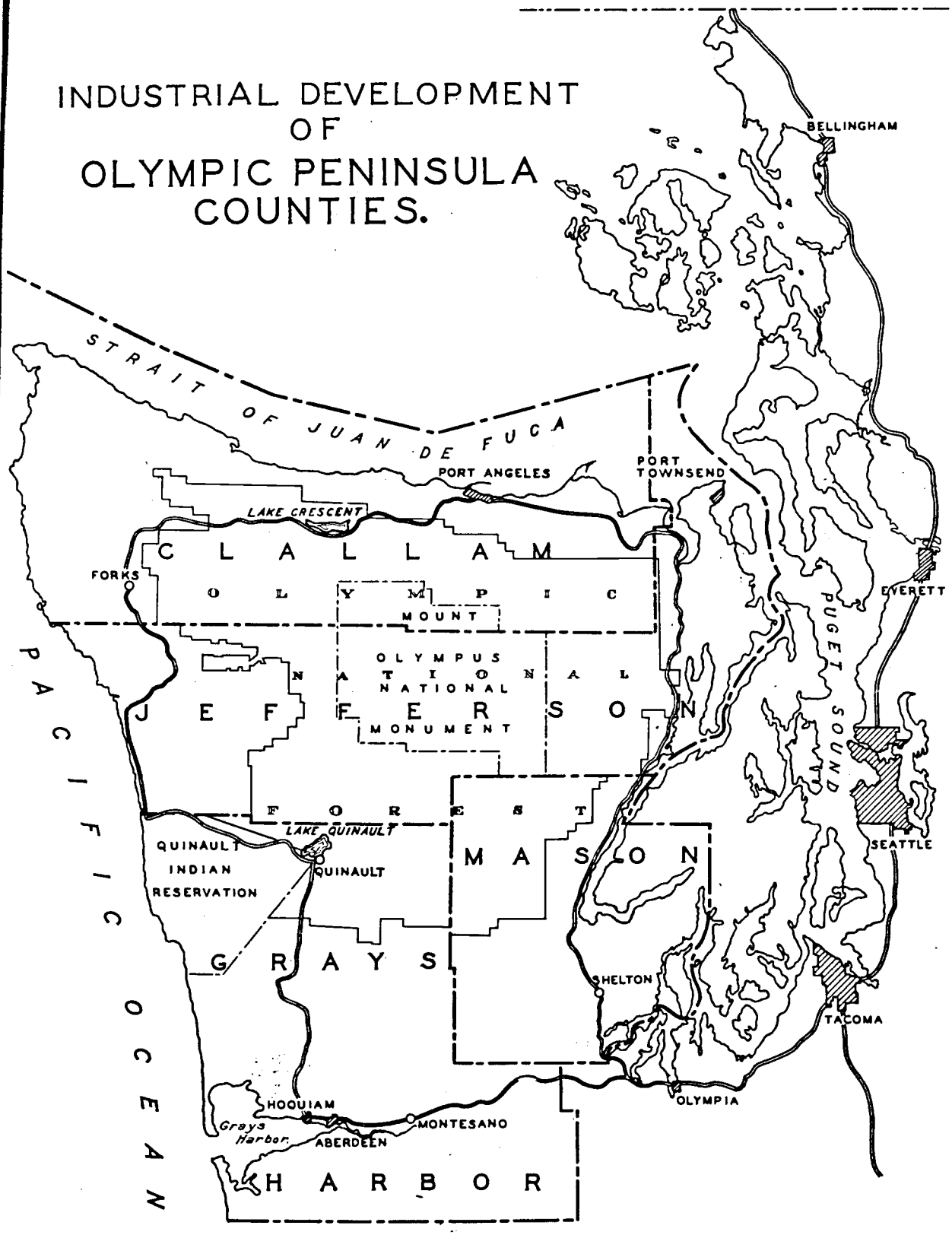

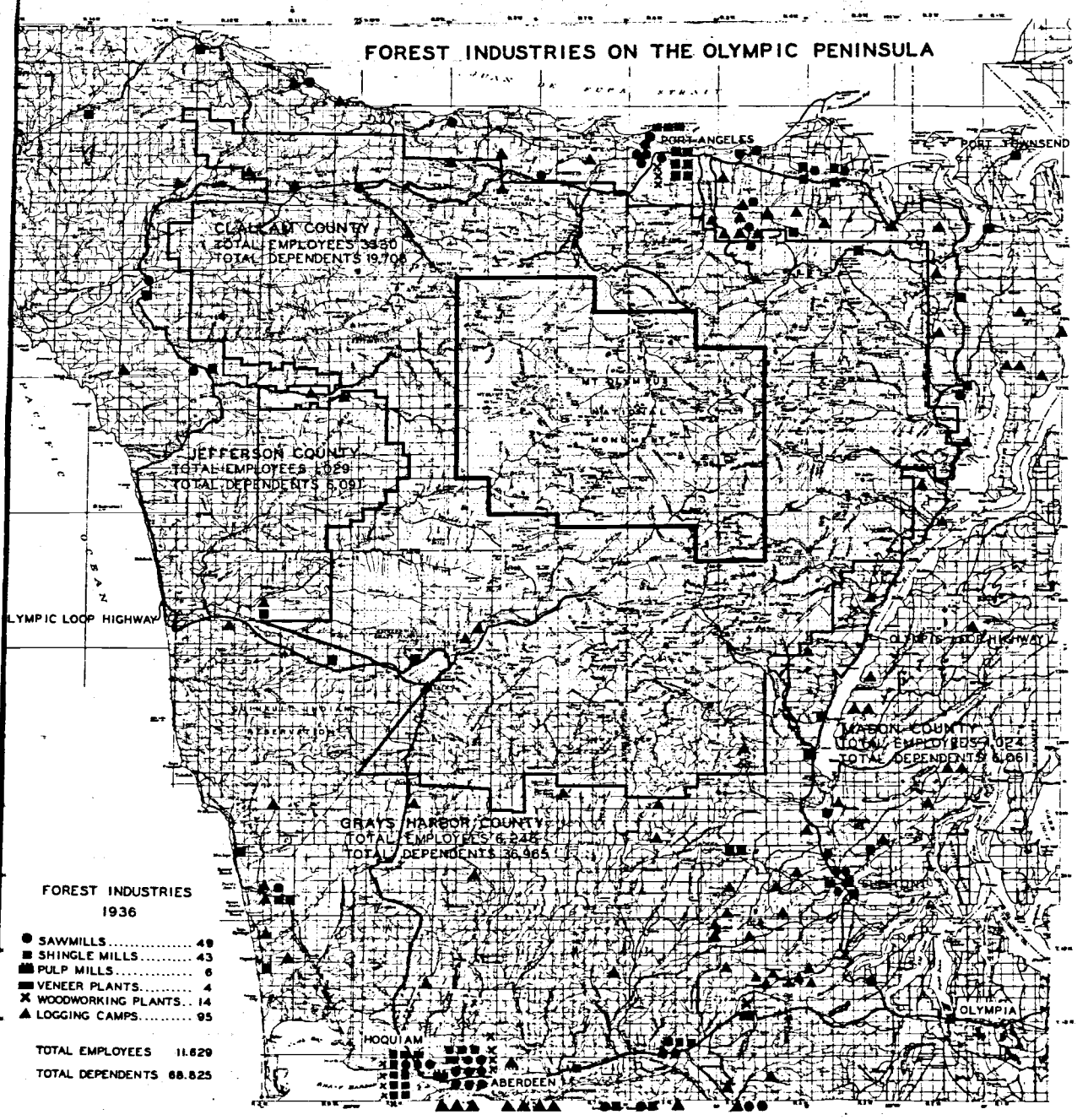
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LOGGING CAMPS 95
TOTAL EMPLOYEES 11,629
TOTAL DEPENDENTS 68,825

GRAYS HARBOR COUNTY
*(Population 59,982)

Grays Harbor County includes the southwestern portion of the Olympic Peninsula. The first sawmills were built about 1880 and lumbering activity increased rapidly until the twin cities of Aberdeen and Hoquiam now have a population of 34,489 persons.

The fishing industry (salmon and clams) has made minor contributions to the development of the Grays Harbor cities. Salmon caught outside the three mile limit have an annual value of over $1,000,000 and 3½ million pounds of clams are dug which have a value of over $110,000.

Agriculture developed after the bottom lands of the Chehalis River and its tributaries were logged and now accounts for between 5% and 10% of the income of the county. Until recently farm produce has been grown for the local markets afforded by the large number of lumber industry workers and was chiefly a diversified dairy industry. Cranberry production has now become of considerable importance in the marshland. Over 700 acres of peas with a value of $131,000 were grown in the vicinity of Elma in 1937. Recent surveys by the Farm Security Administration indicate that the present improved area of 34,000 acres may be almost trebled in the course of a century if expansion proceeds at the past rate.

Grays Harbor is an important world port in the lumber trade. Production was over a billion board feet annually from 1924 to 1929 inclusive. Production declined to a low of approximately one quarter billion board feet in 1932 and has now been stabilized in the vicinity of one-half billion feet annually.

The lumber and shingle industries are primarily dependent on Douglas fir and western red cedar. As the available supply of these species has dwindled a number of sawmills have been abandoned.

The serious decline in sawmills in the last 10 years has been partly compensated for by the growth of the veneer and plywood industries which use about twice as much employment per unit of raw material. As the local supply of high grade logs suitable for veneer blocks is being rapidly depleted a portion of the raw material is drawn from other parts of the northwest.

A large pulp and paper plant was established at Grays Harbor in 1924. This mill has given material assistance in providing employment opportunities to replace those lost through the reduction of lumber output. The remaining timber resources

*All population estimates as of 1930.

tributary to Grays Harbor are sufficient to provide raw material for several more pulp plants. The more or less complete replacement of lumbering enterprises by the more refined pulp and paper industry, which is more suitable to the remaining supply of timber and which provides more employment per unit of raw material consumed, is the problem which the Grays Harbor cities must successfully solve to maintain their present size and prosperity.

From 1884 to 1935 Grays Harbor County cut over 35 billion board feet of timber. The stabilization of economic and social conditions in this county depends primarily on the harvesting and growing of timber crops and the wise management of the forest lands.

36,965 persons, or 62% of the total population, are directly and indirectly dependent on the forest industries.
24,911 persons are dependent on logging and breakdown of logs into lumber and for pulp.
3,848 persons are dependent on pulp and paper plants.
8,206 persons are dependent on shingle mills and other wood-working plants.

MASON COUNTY
(Population 10,060)

Mason County lies at the southeastern base of the Olympic Peninsula bordering the southern extremities of Puget Sound. It is one of the oldest lumbering districts of the northwest, pioneering operations there dating back to the '70's and '80's. Heavy production of lumber in this and adjoining counties resulted in building up such towns as Shelton, the present industrial center, with a population of about 4,000 people and Olympia, the State Capitol, located in Thurston County.

In timber operations of the past, large quantities of high grade logs have been exported outside the county with a smaller portion going to local mills.

The principal mill industry, located at Shelton, includes two large sawmills of about 200,000,000 board feet annual capacity, a modern bleached sulphite mill of about 300 tons daily capacity and other small wood-using plants. The pulp plant is worthy of special mention in that it produces exclusively rayon pulp being the first plant to produce this high value

product in large quantities from western hemlock. It is also noteworthy that the pulp company maintains an elaborate research laboratory.

One outstanding industrial feature of the county is the 54,000 K.W. municipal hydro-electric power plant, owned by and supplying power and light to the City of Tacoma, which is noted for low power rates.

Agricultural activities are restricted with less than 2,000 people living on farms. The south Puget Sound district, which includes Thurston County, produces over 100,000 gallons of fresh oysters and 6,000 cases of canned oysters annually with a value of $290,000 on 6,000 acres of oyster beds.

The forest industries, centered at Shelton, are the principal social support of the county.

6,061 persons, or 57% of the total population, are directly and indirectly dependent on the forest industries.
3,764 persons are dependent on logging and breakdown of logs into lumber and for pulp.
2,072 persons are dependent on the pulp plants.
225 persons are dependent on minor wood-using industries.

JEFFERSON COUNTY
(Population 8,346)

Jefferson County extends across the middle of the Olympic Peninsula in an east and west direction from the Pacific Ocean to Puget Sound. Industrial development has been confined entirely to that portion of the county tributary to Puget Sound.

Logging was the principal activity of eastern Jefferson County prior to 1929. It is now of less importance as the economically accessible timber has been largely cut.

Western Jefferson County is a wilderness. Because there is no possible harbor development, the huge timber resources of this area of over 20 billion board feet will be either transported south to Grays Harbor or north for towage to mills along Puget Sound. Both places need this timber for maintenance of their present industries, and probably neither will secure all of it.

Port Townsend in the northeast corner of the county was the original port of entry for Puget Sound, but its importance has decreased with the rise of Seattle and other cities on the east side of Puget Sound. Its present population of 3,979 is largely supported by the Kraft pulp and paper mill, of 250 tons daily capacity, which is the most important industry in the county.

Agriculture is limited to small areas close to Puget Sound on river bottom lands. Eleven per cent of the gainfully employed workers are engaged in agricultural pursuits. Possibilities of expansion of cultivated areas are negligible. Fishing is a minor industry, in which less than 5% of the workers in the county find employment. Port Townsend has a fruit and vegetable cannery which packs about 75,000 cases each summer.

Economically and socially, Jefferson County is primarily dependent upon forest industries and upon the timberlands within the county.

6,091 persons, or 73% of the total population, are directly and indirectly dependent on the forest industries.
2,758 persons are dependent on logging and breakdown of logs into lumber and for pulp.
3,226 persons are dependent on pulp and paper plants.
107 persons are dependent on minor wood-using industries.

CLALLAM COUNTY
(Population 20,449)

Clallam County forms the northern part of the Olympic Peninsula, extending from Port Discovery on the east, to Cape Flattery, the most westerly point of the state. Reports indicate that early explorers attempted small commercial timbering operations late in the 18th century, but active lumbering did not begin until after 1900. Since then, production has been heavy, the greater portion of the once fine Douglas fir and western red cedar timber having been removed.

Concentrated in the western part of the county, there still is an extensive body of commercial timber, consisting principally of western hemlock and other high grade pulp species. Because of close proximity to salt water, there has been a heavy movement of timber to mills across Puget Sound.

Port Angeles, the principal town and seaport, with about half the total residential population of the county, is the ocean outlet of the famous "Spruce Railway", built 45 miles into the western part of the county for airplane spruce during the World War. A detached rail line of the Milwaukee Railroad connects the town with Port Townsend.

Although there are numerous outlying small sawmills of relatively small capacity, the major manufacturing activity and principal payroll industry is centered in Port Angeles. This consists principally of pulp and paper plants producing daily about 330 tons of mechanical pulp, over 350 tons of sulphite pulp, 340 tons of newsprint, and about 100 tons of fibre board. Some of the sulphite product goes into rayon and plastics. The one large idle sawmill of 100,000,000 board feet yearly capacity is being prepared for operation. Power is supplied principally by a 24,000 K.W. hydro-electric plant on the Elwha River. Although the above industry secures considerable quantities of raw material within the county, the free and cheap movement of logs on Puget Sound makes it possible to buy from distant points, while locally produced logs move to outside mills to meet the particular market demand. The local mills will, however, depend very heavily on the forest areas of Clallam County and the adjoining county, Jefferson, for future timber supplies.

Agricultural development is concentrated in the eastern part of the county, principally in the partially irrigated section of suitable soils around Sequim. Over 2,000 acres of peas were raised in this section in 1937 with a value of $350,000. A portion of the output was canned at the Port Townsend cannery. About 2,900 persons are reported to be living on farms.

The fishing industry is relatively small but of some significance to Port Angeles and smaller settlements along the Strait of Juan De Fuca.

The forest industries of this county support directly and indirectly almost 20,000 persons. As a large production of logs is transported across Puget Sound, some of the dependents live in Seattle and other cities.

THE FOUR OLYMPIC PENINSULA COUNTIES

All major commercial developments in the Olympic Peninsula have resulted from the conversion of forest products. Towns have grown from villages to substantial cities as forest industries were established. As forests were removed, limited agriculture development followed on the better river bottom soils. The major industries and most of the communities have always been and will continue to be primarily dependent on the growing and harvesting of forest crops. Products from the forests have been shipped to all parts of the United States and to many foreign countries. Social and economic conditions change as forest production varies on the Olympic Peninsula.

Industrial Dependency

Of the total population of almost 99,000:

70% are directly or indirectly supported by forest industries.
12% by agriculture.
18% by fishing and other minor industries.

In addition, several thousand people are directly supported on the east side of Puget Sound in forest industries obtaining logs from these counties.

Forest Industries

Within the four counties are:

49 sawmills
43 shingle mills
18 other woodworking plants

In 1935 those wood-using plants used 1,060 million board feet of timber.
In 1925 to 1929 they used annually, 1,682 million board feet of timber.
For the same 5-year period, 978 million board feet of logs per year were transported to the east side of Puget Sound from these counties.

The six pulp mills in the four counties produce 1,547 tons of pulp and 725 tons of paper products per day. The balance of the pulp is exported. These pulp mills require about 440 million board feet of forest products per year to operate at capacity. The pulp mills in the State of Washington now supply 40% of all the pulp used by the rayon industry in the United States.

Timber Resources

Of the original timber stand of about 145 billion board feet the remaining merchantable timber available (as of 1933) for conversion in the four counties by major ownership classes in million board feet is as follows:

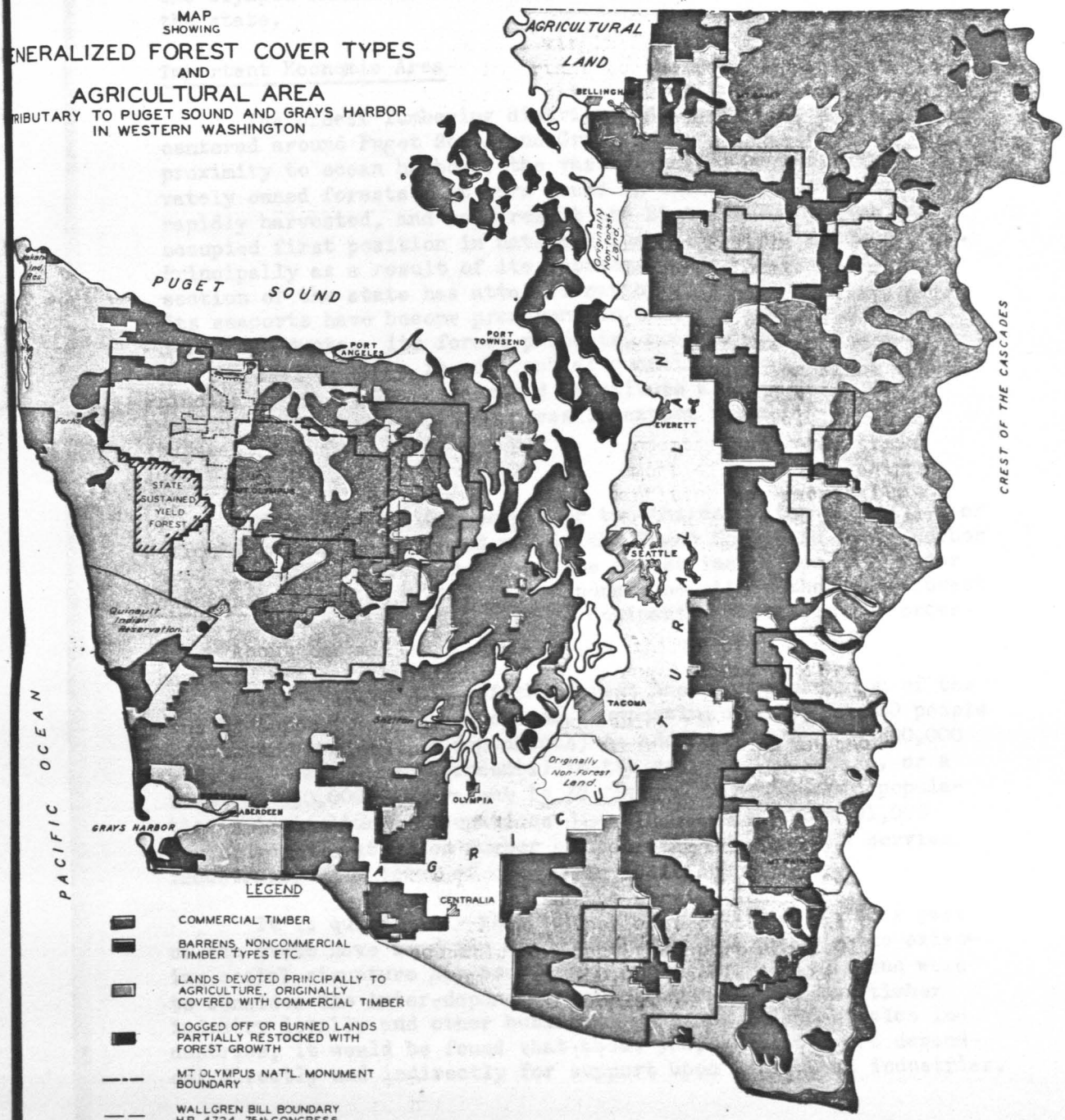
Ownership	Volume Million Bd.Ft.	Percent
Private	28,683	40
Indian Service	4,025	6
State of Washington	9,173	13
National Forest	29,575	41
	71,456	100

If all the timberlands were properly managed for continuous sustained yield production, the annual cut would be about 1,040 million board feet per year. This will supply almost 60% of the 1925-1929 lumber production, without considering the movement of logs to the forest industries on the east side of Puget Sound or pulp mill requirements.

From one-quarter to almost one billion board feet of logs per year have been moved from these four counties to Bellingham, Everett, Seattle, Tacoma and other points on the east side of Puget Sound for manufacture into lumber or pulp. The private accessible timber supply available to the east side of Puget Sound is nearing exhaustion. The forest industries in this area must then continue to look towards Olympic Peninsula timberlands for a supply of raw materials. Even this source will be inadequate to carry the industry at full capacity until new forest growth on cut-over lands and burns reaches merchantable size.

The State, the National Forest, and the private timber will all be needed to maintain the major industry in the Olympic Peninsula and to augment the supply of products needed for the forest industries on the east side of Puget Sound. If the timberlands are properly managed, the total sustained yield cut is made and the raw forest products are fully converted into commercial goods, it is estimated that about the same number of people supported by the forest industry at present can be permanently supported on a year-long basis.

MAP
SHOWING
ENERALIZED FOREST COVER TYPES
AND
AGRICULTURAL AREA
RIBUTARY TO PUGET SOUND AND GRAYS HARBOR
IN WESTERN WASHINGTON



AN IMPORTANT FORESTRY PROBLEM IN NORTHWESTERN WASHINGTON

The remaining commercial virgin forests tributary to Puget Sound and Grays Harbor are important to the future social and industrial life of northwestern Washington. The forest resources on the Olympic Peninsula are of major importance to that portion of the state.

Important Economic Area

The oldest lumbering districts in the Pacific Northwest are centered around Puget Sound and Grays Harbor. Located in close proximity to ocean harbors, the vast stands of high-quality, privately owned forests that were found in these districts were rapidly harvested, and as a result the State of Washington has occupied first position in national lumber production since 1905. Principally as a result of its enormous lumber production, this section of the state has attained national industrial importance. Its seaports have become prominent in domestic and world trade in forest products. Its forest products, most of which are shipped out of the state, go in substantial quantities to practically all of the states of the Nation and constitute a large part of the Nation's forest products business in export trade.

Dependency

About one million people or two-thirds of the population of the state are concentrated within the Puget Sound and Grays Harbor area. Their welfare depends on the forest industries as a major means of support. Of the basic industries within the area, forest products and agriculture occupy a dominant position in the order named.

Approximately 80% of the forest industry production of the state originates within the area, supporting nearly 150,000 people (directly employed and dependents) in addition to nearly 230,000 people (workers and dependents) in the service industries, or a total of 330,000, equivalent to 38 per cent of the total population. Agricultural occupations directly support about 91,000 people and an estimated number of 140,000 people in the service industries, or a total of 231,000 people.

It is quite clear that the forest industries in this part of the state have been the major foundation upon which the existing social structure has been built up. Undoubtedly if one were to consider the inter-dependence of agriculture and the timber industry locally and other businesses outside of the service industries, it would be found that about 500,000 people are dependent directly and indirectly for support upon the forest industries.

The huge investment of 250 million dollars in forest industry manufacturing facilities, 280 million dollars' worth of forest products annually, and 85 million dollars in annual pay rolls from these industries under normal times from the northwest Washington area, are certainly economic facts of national significance.

Critical Forestry Problem

The saw-timber situation within the area is now reaching a critical stage. The major portion of the privately owned supply of Douglas fir and cedar (the important saw timber) will be cut in one to two decades if production goes on at the average rate. Heavy lumbering operations and early clearings for settlements have materially reduced the private stands (the pick of the forests) of large old-growth Douglas fir, cedar and spruce. Heavy abandonment of sawmills has already taken place on Grays Harbor, as well as in several Puget Sound points.

A further inevitable heavy decline in lumber production because of rapidly shrinking supplies of high grade Douglas fir in this area is of great significance to the social fabric of this part of the state because there are no apparent means for developing adequate substitute industries not dependent on timber.

The solution of this problem necessitates the allocation of the largest possible portion of the commercial forest types in public ownership to industrial use under sustained yield management, and a transformation of the old form of lumber industry into one of higher forms of products.

The local pulp and paper industry, already of extensive proportions, promises to go a long way toward replacing the large social support built up by the lumber industry. Particularly will this be true when the pulp industry is closely integrated with the manufacture of plywood and refined lumber products, and more intensive forestry practices are adopted. Although it is impossible that the pulp industry can suddenly expand to completely replace the downward trend in large scale lumbering, the superb qualities of western hemlock for the higher grades of pulp are indicative of the great potentialities for this special industry in western Washington. There seems to be little reason to doubt that local western hemlock pulp particularly can successfully compete with all sources of foreign production.

In order that the pulp timber stands as well as the remaining saw timber may contribute most toward the social support of the area, it is essential that the pulp industry development go forward supported by a stable and coordinated plan of sustained yield forest management. In such a program National Forest and State timber can be an important factor of influence. The greater the volume of public timber available for use, the greater will be the results of forestry effort.