PART III

PHYSICAL DESCRIPTION

Physical Regions of Washington

On the basis of surface features, Washington may be divided into eight major regions. Agricultural settlement is influenced by factors of topography, climate, soil, forest vegetation and water resources distinctive to each of the physiographic regions. Each has become a different type of farming area as settlers have learned to adapt crops and livestock to the conditions, or have improved limitations through drainage or irrigation.

Coastal Plains

A narrow, sandy plain with shallow bays, tidal flats, stream deltas and low headlands lies between the coastline and the Coast Range. It extends from the Columbia River mouth almost to Cape Flattery, being widest and lowest in the Grays Harbor and Willapa Bay districts. The climate is mild and damp with a long growing season, but it is too cool, cloudy and wet for most crops. Originally, this area was covered with heavy forests but much of it is now covered with woodlands. Lumbering and manufacture of wood products is the main industry. Farming is largely livestock and dairying using the low uplands and drained areas in the lower Chehalis River Valley. Cranberry growing is important and well-adapted to numerous, boggy areas in the Grays Harbor and Willapa Bay regions. The shallow bays are also used for oyster culture. Fishing is common in the rivers and coastal banks.

Coast Range

The Coast Range is an uplifted area of sedimentary and metamorphic rocks divided into the Olympic Mountains and the Willapa Hills. The Olympics tower to nearly 8,000 feet in a dome-like structure, carved deeply by rivers. These mountains have the heaviest precipitation in the state. Snowfields and heavy forest cover the mountains. Most of the wilderness area is within the Olympic National Forest and Olympic National Park, being managed for recreation, wild-life and timber. Farm settlement is limited to some foothill river plains and coastal terraces such as the Dungeness and Port Angeles districts along the Strait of Juan de Fuca. Here in the lee of the mountains, rainfall is moderate and irrigation is practiced by some livestock farmers. The Willapa Hill country is wet, heavily forested and carved into numerous narrow valleys. Logging is the main industry, combined with livestock farming in the upper Chehalis River Valley and along the banks of the Columbia River. Wet climate, hilly topography and the difficulty of clearing stump land retards agriculture.

Willamette-Puget Sound Lowland

A broad lowland, described as a trough or valley, lies between the Coast Range and the Cascade Mountains. The northern part is the Puget Sound Lowland which has been glaciated and is occupied by the sea in the lowest sections. The continental glacier reached slightly south of Olympia. Under a warming climate it melted and geologists believe it receded about 25,000 years ago, leaving an infertile plain of moraines and outwash gravels, sands and clays known today as the Puget Glacial Drift Plain. Its rolling surface has numerous lakes and bogs.

Most of the major cities--Seattle, Tacoma, Everett, Bellingham and Olympia--have been built on moraines bordering the Sound. Rivers such as the Nooksack, Skagit, Snoqualmie, White and Puyallup have built up deltas and floodplains over the older gravelly plains. These narrow valleys are more fertile than the older glacial plains and support numerous small dairy, vegetable and berry farms. Most of the gravelly areas are wooded with a second-growth forest and are used for pastures. In the southern part of the Willamette-Puget Sound Lowland there are two large valleys--the Cowlitz and Chehalis. They drain a low, hilly area with several flat prairies and bottomlands.

Agriculture is handicapped by poor drainage and flooding of the river deltas and plains, by heavy, winter rainfall, by cloudy but dry summers, by coarse, gravelly upland soils and by densely wooded land which is costly to clear. Advantages are mild climate and a location close to major markets for farm products such as milk, poultry and vegetables.

Cascade Mountains

The Cascades are a wide and high topographic and climatic barrier which separates western and eastern Washington. The range is made up of sedimentary, igneous and metamorphic rocks which have been carved by glaciers and streams. High, isolated volcanic cones of lava such as Mt. Adams (12,307 feet), Mt. Rainier (14,408 feet) and Mt. Baker (10,791 feet), appear upon the older Cascade rocks. The Cascade crest varies between 10,000 and 3,000 feet and is higher and more rugged in northern Washington. Roads and railroads have been built across its lower passes in central and southern Washington. The Columbia River has cut a deep gorge and the lowest pass through the barrier. The western slope is wet and heavily forested with Douglas fir; the eastern slope is drier with a less-dense pine forest. Nearly all classified as forest land, most of the area is in Federal ownership in five national forests and Mount Rainier National Park. Tree fruit farming in the eastern slope valleys of Wenatchee, Chelan, Methow, Naches and the Columbia Gorge is most important. Sheep and cattle summer grazing on alpine grasslands is another use. Deep, western slope valley bottoms such as the Skagit, Snoqualmie, Nisqually, Cowlitz and Lewis also contain livestock farms. The area is vitally important as a watershed for irrigation and city drinking water and as a source of timber. Steep terrain, wet climate, short growing seasons and heavy forest vegetation are main handicaps for agriculture.

Columbia Basin

A low plateau of old lava rocks covered with stream and wind-deposited soils extends in a series of plains, ridges, coulees and hills from the Cascades to the eastern Washington border. The area is basin-like in structure, being higher around its margins and sloping inward to low and level central plains. It has been sharply eroded by the Columbia River and its interior tributaries--the Snake, Yakima, Palouse and Spokane Rivers. The basin has several sub-areas created by crustal movements and erosion.

A. The Yakima Folds are a series of hilly ridges extending from the Cascades eastward into the lower part of the basin. The Yakima and Columbia Rivers have cut gaps through the ridges and have built up plains in the troughs between them. The rich, alluvial plain of the Yakima River is an important irrigated valley.

B. The Waterville Plateau is a tableland of thin soils overlaying basaltic rock at an elevation of 2,500 to 3,000 feet. It has gorges cut by the Columbia River and ancient glacial outwash streams once flowing in Moses and Grand Coulees. It is too high for irrigation and is used for dryland grain and livestock farming.

C. The Channelled Scablands is a belt of dry terrain carved by ice-age rivers into a series of coulees. Bare rock is exposed in the coulees. Small plateaus between the old river channels have thin soils used for dryland farming. The Grand Coulee of this region has been developed into a major irrigation reservoir.

D. The Palouse Hills consist of fertile deposits of wind-blown soil overlaying basaltic lava flows. After being deposited in large dunes, the formation was reshaped by streams into an intricate pattern of low, rounded hills. The hills receive 16 to 25 inches of rainfall annually and have deep, porous and fertile soils. It is one of the richest farming areas of the Pacific Northwest.

E. The Central Plains are low and relatively level expanses of soil, deposited by old streams crossing the Channelled Scablands and later by the flooding of the Yakima, Columbia, Snake and Walla Walla Rivers. Climate is desert-like (6-12 inches of precipitation per year). The lower lands of the area, the Quincy and Pasco Basins and the Walla Walla Valley, are irrigated. The Quincy Basin is a new irrigation area watered by Grand Coulee Dam.

Agricultural handicaps in Columbia Basin regions are mainly found in its dry, continental climate. Large irrigation systems built since 1900 have overcome much of the need for water on rich valley and basin soils. Dryland farming in higher areas is practiced widely, although occasional variations in rainfall, lack of snowfall, winterkill, water and wind erosion inflict damage to field crops and to livestock ranges.

Okanogan Highlands

A portion of the Rocky Mountains, consisting of well-eroded, old granites, lavas and sedimentary rocks extends across north-central Washington. These are the Okanogan Highlands, the state's richest mineral area. Summit levels reach 4,000 to 5,000 feet with peaks exceeding 7,000 feet. Prominent north-sputh valleys are occupied by irrigated tree fruit and livestock farms. These are the Okanogan, Sanpoil, Kettle and Colville Valleys. The Columbia River Gorge through the Okanogan Highlands is occupied by the large man-made lake behind Grand Coulee Dam--Roosevelt Lake. Higher and wetter portions are forested with pine and larch, and are managed for timber and for livestock ranges by the United States Forest Service and the Bureau of Indian Affairs. Cold winter temperatures, short growing seasons, dry valley climates and remoteness from markets are farming handicaps.

Selkirk Mountains

The Selkirks, a range of the Rocky Mountain system, extend into the northeast corner of Washington. The rocks are old, mineralized granites and metamorphics reaching elevations of over 7,000 feet. The Pend Oreille River Valley at the base of the Selkirks is an agricultural area of narrow bottomlands settled by livestock

farmers. Nearly all of the uplands are in Kaniksu National Forest. While climate is cool and growing seasons are short, the Pend Oreille Valley has an advantage of being relatively in close proximity to the Spokane metropolitan market area.

Blue Mountains

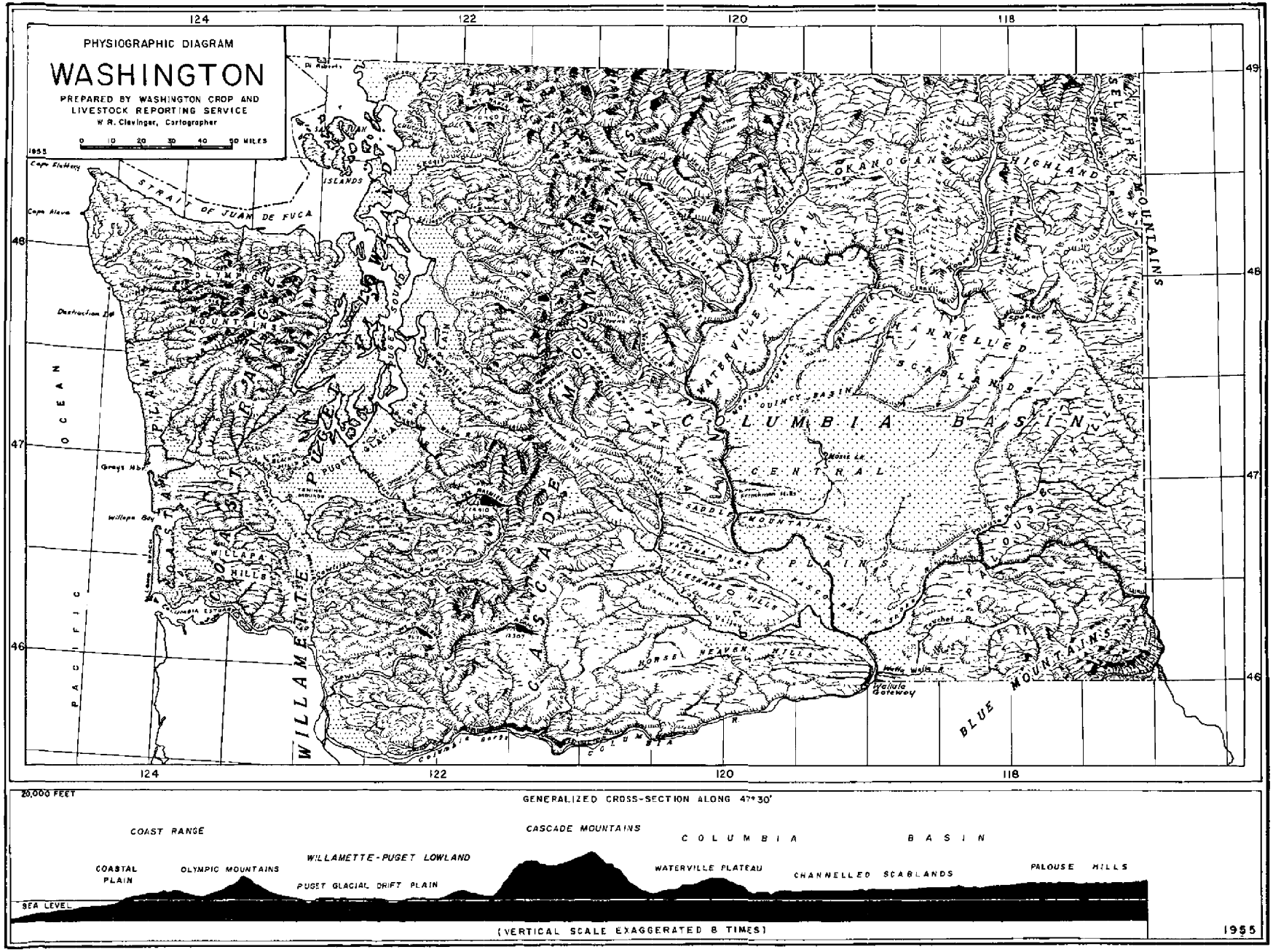
The Blue Mountains are an uplifted and eroded plateau extending into the southeastern corner of Washington. The strata are mainly ancient crystalline rocks which contain some minerals. The highest point of the mountains in the Washington section is Diamond Peak (6,401 feet) located on the divide between the Grande Ronde, Tucannon and Touchet Rivers. These rivers, and the Walla Walla River, have cut valleys into the plateau. Extensive pine forest and grassland areas are in the highlands within Umatilla National Forest, where rainfall is 30 to 40 inches. The Snake River has cut a deep valley and gorge across the lower parts of the mountains. The area is well developed agriculturally around its northern foothills where wind-blown soils are deep and irrigation systems are used. The Walla Walla and Tucannon Valleys are rich grain, legume and livestock areas of irrigation and dry farming. Grazing is an important use of the highlands by livestock ranchers in the upper valleys.

Topography of Stevens County

Stevens County is situated entirely within the Okanogan Highland physiographic region--a portion of the Rocky Mountains which extends across northeastern Washington. The county's topography is varied, resulting from a long period of mountain building, glacial carving and the erosive work of the Columbia River and its local tributaries. It is mainly an area of mountains and forested uplands with numerous river valleys. Major features are the deeply cut trench of the Columbia River, now containing a large reservoir behind Grand Coulee Dam, the lowlands of the Colville River, the narrow valley of the Kettle River, the glaciated trench of Deep Creek, the valley and tributaries of the Spokane River and the mountainous ridges of the Okanogan Highlands.

Relative relief in the county varies from about 1,250 feet at Franklin D. Roosevelt Lake to the maximum elevation of 7,306 feet at Abercrombie Mountain, the highest point of the Pend Oreille Range divide near the Pend Oreille County line. The rugged Pend Oreille ridge is a system of ancient igneous rocks which are mineralized with copper, silver and other non-ferrous ores. The Huckleberry Mountains located on the west flank of the Colville Valley are formations of sedimentary and igneous rocks which bear the largest known magnesite deposits in the United States. High ridges in the northern part of the county surrounding Northport are composed of sedimentary, metamorphic and igneous rocks in complex formations which are mined and quarried for copper, silver, lead and marble. A deeply carved, glaciated trench--Deep Creek Valley--gives good access to the rugged terrain in the northeastern corner of Stevens County. The Kettle River Valley to the west which drains southward through the lower Okanogan Hills is another glaciated trench with numerous benchlands giving access to the north.

The topography of Stevens County restricts the growing of crops mainly to alluvial bottomlands, benches and gentle foothills along the major rivers. In some areas, however, high table lands are utilized for raising crops. Upland flats in the southern part of the county around Springdale and Loon Lake are 2,000 to 2,500 feet in elevation, forming the divide between the Colville and Spokane Rivers. In this area are found some of the highest lands farmed in


PHYSIOGRAPHIC DIAGRAM
WASHINGTON
PREPARED BY WASHINGTON CROP AND LIVESTOCK REPORTING SERVICE
W. R. Clevinger, Cartographer
0 10 20 30 40 50 MILES
1955
124
122
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118
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48
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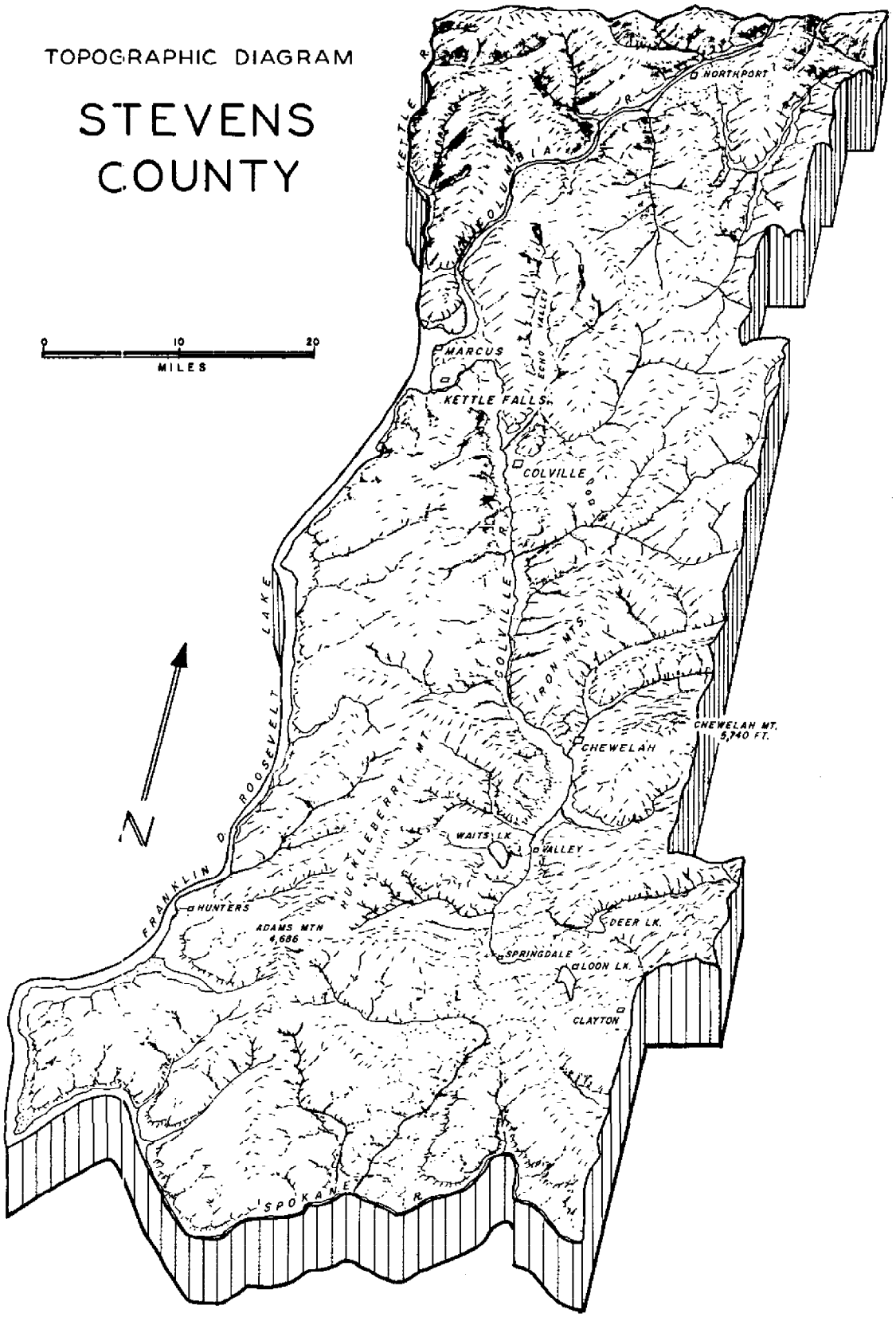
PACIFIC OCEAN
STRAIT OF JUAN DE FUCA
SAN JUAN ISLANDS
OLYMPIC MOUNTAINS
COAST RANGE
PUGET SOUND
WILLAMETTE VALLEY
CASCADE MOUNTAINS
OKANOGAN HIGHLAND
SELKIRK MOUNTAINS
WATERVILLE PLATEAU
COLUMBIA BASIN
CHANNELLED SCABLANDS
CENTRAL PLATEAU
SADDLE MOUNTAINS
PALOUSE HILLS
HORSE HEAVEN HILLS
BLUE MOUNTAINS
Wallula Gateway
Cape Flattery
Cape Alava
Destruction Is.
Grays Hbr.
Willapa Bay
Columbia R.
GENERALIZED CROSS-SECTION ALONG 47°30'
20,000 FEET
COAST RANGE
CASCADE MOUNTAINS
COLUMBIA BASIN
COASTAL PLAIN
OLYMPIC MOUNTAINS
WILLAMETTE-PUGET LOWLAND
PUGET GLACIAL DRIFT PLAIN
WATERVILLE PLATEAU
CHANNELLED SCABLANDS
PALOUSE HILLS
SEA LEVEL
(VERTICAL SCALE EXAGGERATED 8 TIMES)
1955

TOPOGRAPHIC DIAGRAM

STEVENS COUNTY



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W. R. CLEVINGER

the state. The most important agricultural areas in the county are located in the bottom and benchland flats of the Colville Valley. The level Colville alluvial plain reaches its widest breadth at Chewelah where it is about three miles across. It is speculated that the Colville Valley once carried Columbia River drainage southward during the Ice Age and at one time it was also a lake bed when ice blocked drainage of the Colville River flowing north. More recent glacial and stream erosion deposited a wide band of alluvial soils which supports the Colville Valley farming today.

Climate

The climate of any region not only affects the pattern of flora that are native to the area but is a major determinant of what man shall grow there. Variations in weather may either stimulate or destroy crops in the process of development. For these obvious reasons, the relationship of climate and weather to agriculture is very close.

The climate of Stevens County is a highland, continental type with local variations in temperatures and precipitation related to differences in elevation and exposure. Generally speaking, the climate is characterized by warm days, cool nights, dry air, light precipitation and mostly sunny skies during the summer and rather cold, but less severe winters than are experienced at similar latitudes east of the Rocky Mountains. The Rocky Mountains protect this area of the state from the more severe storms moving out of the Arctic region during the winter. The Cascade Mountains to the west also act as a climatic barrier across the state. The westerly flow of warm and moist air from the Pacific Ocean is obstructed by the Cascade range which rises to elevations of 5,000 to 7,000 feet with peaks in excess of 10,000 feet. The mountain ranges are not, however, complete barriers to the moving ocean of air. Some of the cold, arctic air manages to reach this area by spilling over the Rocky Mountains or by finding its way through north-south oriented valleys. Also, some moist air moving eastward flows over the Cascade divide bringing a moderating influence on the local climate and results in considerable cloudiness during the winter.

Temperature records from stations located in the valleys show that the area's average afternoon temperature in the summer is in the middle 80's and the nighttime temperature is in the upper 40's. Afternoon temperatures exceed 90 degrees on about one-half of the days in July, one-third of the days in August and 100 degrees is usually recorded on a few days each summer. The average afternoon temperature in the winter ranges from 30 to 35 degrees and the nighttime temperature from 16 to 25 degrees. Minimum temperatures of zero or lower are usually recorded on 8 to 10 days each winter. During some of the colder winters, minimum temperatures were below zero from 18 to 32 days. Extreme temperatures of 38 degrees below zero have been recorded at Chewelah.

The growing season in Stevens County is shorter than most parts of Washington. The season generally extends from the last week of May to mid-September, a period of about 110 days. These conditions stem from the area's relatively high elevations and exposure to colder air masses. Risk of frost and winter kill discourages the planting of vegetables and fruit crops. Most successful in the county are the hardier grains, grasses, alfalfa and root crops.

Table 4. Temperature Data
Average Maximum, Average Minimum, Mean, Highest and Lowest Temperature Each Month
Stevens County, 1931-1960

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
Chewelah (1,635' elev.)	Av. Max.	31.7	38.8	49.4	61.7	71.3	76.9	87.3	86.3	76.9	61.7	42.6	34.9	59.9
	Av. Min.	15.0	18.3	27.1	32.6	39.2	44.7	45.9	42.4	37.6	31.7	26.6	21.9	31.9
	Mean	23.3	28.5	38.2	47.2	55.2	60.7	66.6	64.4	57.3	46.7	34.6	28.4	45.9
	Highest	55	61	74	89	96	98	107	103	101	88	69	58	107
	Lowest	-38	-38	-12	12	16	26	32	28	16	2	-15	-27	-38
Colville (1,874' elev.)	Av. Max.	30.1	37.8	49.6	63.3	71.7	76.8	86.5	84.5	74.5	59.1	40.9	33.6	59.0
	Av. Min.	16.9	20.1	27.3	33.8	40.9	46.5	49.4	47.2	41.8	34.5	27.2	22.5	34.0
	Mean	23.5	29.0	38.5	48.6	56.3	61.7	68.0	65.9	58.2	46.8	34.1	28.1	46.5
	Highest	54	59	75	89	96	98	106	102	99	86	60	56	106
	Lowest	-29	-29	-3	12	26	30	36	33	24	4	-9	-13	-29
Northport (1,347' elev.)	Av. Max.	31.6	32.8	50.4	64.6	73.9	79.4	89.2	87.3	76.8	60.9	42.1	34.7	60.7
	Av. Min.	18.6	20.8	27.6	34.2	42.1	47.8	51.2	48.5	43.0	36.5	29.1	24.1	35.4
	Mean	25.1	25.9	39.0	49.4	58.0	63.6	70.2	67.9	59.9	48.7	35.6	29.4	48.0
	Highest	52	63	75	92	102	103	110	105	105	87	61	55	110
	Lowest	-27	-27	-11	12	22	31	34	36	21	8	-3	-11	-27

Source: U. S. Weather Bureau, Climatological Office.

Table 5. Probability of Freezing Temperatures -- Stevens County 1/

STATION	TEMP. (° F.)	PROBABILITY — SPRING					PROBABILITY — FALL					Growing Season Mean Length (Days)
		90%	75%	50%	25%	10%	10%	25%	50%	75%	90%	
Chewelah	32	May 9	May 21	Jun 4	Jun 18	Jun 30	Aug 2	Aug 12	Aug 25	Sep 6	Sep 17	82
	28	Apr 11	Apr 23	May 7	May 21	Jun 1	Aug 28	Sep 7	Sep 20	Oct 2	Oct 13	136
	24	Mar 14	Mar 26	Apr 9	Apr 22	May 5	Sep 7	Sep 18	Oct 1	Oct 12	Oct 23	175
	20	Feb 26	Mar 10	Mar 24	Apr 7	Apr 18	Oct 4	Oct 15	Oct 27	Nov 8	Nov 19	217
	16	Feb 5	Feb 18	Mar 3	Mar 17	Mar 28	Oct 19	Oct 30	Nov 11	Nov 23	Dec 4	253
Colville	32	Apr 25	May 5	May 21	Jun 4	Jun 15	Aug 30	Sep 9	Sep 22	Oct 4	Oct 15	124
	28	Apr 3	Apr 15	Apr 29	May 12	May 24	Sep 13	Sep 24	Oct 6	Oct 18	Oct 29	160
	24	Mar 8	Mar 20	Apr 3	Apr 16	Apr 29	Sep 28	Oct 9	Oct 21	Nov 3	Nov 13	201
	20	Feb 19	Mar 2	Mar 16	Mar 29	Apr 11	Oct 17	Oct 28	Nov 9	Nov 21	Dec 2	238
	16	Feb 2	Feb 14	Feb 28	Mar 14	Mar 25	Nov 4	Nov 14	Nov 27	Dec 9	Dec 22	272
Northport	32	Apr 14	Apr 27	May 10	May 24	Jun 5	Sep 9	Sep 20	Oct 2	Oct 14	Oct 25	145
	28	Mar 16	Mar 28	Apr 11	Apr 24	May 6	Sep 27	Oct 8	Oct 20	Nov 1	Nov 12	192
	24	Mar 9	Mar 21	Apr 4	Apr 18	Apr 29	Oct 8	Oct 19	Oct 31	Nov 12	Nov 23	210
	20	Feb 19	Mar 3	Mar 17	Mar 31	Apr 12	Oct 23	Nov 3	Nov 15	Nov 28	Dec 8	243
	16	Feb 6	Feb 18	Mar 4	Mar 17	Mar 29	Nov 6	Nov 16	Nov 29	Dec 12	Dec 24	270

Source: U. S. Weather Bureau, Climatological Office.

1/ To illustrate the data in the table, we find that the 50 percent probability of a 32° spring freeze for Chewelah is June 4. But there is also a 25 percent change (1 year in 4) that a 32° freeze will occur as late as June 18, and 10 percent chance as late as June 30.

Table 6. Precipitation in Inches - Stevens County

Station	Elevation (ft.)	Period of Record	Average Annual	Greatest Annual	Least Annual	Greatest Monthly	Least Monthly	Greatest Daily
Chewelah	1,635	1931-60	18.72	26.68	12.72	6.59	0	1.56
Colville	1,874	1931-60	11.35	25.40	8.22	6.00	0	1.85
Northport	1,347	1931-60	19.47	28.19	11.58	5.76	0	1.57
Wellpinit	2,450	1931-60	20.17	27.39	14.24	6.65	0	1.57

Source: U. S. Weather Bureau, Climatological Office.

Most of the precipitation in the county falls in the winter as snow. Snow can be expected to begin accumulating in the lower valleys any time after the middle of November and at an earlier date in the higher elevations. A snow cover usually remains in the valleys until after the first of March. Snow usually reaches a depth of 12 to 18 inches each winter and depths ranging from 24 to 32 inches have been recorded in Colville. Snowfall increases with elevation. Most of the higher elevations are covered with several feet of snow and are inaccessible during the winter.

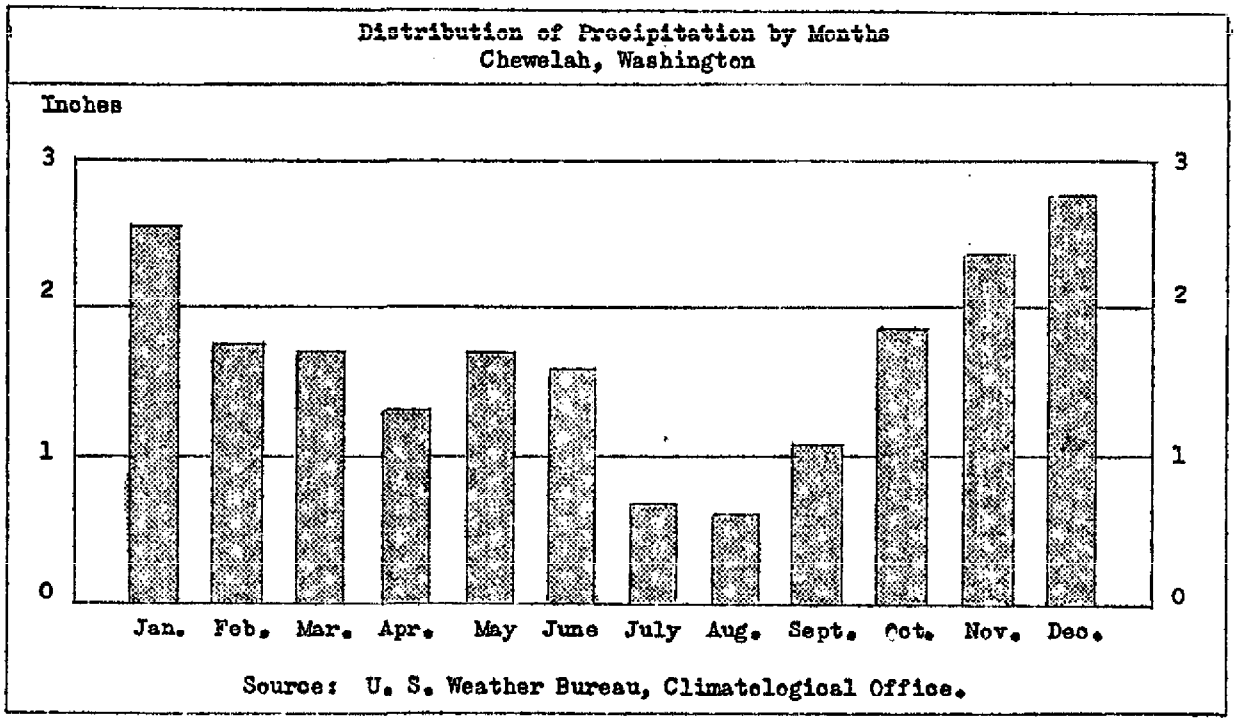

Figure 5. A graph of the precipitation at Chewelah, Washington.

Several thunderstorms and a few hail storms occur each summer. Forest fires are frequently started by lightning. Some of the more severe storms are also hazards to field crops in mid-summer.

The driest areas of Stevens County--less than 16 inches of precipitation annually--are found in southwestern and west-central parts of the county. The northwestern, central and southeastern portions of the county receive 16 to 20 inches of precipitation yearly. High ridges of the Okanogan Highlands near the eastern county border form the wettest zone with 20 inches and more. Westerly moving air masses from the Pacific Ocean are fairly dry by the time they reach

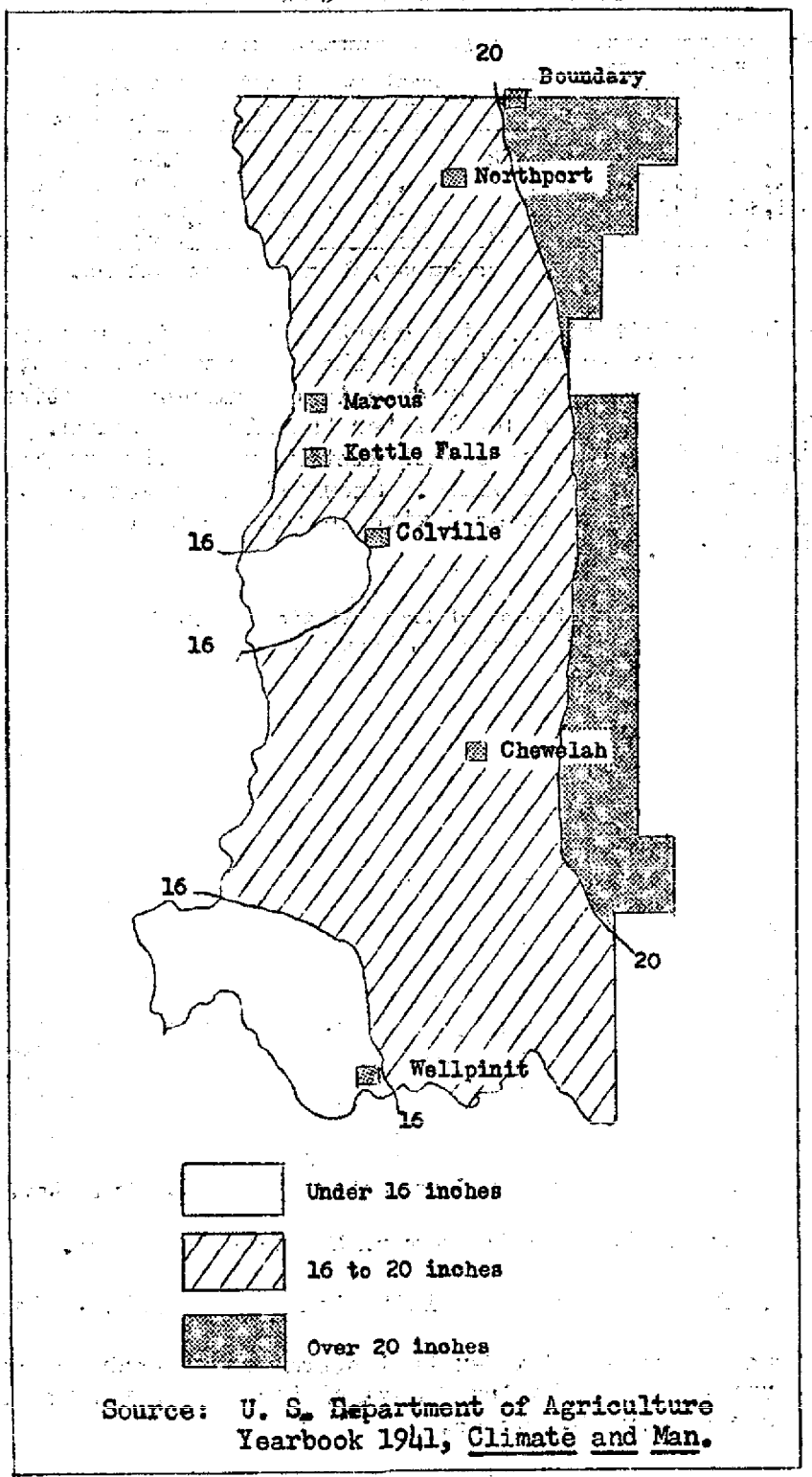

Figure 6. Distribution of Precipitation Stevens County

Stevens County but the moisture which was retained is released as they are forced over the area's higher elevations.

Forest and Wildlife

A coniferous forest of the ponderosa pine type covers nearly all the rougher and steeper uplands of Stevens County. The forest is mainly open with an under story of grass and shrubs suited for grazing. In 1960, the U. S. Forest Service estimated that over 78 percent of the county, or 1,279,000 acres, was in forest lands. About 77 percent of the county area, or 1,256,000 acres, was inventoried as growing commercial forests; another 1.4 percent, 23,000 acres, was considered noncommercial forest of sub-alpine trees and steep and rocky woodlands. 1/

Vast areas of forest in Colville National Forest, Kaniksu National Forest, the Spokane Indian Reservation and State lands include about 48 percent of Stevens County's commercial forest lands. The remaining 52 percent of the commercial forests are owned by farmers, private companies and other individuals. In 1960, there was an estimated reserve of live sawtimber containing 4,735,000,000 board feet in the county. Commercial timber is composed principally of ponderosa pine, Douglas fir and western larch.

Stevens County agriculture benefits in a number of ways from forest resources. The logging and lumber industry provides seasonal employment or part-time work for many farmers who depend on off-farm payrolls. The U. S. Forest Service also provides some seasonal work in forest protection and grazing management programs. Much of the county's livestock industry is dependent on the forest grazing lands managed by the U. S. Forest Service and State Division of Forestry. The Kaniksu National Forest and private woodlands are important watersheds for irrigation and farm water supply in the Colville Valley. Forest areas also provide recreation, hunting and fishing for farmers as well as some income from packing and provisioning services for tourists and sportsmen.

Lumbering in Stevens County is centered in Colville and Chewelah but small portable mills owned by farmers are scattered over the county. In 1961, the timber harvest from all ownerships for the county was estimated at 80,232,000 board feet from 30,073 acres. 2/ Over 60 percent of the timber harvest was taken from state and private lands. A large amount of timber and other forest products have come from the farmlands. In 1959, Stevens was the leading Washington county in the sales of farm forest products. During that year, 356 farms reported sales of forest products amounting to $2,229,992. About 66 percent or $1,474,902 of the total farm sales represented standing timber.

Washington State Department of Game statistics show a valuable harvest of animal resources from forests, streams, lakes and farmlands. In the 1962 season, 4,020 deer were killed. The deer kill has decreased in recent years from 6,150 in 1961 and 7,787 in 1955. The pheasant harvest in 1962 was 5,180 birds while ducks numbered 3,410. There are many lakes and streams listed for Stevens County as

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1/ U. S. Forest Service, Pacific Northwest Forest and Range Experiment Station, Portland, Oregon. "Forest Statistics for N. E. Washington." May, 1963.

2/ State of Washington, Department of Natural Resources.

fair to good for sports fishing. In the 1962-1963 season, 11 trappers reported the following catch of fur-bearing animals: 480 muskrat, 178 mink, 8 marten, 10 raccoon, 10 bobcat and 2 coyote. 1/

Land Classification and Soils

The soil characteristics in Stevens County vary greatly from place to place because of the manner in which older glaciers and recent streams have transplanted and deposited material in the lowlands and drainage channels. Most of the land that is farmed has alluvial soils with textures ranging from fine silts to coarse gravels. These occur in bands along the major rivers or in plains which were former lake bottoms.

Stevens County's land has been divided into seven broad classes based on soil characteristics. Class I and II lands which contain the most productive soils are relatively small in area and markedly localized in the county. The largest pocket of Class I land is found in the upper Colville Valley between Valley and Springdale. High quality soils there are the Waits silt loam formed from sandstone and shale and deposited on the benchlands of the Colville River. Also in that area are found well-drained peat and muck soil. Other areas of Class I and II soils are located on the benches of the Colville River between Chewelah and Colville. The principal alluvial soil along the stream in the area is the Colville series. The Colville fine sandy loam was formed from granite rock and deposited in deep layers. Both the Waits and Colville loams are good producers of hay, grain and other field crops. Another pocket of good land is on the Columbia River benchland in the vicinity of Hunters in southwestern Stevens County.

Class III and IV lands of fair quality support most of the livestock farms of Stevens County. These are located on the higher benchlands, in narrow, tributary valleys and table lands. Largest areas are located in the valley plains around Chewelah and Colville. They are also found around Northport, north of Marcus and south of Loon Lake. Most important soils in the Class III and IV areas are the Springdale, Helmer, Hunters, Clayton and Everett series. These soils are sandy and gravelly, having been deposited by glaciers and streams and formed under forest cover. They require irrigation for best productivity. Most of these soils are in pastures, woodland pastures and forests.

Over four-fifths of Stevens County is hilly and mountainous with elevations above 2,500 feet. Most of these lands are classified as V, VI and VII with soils which are poor for any type of field crops but are good for forests and grasslands. With the exception of the stony and rocky areas of the higher Okanogan Highland ridges, the lower, gentler slopes have a thin mantle of gravelly and sandy loams such as the Everett loams and the coarse varieties of the Springdale and Helmer loams. These lands are mainly in ponderosa pine and pine forest grasses and are utilized for summer grazing.

1/ State of Washington, Department of Game.

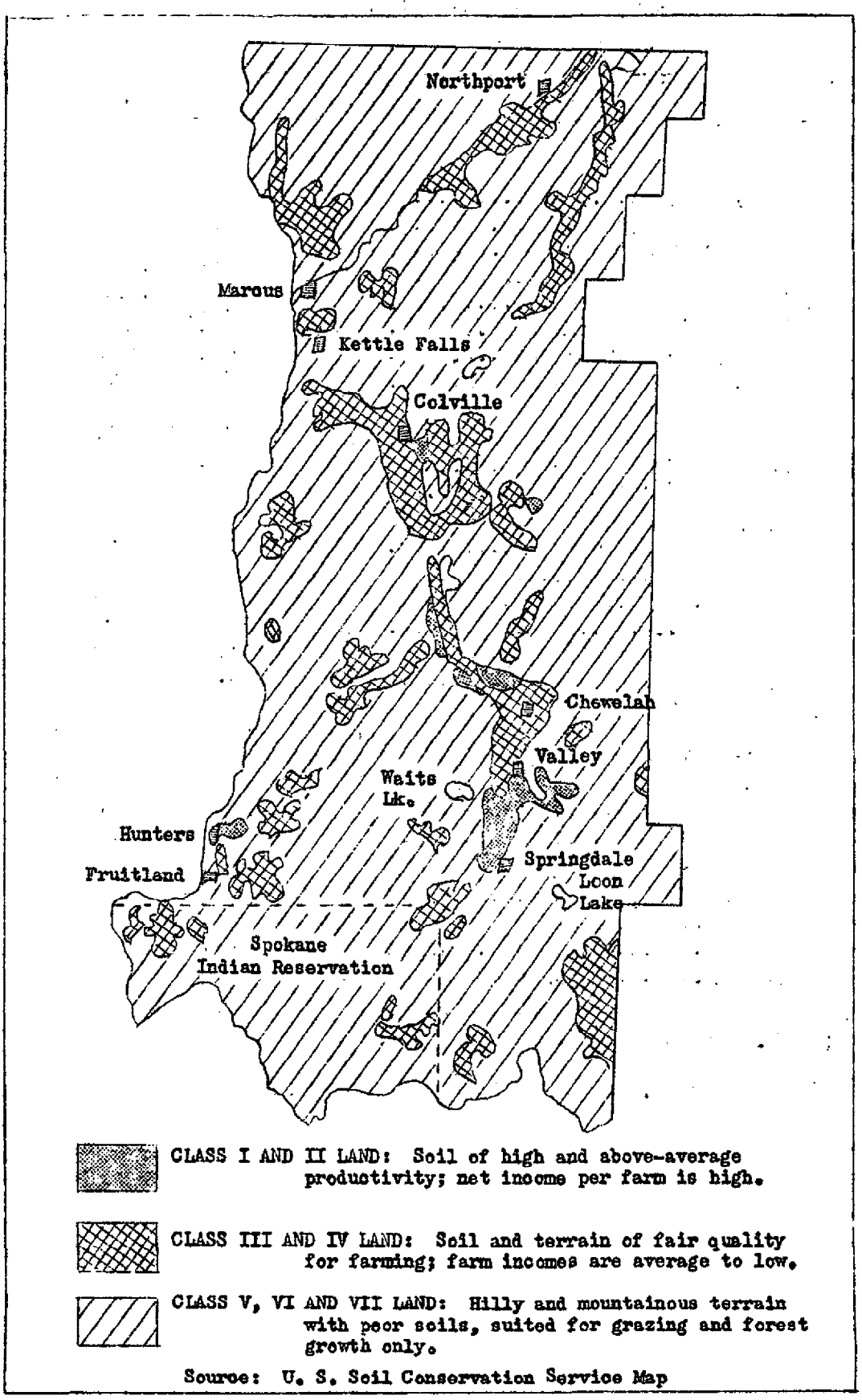

Figure 7. General Quality of Land in Stevens County

Table 7. Stevens County's Rank Compared With Other Washington Counties, 1959

Item Compared	Rank	Quantity
General		
Land area	5	1,591,040 acres
Number of farms	13	1,608 farms
Land in farms-percent	16	50.5 percent
Average size of farms	15	499.9 acres
Cropland harvested	15	98,939 acres
Irrigated land in farms	15	9,864 acres
Rural farm population	11	5,634 persons 1/
Total county population	24	17,884 persons 1/
Cash farm income		
Value of all farm products sold	22	9,512,472 dollars
Value of livestock sold	15	5,676,015 dollars
Value of crops sold	20	3,836,457 dollars
Livestock on farms		
All cattle and calves	10	44,371 head
Milk cows	10	8,764 head
Hogs	6	8,597 head
Chickens	15	59,169 birds
Horses and mules	6	1,677 head
Sheep and lambs	14	5,931 head
Dairy and poultry products sold		
Value of dairy products sold	10	2,499,445 dollars
Whole milk sold	11	49,541,012 pounds
Value of poultry products sold	19	188,933 dollars
Chickens sold	20	28,386 birds
Eggs sold	18	502,721 dozen
Important crops harvested		
Alfalfa	2	48,454 acres
Oats	5	11,100 acres
Barley	14	10,700 acres
Wheat	16	16,700 acres

1/ U. S. Census of Population, 1960.

Source: U. S. Census of Agriculture, 1959.