State of Washington
ALBERT D. ROSELLINI, Governor

Department of Conservation
EARL COE, Director

DIVISION OF MINES AND GEOLOGY
MARSHALL T. HUNTTING, Supervisor

Bulletin No. 37

INVENTORY OF WASHINGTON MINERALS

PART I

SECOND EDITION

NONMETALLIC MINERALS

By
GRANT M. VALENTINE

Revised by
MARSHALL T. HUNTTING

Volume 1 - TEXT
Volume 2 - MAPS

STATE PRINTING PLANT, OLYMPIA, WASHINGTON
1960

For sale by Department of Conservation, Olympia, Washington.
Part I price per set (2 volumes—text and maps) $3.00.

INVENTORY OF WASHINGTON MINERALS

PART I

NONMETALLIC MINERALS

Volume 2 — MAPS

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INTRODUCTION

GENERAL PLAN OF THE REPORT

As in the original edition of Part I of the Inventory of Washington Minerals, the data in this revised edition are presented in two forms—maps and text. However, instead of including both kinds of data in a single volume as in the first edition of Part I, this revision has the maps and the text bound in two separate volumes, so that descriptive material and corresponding map may be studied together with the least possible inconvenience to the reader.

In the text (volume 1), resources are listed alphabetically except in instances where related materials are treated as a unit. A brief description of each resource precedes mention of its occurrences.

The numbers of the occurrences described in the text correspond with the numbers indicating their locations on the maps, which compose volume 2 and are arranged in the same order as the resources in volume 1.

A few occurrences listed in the text have no corresponding map number, and in some instances it may be found that there is lack of agreement between map and text data. This is due to the fact that new occurrences were found and the status of old ones changed in the interval between completion of the maps and printing of the text. In instances of lack of agreement between text and map data, text data are to be considered the more accurate.

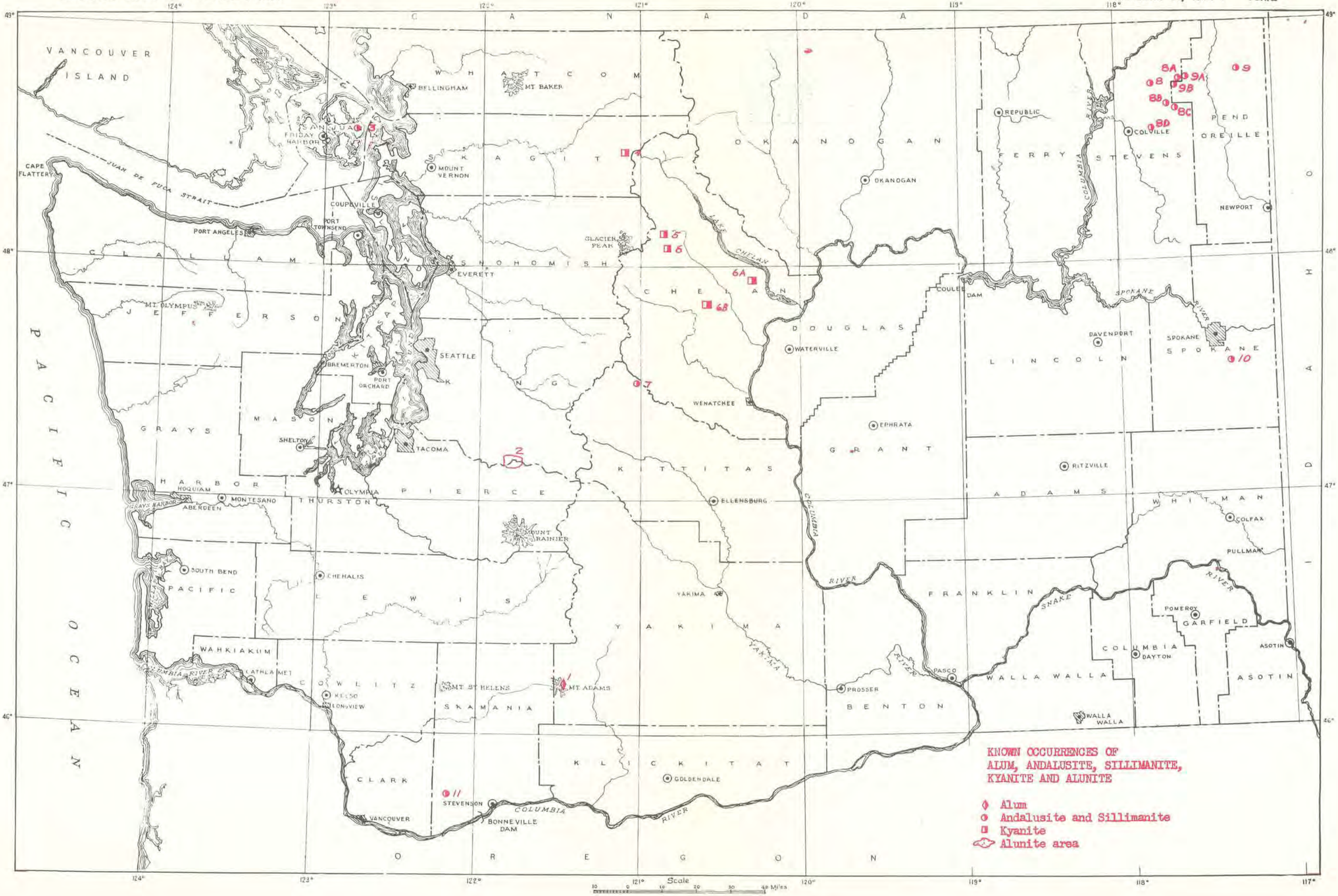
To facilitate rapid location of an occurrence, two indexes are printed at the end of volume 1. One is an alphabetical listing by subject and the other is an alphabetical listing of minerals by counties.

MAPS

In order to avoid the usual confused array of symbols resulting when many varied resources are plotted on one map, each resource or small group of resources has been plotted on a separate outline map. The maps therefore serve a dual purpose. First, they show the general distribution of a given resource in the state, and second, they serve to locate the occurrences listed in the text. Geometric patterns have been used as symbols. Where only one resource has been shown on a map, circles have been used. Where more than one resource has been shown, other geometric patterns have been used in addition to circles. Regardless of pattern, the same general plan of shading has been used to indicate the status of an occurrence. A solid symbol indicates a deposit which is being worked or which has been worked in the past. A symbol which is half shaded indicates an occurrence which is known to exist and which, in most instances, has been visited by a member of the Division of Mines and Geology or its predecessor organizations. An open symbol indicates a reported occurrence which has not been verified by the Division.

In locating the symbols on the maps a township grid was prepared on a map of the same scale and the symbols located to the nearest section. The accuracy is therefore to the nearest section if the section location is known. Symbols have been arranged on the maps according to two general plans. Resources of which there are very few occurrences have been numbered and arranged progressively across the map from west to east. Resources of which there are a large number of occurrences have been listed and separately numbered under county headings, with the counties arranged alphabetically.

The scale of the state maps is such that they can be regarded as index maps only. Locations of the properties are given as precisely as possible in the text, but because of the small map scale, the detail is not as great as it would be on larger scale maps.


KNOWN OCCURRENCES OF
ALUM, ANDALUSITE, SILLIMANITE,
KYANITE AND ALUNITE
Alum
Andalusite and Sillimanite
Kyanite
Alunite area
Scale
10 0 10 20 30 40 Miles
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°
CANADA
VANCOUVER ISLAND
PACIFIC OCEAN
OREGON
IDAHO
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
CLALLAM
JEFFERSON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
SHELTON
MASON
THURSTON
OLYMPIA
PIERCE
TACOMA
SEATTLE
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PORT ORCHARD
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COUPEVILLE
PORT TOWNSEND
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BELLINGHAM
WHATCOM
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GLACIER PEAK
MOUNT RAINIER
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PACIFIC
CHEHALIS
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WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT ST HELENS
SKAMANIA
MT ADAMS
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
OKANOGAN
DOUGLAS
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BENTON
PASCO
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SNAKE RIVER
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WHITMAN
RITZVILLE
ADAMS
COULEE DAM
LINCOLN
DAVENPORT
SPOKANE
SPOKANE RIVER
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PEND OREILLE
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9A
9B
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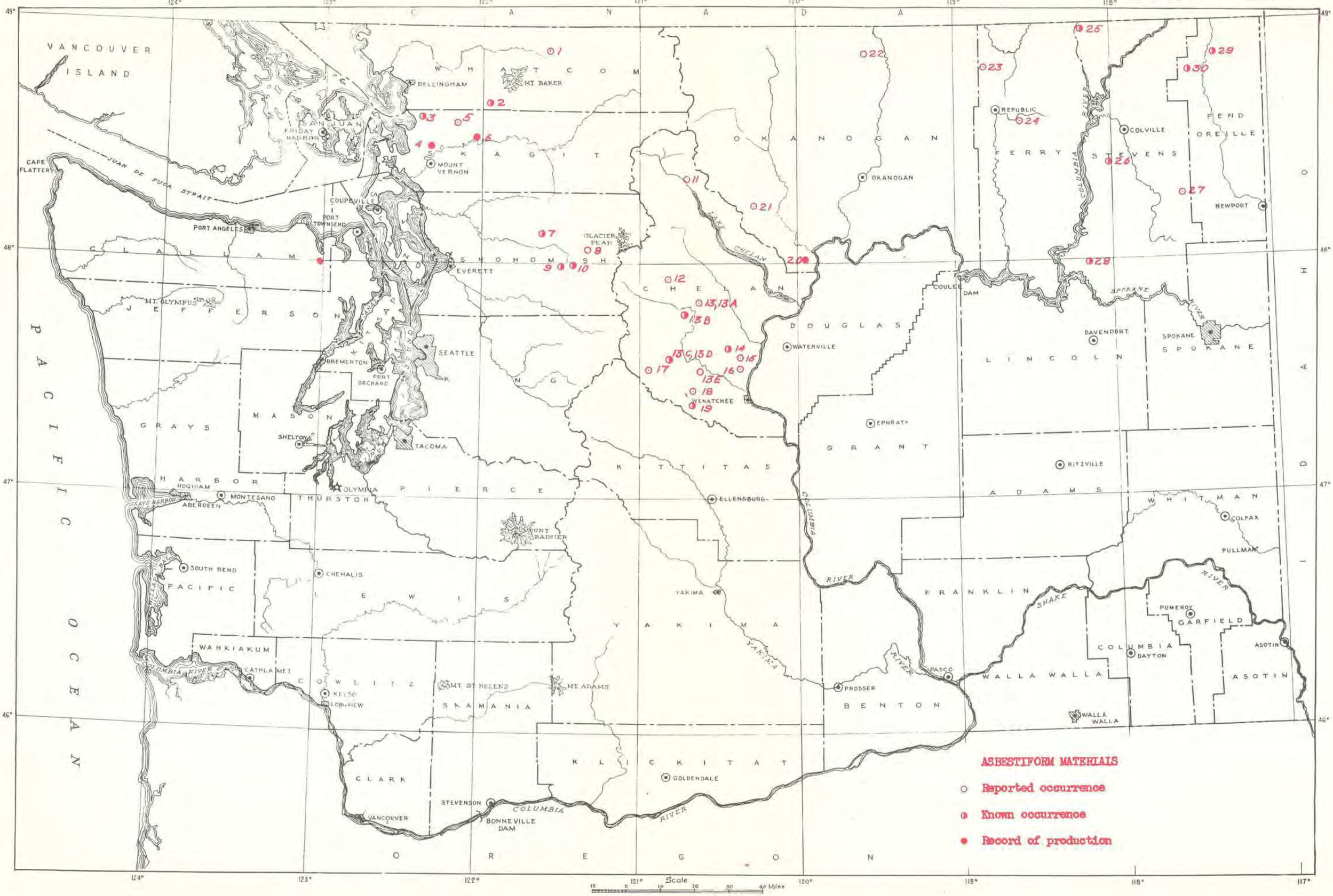
VANCOUVER ISLAND
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JUAN DE FUCA STRAIT
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FRANKLIN
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POMEROY
GARFIELD
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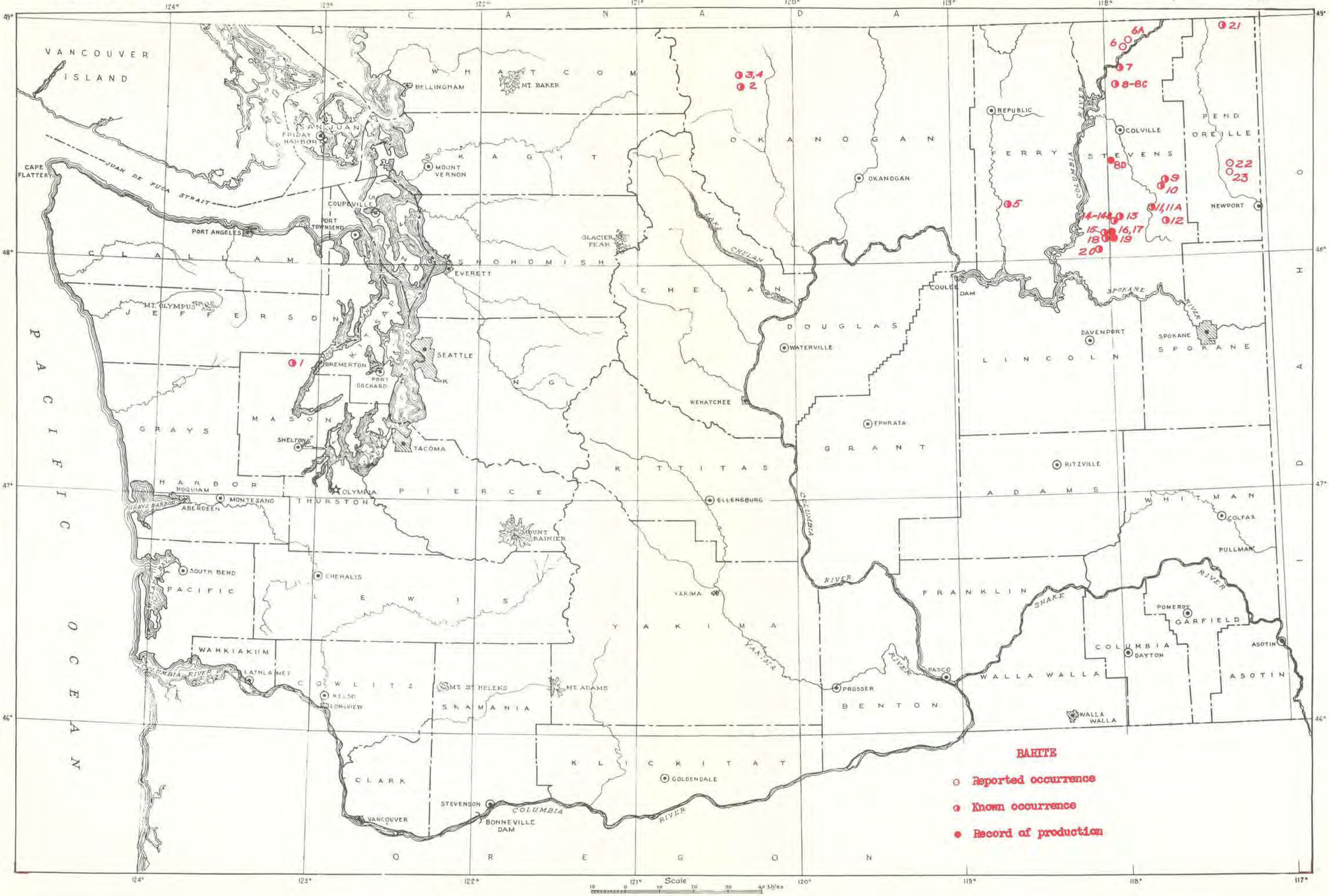
COLUMBIA
DAYTON
WALLA WALLA
WALLA WALLA
Scale
10 0 10 20 30 40 Miles
124° 123° 122° 121° 120° 119° 118° 117°
49° 48° 47° 46°
ASBESTIFORM MATERIALS
Reported occurrence
Known occurrence
Record of production


VANCOUVER ISLAND
PACIFIC OCEAN
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SPOKANE RIVER
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REPUBLIC
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PEND OREILLE
NEWPORT
IDAHO
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
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46°
Scale
10 0 10 20 30 40 Miles
BARITE
Reported occurrence
Known occurrence
Record of production

BASALT AND ALLIED VOLCANIC ROCKS
Quarry currently operated
Quarry not now operated
Areas of predominantly volcanic rocks
Scale
10 0 10 20 30 40 Miles
VANCOUVER ISLAND
PACIFIC OCEAN
JUAN DE FUCA STRAIT
CANADA
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
BELLINGHAM
MT. BAKER
FRIDAY HARBOR
MOUNT VERNON
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YAKIMA
ELLENSBURG
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LAKE CHELAN
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PEND OREILLE
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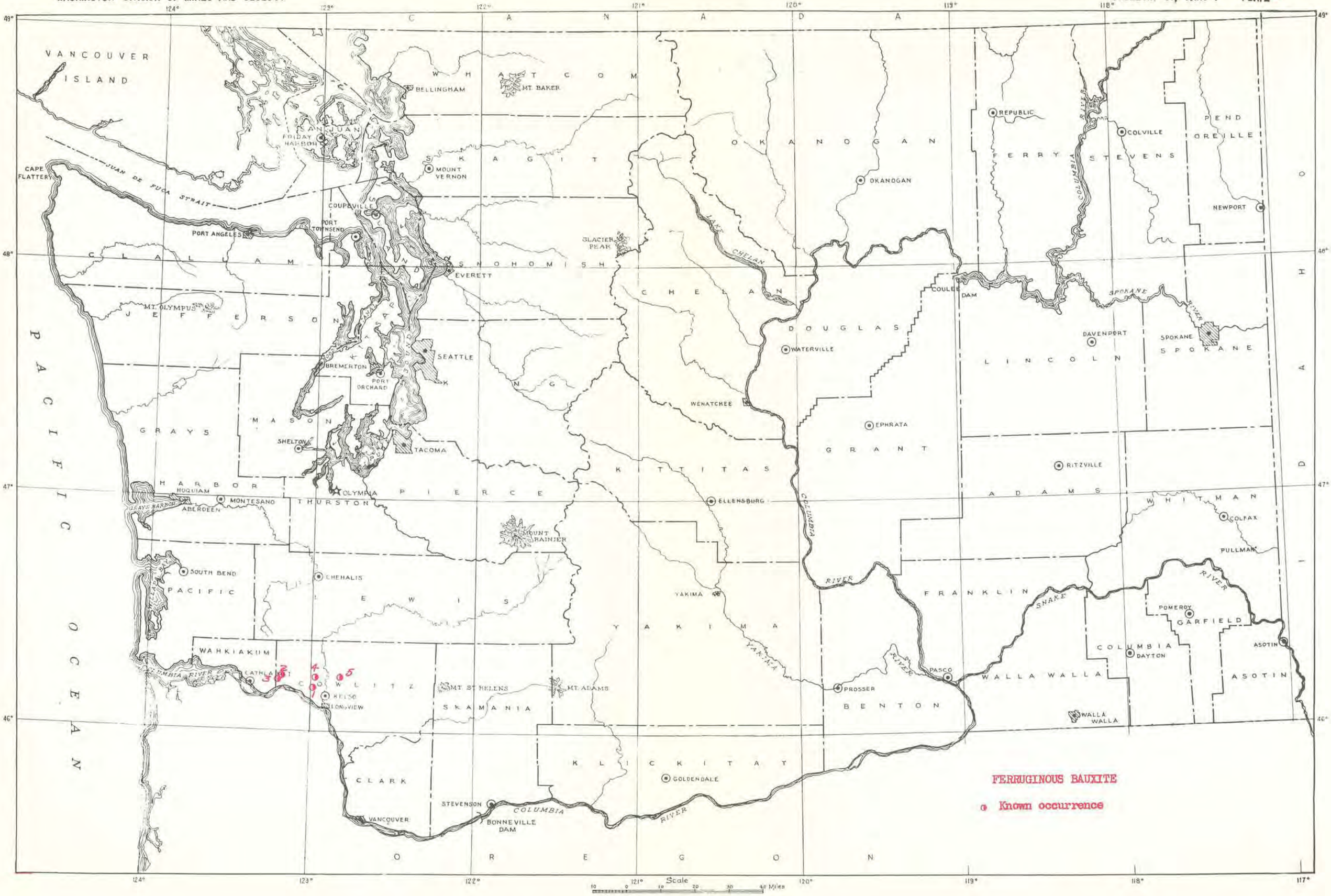
124° 123° 122° 121° 120° 119° 118° 117°
49° 48° 47° 46°


FERRUGINOUS BAUXITE
Known occurrence
Scale
10 0 10 20 30 40 Miles
124°
123°
122°
121°
120°
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118°
117°
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CANADA
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OREGON
IDAHO
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CAPE FLATTERY
PORT ANGELES
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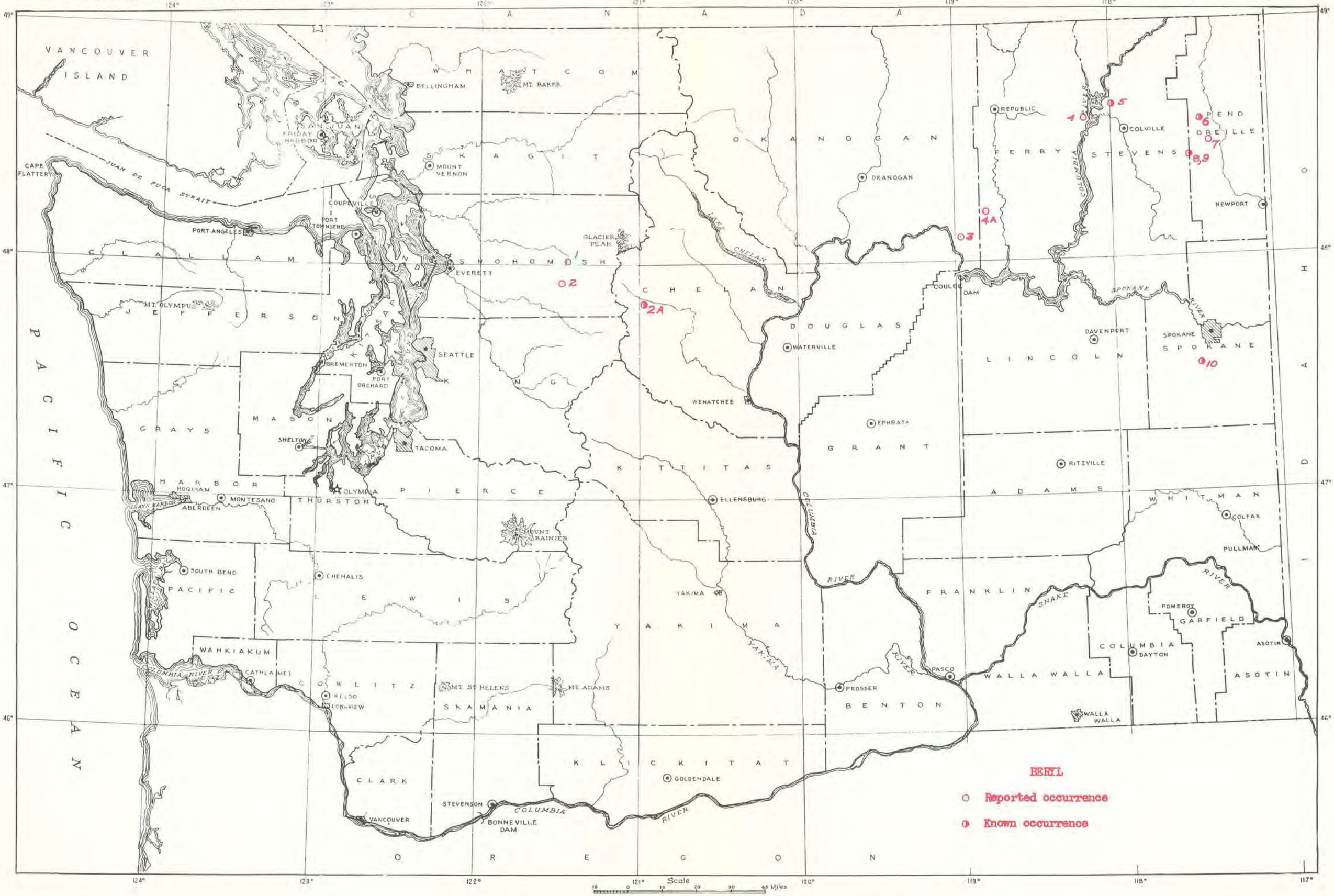
VANCOUVER ISLAND
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BENTON
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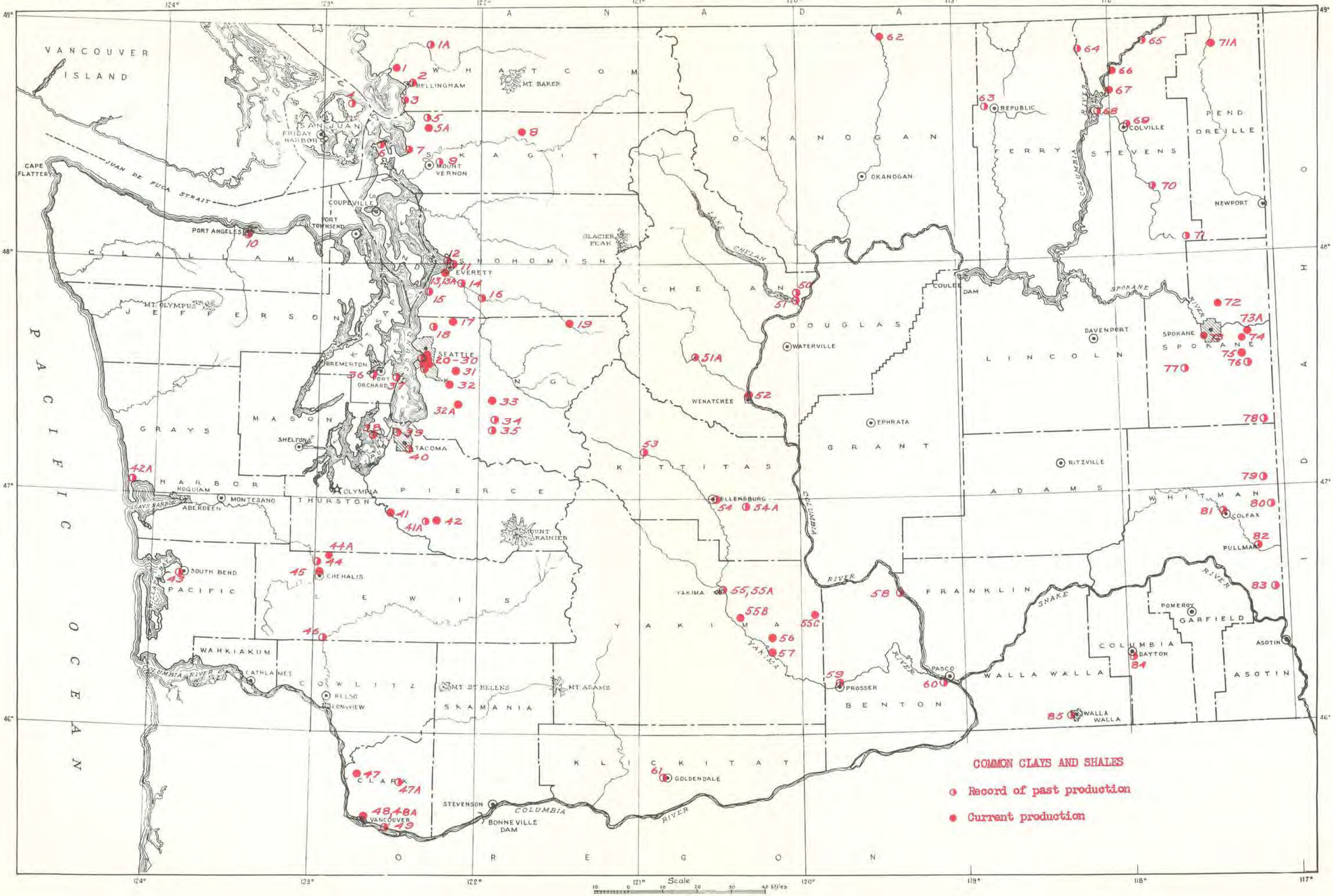
KLICKITAT
GOLDENDALE
CLARK
STEVENSON
VANCOUVER
BONNEVILLE DAM
COLUMBIA RIVER
PACIFIC OCEAN
OREGON
Scale
Miles
REXL
Reported occurrence
Known occurrence


COMMON CLAYS AND SHALES
Record of past production
Current production
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
OREGON
WHATCOM
SAN JUAN
SKAGIT
OKANOGAN
FERRY
STEVENS
PEND OREILLE
CLALLAM
JEFFERSON
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GRAYS HARBOR
THURSTON
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PORT ANGELES
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PROSSER
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ASOTIN
COLUMBIA RIVER
SNAKE RIVER
SPOKANE RIVER
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YAKIMA RIVER
124°
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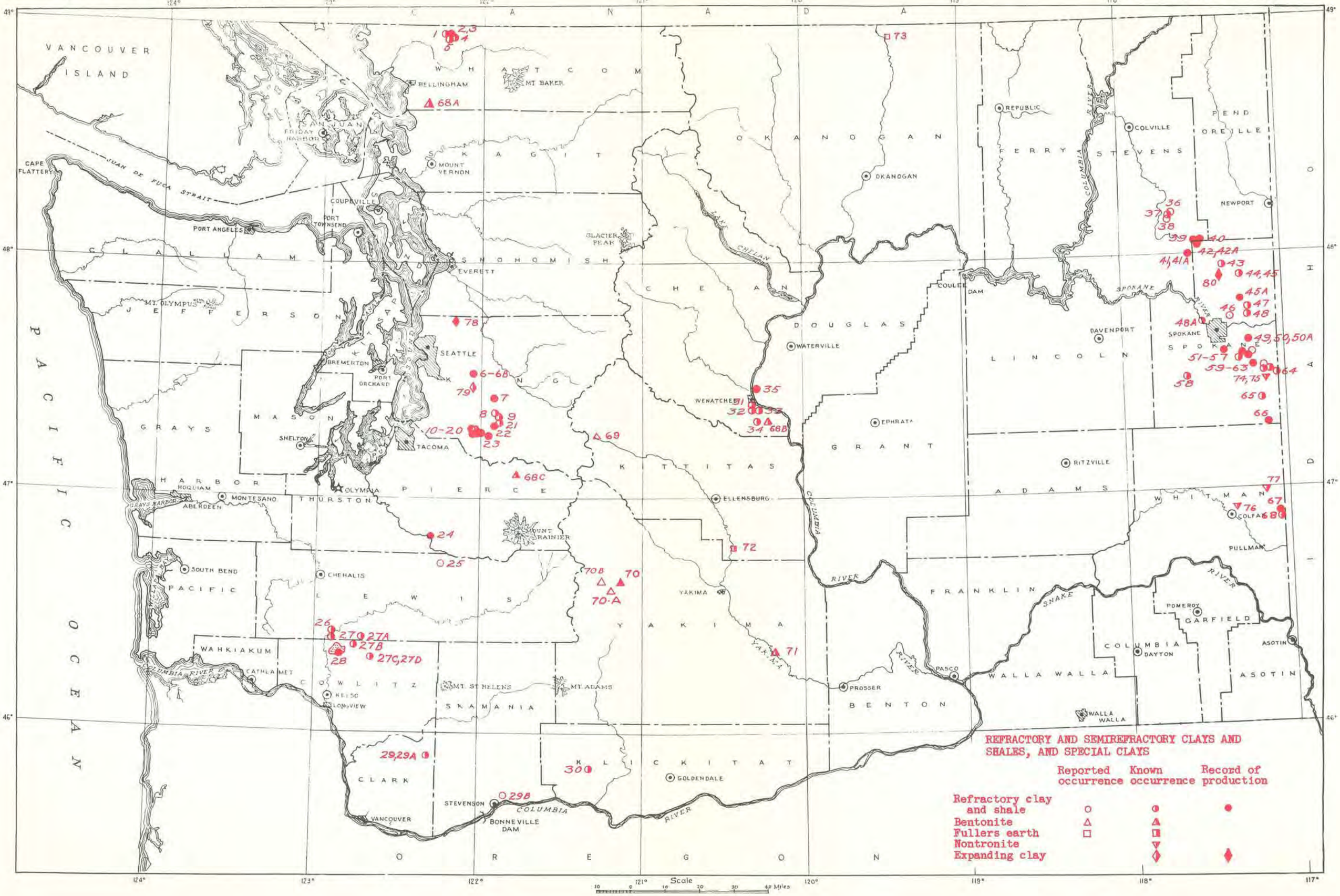
REFRACTORY AND SEMIREFRACTORY CLAYS AND SHALES, AND SPECIAL CLAYS
Reported occurrence
Known occurrence
Record of production
Refractory clay and shale
Bentonite
Fullers earth
Nontronite
Expanding clay
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
OREGON
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
BELLINGHAM
MT BAKER
SAN JUAN
FRIDAY HARBOR
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COUPEVILLE
PORT TOWNSEND
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PEND OREILLE
LAKE CHELAN
COLUMBIA RIVER
SPOKANE RIVER
SNAKE RIVER
YAKIMA RIVER
WILLAPA BAY
GRAYS HARBOR
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68A
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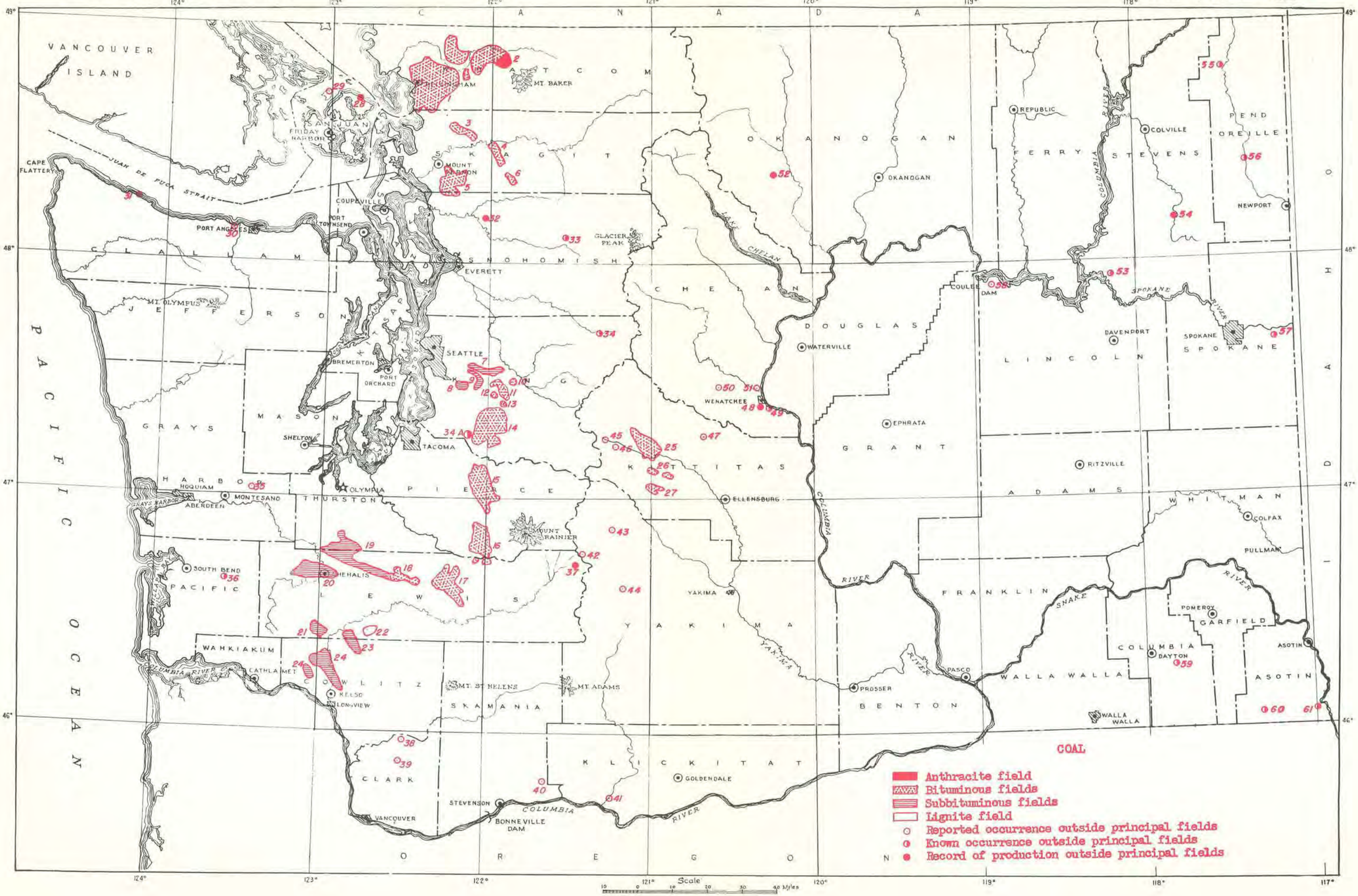
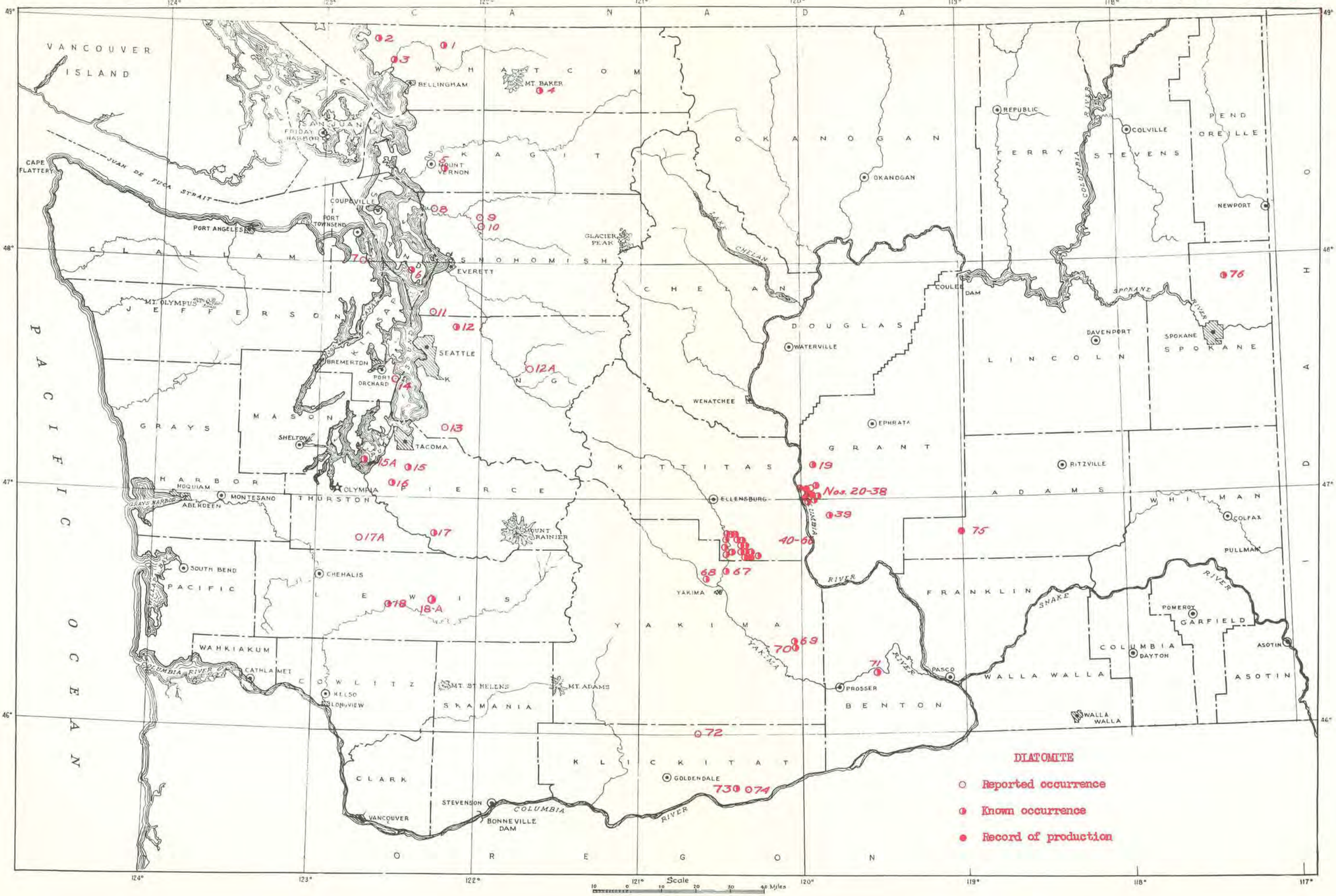
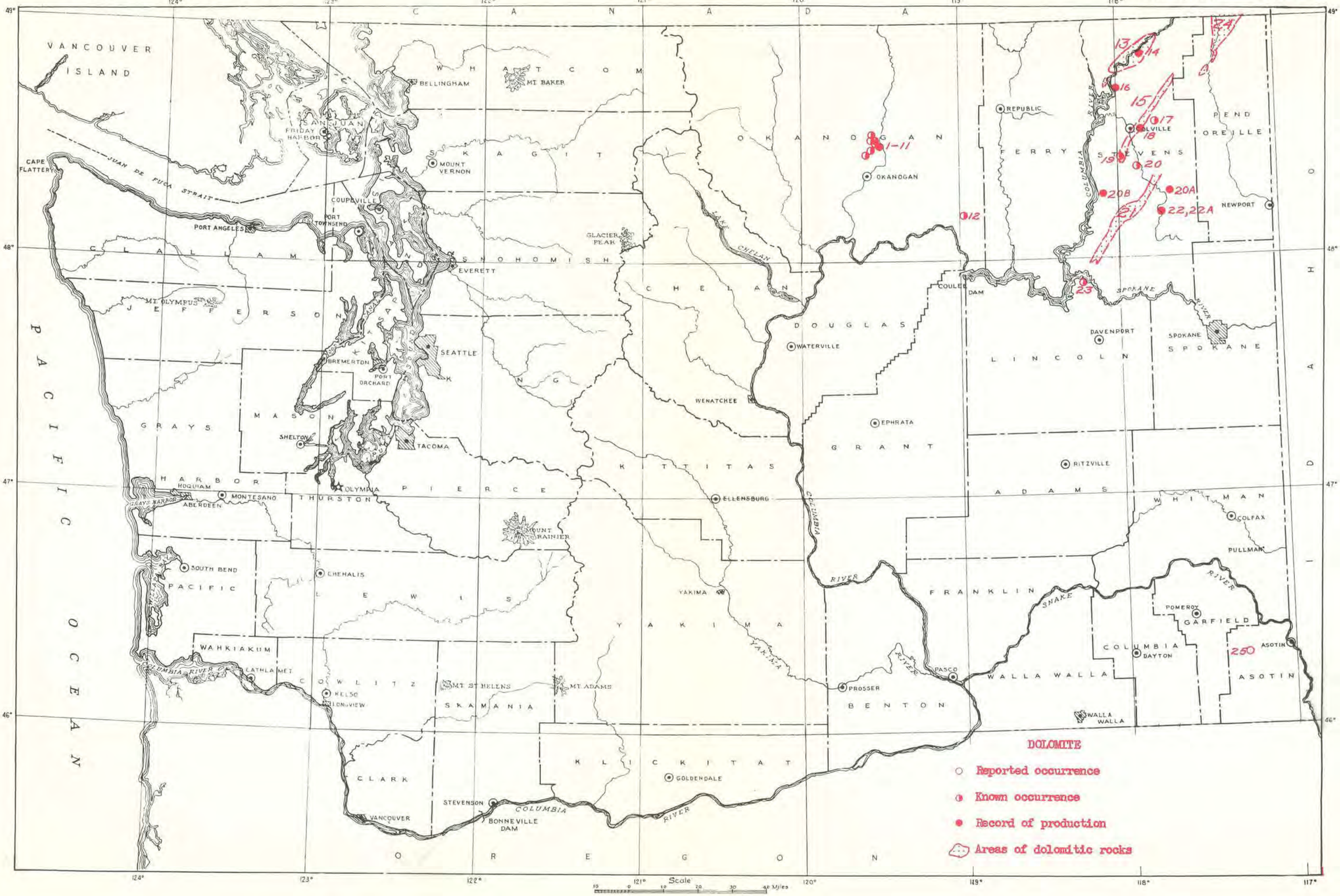
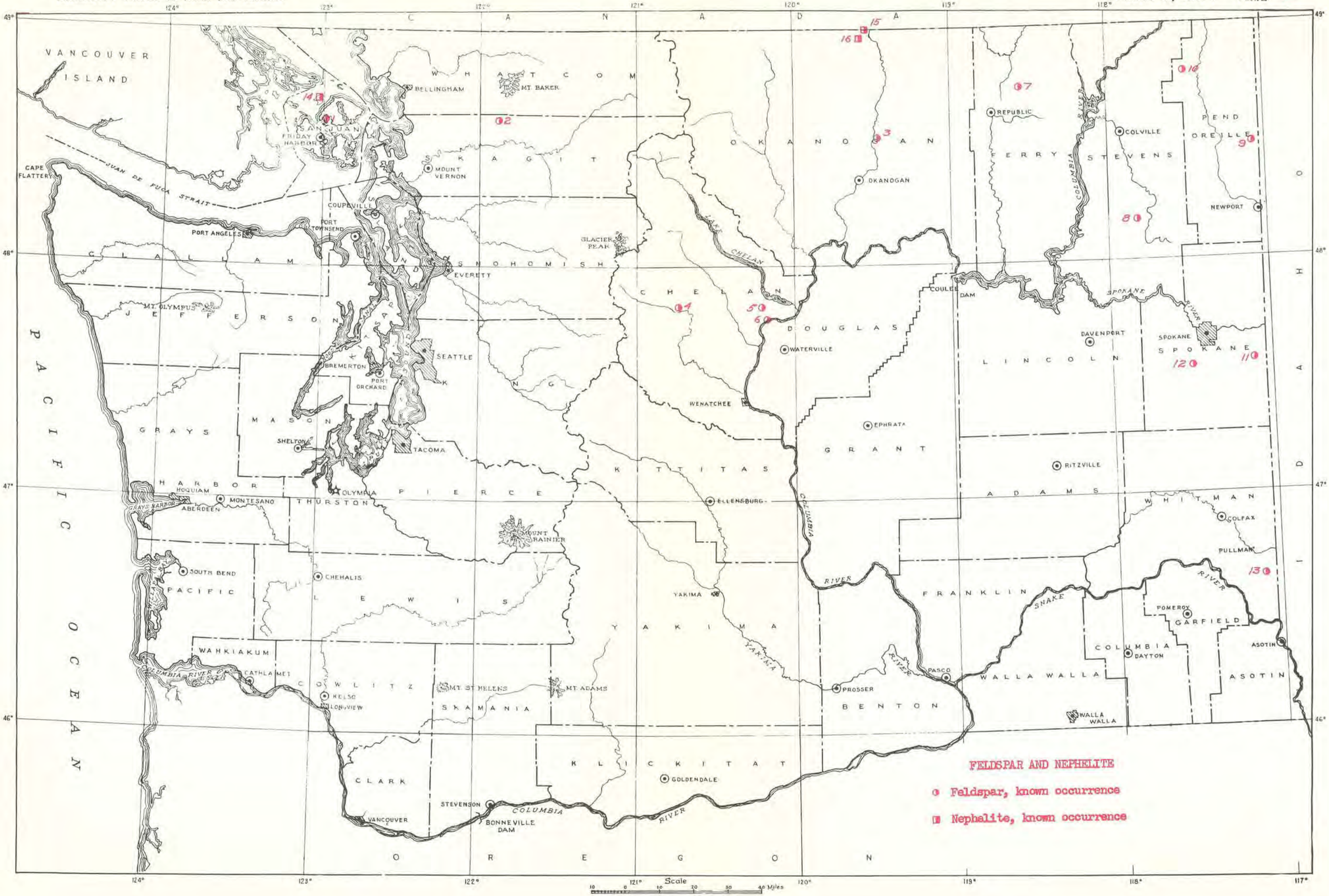
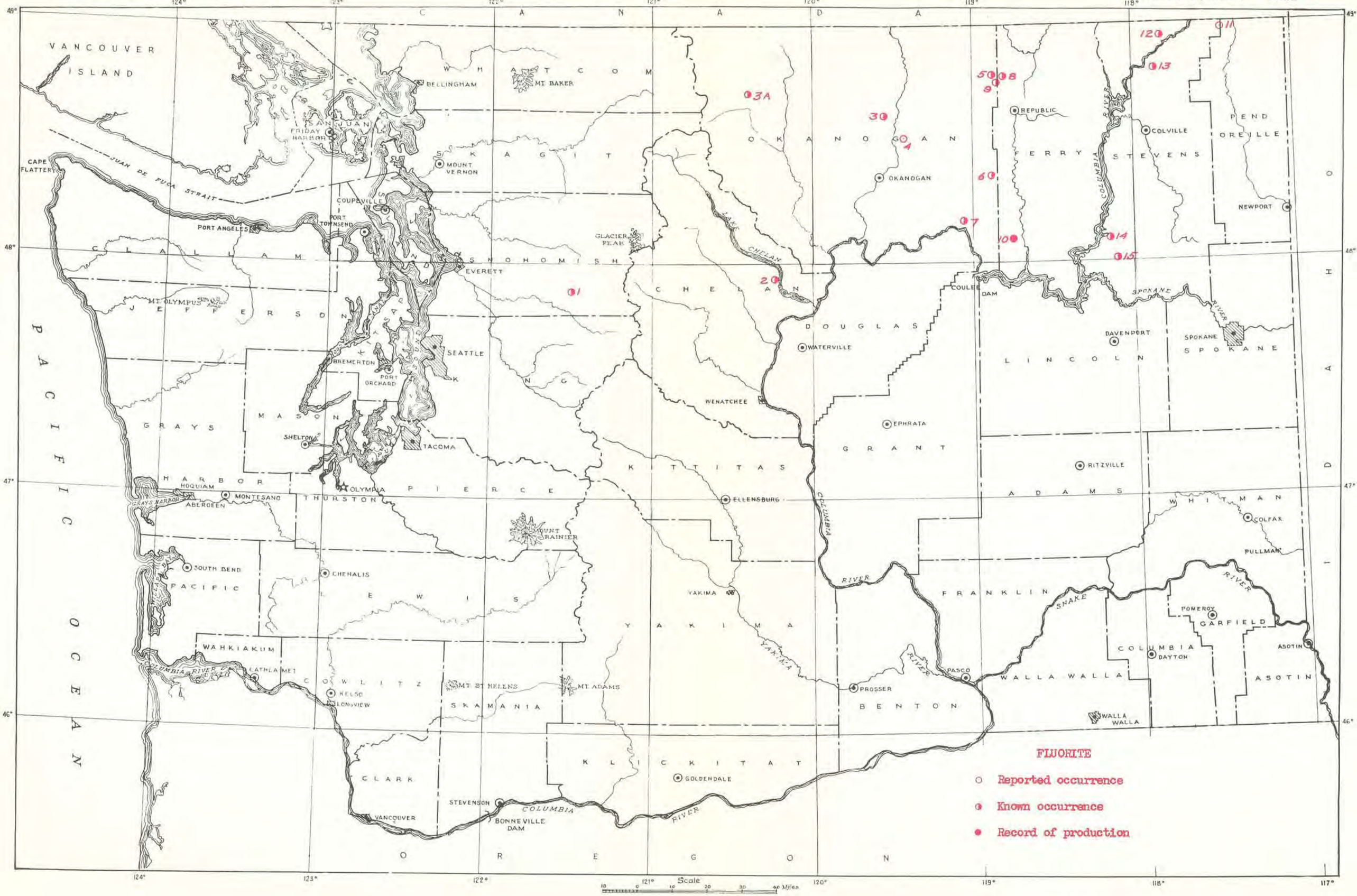
68C

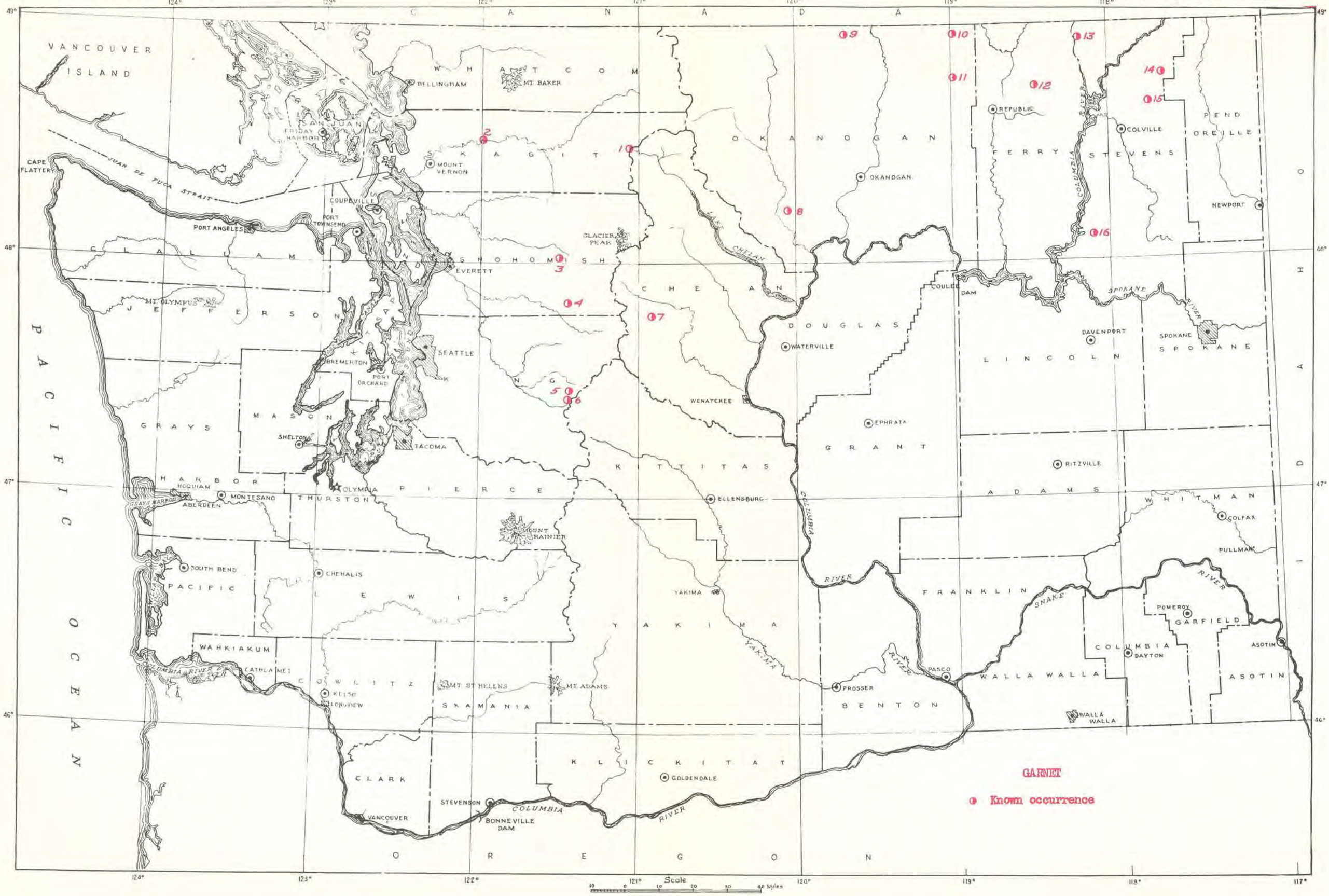

COAL
Anthracite field
Bituminous fields
Subbituminous fields
Lignite field
Reported occurrence outside principal fields
Known occurrence outside principal fields
Record of production outside principal fields
Scale
10 0 10 20 30 40 Miles
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
IDAHO
OREGON
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
PORT TOWNSEND
COUPEVILLE
FRIDAY HARBOR
SAN JUAN
MT. BAKER
MOUNT VERNON
SKAGIT
WHATCOM
CLALLAM
JEFFERSON
MT. OLYMPUS
GLACIER PEAK
EVERETT
SNOHOMISH
SEATTLE
BREMERTON
PORT ORCHARD
KITSAP
KING
TACOMA
SHELTON
MASON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
OLYMPIA
THURSTON
PIERCE
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
KLICKITAT
GOLDENDALE
YAKIMA
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
WATERVILLE
EPHRATA
GRANT
DOUGLAS
OKANOGAN
RITZVILLE
ADAMS
PROSSER
BENTON
PASCO
FRANKLIN
SNAKE RIVER
YAKIMA RIVER
COULEE DAM
REPUBLIC
FERRY
COLVILLE
STEVENS
DAVENPORT
LINCOLN
SPOKANE
SPOKANE RIVER
NEWPORT
PEND OREILLE
COLFAX
WHITMAN
PULLMAN
POMEROY
GARFIELD
DAYTON
COLUMBIA
WALLA WALLA
ASOTIN
124° 123° 122° 121° 120° 119° 118° 117°
49° 48° 47° 46°

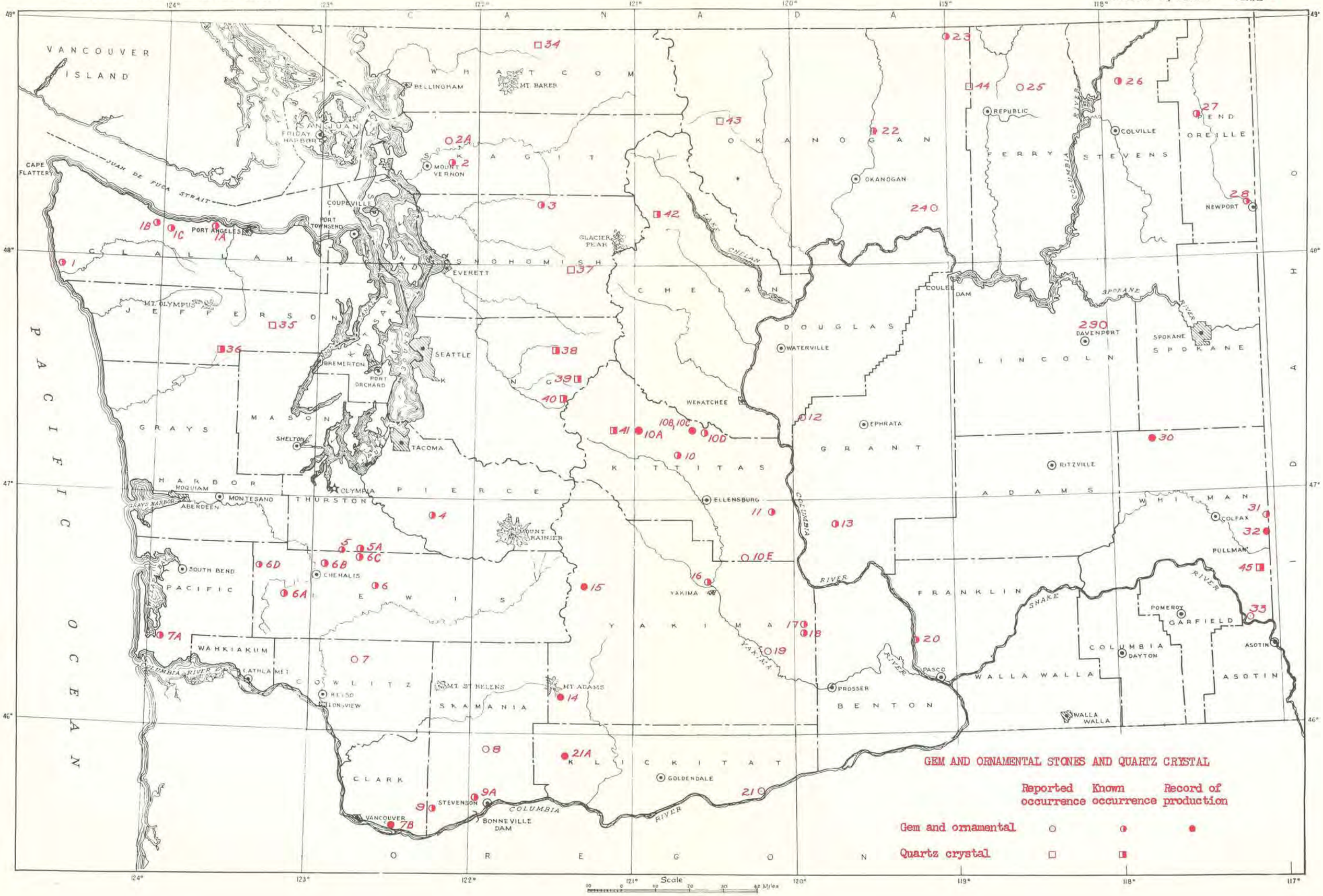

VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
CAPE FLATTERY
JUAN DE FUCA STRAIT
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
MT. OLYMPUS
JEFFERSON
SNOHOMISH
EVERETT
GLACIER PEAK
ISLAND
SEATTLE
BREMERTON
PORT ORCHARD
KITSAP
MASON
SHELTON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
TACOMA
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
OREGON
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
PROSSER
BENTON
PASCO
WALLA WALLA
COLUMBIA
DAYTON
ASOTIN
GARFIELD
POMEROY
PULLMAN
WHITMAN
COLFAX
FRANKLIN
SNAKE RIVER
ADAMS
RITZVILLE
GRANT
EPHRATA
KITTITAS
ELLENSBURG
WENATCHEE
CHELAN
LAKE CHELAN
DOUGLAS
WATERVILLE
OKANOGAN
COULEE DAM
LINCOLN
DAVENPORT
SPOKANE
SPOKANE RIVER
FERRY
STEVENS
REPUBLIC
COLVILLE
PEND OREILLE
NEWPORT
IDAHO
Nos. 20-38
40-66
DIATOMITE
Reported occurrence
Known occurrence
Record of production
Scale
10 0 10 20 30 40 Miles


VANCOUVER ISLAND
CANADA
WHATCOM
BELLINGHAM
MT BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
OKANOGAN
OKANOGAN
REPUBLIC
FERRY
STEVENS
PEND OREILLE
NEWPORT
CAPE FLATTERY
JUAN DE FUCA STRAIT
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
GLACIER PEAK
LAKE CHELAN
SNOHOMISH
EVERETT
CHELAN
COULEE DAM
SPOKANE RIVER
MT OLYMPUS
JEFFERSON
DOUGLAS
WATERVILLE
DAVENPORT
SPOKANE
LINCOLN
SEATTLE
BREMERTON
PORT ORCHARD
KING
WENATCHEE
EPHRATA
GRANT
GRAYS HARBOR
MASON
SHELTON
TACOMA
KITTITAS
RITZVILLE
HOQUIAM
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
ELLENSBURG
ADAMS
WHITMAN
COLFAX
MOUNT RAINIER
PULLMAN
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
YAKIMA
FRANKLIN
POMEROY
GARFIELD
WAHKIAKUM
COLUMBIA
DAYTON
ASOTIN
LATHLAMET
COWLITZ
KELSO
LONGVIEW
MT ST HELENS
MT ADAMS
SKAMANIA
PASCO
WALLA WALLA
PROSSER
BENTON
WALLA WALLA
CLARK
KLICKITAT
GOLDENDALE
STEVENSON
VANCOUVER
BONNEVILLE DAM
OREGON
PACIFIC OCEAN
Scale
Miles
DOLOMITE
Reported occurrence
Known occurrence
Record of production
Areas of dolomitic rocks


FELDSPAR AND NEPHELITE
Feldspar, known occurrence
Nephelite, known occurrence
Scale
Miles
CANADA
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
CLALLAM
JEFFERSON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
SOUTH BEND
PACIFIC
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
CLARK
VANCOUVER
SAN JUAN
FRIDAY HARBOR
WHATCOM
BELLINGHAM
MT. BAKER
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
SNOHOMISH
EVERETT
GLACIER PEAK
KING
SEATTLE
KITSAP
BREMERTON
PORT ORCHARD
MASON
SHELTON
THURSTON
OLYMPIA
PIERCE
TACOMA
MOUNT RAINIER
LEWIS
CHEHALIS
MT. ST. HELENS
SKAMANIA
STEVENSON
BONNEVILLE DAM
MT. ADAMS
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
OKANOGAN
OKANOGAN
DOUGLAS
WATERVILLE
GRANT
EPHRATA
COULEE DAM
REPUBLIC
FERRY
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
LINCOLN
DAVENPORT
SPOKANE
SPOKANE
ADAMS
RITZVILLE
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
BENTON
PROSSER
WALLA WALLA
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
ASOTIN
COLUMBIA RIVER
SNAKE RIVER
SPOKANE RIVER
YAKIMA RIVER
OREGON


FLUORITE
Reported occurrence
Known occurrence
Record of production
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
PORT TOWNSEND
COUPEVILLE
FRIDAY HARBOR
SAN JUAN
BELLINGHAM
MT. BAKER
WHATCOM
MOUNT VERNON
SKAGIT
EVERETT
SNOHOMISH
GLACIER PEAK
MT. OLYMPUS
JEFFERSON
CLALLAM
SEATTLE
BREMERTON
PORT ORCHARD
KITSAP
TACOMA
SHELTON
MASON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
WAHKIAKUM
COLUMBIA RIVER
LATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
OKANOGAN
OKANOGAN
WATERVILLE
DOUGLAS
EPHRATA
GRANT
PROSSER
BENTON
PASCO
COULEE DAM
REPUBLIC
FERRY
COLVILLE
STEVENS
PEND OREILLE
NEWPORT
IDAHO
DAVENPORT
LINCOLN
SPOKANE
SPOKANE RIVER
RITZVILLE
ADAMS
COLFAX
WHITMAN
PULLMAN
FRANKLIN
SNAKE RIVER
POMEROY
GARFIELD
ASOTIN
COLUMBIA
DAYTON
WALLA WALLA
WALLA WALLA
CANADA
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°


VANCOUVER ISLAND
CAPE FLATTERY
JUAN DE FUCA STRAIT
PACIFIC OCEAN
CLALLAM
PORT ANGELES
MT. OLYMPUS
JEFFERSON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
SOUTH BEND
PACIFIC
WAHKIAKUM
CATHLAMET
COLUMBIA RIVER
CLARK
VANCOUVER
COWLITZ
KELSO
LONGVIEW
MASON
SHELTON
THURSTON
OLYMPIA
PORT ORCHARD
BREMERTON
TACOMA
SEATTLE
KITSAP
PORT TOWNSEND
COUPEVILLE
SAN JUAN
FRIDAY HARBOR
WHATCOM
BELLINGHAM
MT. BAKER
SKAGIT
MOUNT VERNON
SNOHOMISH
EVERETT
GLACIER PEAK
CHELAN
LAKE CHELAN
WENATCHEE
OKANOGAN
OKANOGAN
DOUGLAS
WATERVILLE
GRANT
EPHRATA
KITTITAS
ELLENSBURG
YAKIMA
YAKIMA
YAKIMA RIVER
MOUNT RAINIER
PIERCE
LEWIS
CHEHALIS
SKAMANIA
MT. ST. HELENS
MT. ADAMS
KLICKITAT
GOLDENDALE
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
BENTON
PROSSER
RICHLAND
PASCO
FRANKLIN
SNAKE RIVER
WALLA WALLA
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
ASOTIN
WHITMAN
COLFAX
PULLMAN
ADAMS
RITZVILLE
LINCOLN
DAVENPORT
SPOKANE
SPOKANE
SPOKANE RIVER
COULEE DAM
FERRY
REPUBLIC
STEVENS
COLVILLE
COLUMBIA RIVER
PEND OREILLE
NEWPORT
IDAHO
GARNET
Known occurrence
Scale
10 0 10 20 30 40 Miles
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°


GEM AND ORNAMENTAL STONES AND QUARTZ CRYSTAL
Reported occurrence
Known occurrence
Record of production
Gem and ornamental
Quartz crystal
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
JUAN DE FUCA STRAIT
CAPE FLATTERY
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
MT. OLYMPUS
JEFFERSON
SNOHOMISH
EVERETT
GLACIER PEAK
SEATTLE
KING
BREMERTON
PORT ORCHARD
MASON
SHELTON
TACOMA
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
OKANOGAN
REPUBLIC
COLVILLE
FERRY
STEVENS
PEND OREILLE
NEWPORT
DOUGLAS
WATERVILLE
EPHRATA
GRANT
COULEE DAM
LINCOLN
DAVENPORT
SPOKANE
SPOKANE RIVER
RITZVILLE
ADAMS
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
SNAKE RIVER
PROSSER
BENTON
WALLA WALLA
COLUMBIA
DAYTON
POMEROY
GARFIELD
ASOTIN
1
1A
1B
1C
2
2A
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5
5A
6
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6B
6C
6D
7
7A
7B
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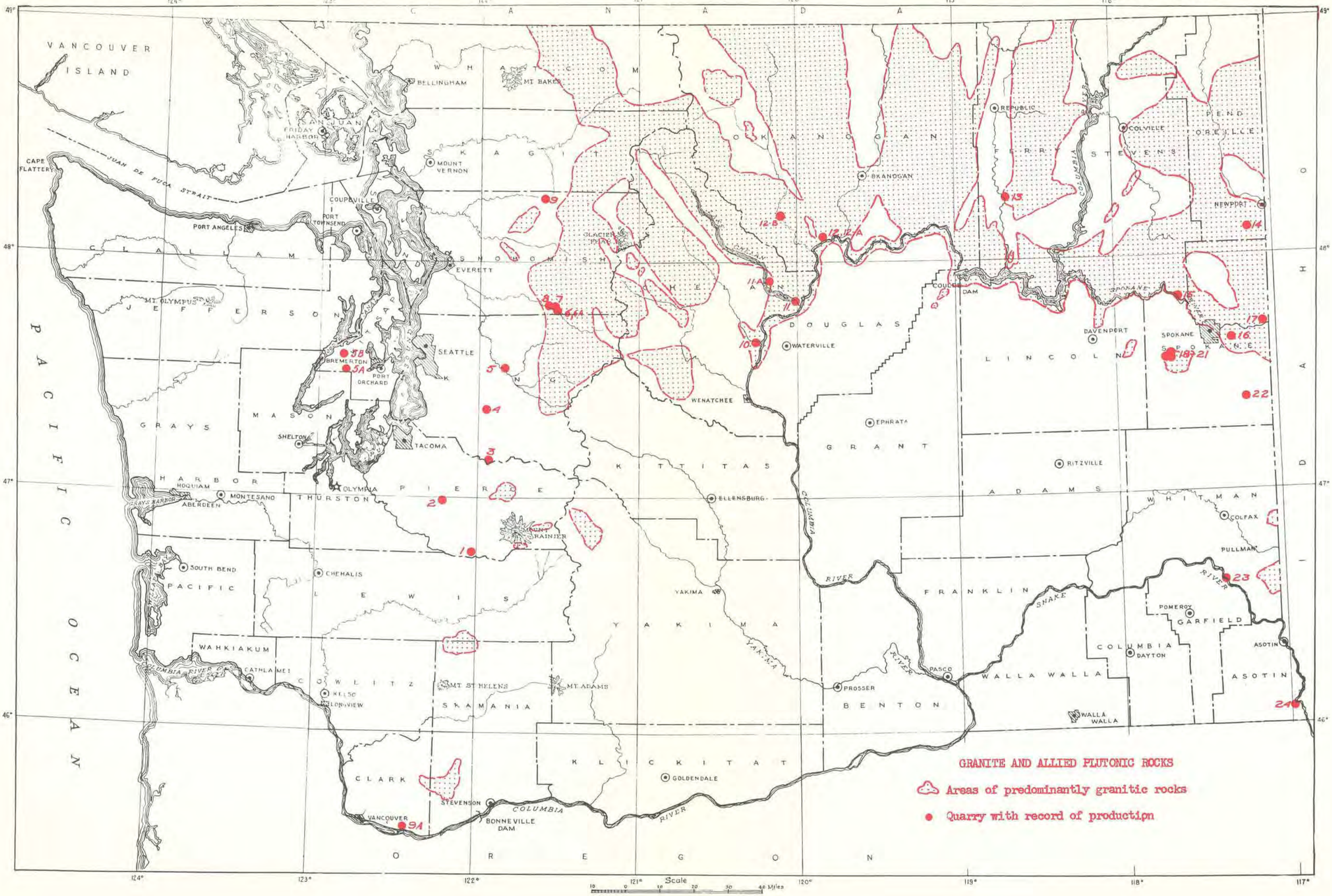
GRANITE AND ALLIED PLUTONIC ROCKS
Areas of predominantly granitic rocks
Quarry with record of production
Scale
10 0 10 20 30 40 Miles
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
OREGON
IDAHO
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
BELLINGHAM
MT. BAKER
FRIDAY HARBOR
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
EVERETT
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
SHELTON
OLYMPIA
HOQUIAM
ABERDEEN
GRAYS HARBOR
MONTESANO
MT. RAINIER
SOUTH BEND
CHEHALIS
CATHLAMET
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
GLACIER PEAK
WENATCHEE
WATERVILLE
EPHRATA
ELLENSBURG
YAKIMA
PROSSER
PASCO
GOLDENDALE
RITZVILLE
REPUBLIC
OKANOGAN
COLVILLE
COULEE DAM
DAVENPORT
SPOKANE
NEWPORT
COLFAX
PULLMAN
POMEROY
DAYTON
ASOTIN
WALLA WALLA
SNAKE RIVER
YAKIMA RIVER
CLALLAM
JEFFERSON
KING
SNOHOMISH
CHELAN
DOUGLAS
LINCOLN
SPOKANE
PEND OREILLE
STEVENS
FERRY
OKANOGAN
WHATCOM
SKAGIT
MASON
GRAYS HARBOR
THURSTON
PIERCE
KITTITAS
GRANT
ADAMS
WHITMAN
PACIFIC
LEWIS
YAKIMA
FRANKLIN
WAHKIAKUM
COWLITZ
SKAMANIA
BENTON
COLUMBIA
GARFIELD
ASOTIN
CLARK
KLICKITAT
1
2
3
4
5
5A
5B
6,11
7
8
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9A
10
11A
12
12A
12B
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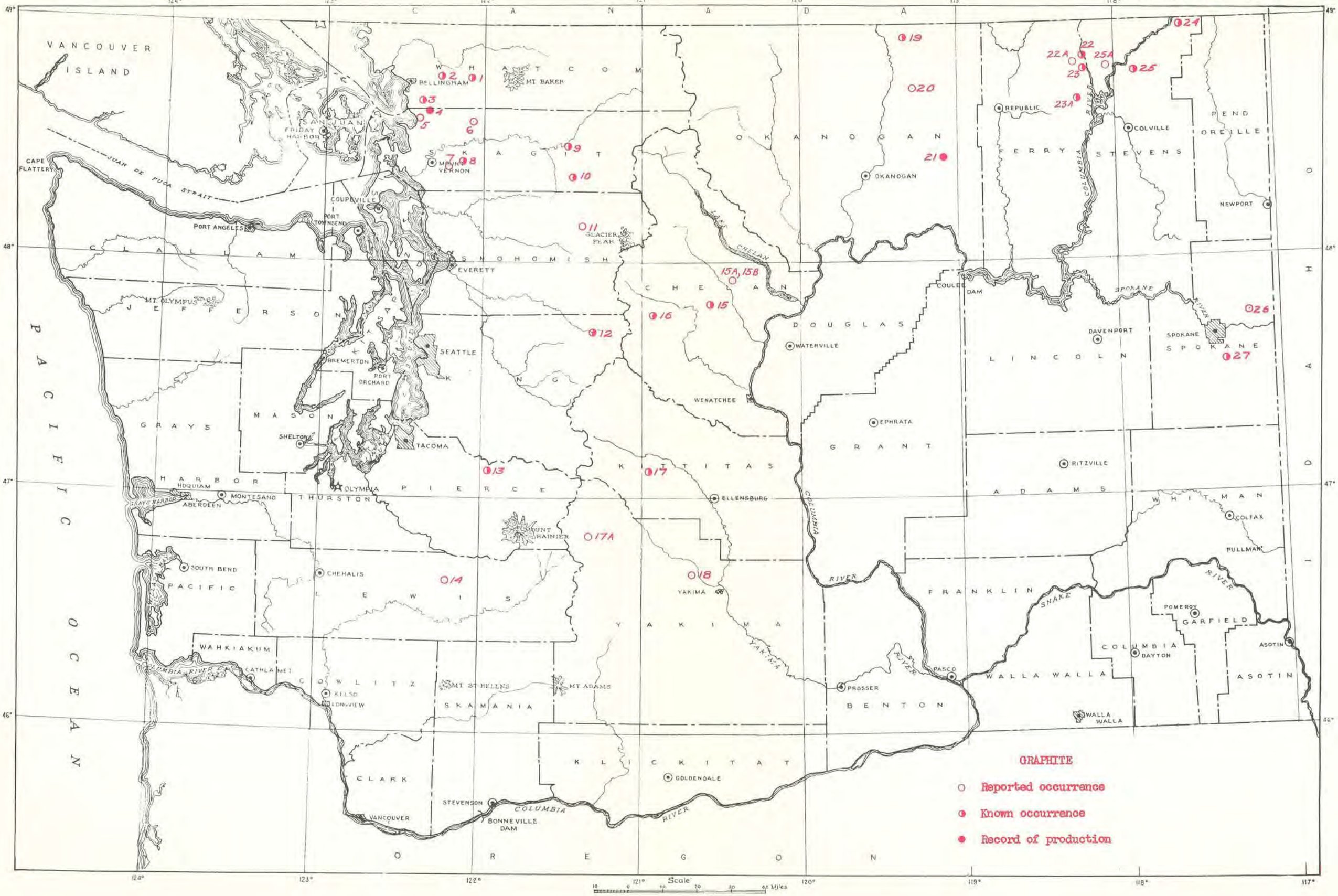
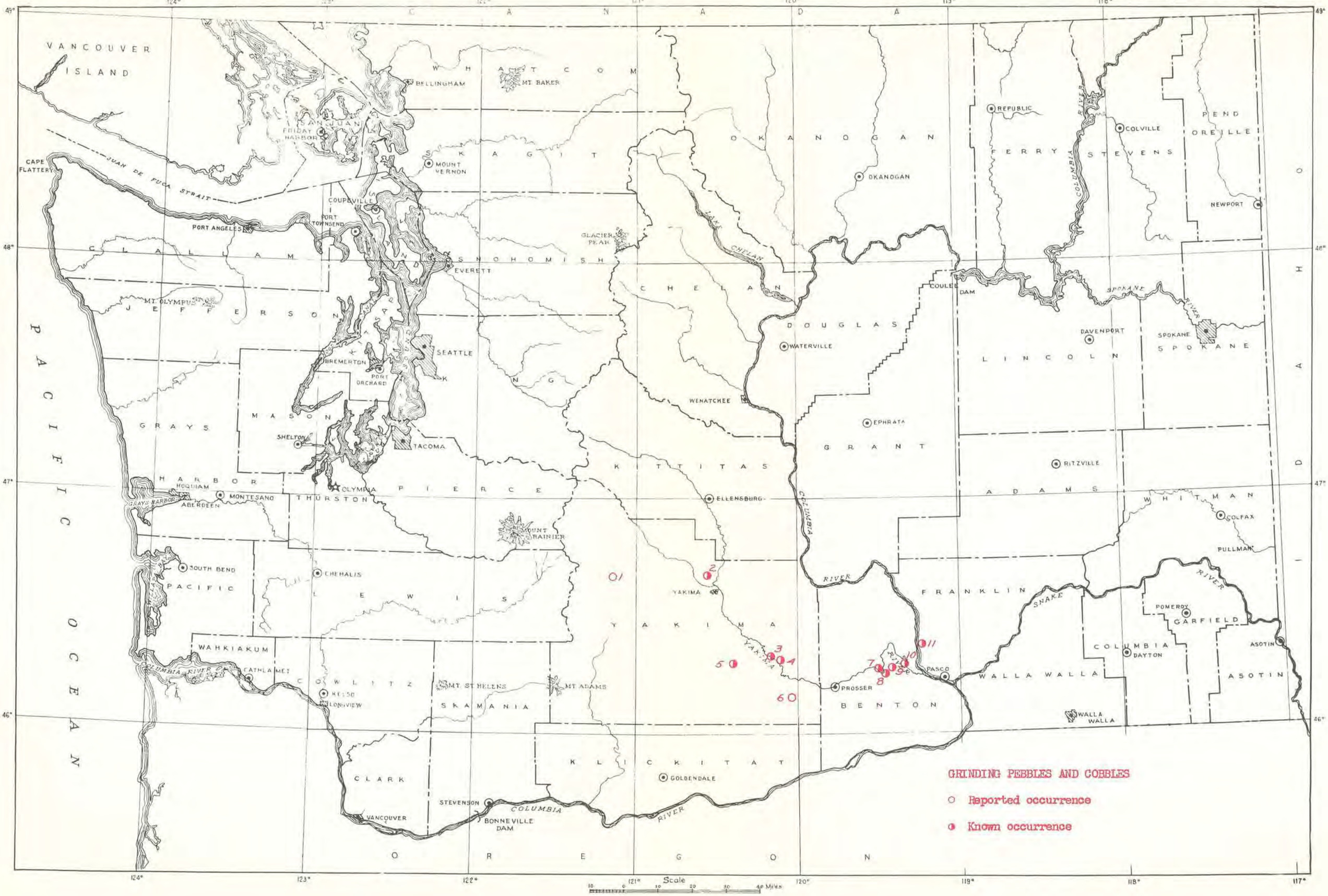
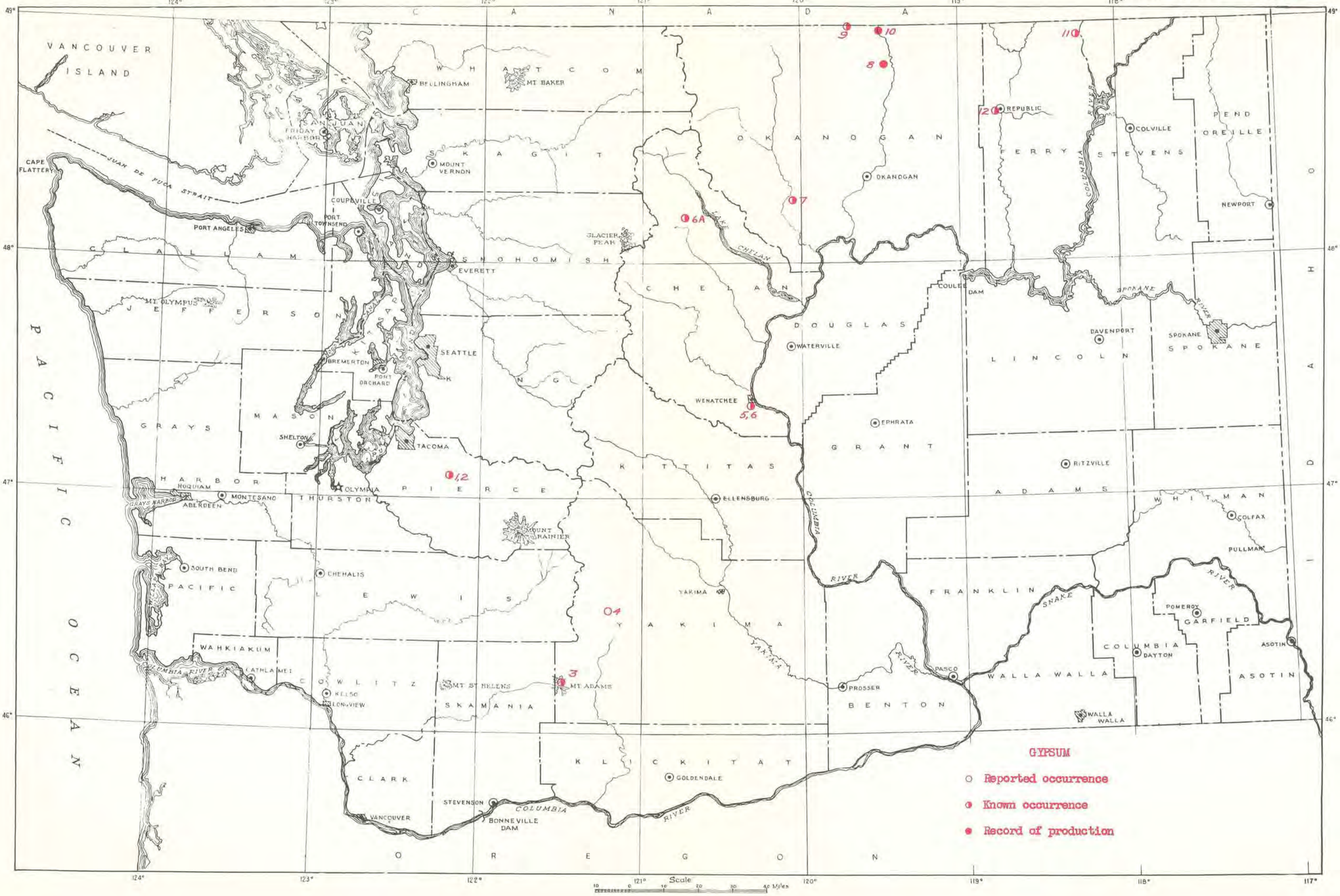
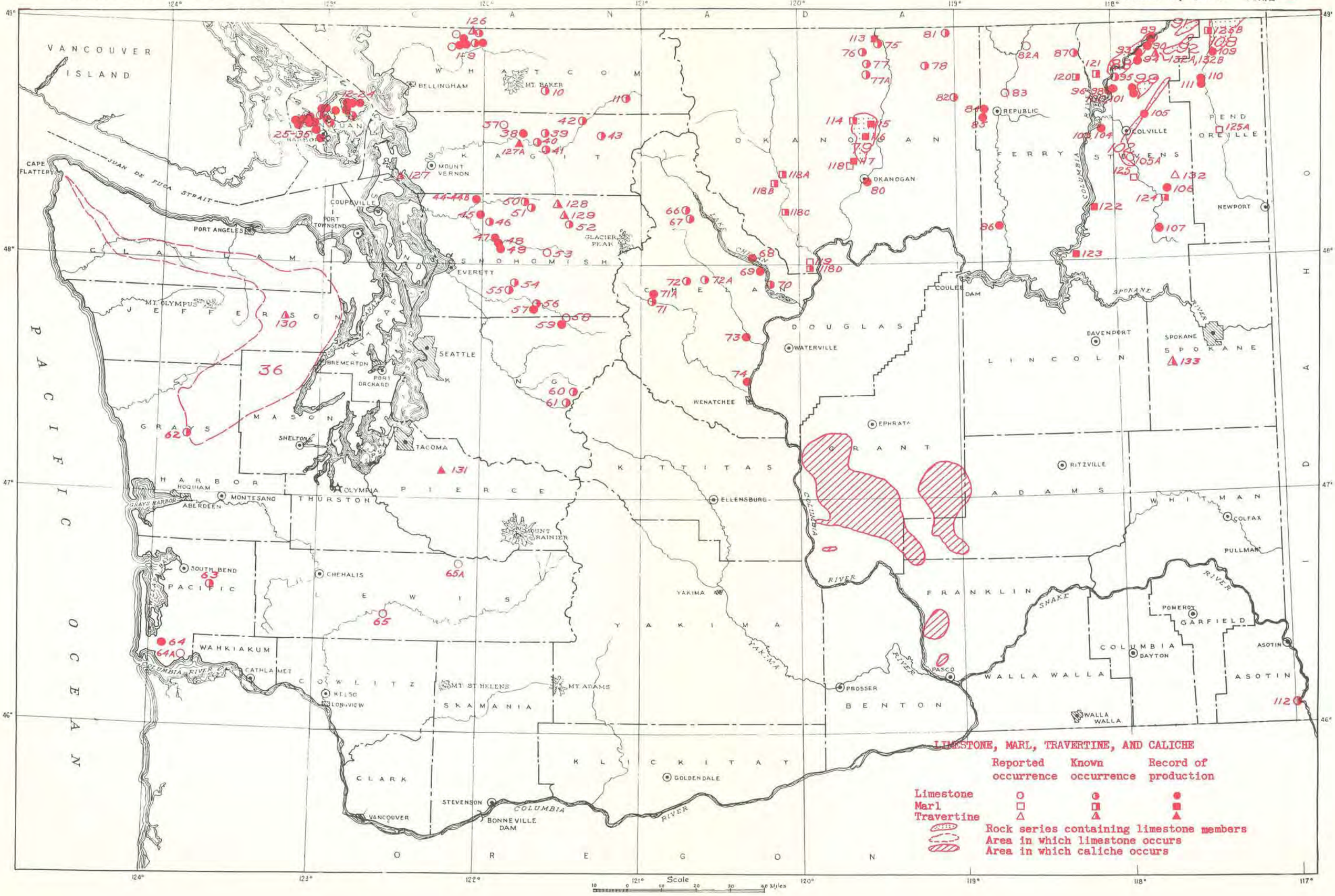
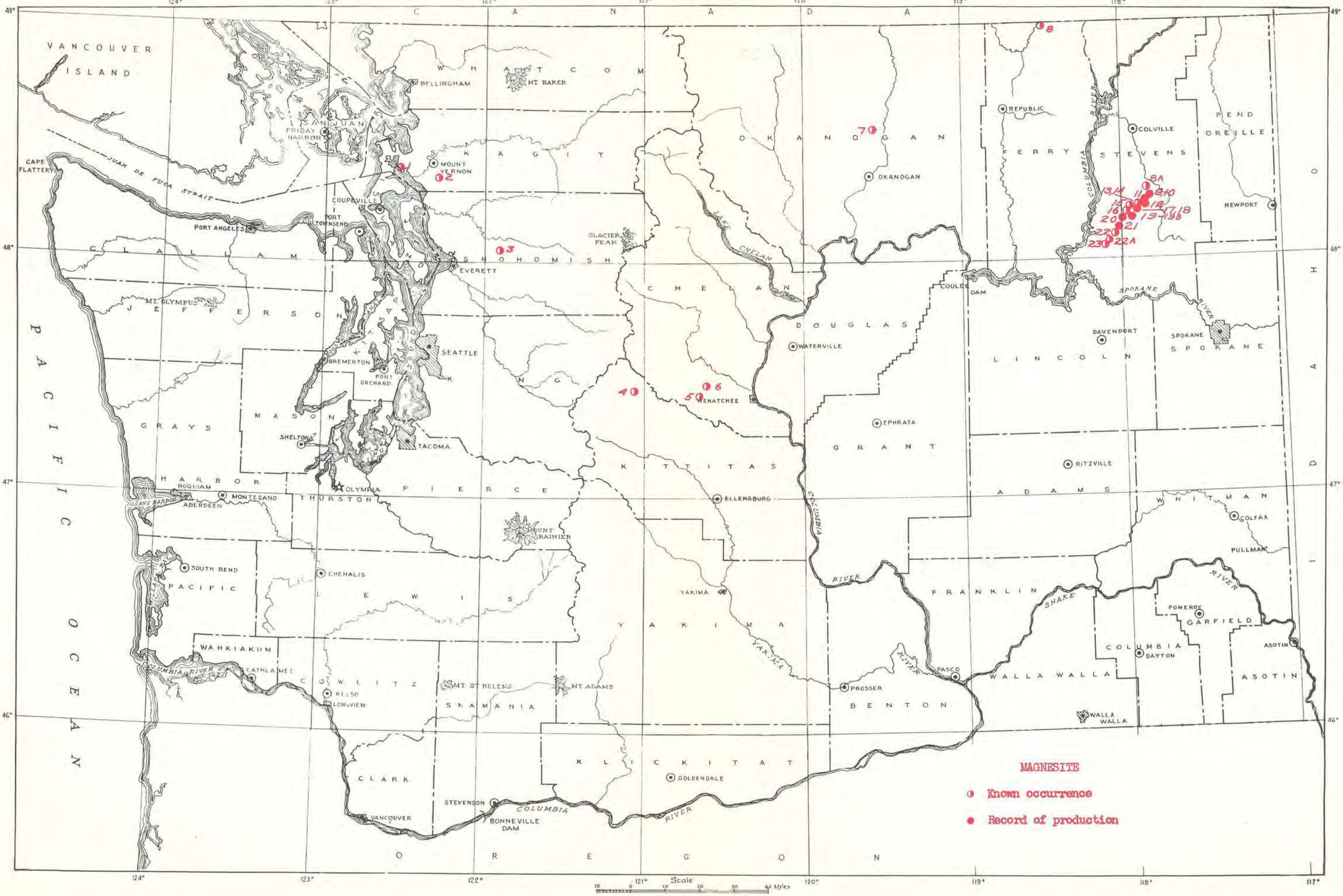
24

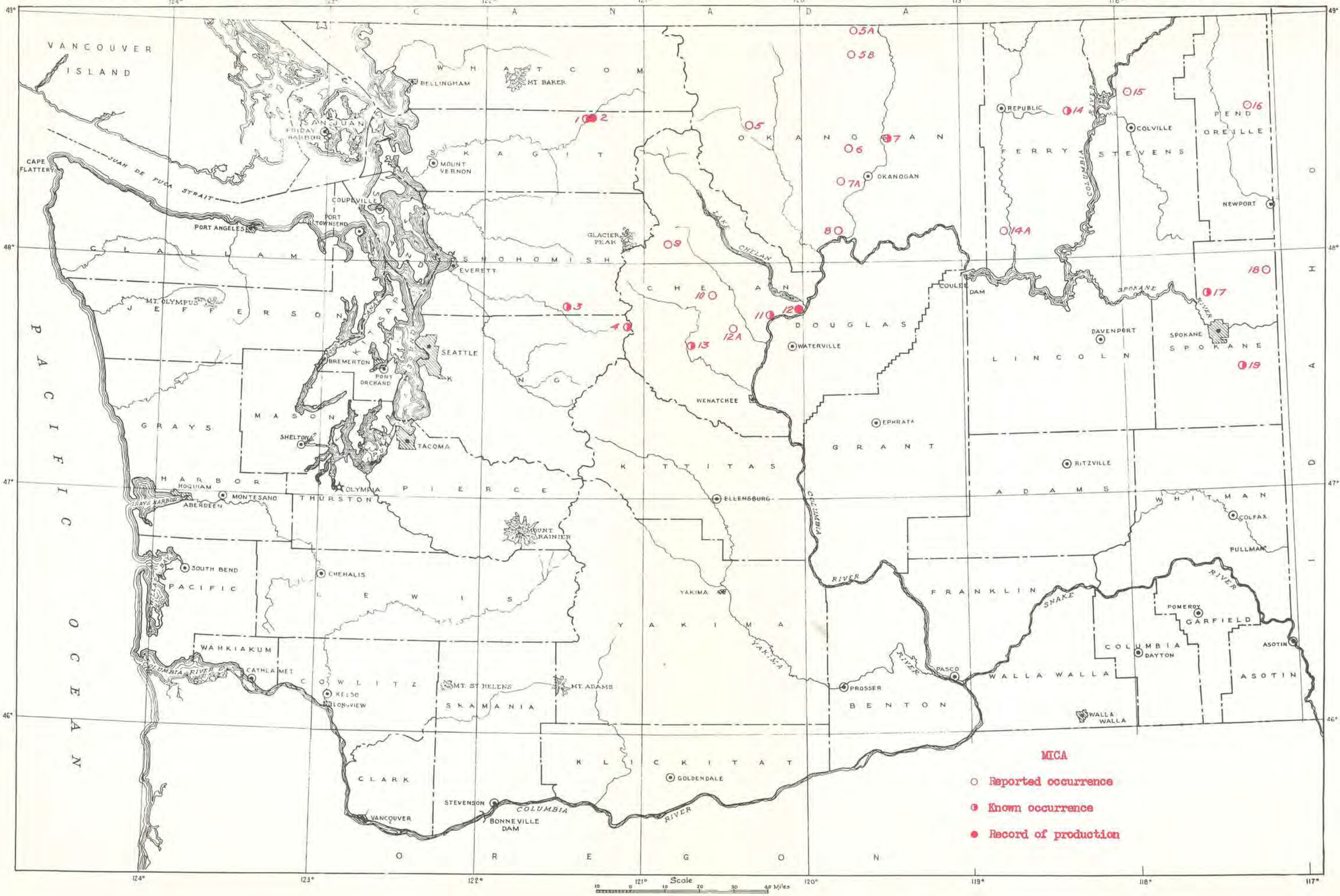

VANCOUVER ISLAND
PACIFIC OCEAN
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
CLALLAM
JEFFERSON
MT. OLYMPUS
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
SOUTH BEND
PACIFIC
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
CLARK
VANCOUVER
SKAMANIA
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
MT ST HELENS
MT ADAMS
KLICKITAT
GOLDENDALE
OREGON
WASHINGTON
CANADA
WHATCOM
BELLINGHAM
MT BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
SNOHOMISH
EVERETT
GLACIER PEAK
SEATTLE
BREMERTON
PORT ORCHARD
KITSAP
MASON
SHELTON
TACOMA
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
LEWIS
CHEHALIS
KITTITAS
ELLENSBURG
YAKIMA
YAKIMA RIVER
CHELAN
LAKE CHELAN
WENATCHEE
OKANOGAN
DOUGLAS
WATERVILLE
GRANT
EPHRATA
COULEE DAM
COLUMBIA RIVER
OKANOGAN
FERRY
REPUBLIC
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
LINCOLN
DAVENPORT
SPOKANE
SPOKANE RIVER
ADAMS
RITZVILLE
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
SNAKE RIVER
BENTON
PROSSER
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
Scale
Miles
GRAPHITE
Reported occurrence
Known occurrence
Record of production

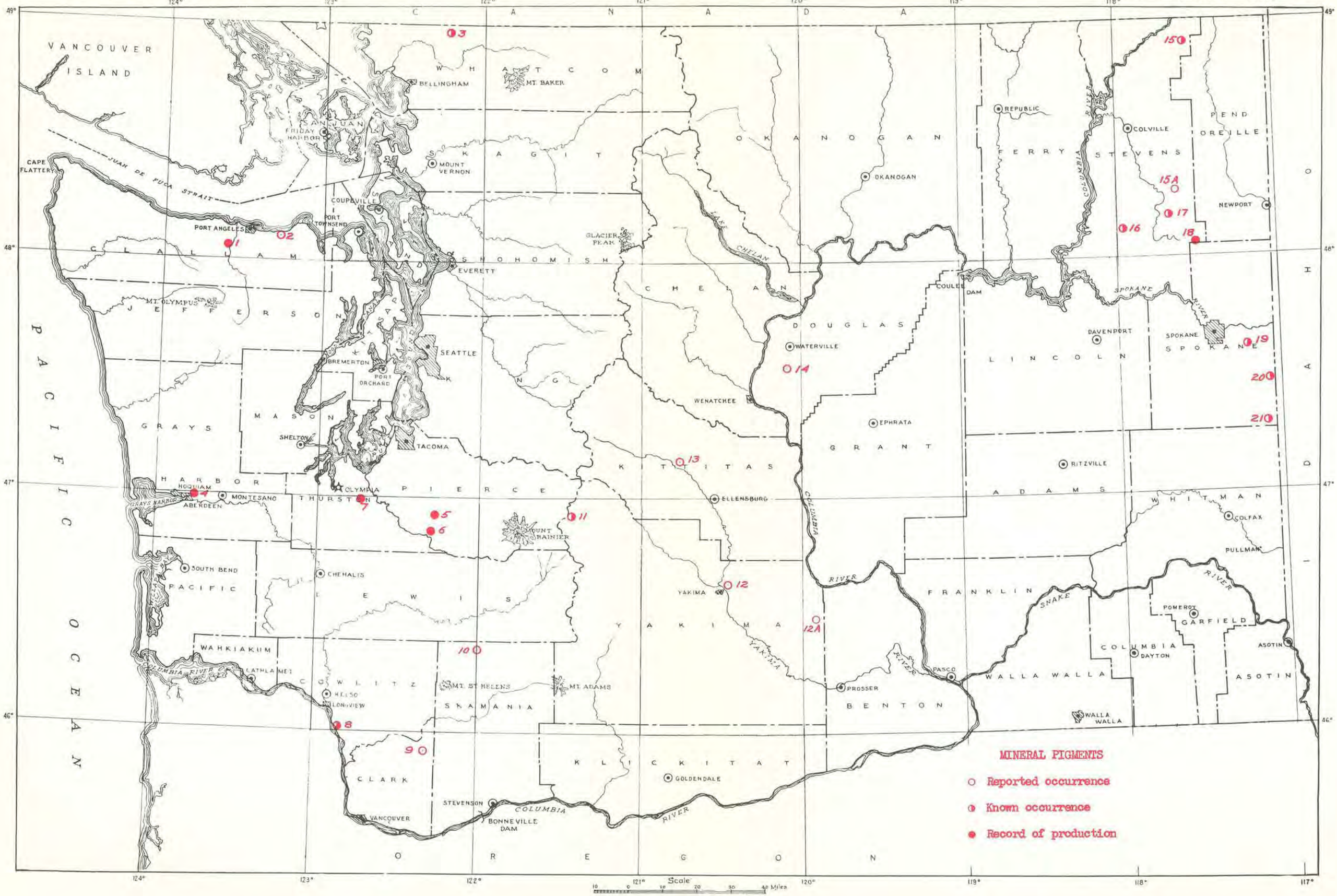

VANCOUVER ISLAND
CANADA
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
CAPE FLATTERY
JUAN DE FUCA STRAIT
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
ISLAND
SNOHOMISH
EVERETT
GLACIER PEAK
MT. OLYMPUS
JEFFERSON
KING
SEATTLE
BREMERTON
PORT ORCHARD
MASON
SHELTON
TACOMA
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
KITTITAS
ELLENSBURG
CHELAN
LAKE CHELAN
WENATCHEE
OKANOGAN
DOUGLAS
WATERVILLE
EPHRATA
GRANT
FERRY
REPUBLIC
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
COULEE DAM
LINCOLN
DAVENPORT
SPOKANE
SPOKANE RIVER
ADAMS
RITZVILLE
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
PROSSER
BENTON
RICHLAND
SNAKE RIVER
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
PACIFIC OCEAN
OREGON
Scale
Miles
GRINDING PEBBLES AND COBBLES
Reported occurrence
Known occurrence

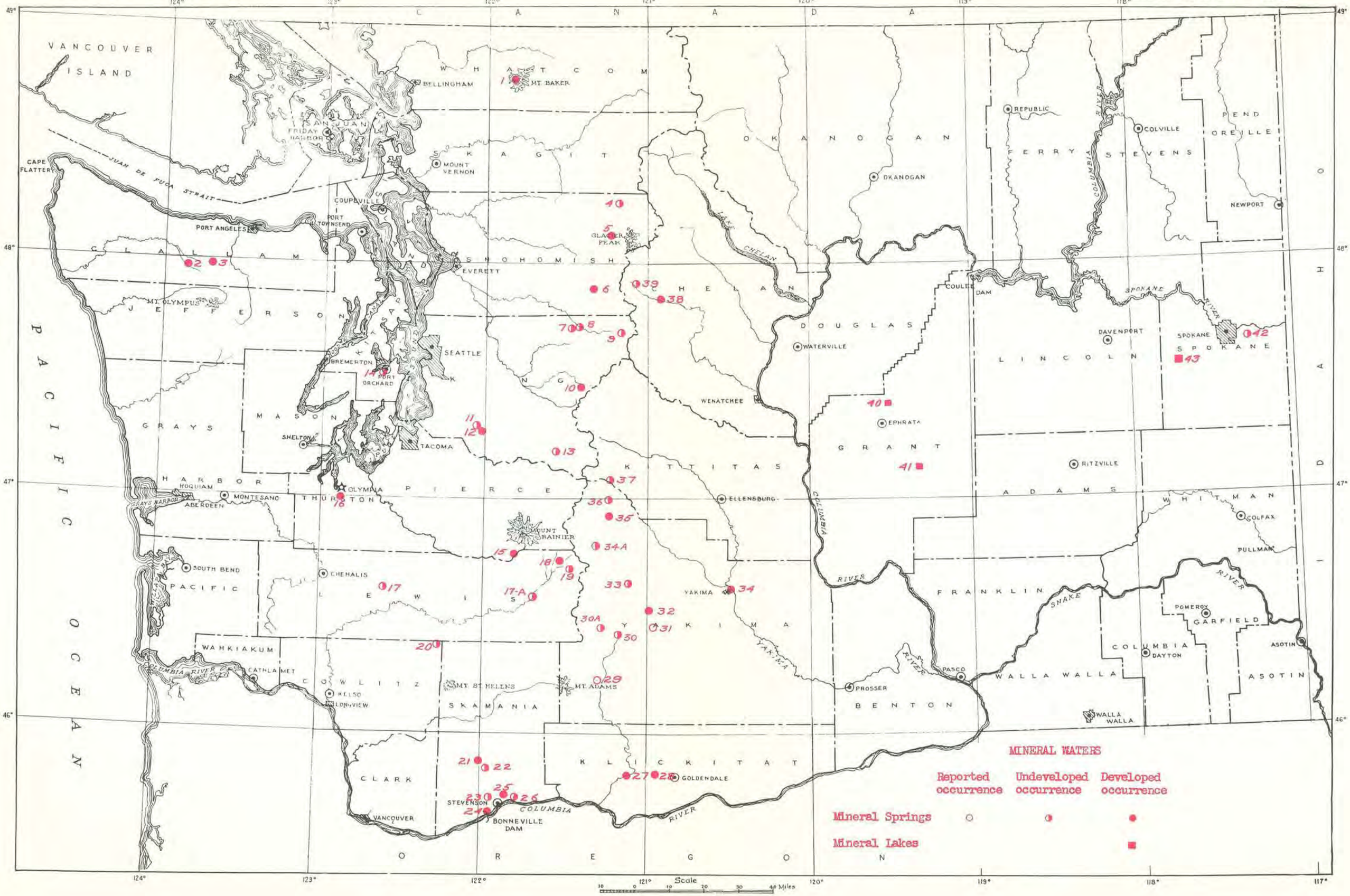

VANCOUVER ISLAND
PACIFIC OCEAN
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
CLALLAM
MT OLYMPUS
JEFFERSON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
GRAYS HARBOR
SOUTH BEND
PACIFIC
WAHKIAKUM
COLUMBIA RIVER
CATHLAMET
COWLITZ
KELSO
LONGVIEW
CLARK
VANCOUVER
STEVENSON
COLUMBIA
BONNEVILLE DAM
SKAMANIA
MT ST HELENS
MT ADAMS
KLICKITAT
GOLDENDALE
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
CHEHALIS
LEWIS
YAKIMA
YAKIMA
ELLENSBURG
YAKIMA
BENTON
PROSSER
PASCO
KITTITAS
CHELAN
LAKE CHELAN
GLACIER PEAK
WENATCHEE
DOUGLAS
WATERVILLE
EPHRATA
GRANT
COULEE DAM
RITZVILLE
ADAMS
FRANKLIN
SNAKE RIVER
WALLA WALLA
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
ASOTIN
WHITMAN
COLFAX
PULLMAN
LINCOLN
DAVENPORT
SPOKANE
SPOKANE
SPOKANE RIVER
STEVENS
COLVILLE
COLUMBIA RIVER
FERRY
REPUBLIC
PEND OREILLE
NEWPORT
OKANOGAN
OKANOGAN
SKAGIT
MOUNT VERNON
SAN JUAN
FRIDAY HARBOR
WHATCOM
BELLINGHAM
MT BAKER
SNOHOMISH
EVERETT
KING
SEATTLE
KITSAP
BREMERTON
PORT ORCHARD
MASON
SHELTON
TACOMA
COUPEVILLE
PORT TOWNSEND
IDAHO
GYPSUM
Reported occurrence
Known occurrence
Record of production
Scale
Miles

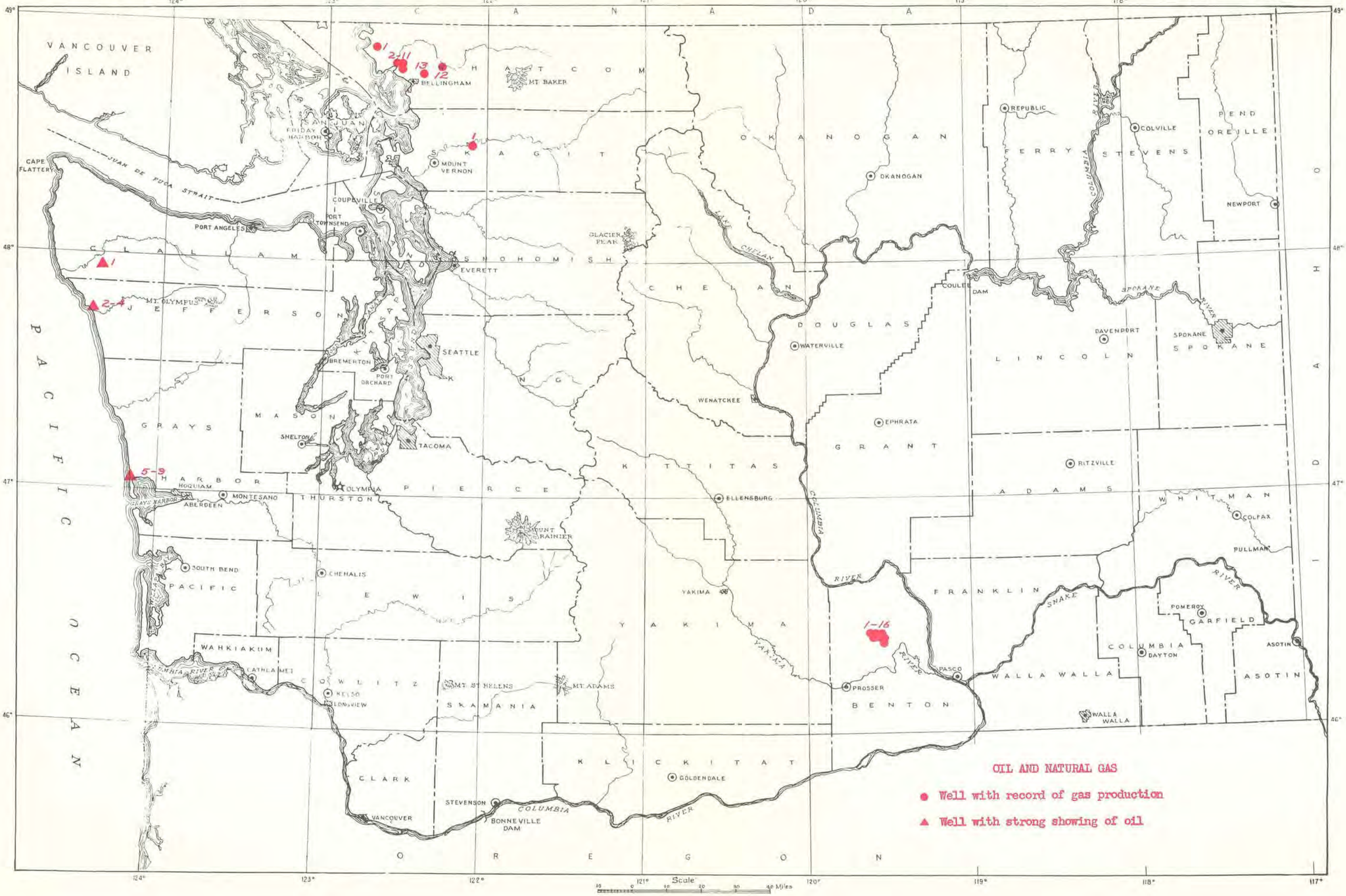

LIMESTONE, MARL, TRAVERTINE, AND CALICHE
Reported occurrence
Known occurrence
Record of production
Limestone
Marl
Travertine
Rock series containing limestone members
Area in which limestone occurs
Area in which caliche occurs
Scale
Miles
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
PORT TOWNSEND
COUPEVILLE
BELLINGHAM
MT. BAKER
MOUNT VERNON
EVERETT
GLACIER PEAK
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
OLYMPIA
SHELTON
MT. OLYMPUS
HOQUIAM
ABERDEEN
MONTESANO
GRAYS HARBOR
MOUNT RAINIER
SOUTH BEND
CHEHALIS
CATHLAMET
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
WENATCHEE
ELLENSBURG
YAKIMA
EPHRATA
WATERVILLE
RITZVILLE
PROSSER
PASCO
GOLDENDALE
OKANOGAN
REPUBLIC
COLVILLE
NEWPORT
COULEE DAM
DAVENPORT
SPOKANE
COLFAX
PULLMAN
POMEROY
DAYTON
ASOTIN
WALLA WALLA
LAKE CHELAN
SPOKANE RIVER
SNAKE RIVER
YAKIMA RIVER
CLALLAM
JEFFERSON
GRAYS HARBOR
MASON
THURSTON
PIERCE
KITSAP
SNOHOMISH
SKAGIT
WHATCOM
ISLAND
SAN JUAN
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
SKAMANIA
CLARK
KLICKITAT
YAKIMA
KITTITAS
CHELAN
DOUGLAS
OKANOGAN
GRANT
ADAMS
LINCOLN
SPOKANE
FERRY
STEVENS
PEND OREILLE
WHITMAN
FRANKLIN
BENTON
COLUMBIA
GARFIELD
WALLA WALLA
ASOTIN
OREGON
IDAHO
36
62
63
64
64A
65
65A
112
130
131
133

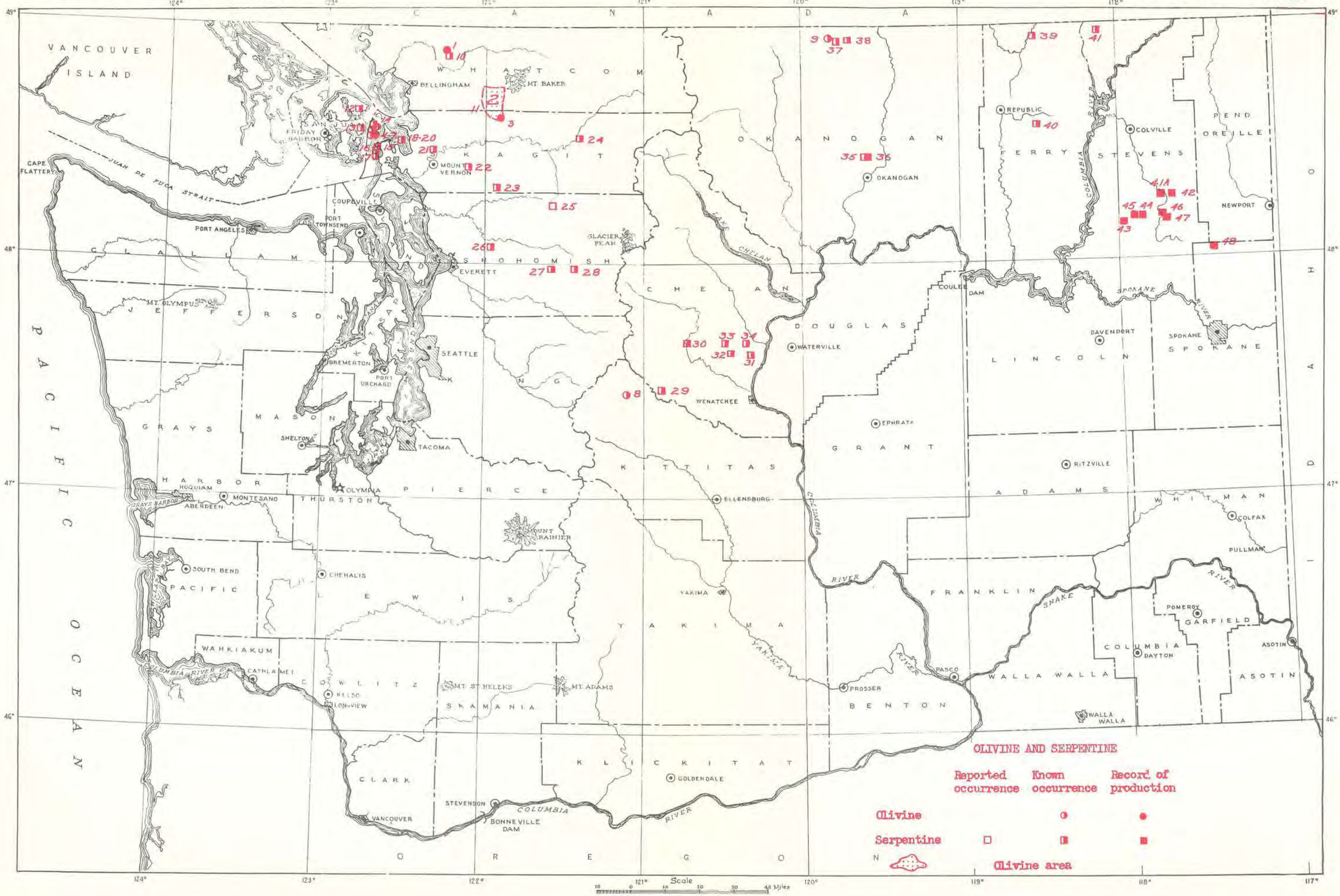

MAGNESITE
Known occurrence
Record of production
Scale
Miles
CANADA
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
SNOHOMISH
EVERETT
GLACIER PEAK
MT. OLYMPUS
JEFFERSON
SEATTLE
BREMERTON
PORT ORCHARD
KITSAP
MASON
SHELTON
TACOMA
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
OREGON
KLICKITAT
GOLDENDALE
YAKIMA
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
OKANOGAN
EPHRATA
GRANT
WATERVILLE
DOUGLAS
COULEE DAM
REPUBLIC
FERRY
COLVILLE
STEVENS
PEND OREILLE
NEWPORT
IDAHO
SPOKANE RIVER
DAVENPORT
LINCOLN
SPOKANE
RITZVILLE
ADAMS
COLFAX
WHITMAN
PULLMAN
FRANKLIN
PASCO
PROSSER
BENTON
SNAKE RIVER
WALLA WALLA
COLUMBIA
DAYTON
POMEROY
GARFIELD
ASOTIN
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°

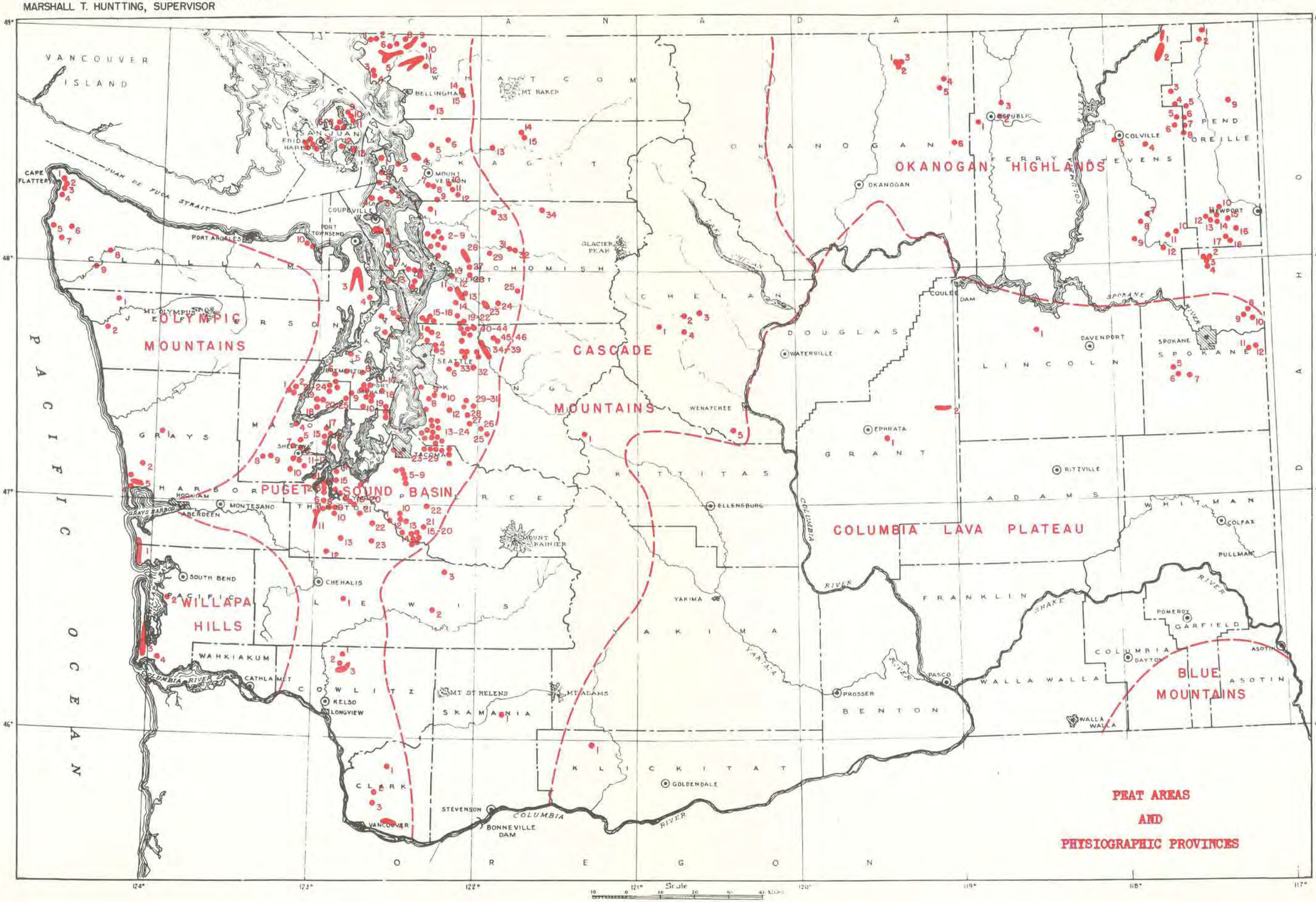

MICA
Reported occurrence
Known occurrence
Record of production
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
JUAN DE FUCA STRAIT
CANADA
WHATCOM
SAN JUAN
SKAGIT
OKANOGAN
FERRY
STEVENS
PEND OREILLE
CLALLAM
JEFFERSON
SNOHOMISH
CHELAN
DOUGLAS
LINCOLN
SPOKANE
MASON
GRAYS HARBOR
THURSTON
PIERCE
KITTITAS
GRANT
ADAMS
WHITMAN
PACIFIC
LEWIS
YAKIMA
FRANKLIN
GARFIELD
COLUMBIA
WALLA WALLA
ASOTIN
WAHKIAKUM
COWLITZ
SKAMANIA
BENTON
CLARK
KLICKITAT
BELLINGHAM
MT BAKER
MOUNT VERNON
FRIDAY HARBOR
CAPE FLATTERY
PORT ANGELES
COUPEVILLE
PORT TOWNSEND
EVERETT
GLACIER PEAK
MT. OLYMPUS
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
SHELTON
OLYMPIA
HOQUIAM
ABERDEEN
MONTESANO
MOUNT RAINIER
SOUTH BEND
CHEHALIS
CATHLAMET
KELSO
LONGVIEW
MT. ST HELENS
MT. ADAMS
VANCOUVER
STEVENSON
BONNEVILLE DAM
GOLDENDALE
YAKIMA
PROSSER
PASCO
WALLA WALLA
DAYTON
POMEROY
ASOTIN
PULLMAN
COLFAX
RITZVILLE
EPHRATA
ELLENSBURG
WENATCHEE
WATERVILLE
COULEE DAM
DAVENPORT
SPOKANE
NEWPORT
COLVILLE
REPUBLIC
OKANOGAN
LAKE CHELAN
COLUMBIA RIVER
SPOKANE RIVER
SNAKE RIVER
YAKIMA RIVER
GRAYS HARBOR
0.5A
0.5B
0.5
0.6
0.7
0.7A
0.8
0.9
1.0
1.2
1.3
1.4
1.0
1.1
1.2
1.2A
1.3
1.4
1.5
1.4A
1.6
1.7
1.8
1.9

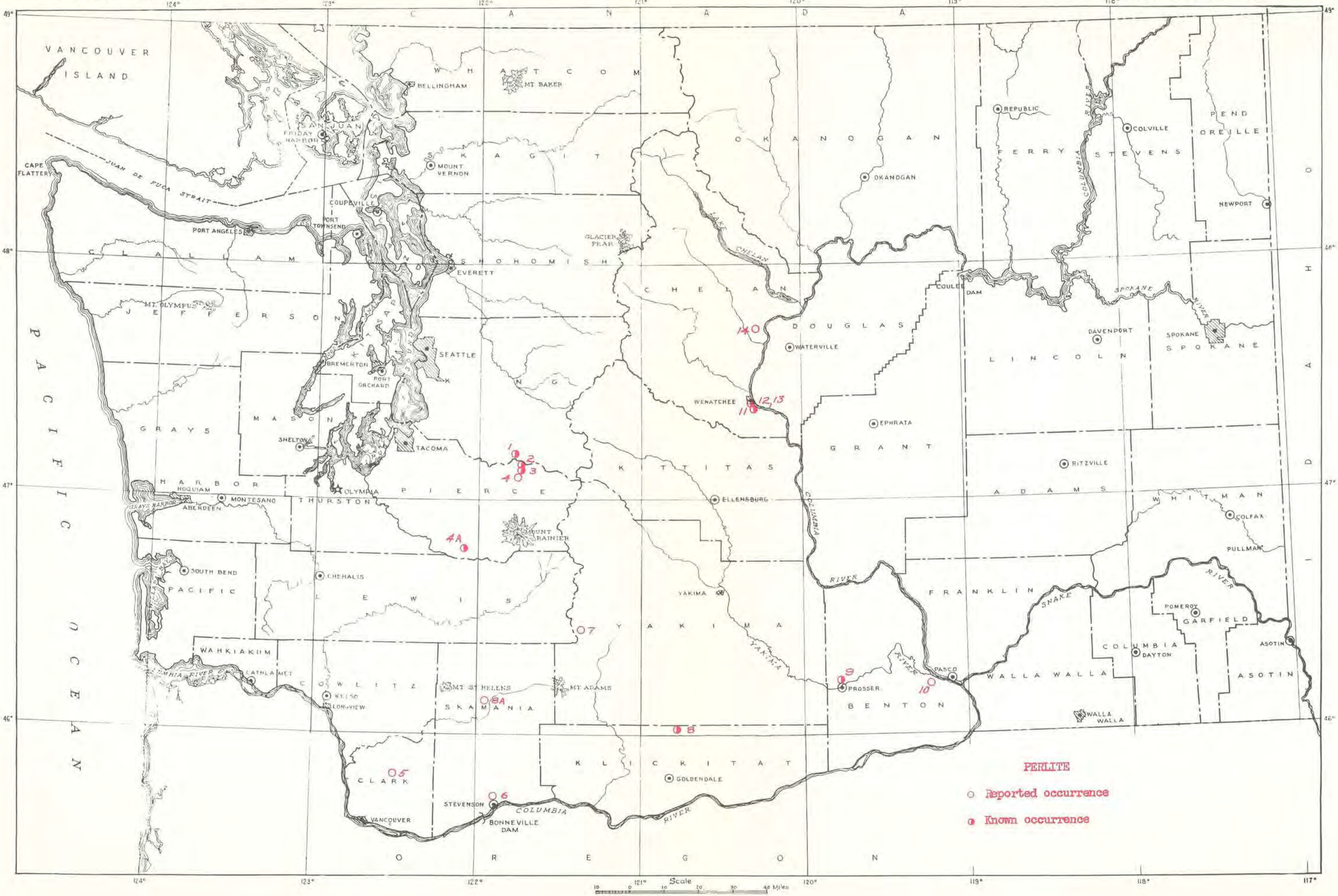

MINERAL PIGMENTS
Reported occurrence
Known occurrence
Record of production
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
OREGON
IDAHO
CAPE FLATTERY
JUAN DE FUCA STRAIT
PORT ANGELES
MT. OLYMPUS
CLALLAM
JEFFERSON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
SOUTH BEND
PACIFIC
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
SKAMANIA
MT. ST. HELENS
MT. ADAMS
KLICKITAT
GOLDENDALE
LEWIS
CHEHALIS
MASON
SHELTON
THURSTON
OLYMPIA
MOUNT RAINIER
PIERCE
TACOMA
KITSAP
BREMERTON
PORT ORCHARD
SEATTLE
KING
SNOHOMISH
EVERETT
COUPEVILLE
PORT TOWNSEND
SAN JUAN
FRIDAY HARBOR
WHATCOM
BELLINGHAM
MT. BAKER
SKAGIT
MOUNT VERNON
GLACIER PEAK
CHELAN
WENATCHEE
LAKE CHELAN
YAKIMA
ELLENSBURG
YAKIMA
PROSSER
BENTON
PASCO
FRANKLIN
GRANT
EPHRATA
DOUGLAS
WATERVILLE
OKANOGAN
OKANOGAN
COULEE DAM
LINCOLN
DAVENPORT
RITZVILLE
ADAMS
SPOKANE
SPOKANE
WHITMAN
COLFAX
PULLMAN
FERRY
REPUBLIC
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
COLUMBIA
DAYTON
WALLA WALLA
WALLA WALLA
GARFIELD
POMEROY
ASOTIN
ASOTIN
COLUMBIA RIVER
SNAKE RIVER
SPOKANE RIVER
YAKIMA RIVER
1
2
3
4
5
6
7
8
9
10
11
12
12A
13
14
15
15A
16
17
18
19
20
21

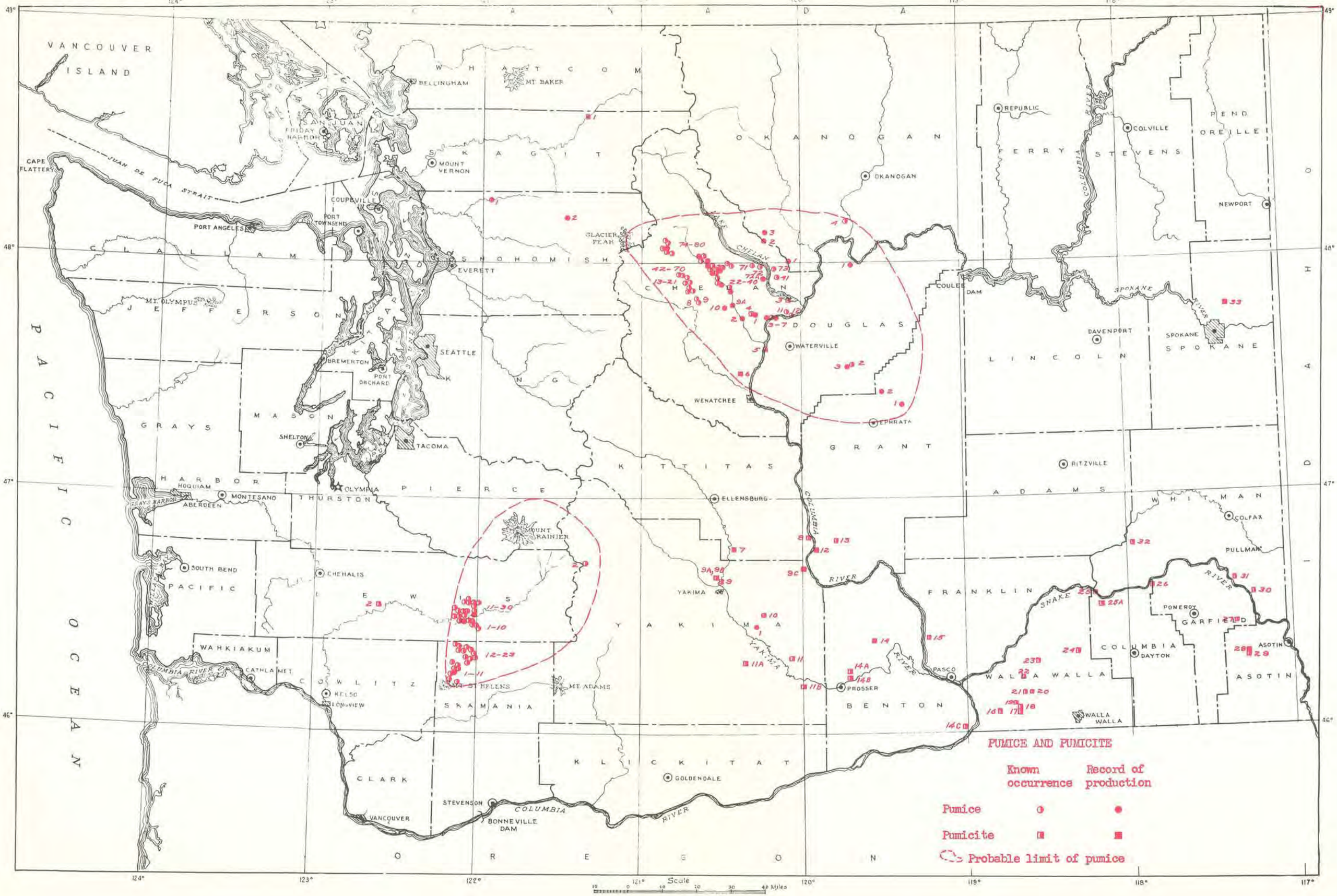

VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
CLALLAM
JEFFERSON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
SOUTH BEND
PACIFIC
WAHKIAKUM
CATHLAMET
COLUMBIA RIVER
CLARK
VANCOUVER
COWLITZ
KELSO
LONGVIEW
CHEHALIS
LEWIS
MASON
SHELTON
THURSTON
OLYMPIA
PIERCE
TACOMA
SEATTLE
KITSAP
BREMERTON
PORT ORCHARD
SAN JUAN
FRIDAY HARBOR
COUPEVILLE
PORT TOWNSEND
WHATCOM
BELLINGHAM
MT. BAKER
SKAGIT
MOUNT VERNON
SNOHOMISH
EVERETT
GLACIER PEAK
MOUNT RAINIER
MT. ST. HELENS
MT. ADAMS
SKAMANIA
STEVENSON
BONNEVILLE DAM
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA
ELLENSBURG
CHELAN
LAKE CHELAN
WENATCHEE
DOUGLAS
WATERVILLE
OKANOGAN
OKANOGAN
GRANT
EPHRATA
COULEE DAM
FERRY
REPUBLIC
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
LINCOLN
DAVENPORT
SPOKANE
SPOKANE
ADAMS
RITZVILLE
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
BENTON
PROSSER
WALLA WALLA
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
ASOTIN
COLUMBIA RIVER
SNAKE RIVER
SPOKANE RIVER
YAKIMA RIVER
Scale
Miles
MINERAL WATERS
Reported occurrence
Undeveloped occurrence
Developed occurrence
Mineral Springs
Mineral Lakes

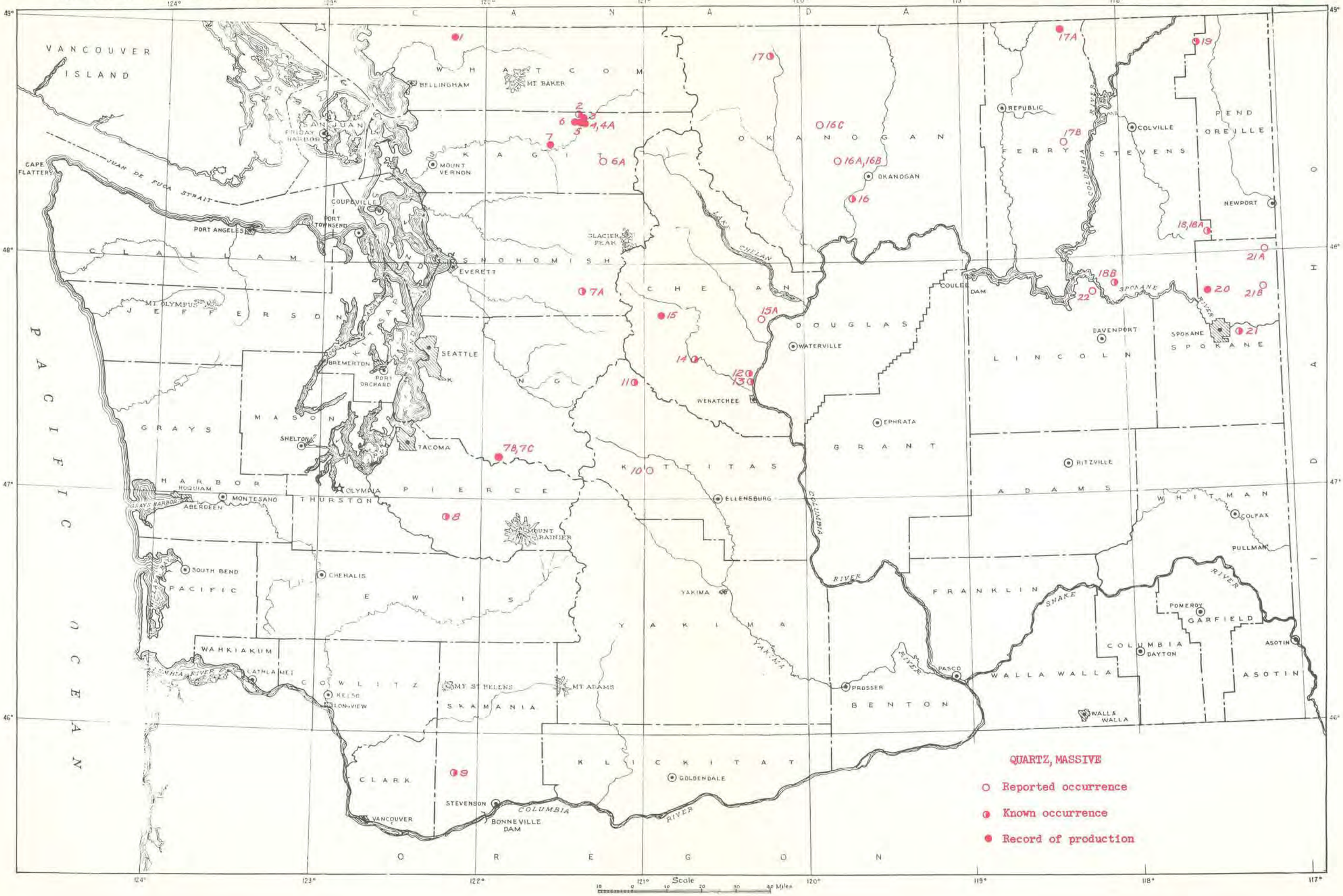

OIL AND NATURAL GAS
Well with record of gas production
Well with strong showing of oil
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
OREGON
IDAHO
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
PORT TOWNSEND
COUPEVILLE
FRIDAY HARBOR
BELLINGHAM
MT. BAKER
MOUNT VERNON
EVERETT
GLACIER PEAK
MT. OLYMPUS
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
OLYMPIA
SHELTON
HOQUIAM
GRAYS HARBOR
ABERDEEN
MONTESANO
SOUTH BEND
CHEHALIS
MOUNT RAINIER
CATHLAMET
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
STEVENSON
BONNEVILLE DAM
VANCOUVER
GOLDENDALE
YAKIMA
ELLENSBURG
WENATCHEE
EPHRATA
WATERVILLE
OKANOGAN
REPUBLIC
COLVILLE
NEWPORT
COULEE DAM
DAVENPORT
SPOKANE
RITZVILLE
COLFAX
PULLMAN
POMEROY
DAYTON
ASOTIN
PASCO
PROSSER
WALLA WALLA
CLALLAM
JEFFERSON
KITSAP
MASON
GRAYS HARBOR
THURSTON
PIERCE
KING
SNOHOMISH
SKAGIT
WHATCOM
SAN JUAN
ISLAND
CHELAN
DOUGLAS
OKANOGAN
FERRY
STEVENS
PEND OREILLE
LINCOLN
SPOKANE
GRANT
ADAMS
WHITMAN
KITTITAS
YAKIMA
FRANKLIN
BENTON
WALLA WALLA
COLUMBIA
GARFIELD
ASOTIN
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
SKAMANIA
CLARK
KLICKITAT
COLUMBIA RIVER
SNAKE RIVER
YAKIMA RIVER
SPOKANE RIVER
LAKE CHELAN
1
2-11
13
12
1
1
2-4
5-9
1-16

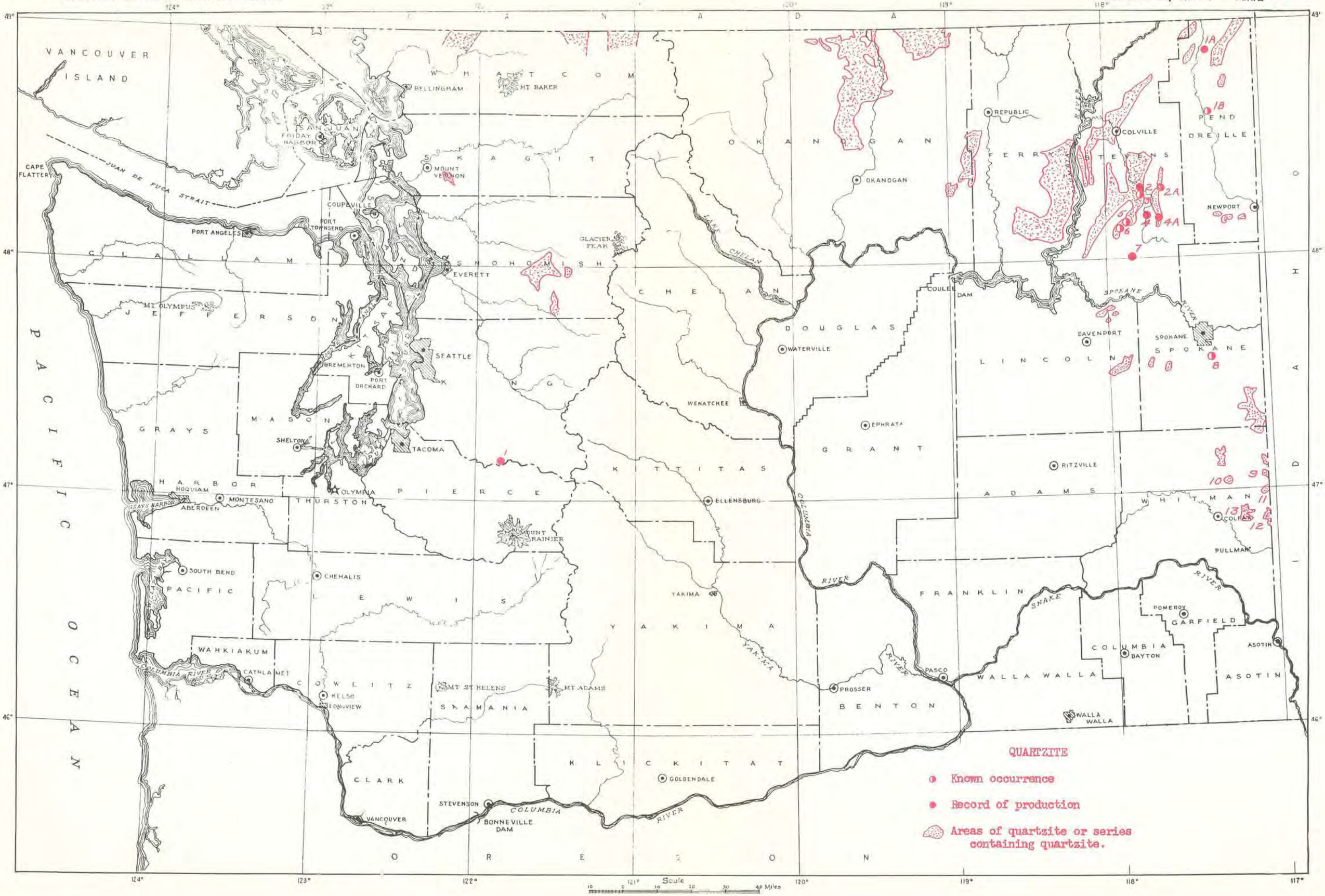

VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
JUAN DE FUCA STRAIT
CAPE FLATTERY
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
JEFFERSON
MT. OLYMPUS
SNOHOMISH
EVERETT
GLACIER PEAK
SEATTLE
BREMERTON
PORT ORCHARD
KING
MASON
SHELTON
TACOMA
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
WAHKIAKUM
COLUMBIA RIVER
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
OREGON
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
DOUGLAS
WATERVILLE
OKANOGAN
GRANT
EPHRATA
PROSSER
BENTON
PASCO
COLUMBIA RIVER
SNAKE RIVER
FRANKLIN
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
WHITMAN
COLFAX
PULLMAN
ADAMS
RITZVILLE
LINCOLN
DAVENPORT
SPOKANE
SPOKANE RIVER
COULEE DAM
FERRY
REPUBLIC
STEVENS
COLVILLE
COLUMBIA RIVER
PEND OREILLE
NEWPORT
IDAHO
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°
Scale
10 0 10 20 30 40 Miles
OLIVINE AND SERPENTINE
Reported occurrence
Known occurrence
Record of production
Olivine
Serpentine
Olivine area
N

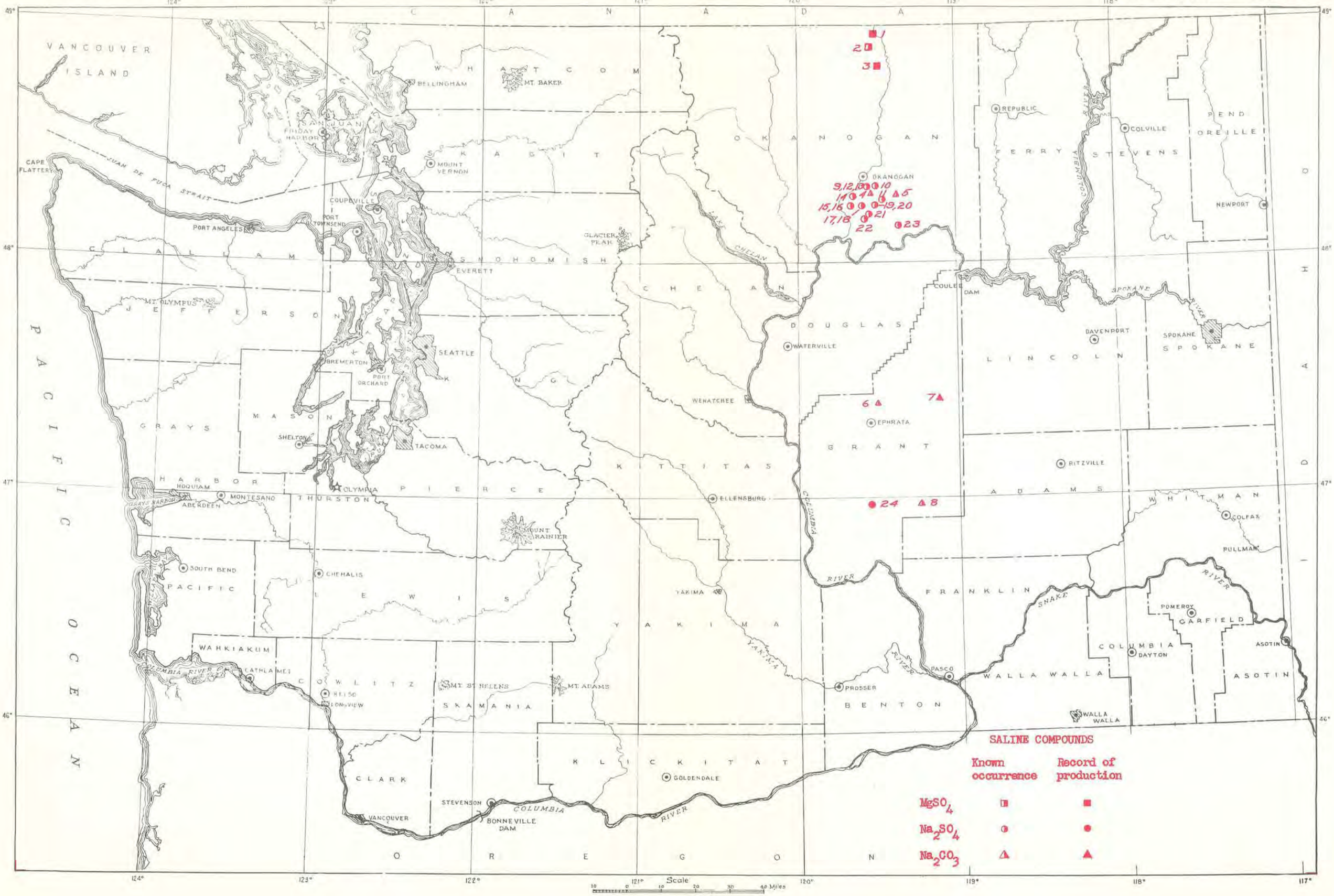

PEAT AREAS
AND
PHYSIOGRAPHIC PROVINCES
OLYMPIC MOUNTAINS
PUGET SOUND BASIN
CASCADE MOUNTAINS
OKANOGAN HIGHLANDS
COLUMBIA LAVA PLATEAU
WILLAPA HILLS
BLUE MOUNTAINS
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
WASHINGTON
OREGON
JUAN DE FUCA STRAIT
BELLINGHAM
MT BAKER
SEATTLE
TACOMA
MOUNT RAINIER
MT ST HELENS
MT ADAMS
GLACIER PEAK
MT OLYMPUS
SPOKANE
COLVILLE
NEWPORT
OKANOGAN
WENATCHEE
YAKIMA
ELLENSBURG
EPHRATA
RITZVILLE
DAVENPORT
WATERVILLE
PASCO
PROSSER
WALLA WALLA
COLFAX
PULLMAN
POMEROY
GARFIELD
DAYTON
ASOTIN
GOLDENDALE
STEVENSON
BONNEVILLE DAM
VANCOUVER
CATHLAMET
KELSO
LONGVIEW
CHEHALIS
SOUTH BEND
ABERDEEN
MONTESANO
HOQUIAM
PORT ANGELES
PORT TOWNSEND
COUPEVILLE
MOUNT VERNON
FRIDAY HARBOR
CAPE FLATTERY
COULEE DAM
COLUMBIA RIVER
SNAKE RIVER
SPOKANE RIVER
YAKIMA RIVER
GRAYS HARBOR
WILLAPA HARBOR
Scale
Miles

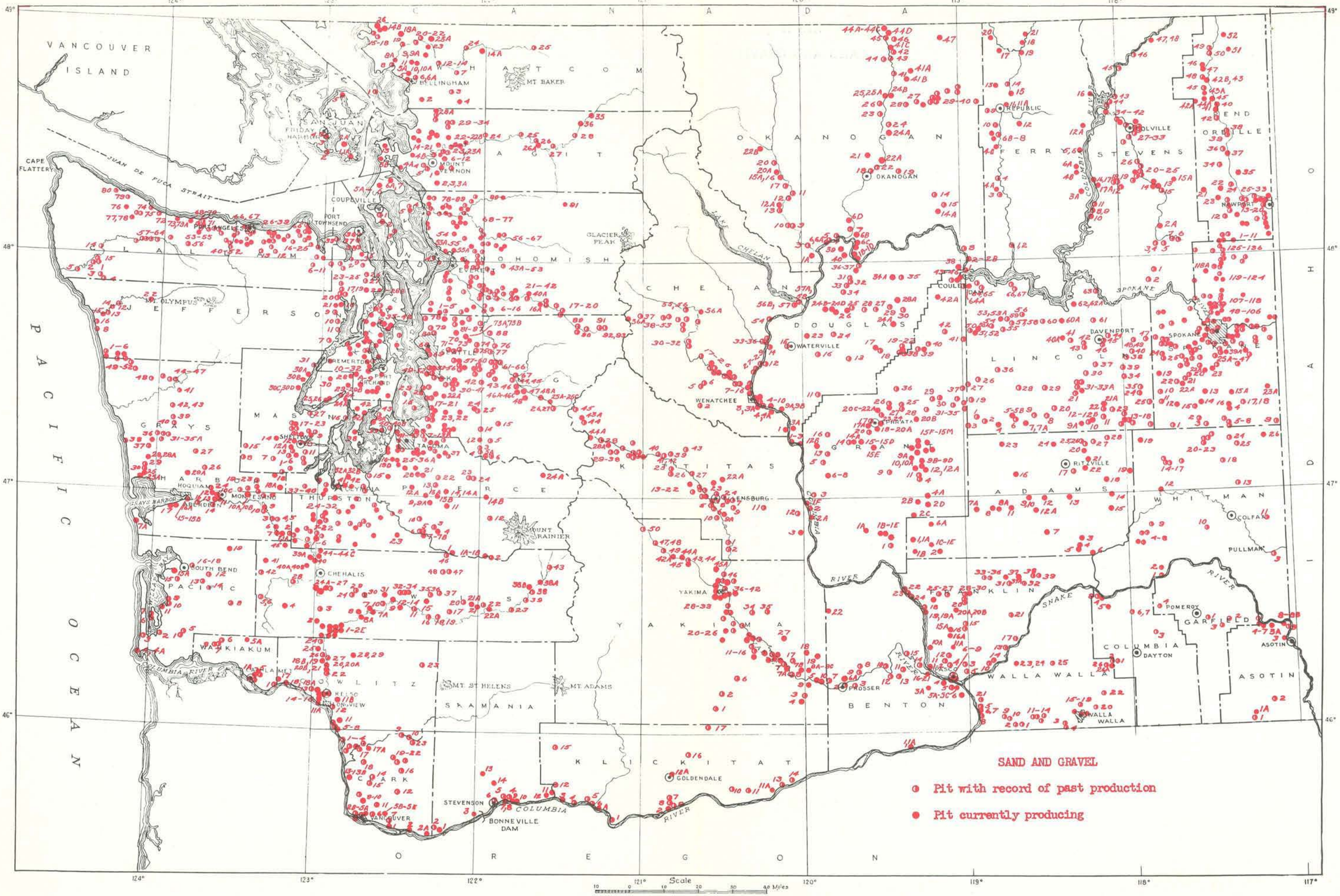

VANCOUVER ISLAND
PACIFIC OCEAN
OREGON
IDAHO
CANADA
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
CLALLAM
JEFFERSON
GRAYS HARBOR
PACIFIC
WAHKIAKUM
COWLITZ
CLARK
SKAMANIA
KLICKITAT
YAKIMA
BENTON
FRANKLIN
GRANT
ADAMS
LINCOLN
SPOKANE
WHITMAN
GARFIELD
ASOTIN
COLUMBIA
WALLA WALLA
PEND OREILLE
STEVENS
FERRY
OKANOGAN
CHELAN
DOUGLAS
KITTITAS
PIERCE
THURSTON
MASON
SHELTON
HOQUIAM
ABERDEEN
MONTESANO
SOUTH BEND
CHEHALIS
KELSO
LONGVIEW
CATHLAMET
VANCOUVER
STEVENSON
BONNEVILLE DAM
GOLDENDALE
TACOMA
OLYMPIA
SEATTLE
BREMERTON
PORT ORCHARD
PORT TOWNSEND
COUPEVILLE
FRIDAY HARBOR
SAN JUAN
MOUNT VERNON
BELLINGHAM
EVERETT
MT BAKER
GLACIER PEAK
MOUNT RAINIER
MT ST HELENS
MT ADAMS
ELLENSBURG
YAKIMA
WENATCHEE
EPHRATA
WATERVILLE
OKANOGAN
REPUBLIC
COLVILLE
NEWPORT
COULEE DAM
DAVENPORT
SPOKANE
RITZVILLE
COLFAX
PULLMAN
POMEROY
DAYTON
PASCO
PROSSER
WALLA WALLA
LAKE CHELAN
COLUMBIA RIVER
SNAKE RIVER
YAKIMA RIVER
SPOKANE RIVER
Scale
10 0 10 20 30 40 Miles
PERLITE
Reported occurrence
Known occurrence


PUMICE AND PUMICITE
Known occurrence
Record of production
Pumice
Pumicite
Probable limit of pumice
Scale
Miles
CANADA
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
FRIDAY HARBOR
SAN JUAN
COUPEVILLE
PORT TOWNSEND
BELLINGHAM
MT BAKER
MOUNT VERNON
EVERETT
GLACIER PEAK
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
OLYMPIA
SHELTON
HOQUIAM
ABERDEEN
MONTESANO
GRAYS HARBOR
SOUTH BEND
CHEHALIS
KELSO
LONGVIEW
CATHLAMET
COLUMBIA RIVER
MT ST HELENS
MT ADAMS
MOUNT RAINIER
STEVENSON
BONNEVILLE DAM
VANCOUVER
GOLDENDALE
ELLENSBURG
YAKIMA
WENATCHEE
WATERVILLE
EPHRATA
PROSSER
PASCO
WALLA WALLA
DAYTON
POMEROY
PULLMAN
COLFAX
ASOTIN
GARFIELD
SPOKANE
DAVENPORT
RITZVILLE
COULEE DAM
OKANOGAN
REPUBLIC
COLVILLE
NEWPORT
CLALLAM
JEFFERSON
GRAYS HARBOR
MASON
THURSTON
PIERCE
KITSAP
SNOHOMISH
SKAGIT
WHATCOM
ISLAND
SAN JUAN
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
SKAMANIA
CLARK
KLICKITAT
YAKIMA
KITTITAS
CHELAN
DOUGLAS
OKANOGAN
GRANT
BENTON
FRANKLIN
ADAMS
LINCOLN
SPOKANE
STEVENS
FERRY
PEND OREILLE
WHITMAN
COLUMBIA
WALLA WALLA
ASOTIN
OREGON
IDAHO
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°

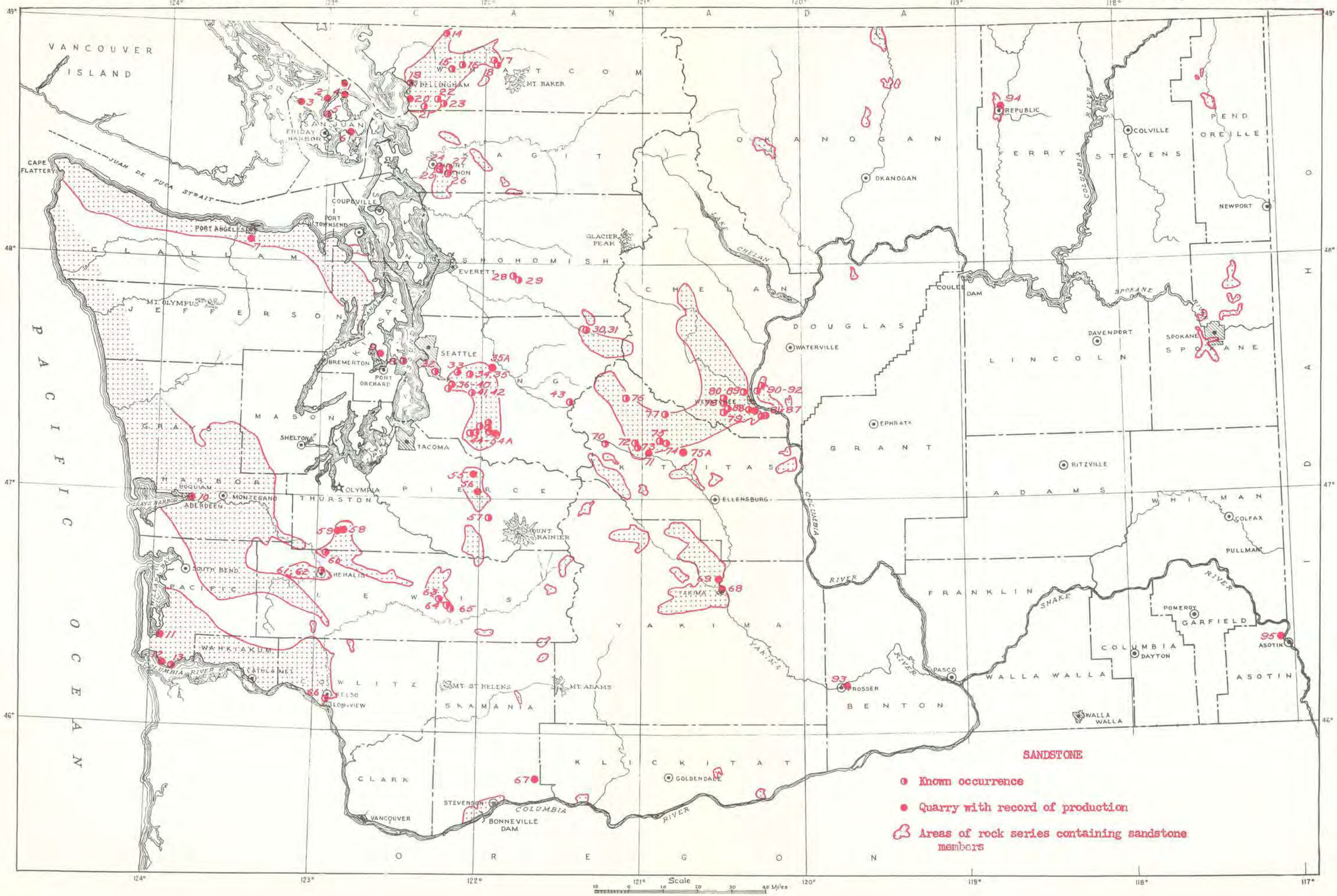

QUARTZ, MASSIVE
Reported occurrence
Known occurrence
Record of production
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
FRIDAY HARBOR
BELLINGHAM
MT BAKER
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
EVERETT
GLACIER PEAK
SEATTLE
BREMERTON
PORT ORCHARD
SHELTON
TACOMA
OLYMPIA
HOQUIAM
ABERDEEN
MONTESANO
MOUNT RAINIER
SOUTH BEND
CHEHALIS
LONGVIEW
KELSO
CATHLAMET
MT ST HELENS
MT ADAMS
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
WENATCHEE
WATERVILLE
EPHRATA
ELLENSBURG
YAKIMA
PROSSER
PASCO
COULEE DAM
OKANOGAN
REPUBLIC
COLVILLE
NEWPORT
DAVENPORT
SPOKANE
RITZVILLE
COLFAX
PULLMAN
POMEROY
DAYTON
ASOTIN
WALLA WALLA
GOLDENDALE
LAKE CHELAN
SPOKANE RIVER
COLUMBIA RIVER
SNAKE RIVER
YAKIMA RIVER
CLALLAM
JEFFERSON
GRAYS HARBOR
MASON
THURSTON
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
SKAMANIA
CLARK
KLICKITAT
YAKIMA
BENTON
FRANKLIN
GRANT
ADAMS
LINCOLN
SPOKANE
WHITMAN
GARFIELD
COLUMBIA
WALLA WALLA
ASOTIN
FERRY
STEVENS
PEND OREILLE
OKANOGAN
CHELAN
DOUGLAS
KITTITAS
SKAGIT
WHATCOM
SAN JUAN
OREGON
IDAHO

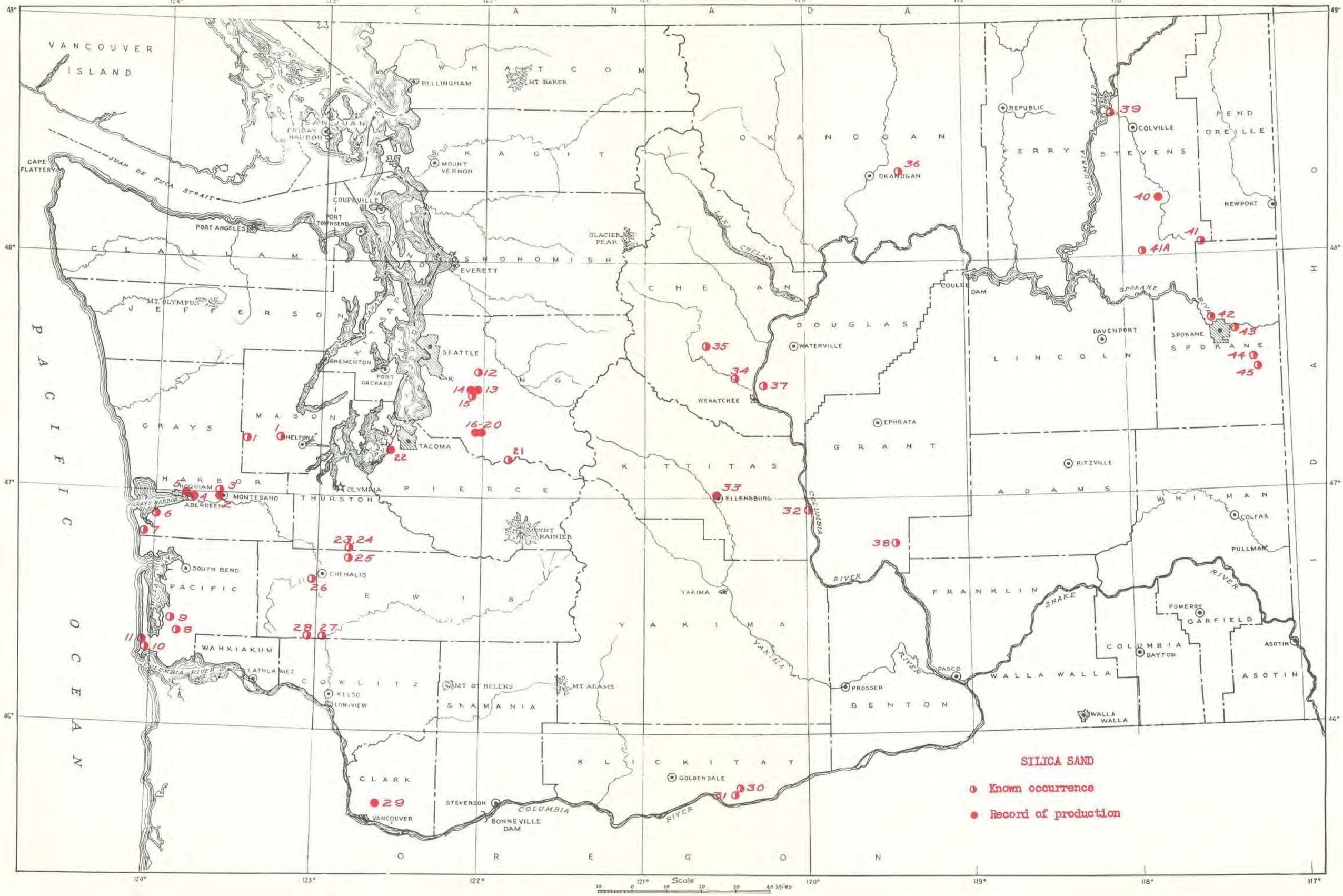

QUARTZITE
Known occurrence
Record of production
Areas of quartzite or series containing quartzite.
Scale
Miles
CANADA
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
PORT TOWNSEND
COUPEVILLE
FRIDAY HARBOR
BELLINGHAM
MT BAKER
MOUNT VERNON
EVERETT
GLACIER PEAK
MT OLYMPUS
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
SHELTON
OLYMPIA
HOQUIAM
ABERDEEN
MONTESANO
GRAYS HARBOR
SOUTH BEND
CHEHALIS
MOUNT RAINIER
CATHLAMET
KELSO
LONGVIEW
MT ST HELENS
MT ADAMS
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
WENATCHEE
LAKE CHELAN
WATERVILLE
EPHRATA
ELLENSBURG
YAKIMA
PROSSER
PASCO
GOLDENDALE
REPUBLIC
COLVILLE
OKANOGAN
COULEE DAM
DAVENPORT
SPOKANE
RITZVILLE
COLFAX
PULLMAN
POMEROY
DAYTON
WALLA WALLA
ASOTIN
NEWPORT
SPOKANE RIVER
SNAKE RIVER
YAKIMA RIVER
WHATCOM
SAN JUAN
SKAGIT
OKANOGAN
FERRY
STEVENS
PEND OREILLE
CLALLAM
JEFFERSON
KITSAP
SNOHOMISH
CHELAN
DOUGLAS
LINCOLN
MASON
GRAYS HARBOR
THURSTON
PIERCE
KITTITAS
GRANT
ADAMS
WHITMAN
PACIFIC
LEWIS
YAKIMA
FRANKLIN
GARFIELD
COLUMBIA
WAHKIAKUM
COWLITZ
SKAMANIA
BENTON
WALLA WALLA
ASOTIN
CLARK
KLICKITAT
1A
1B
2
2A
4A
4
6
7
8
9
10
11
12
13
1


VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
CLALLAM
JEFFERSON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
SOUTH BEND
PACIFIC
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
SKAMANIA
MT. ST. HELENS
MT. ADAMS
KLICKITAT
GOLDENDALE
OREGON
SAN JUAN
FRIDAY HARBOR
WHATCOM
BELLINGHAM
MT. BAKER
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
SNOHOMISH
EVERETT
GLACIER PEAK
SEATTLE
BREMERTON
PORT ORCHARD
MASON
SHELTON
TACOMA
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
LEWIS
CHEHALIS
YAKIMA
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
OKANOGAN
OKANOGAN
DOUGLAS
WATERVILLE
GRANT
EPHRATA
COULEE DAM
BENTON
PROSSER
PASCO
FRANKLIN
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
WHITMAN
COLFAX
PULLMAN
ADAMS
RITZVILLE
LINCOLN
DAVENPORT
SPOKANE
SPOKANE RIVER
FERRY
STEVENS
COLVILLE
REPUBLIC
PEND OREILLE
NEWPORT
IDAHO
SNAKE RIVER
YAKIMA RIVER
Scale
10 0 10 20 30 40 Miles
124° 123° 122° 121° 120° 119° 118° 117°
49° 48° 47° 46°
SALINE COMPOUNDS
Known occurrence
Record of production
$MgSO_4$
Na_2SO_4
Na_2CO_3


SAND AND GRAVEL
Pit with record of past production
Pit currently producing
Scale
10 0 10 20 30 40 Miles
CANADA
PACIFIC OCEAN
OREGON
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
MT OLYMPUS
MT BAKER
GLACIER PEAK
MOUNT RAINIER
MT. ST HELENS
MT ADAMS
LAKE CHELAN
SPOKANE RIVER
COLUMBIA RIVER
SNAKE RIVER
WHATCOM
SAN JUAN
SKAGIT
OKANOGAN
FERRY
STEVENS
PEND OREILLE
CHELAN
DOUGLAS
LINCOLN
ADAMS
WHITMAN
GARFIELD
ASOTIN
COLUMBIA
WALLA WALLA
FRANKLIN
BENTON
YAKIMA
KITTITAS
KLICKITAT
SKAMANIA
CLARK
WAHKIAKUM
COWLITZ
LEWIS
THURSTON
PACIFIC
GRAYS HARBOR
MASON
KITSAP
JEFFERSON
CLALLAM
ISLAND
SAN JUAN
BELLINGHAM
MOUNT VERNON
FRIDAY HARBOR
PORT TOWNSEND
COUPEVILLE
PORT ANGELES
EVERETT
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
SHELTON
OLYMPIA
ABERDEEN
HOQUIAM
MONTESANO
CHEHALIS
SOUTH BEND
KELSO
LONGVIEW
VANCOUVER
STEVENSON
BONNEVILLE DAM
GOLDENDALE
YAKIMA
ELLENSBURG
WENATCHEE
EPHRATA
WATERVILLE
OKANOGAN
REPUBLIC
KETTLE FALLS
COLVILLE
NEWPORT
COULEE DAM
GRAND COULEE
DAVENPORT
SPOKANE
RITZVILLE
COLFAX
PULLMAN
POMEROY
DAYTON
ASOTIN
PASCO
KENNEWICK
PROSSER
WALLA WALLA
124° 123° 122° 121° 120° 119° 118° 117°
49° 48° 47° 46°

MAP SHOWING PRINCIPAL
AREAS OF SAND AND GRAVEL
CANADA
VANCOUVER ISLAND
PACIFIC OCEAN
OREGON
IDAHO
JUAN DE FUCA STRAIT
CAPE FLATTERY
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
GLACIER PEAK
SNOHOMISH
EVERETT
MT. OLYMPUS
JEFFERSON
SEATTLE
BREMERTON
PORT ORCHARD
KING
MASON
SHELTON
TACOMA
GRAYS HARBOR
HOQUIAM
MONTESANO
ABERDEEN
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
WAHKIAKUM
COLUMBIA RIVER
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
SKAMANIA
MT. ADAMS
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
KLICKITAT
GOLDENDALE
YAKIMA
ELLENSBURG
KITTITAS
CHELAN
LAKE CHELAN
WENATCHEE
DOUGLAS
WATERVILLE
OKANOGAN
GRANT
EPHRATA
COULEE DAM
FERRY
REPUBLIC
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
LINCOLN
DAVENPORT
SPOKANE
SPOKANE RIVER
ADAMS
RITZVILLE
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
PROSSER
BENTON
SNAKE RIVER
POMEROY
GARFIELD
COLUMBIA
DAYTON
WALLA WALLA
WALLA WALLA
ASOTIN
Scale
10 0 10 20 30 40 Miles
124° 123° 122° 121° 120° 119° 118° 117°
49° 48° 47° 46°


SANDSTONE
Known occurrence
Quarry with record of production
Areas of rock series containing sandstone members
Scale
Miles
CANADA
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
WHATCOM
BELLINGHAM
MT BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
MT OLYMPUS
JEFFERSON
SNOHOMISH
EVERETT
GLACIER PEAK
SEATTLE
BREMERTON
PORT ORCHARD
KITSAP
MASON
SHELTON
TACOMA
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
WAHKIAKUM
CATHLAMET
COLUMBIA RIVER
COWLITZ
KELSO
LONGVIEW
MT ST HELENS
MT ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
KLICKITAT
GOLDENDALE
YAKIMA
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
DOUGLAS
WATERVILLE
OKANOGAN
EPHRATA
GRANT
RITZVILLE
ADAMS
REPUBLIC
FERRY
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
COULEE DAM
SPOKANE RIVER
DAVENPORT
LINCOLN
SPOKANE
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
SNAKE RIVER
POMEROY
GARFIELD
COLUMBIA
DAYTON
ASOTIN
WALLA WALLA
BENTON
PROSSER
YAKIMA RIVER
COLUMBIA RIVER
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°


SILICA SAND
Known occurrence
Record of production
Scale
Miles
CANADA
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
SNOHOMISH
EVERETT
GLACIER PEAK
MT. OLYMPUS
JEFFERSON
SEATTLE
BREMERTON
PORT ORCHARD
KING
MASON
SHELTON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
GRAYS HARBOR
TACOMA
OLYMPIA
THURSTON
PIERCE
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
WAHKIAKUM
COLUMBIA RIVER
LATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
OKANOGAN
OKANOGAN
DOUGLAS
WATERVILLE
GRANT
EPHRATA
COULEE DAM
REPUBLIC
FERRY
COLUMBIA RIVER
COLVILLE
STEVENS
PEND OREILLE
NEWPORT
SPOKANE RIVER
DAVENPORT
LINCOLN
SPOKANE
SPOKANE
ADAMS
RITZVILLE
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
SNAKE RIVER
PROSSER
BENTON
WALLA WALLA
WALLA WALLA
COLUMBIA
DAYTON
POMEROY
GARFIELD
ASOTIN
ASOTIN
IDAHO
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°

SLATE AND OTHER PLATY ROCKS
Known occurrence
Record of production
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
OREGON
IDAHO
WHATCOM
SAN JUAN
SKAGIT
OKANOGAN
FERRY
STEVENS
PEND OREILLE
CLALLAM
JEFFERSON
SNOHOMISH
CHELAN
DOUGLAS
LINCOLN
SPOKANE
MASON
GRAYS HARBOR
THURSTON
PIERCE
KITTITAS
GRANT
ADAMS
WHITMAN
PACIFIC
LEWIS
YAKIMA
FRANKLIN
GARFIELD
COLUMBIA
WALLA WALLA
ASOTIN
WAHKIAKUM
COWLITZ
SKAMANIA
BENTON
CLARK
KLICKITAT
BELLINGHAM
MT BAKER
FRIDAY HARBOR
MOUNT VERNON
CAPE FLATTERY
JUAN DE FUCA STRAIT
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
GLACIER PEAK
EVERETT
MT. OLYMPUS
SEATTLE
BREMERTON
PORT ORCHARD
SHELTON
TACOMA
OLYMPIA
HOQUIAM
ABERDEEN
MONTESANO
MOUNT RAINIER
SOUTH BEND
CHEHALIS
CATHLAMET
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
VANCOUVER
STEVENSON
BONNEVILLE DAM
GOLDENDALE
YAKIMA
ELLENSBURG
WENATCHEE
EPHRATA
WATERVILLE
OKANOGAN
REPUBLIC
COLVILLE
NEWPORT
COULEE DAM
DAVENPORT
SPOKANE
RITZVILLE
COLFAX
PULLMAN
POMEROY
DAYTON
ASOTIN
PASCO
PROSSER
WALLA WALLA
COLUMBIA RIVER
SNAKE RIVER
YAKIMA RIVER
SPOKANE RIVER
LAKE CHELAN
GRAYS HARBOR
124°
123°
122°
121°
120°
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117°
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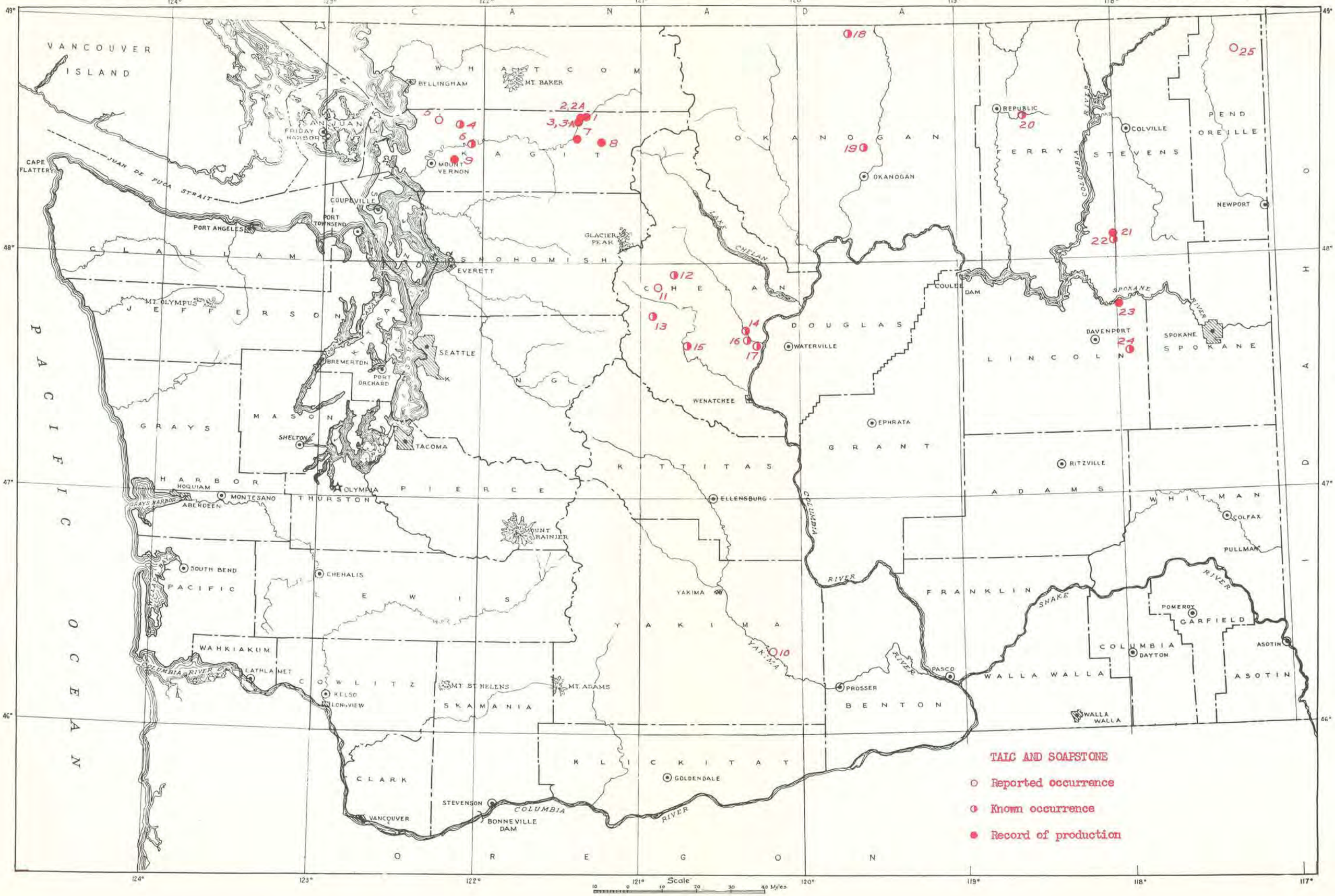
46°


TALC AND SOAPSTONE
Reported occurrence
Known occurrence
Record of production
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
OREGON
IDAHO
WHATCOM
SAN JUAN
SKAGIT
OKANOGAN
FERRY
STEVENS
PEND OREILLE
CLALLAM
JEFFERSON
SNOHOMISH
CHELAN
DOUGLAS
LINCOLN
SPOKANE
GRANT
ADAMS
WHITMAN
GRAYS HARBOR
MASON
THURSTON
PIERCE
KITTITAS
YAKIMA
FRANKLIN
GARFIELD
COLUMBIA
ASOTIN
WALLA WALLA
BENTON
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
SKAMANIA
CLARK
KLICKITAT
BELLINGHAM
MT. BAKER
FRIDAY HARBOR
MOUNT VERNON
CAPE FLATTERY
JUAN DE FUCA STRAIT
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
GLACIER PEAK
EVERETT
MT. OLYMPUS
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
SHELTON
OLYMPIA
HOQUIAM
ABERDEEN
MONTESANO
MOUNT RAINIER
SOUTH BEND
CHEHALIS
LATHLAMET
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
LAKE CHELAN
WENATCHEE
WATERVILLE
EPHRATA
ELLENSBURG
YAKIMA
YAKIMA RIVER
PROSSER
PASCO
GOLDENDALE
OKANOGAN
REPUBLIC
COLVILLE
NEWPORT
COULEE DAM
SPOKANE RIVER
DAVENPORT
SPOKANE
RITZVILLE
COLFAX
PULLMAN
SNAKE RIVER
POMEROY
DAYTON
WALLA WALLA
ASOTIN
1
2,2A
3,3A
4
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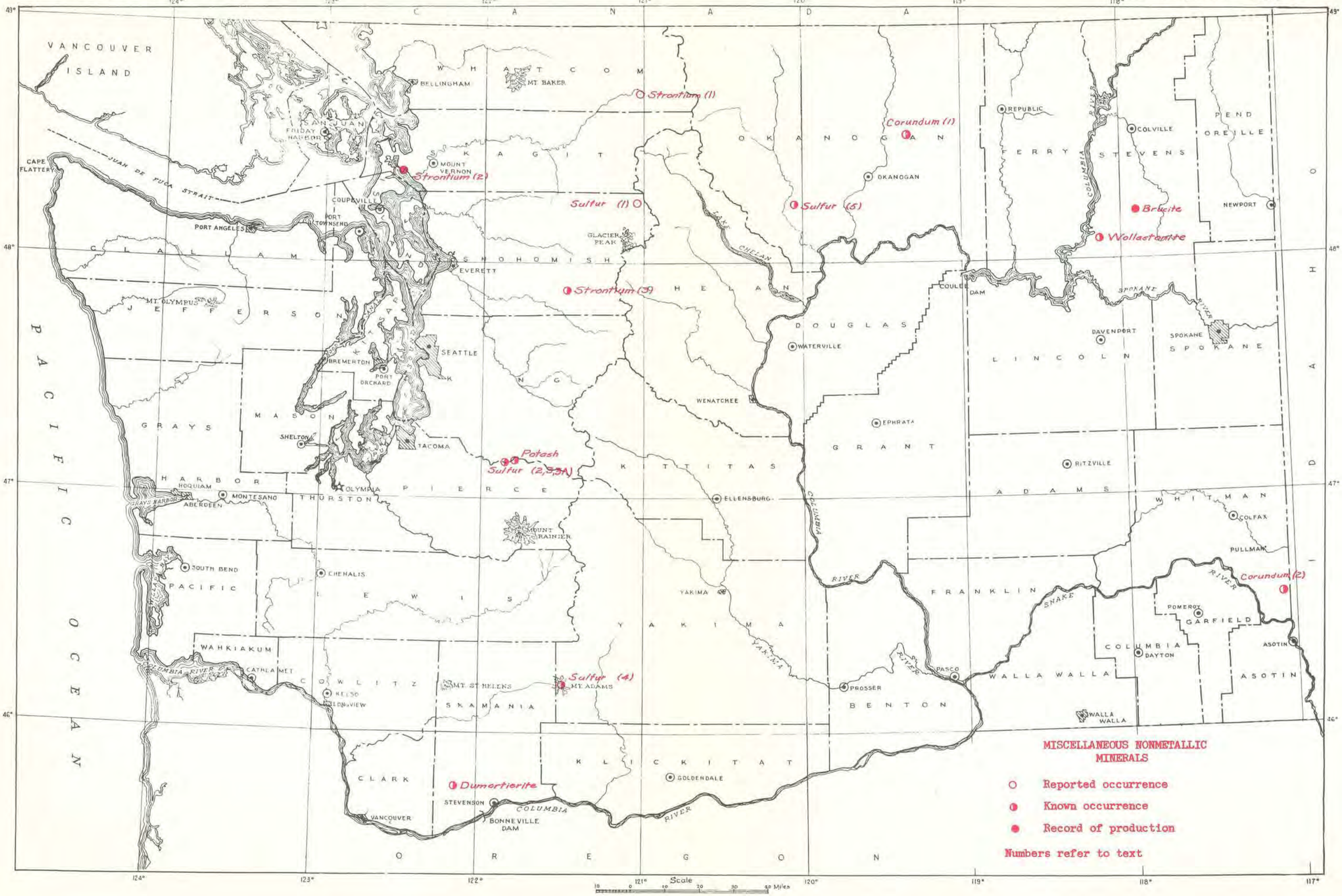
MISCELLANEOUS NONMETALLIC MINERALS
Reported occurrence
Known occurrence
Record of production
Numbers refer to text
Strontium (1)
Corundum (1)
Strontium (2)
Sulfur (1)
Sulfur (5)
Brucite
Wollastonite
Strontium (3)
Potash
Sulfur (2,3,3A)
Corundum (2)
Sulfur (4)
Dumortierite
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
WHATCOM
SAN JUAN
SKAGIT
OKANOGAN
FERRY
STEVENS
PEND OREILLE
CLALLAM
JEFFERSON
SNOHOMISH
CHELAN
DOUGLAS
LINCOLN
SPOKANE
GRAYS HARBOR
MASON
KITTITAS
GRANT
ADAMS
WHITMAN
PACIFIC
LEWIS
THURSTON
PIERCE
YAKIMA
FRANKLIN
GARFIELD
COLUMBIA
WAHKIAKUM
COWLITZ
SKAMANIA
BENTON
WALLA WALLA
ASOTIN
CLARK
KLICKITAT
OREGON
BELLINGHAM
MT. BAKER
FRIDAY HARBOR
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CAPE FLATTERY
JUAN DE FUCA STRAIT
GLACIER PEAK
EVERETT
MT. OLYMPUS
SEATTLE
BREMERTON
PORT ORCHARD
SHELTON
TACOMA
OLYMPIA
HOQUIAM
ABERDEEN
MONTESANO
MOUNT RAINIER
SOUTH BEND
CHEHALIS
CATHLAMET
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
VANCOUVER
STEVENSON
BONNEVILLE DAM
GOLDENDALE
YAKIMA
ELLENSBURG
WENATCHEE
EPHRATA
WATERVILLE
OKANOGAN
REPUBLIC
COLVILLE
NEWPORT
COULEE DAM
DAVENPORT
SPOKANE
RITZVILLE
COLFAX
PULLMAN
POMEROY
DAYTON
ASOTIN
PASCO
PROSSER
WALLA WALLA
COLUMBIA RIVER
SNAKE RIVER
YAKIMA RIVER
LAKE CHELAN
SPOKANE RIVER
Scale
10 0 10 20 30 40 Miles
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°