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

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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.

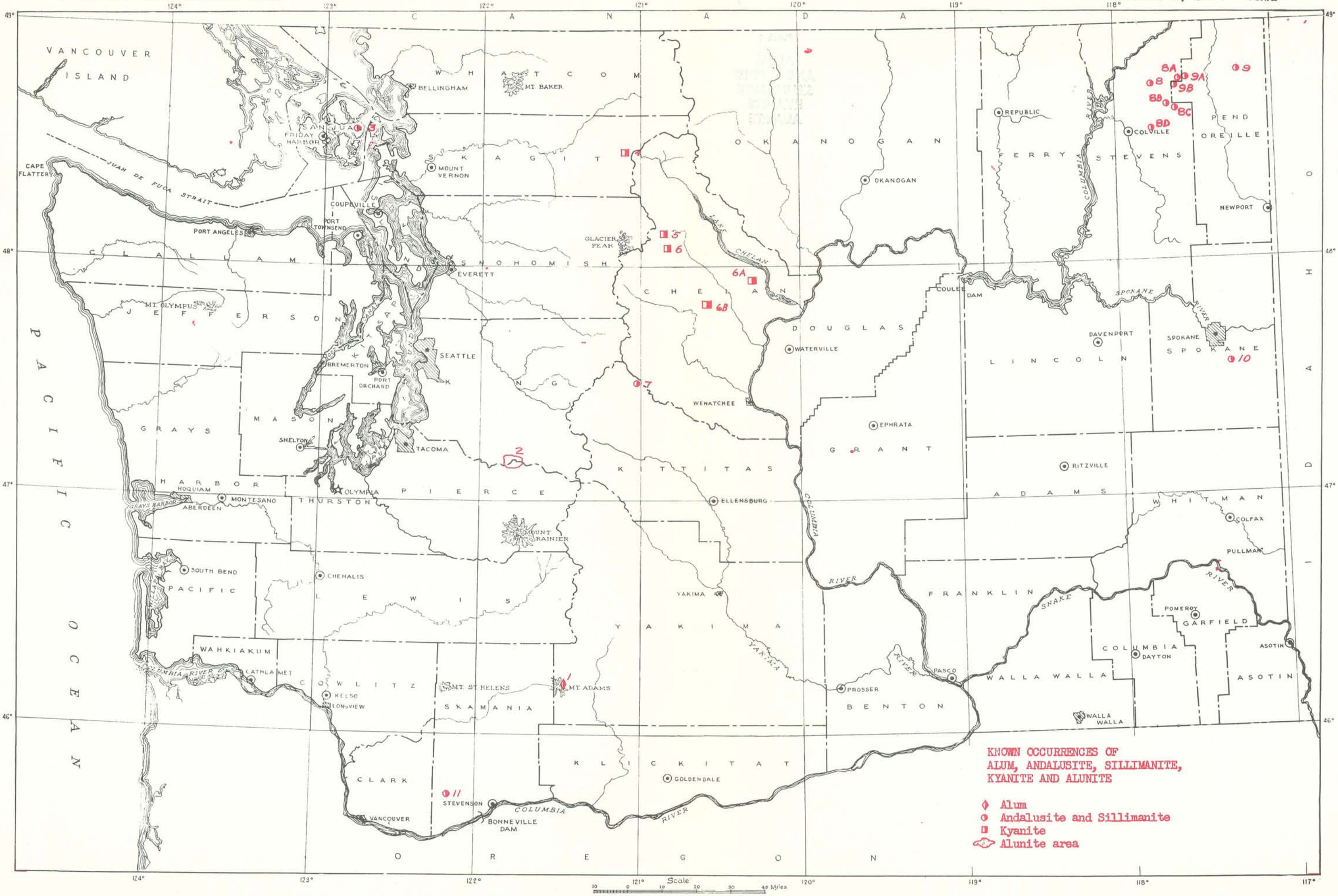
To facilitate rapid location of an occurrence, two indexes are printed at the end of volume 1. One is an alphabetical listing by subject and the other is an alphabetical listing of minerals by counties.

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
Miles
CANADA
VANCOUVER ISLAND
PACIFIC OCEAN
OREGON
IDAHO
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
CLALLAM
JEFFERSON
GRAYS HARBOR
HOQUIAM
ABERDEEN
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SOUTH BEND
PACIFIC
SHELTON
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BONNEVILLE DAM
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CHELAN
LAKE CHELAN
GLACIER PEAK
SNOHOMISH
EVERETT
SKAGIT
MOUNT VERNON
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
COUPEVILLE
PORT TOWNSEND
OKANOGAN
OKANOGAN
DOUGLAS
WATERVILLE
EPHRATA
GRANT
COULEE DAM
PROSSER
BENTON
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WALLA WALLA
COLUMBIA RIVER
SNAKE RIVER
SPOKANE RIVER
YAKIMA RIVER
8A
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8
9B
8B
8C
8D
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3
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6B
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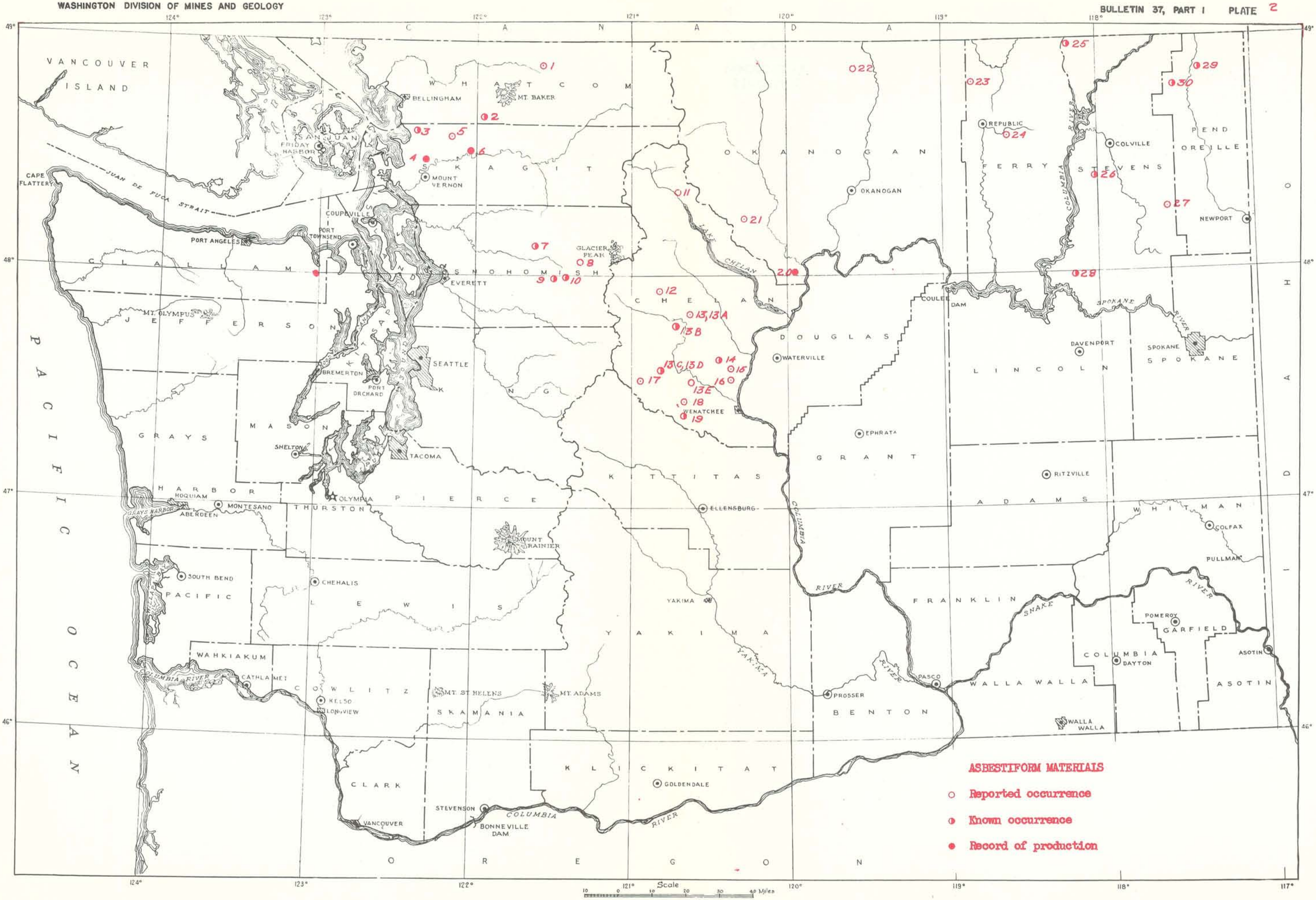
CANADA
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IDAHO
JUAN DE FUCA STRAIT
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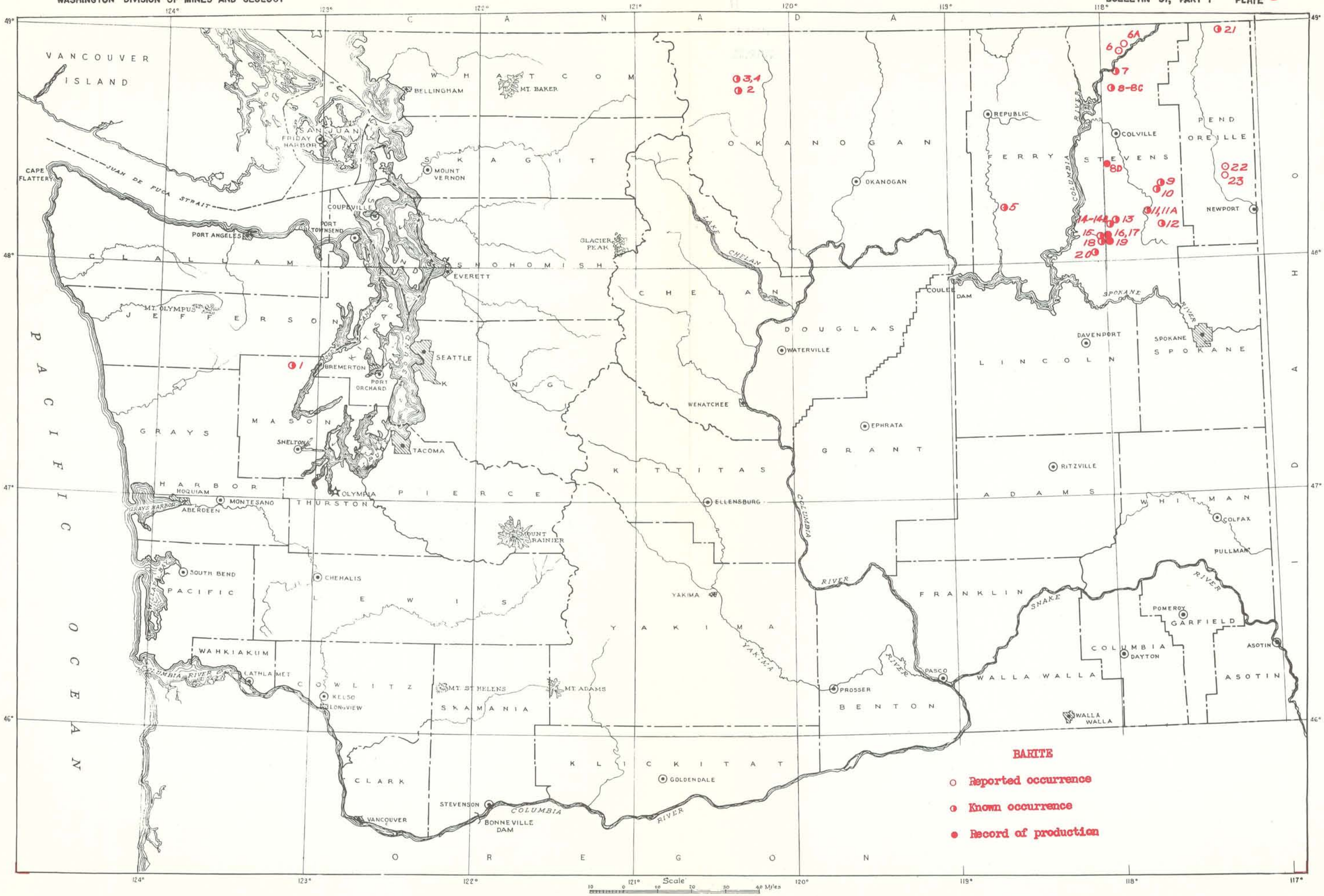
PEND OREILLE
NEWPORT
STEVENS
COLVILLE
FERRY
REPUBLIC
COLUMBIA RIVER
COULEE DAM
ASBESTIFORM MATERIALS
Reported occurrence
Known occurrence
Record of production
Scale
Miles


VANCOUVER ISLAND
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BELLINGHAM
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SAN JUAN
FRIDAY HARBOR
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MOUNT VERNON
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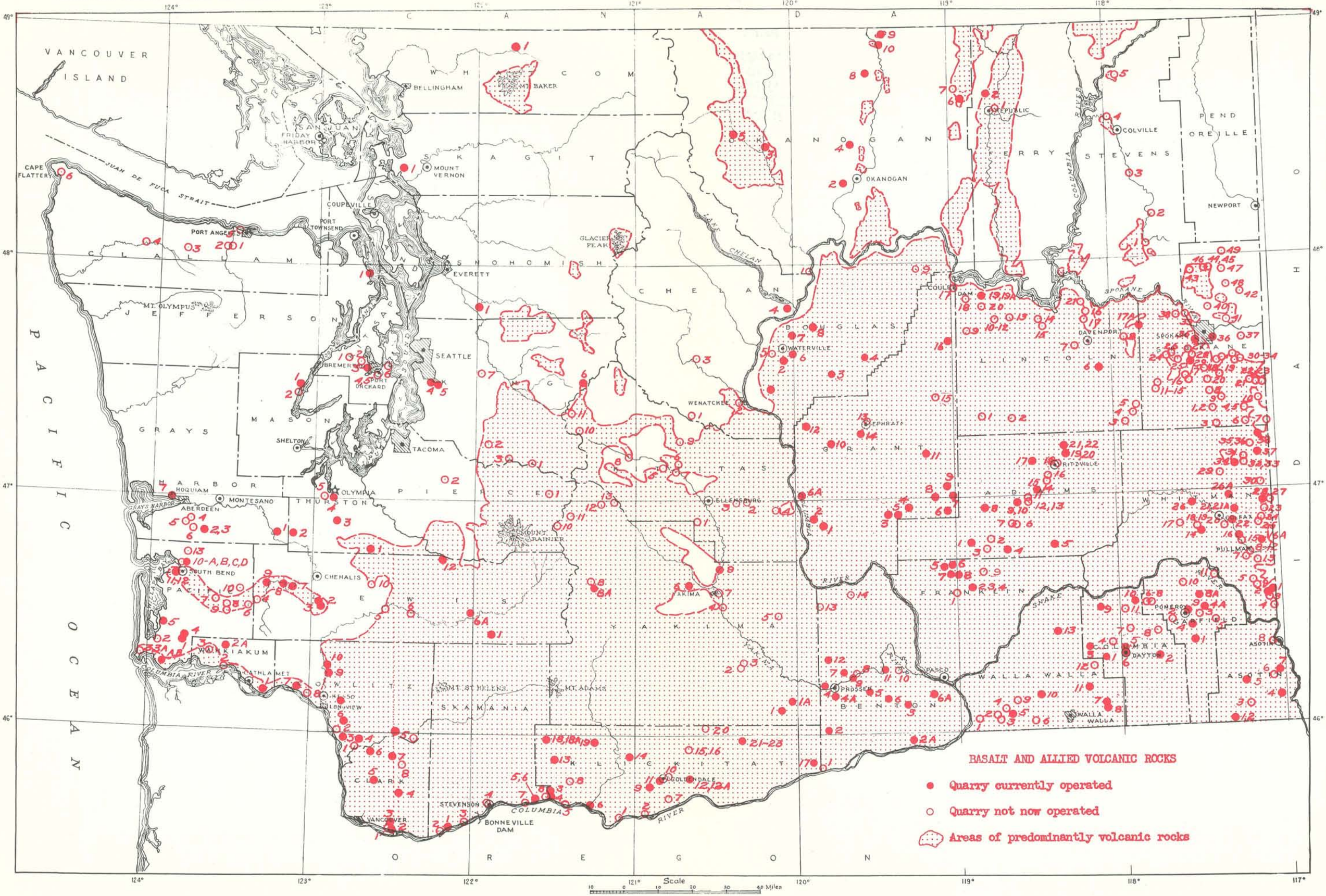
ASOTIN
ASOTIN
KLICKITAT
GOLDENDALE
BARITE
Reported occurrence
Known occurrence
Record of production
Scale
Miles


RASALT AND ALLIED VOLCANIC ROCKS
Quarry currently operated
Quarry not now operated
Areas of predominantly volcanic rocks
Scale
10 0 10 20 30 40 Miles
CANADA
PACIFIC OCEAN
OREGON
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
BELLINGHAM
MT. BAKER
FRIDAY HARBOR
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PORT TOWNSEND
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WALLA WALLA
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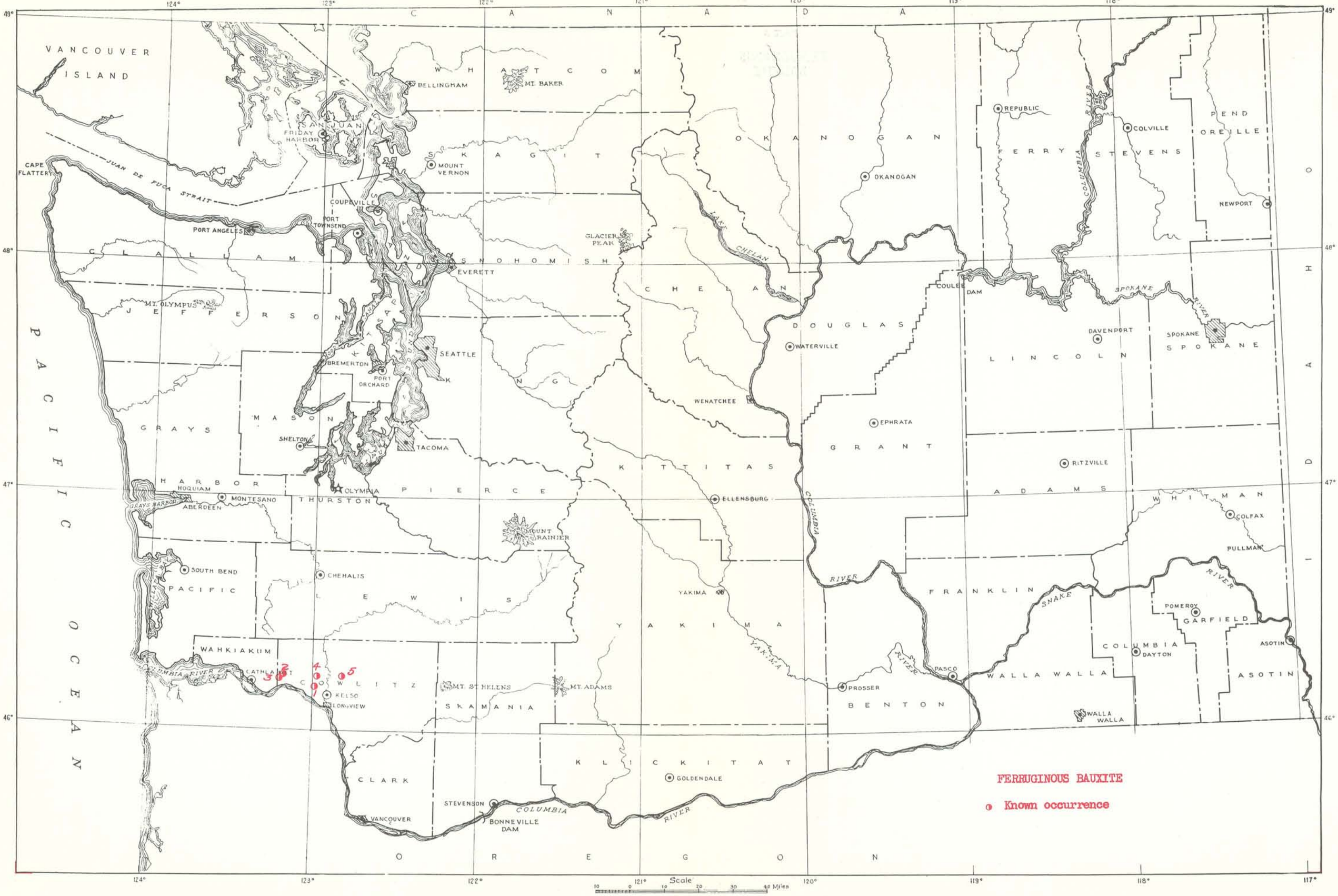
FERRUGINOUS BAUXITE
Known occurrence
Scale
Miles
CANADA
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OREGON
IDAHO
JUAN DE FUCA STRAIT
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PORT ANGELES
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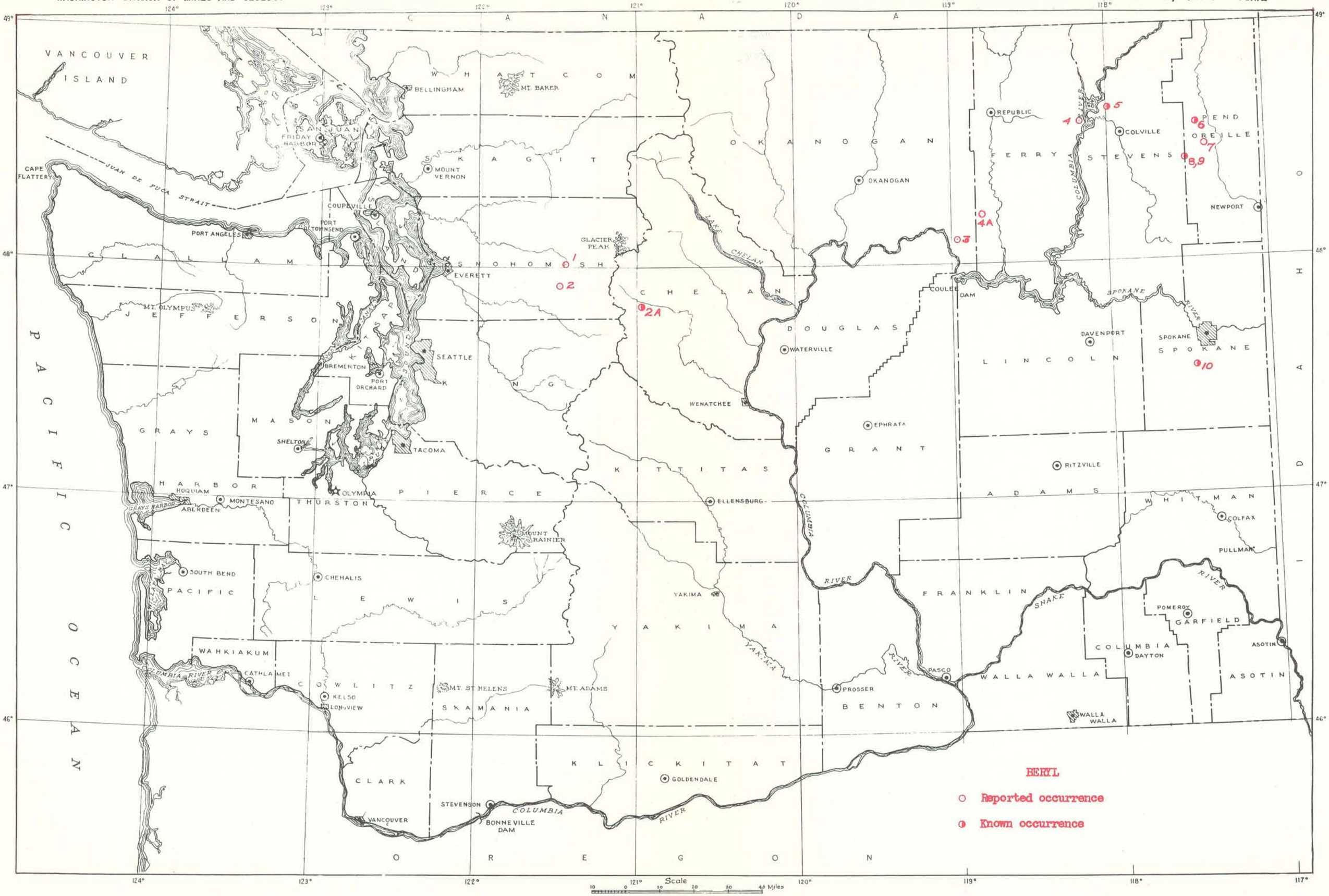
CANADA
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CAPE FLATTERY
PACIFIC OCEAN
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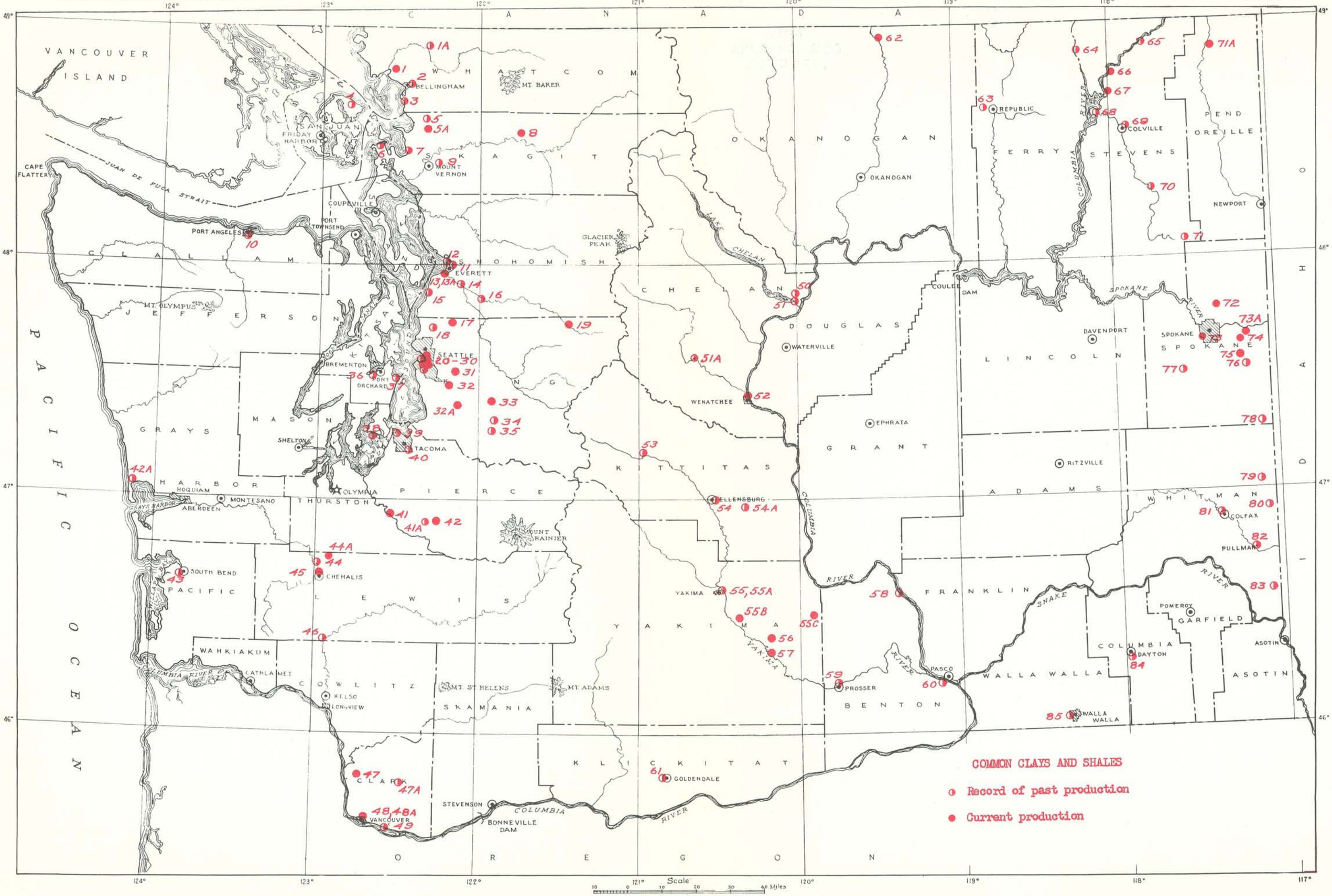
SNAKE RIVER
BENTON
PROSSER
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
Scale
10 0 10 20 30 40 Miles
BERYL
Reported occurrence
Known occurrence


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
KITSAP
SNOHOMISH
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PORT ANGELES
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JUAN DE FUCA STRAIT
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PROSSER
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SNAKE RIVER
SPOKANE RIVER
LAKE CHELAN
YAKIMA RIVER
GRAYS HARBOR
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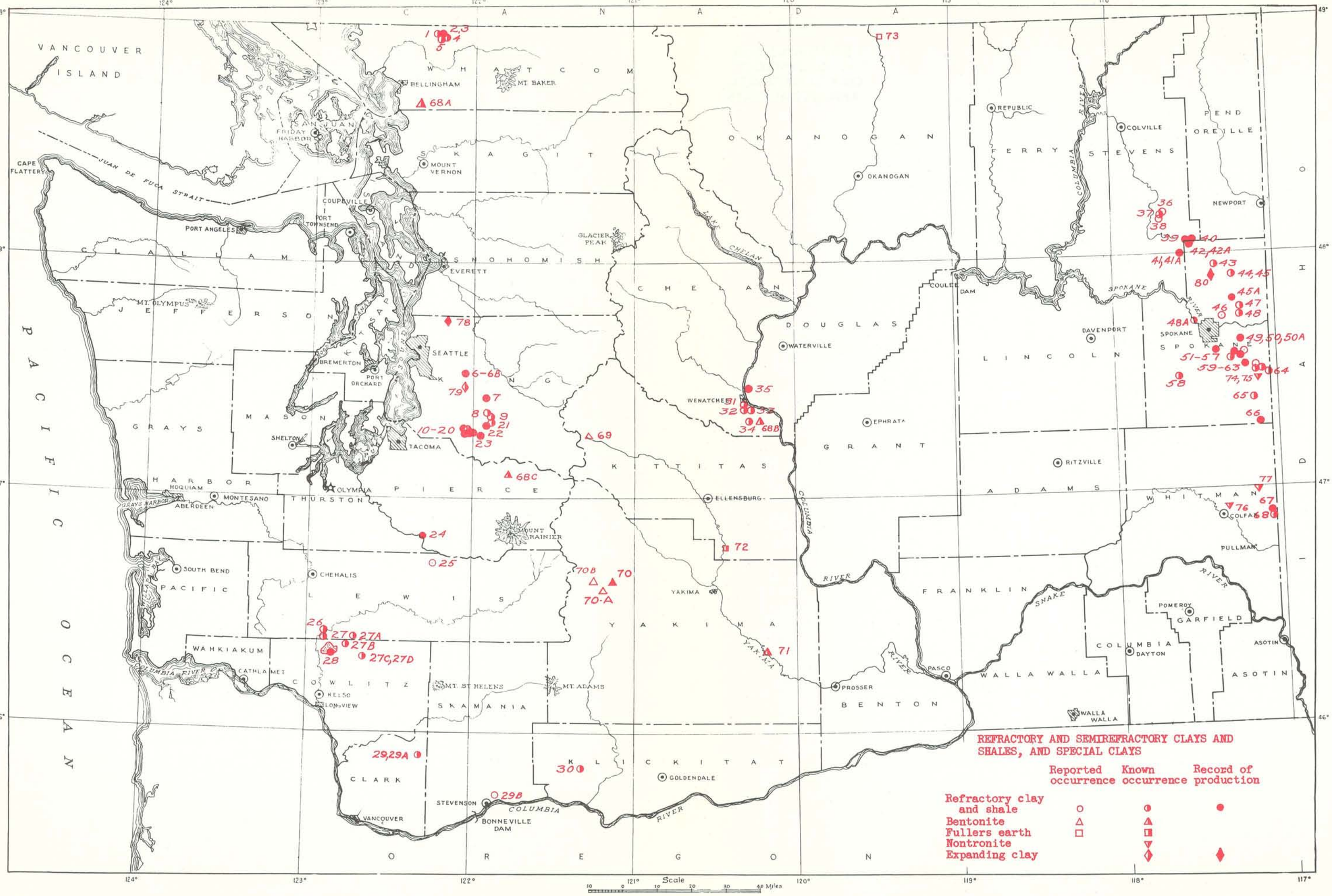
REFRACTORY AND SEMIREFRACTORY CLAYS AND SHALES, AND SPECIAL CLAYS
Reported occurrence
Known occurrence
Record of production
Refractory clay and shale
Bentonite
Fullers earth
Nontronite
Expanding clay
Scale
Miles
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
PACIFIC OCEAN
CANADA
WHATCOM
SKAGIT
SAN JUAN
ISLAND
CLALLAM
JEFFERSON
SNOHOMISH
KING
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MASON
GRAYS HARBOR
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COULEE DAM
DAVENPORT
SPOKANE
RITZVILLE
COLFAX
PULLMAN
POMEROY
DAYTON
PASCO
WALLA WALLA
ASOTIN
SNAKE RIVER
YAKIMA RIVER
SPOKANE RIVER
COLUMBIA RIVER
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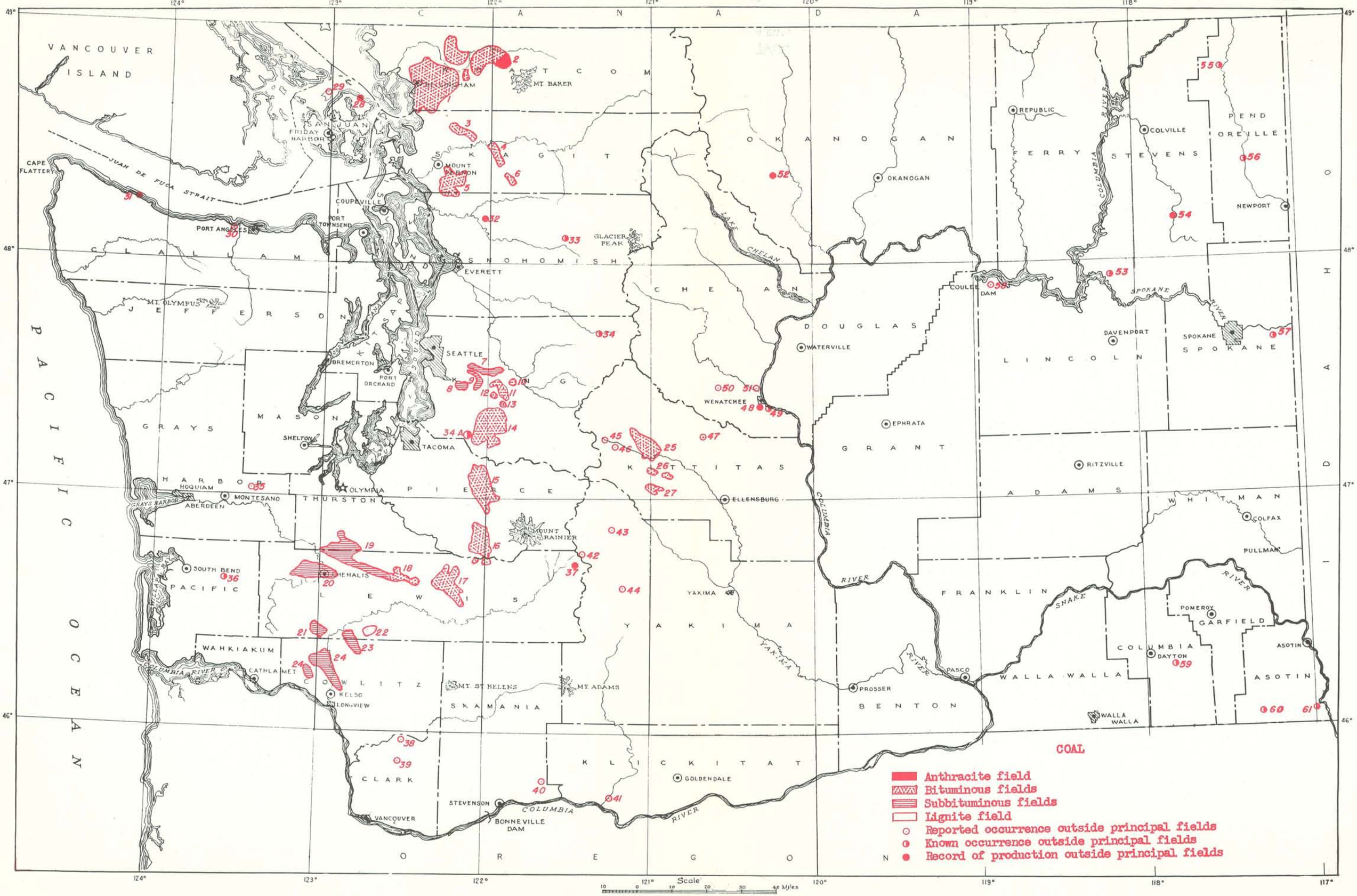
COAL
Anthracite field
Bituminous fields
Subbituminous fields
Lignite field
Reported occurrence outside principal fields
Known occurrence outside principal fields
Record of production outside principal fields
Scale
Miles
CANADA
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
MT. BAKER
MOUNT RAINIER
MT. ST. HELENS
MT. ADAMS
GLACIER PEAK
BELLINGHAM
FRIDAY HARBOR
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
EVERETT
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
SHELTON
OLYMPIA
HOQUIAM
ABERDEEN
MONTESANO
SOUTH BEND
CHEHALIS
KELSO
LONGVIEW
CATHLAMET
VANCOUVER
STEVENSON
BONNEVILLE DAM
GOLDENDALE
YAKIMA
ELLENSBURG
WENATCHEE
WATERVILLE
EPHRATA
RITZVILLE
PROSSER
PASCO
WALLA WALLA
DAYTON
POMEROY
ASOTIN
PULLMAN
COLFAX
SPOKANE
DAVENPORT
COULEE DAM
COLVILLE
REPUBLIC
NEWPORT
OKANOGAN
LAKE CHELAN
COLUMBIA RIVER
SPOKANE RIVER
SNAKE RIVER
YAKIMA RIVER
GRAYS HARBOR
SAN JUAN
SKAGIT
WHATCOM
OKANOGAN
FERRY
STEVENS
PEND OREILLE
CHELAN
DOUGLAS
LINCOLN
SPOKANE
GRANT
ADAMS
WHITMAN
FRANKLIN
GARFIELD
COLUMBIA
ASOTIN
WALLA WALLA
BENTON
YAKIMA
KITTITAS
KLICKITAT
SKAMANIA
CLARK
COWLITZ
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MASON
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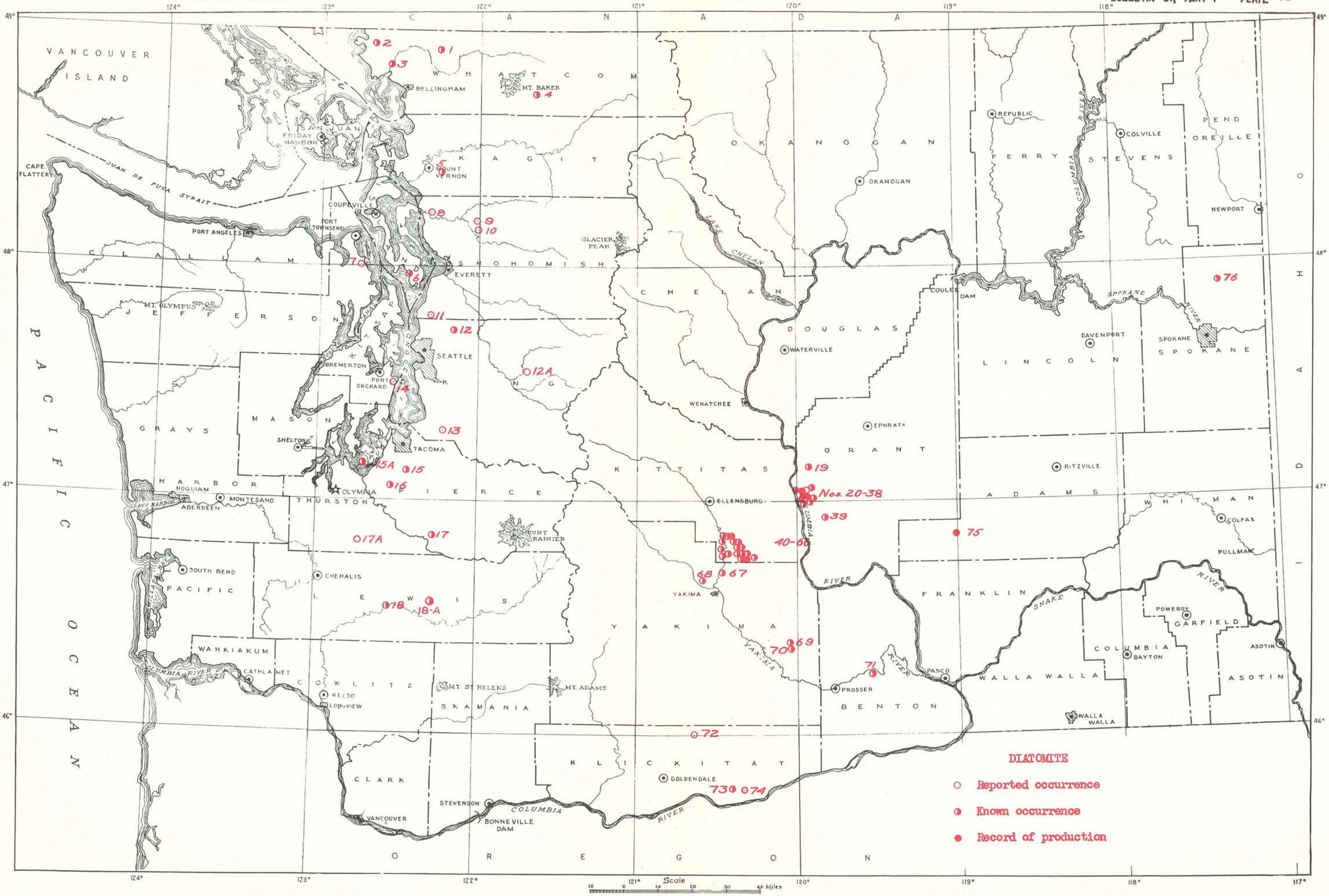
JEFFERSON
CLALLAM
SNOHOMISH
OREGON
IDAHO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VANCOUVER ISLAND
PACIFIC OCEAN
OREGON
IDAHO
JUAN DE FUCA STRAIT
CAPE FLATTERY
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
SNOHOMISH
EVERETT
GLACIER PEAK
MT. OLYMPUS
JEFFERSON
KING
SEATTLE
BREMERTON
PORT ORCHARD
KITSAP
MASON
SHELTON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
TACOMA
MOUNT RAINIER
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CHEHALIS
LEWIS
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
KLICKITAT
GOLDENDALE
YAKIMA
ELLENSBURG
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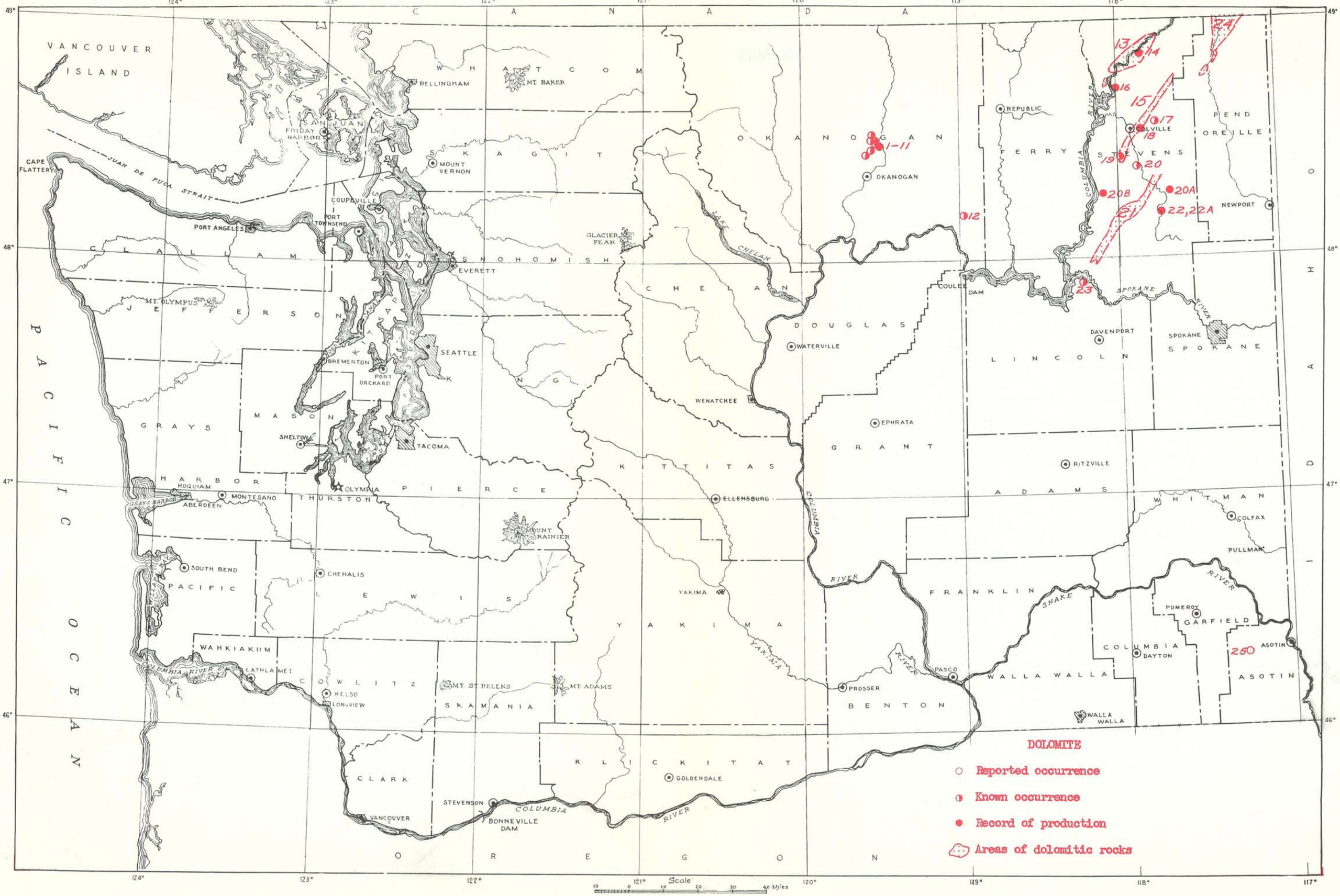
OKANOGAN
WATERVILLE
DOUGLAS
EPHRATA
GRANT
RITZVILLE
ADAMS
PROSSER
BENTON
PASCO
FRANKLIN
SNAKE RIVER
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
PULLMAN
WHITMAN
COLFAX
LINCOLN
DAVENPORT
SPOKANE
COULEE DAM
REPUBLIC
FERRY
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
Nos. 20-38
40-66
DIATOMITE
Reported occurrence
Known occurrence
Record of production
Scale
Miles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PACIFIC OCEAN
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
CLALLAM
JEFFERSON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
SOUTH BEND
PACIFIC
SAN JUAN
FRIDAY HARBOR
COUPEVILLE
PORT TOWNSEND
BELLINGHAM
MT BAKER
WHATCOM
SKAGIT
MOUNT VERNON
SNOHOMISH
EVERETT
GLACIER PEAK
SEATTLE
BREMERTON
PORT ORCHARD
KITSAP
MASON
SHELTON
TACOMA
OLYMPIA
THURSTON
PIERCE
MOUNT RAINIER
CHEHALIS
LEWIS
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
SKAMANIA
MT. ADAMS
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
OREGON
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
OKANOGAN
DOUGLAS
WATERVILLE
EPHRATA
GRANT
PROSSER
BENTON
PASCO
FRANKLIN
SNAKE RIVER
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
PULLMAN
COLFAX
WHITMAN
RITZVILLE
ADAMS
DAVENPORT
LINCOLN
SPOKANE
COULEE DAM
REPUBLIC
FERRY
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
IDAHO
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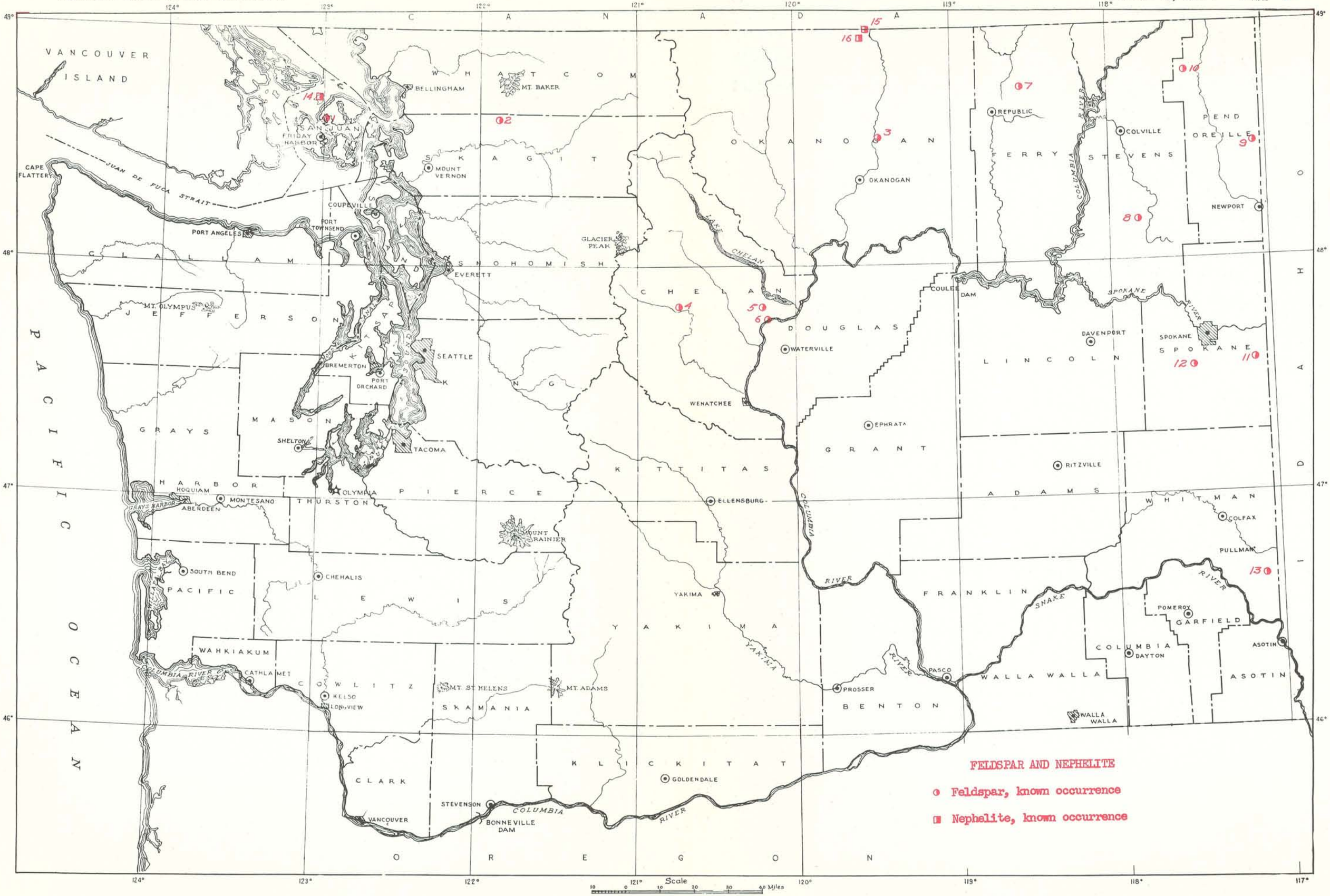
22,22A
23
24
250
DOLOMITE
Reported occurrence
Known occurrence
Record of production
Areas of dolomitic rocks
Scale
Miles


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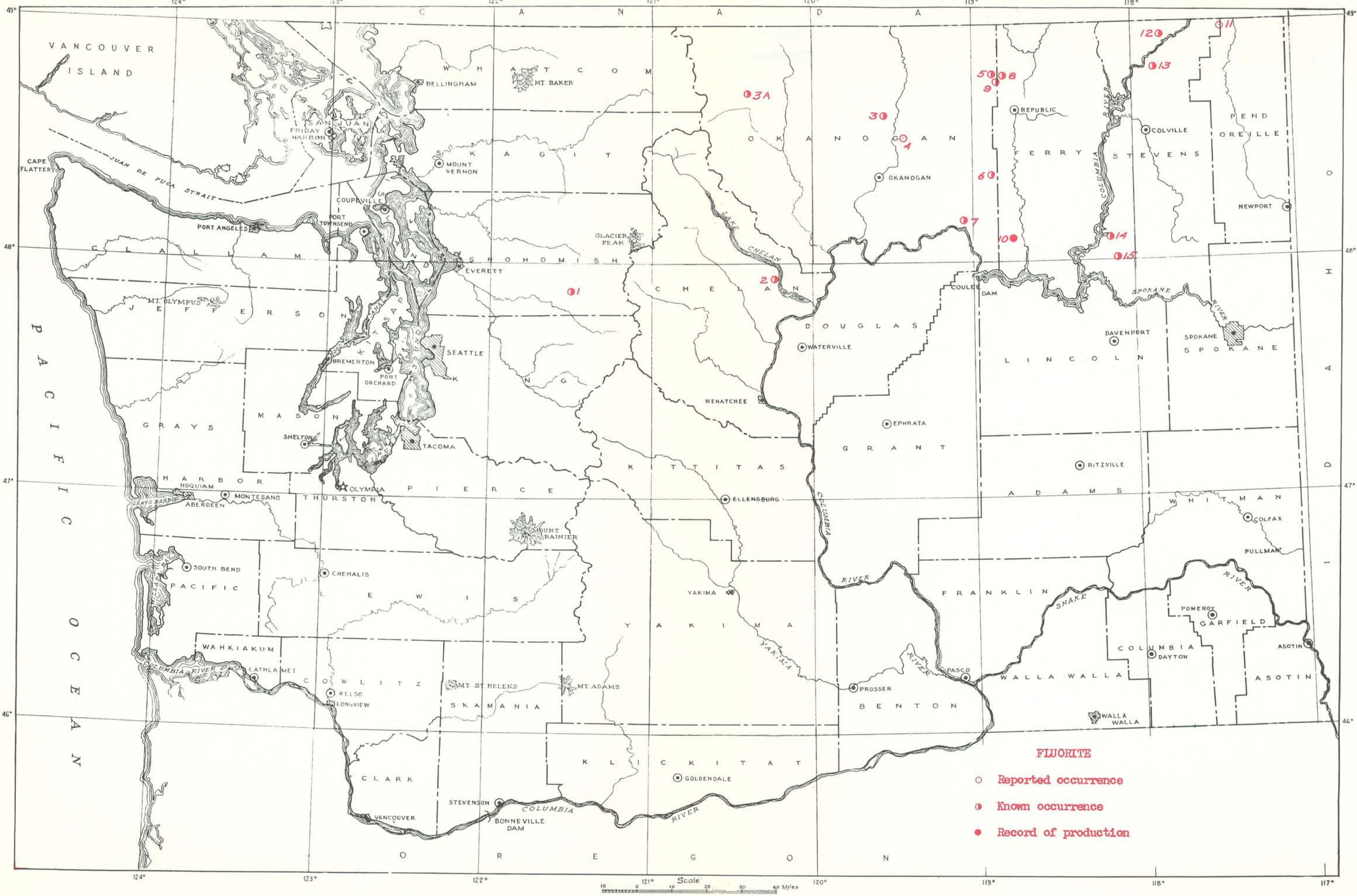
FLUORITE
Reported occurrence
Known occurrence
Record of production
Scale
Miles
CANADA
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
SNOHOMISH
EVERETT
GLACIER PEAK
MT.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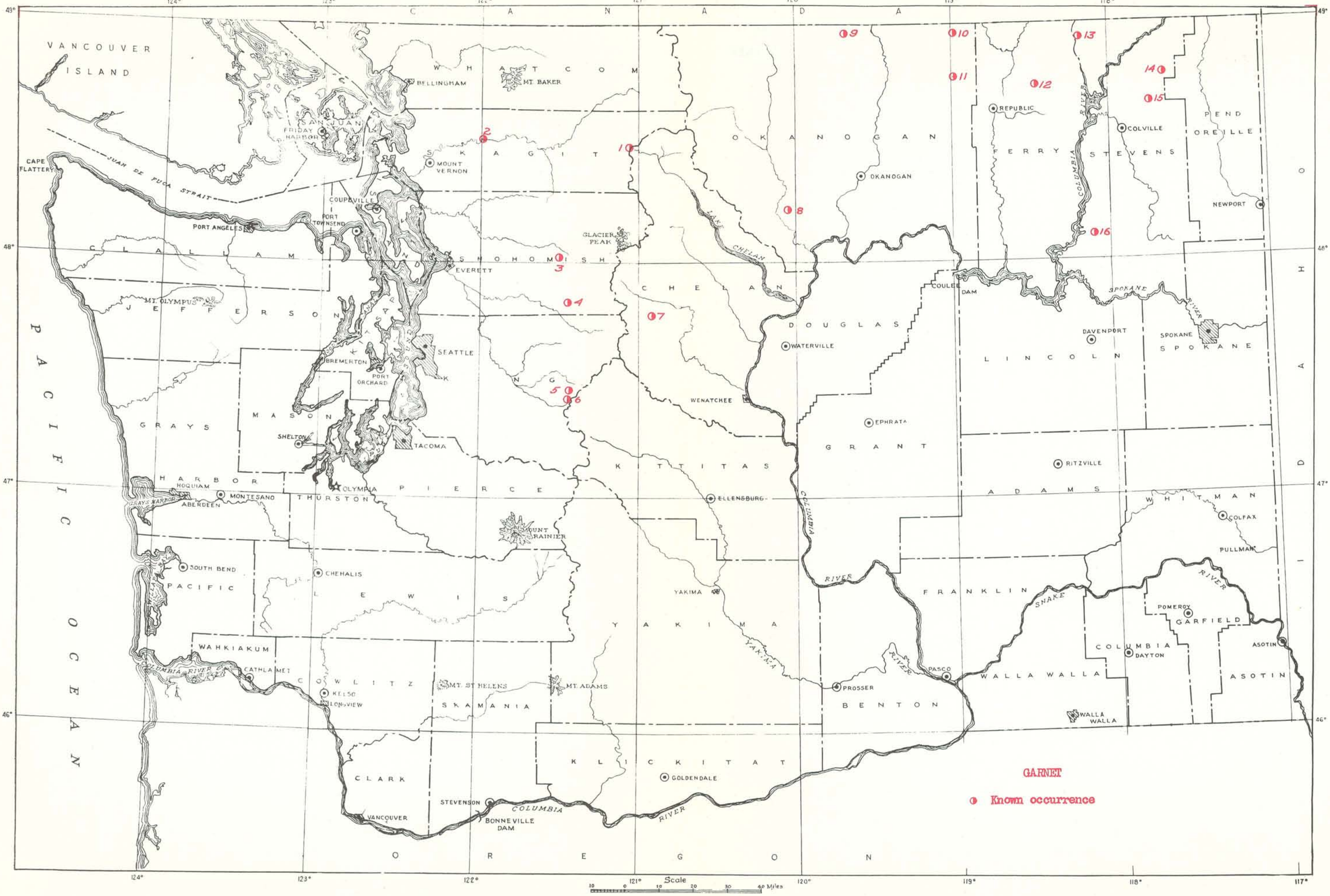
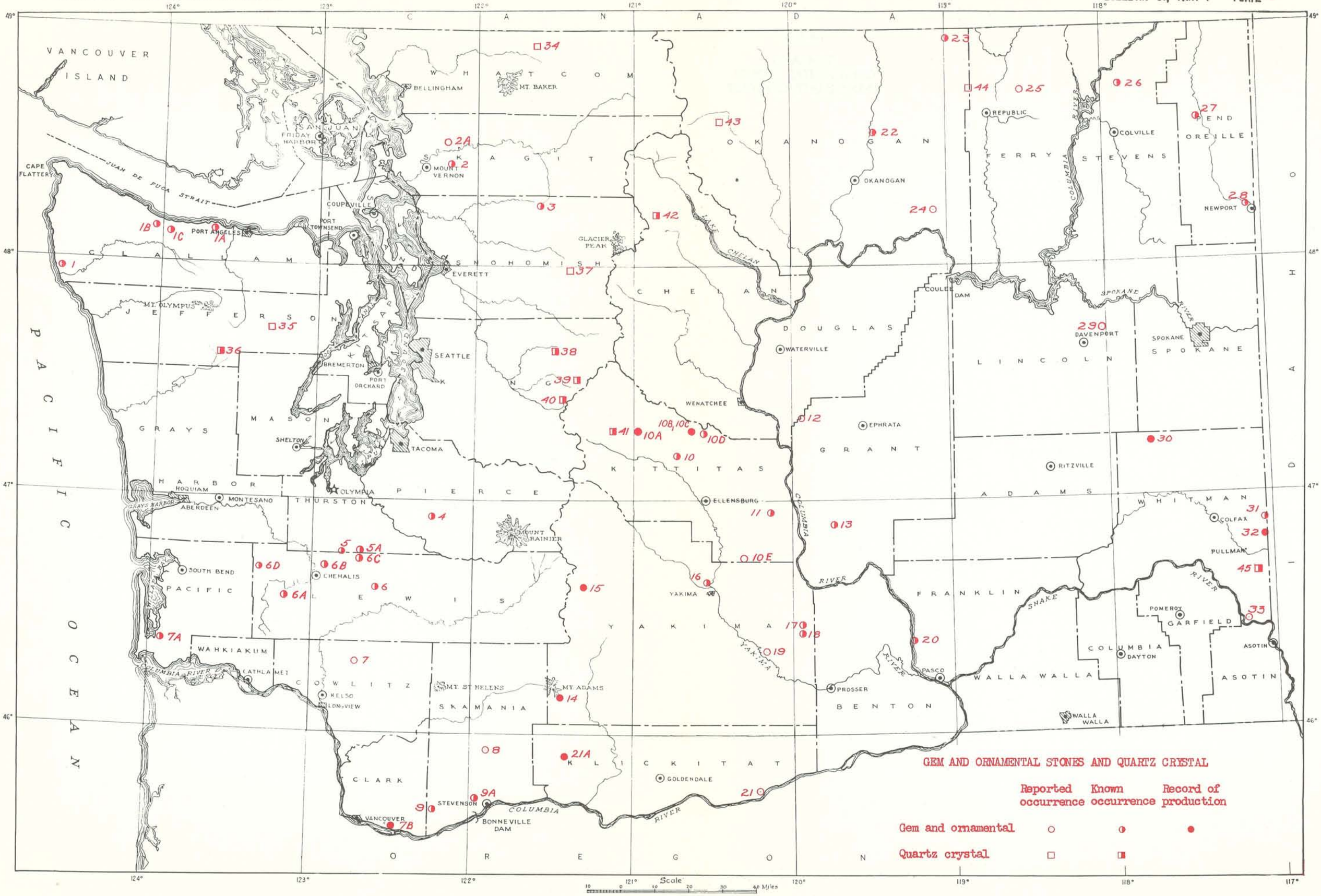
YAKIMA
YAKIMA
GRANT
EPHRATA
BENTON
PROSSER
FRANKLIN
PASCO
SNAKE RIVER
YAKIMA RIVER
FERRY
REPUBLIC
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
LINCOLN
DAVENPORT
SPOKANE
SPOKANE
SPOKANE RIVER
COULEE DAM
ADAMS
RITZVILLE
WHITMAN
COLFAX
PULLMAN
WALLA WALLA
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
ASOTIN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


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
SAN JUAN
FRIDAY HARBOR
WHATCOM
BELLINGHAM
MT. BAKER
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
ISLAND
SNOHOMISH
EVERETT
GLACIER PEAK
KING
SEATTLE
BREMERTON
PORT ORCHARD
KITSAP
MASON
SHELTON
TACOMA
THURSTON
OLYMPIA
PIERCE
MOUNT RAINIER
LEWIS
CHEHALIS
YAKIMA
YAKIMA RIVER
KITTITAS
ELLENSBURG
CHELAN
WENATCHEE
LAKE CHELAN
OKANOGAN
OKANOGAN
DOUGLAS
WATERVILLE
GRANT
EPHRATA
FRANKLIN
PASCO
BENTON
PROSSER
COLUMBIA RIVER
SNAKE RIVER
WALLA WALLA
WALLA WALLA
FERRY
REPUBLIC
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
LINCOLN
DAVENPORT
COULEE DAM
SPOKANE
SPOKANE
SPOKANE RIVER
ADAMS
RITZVILLE
WHITMAN
COLFAX
PULLMAN
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
ASOTIN
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°
Scale
10 0 10 20 30 40 Miles
GARNET
Known occurrence


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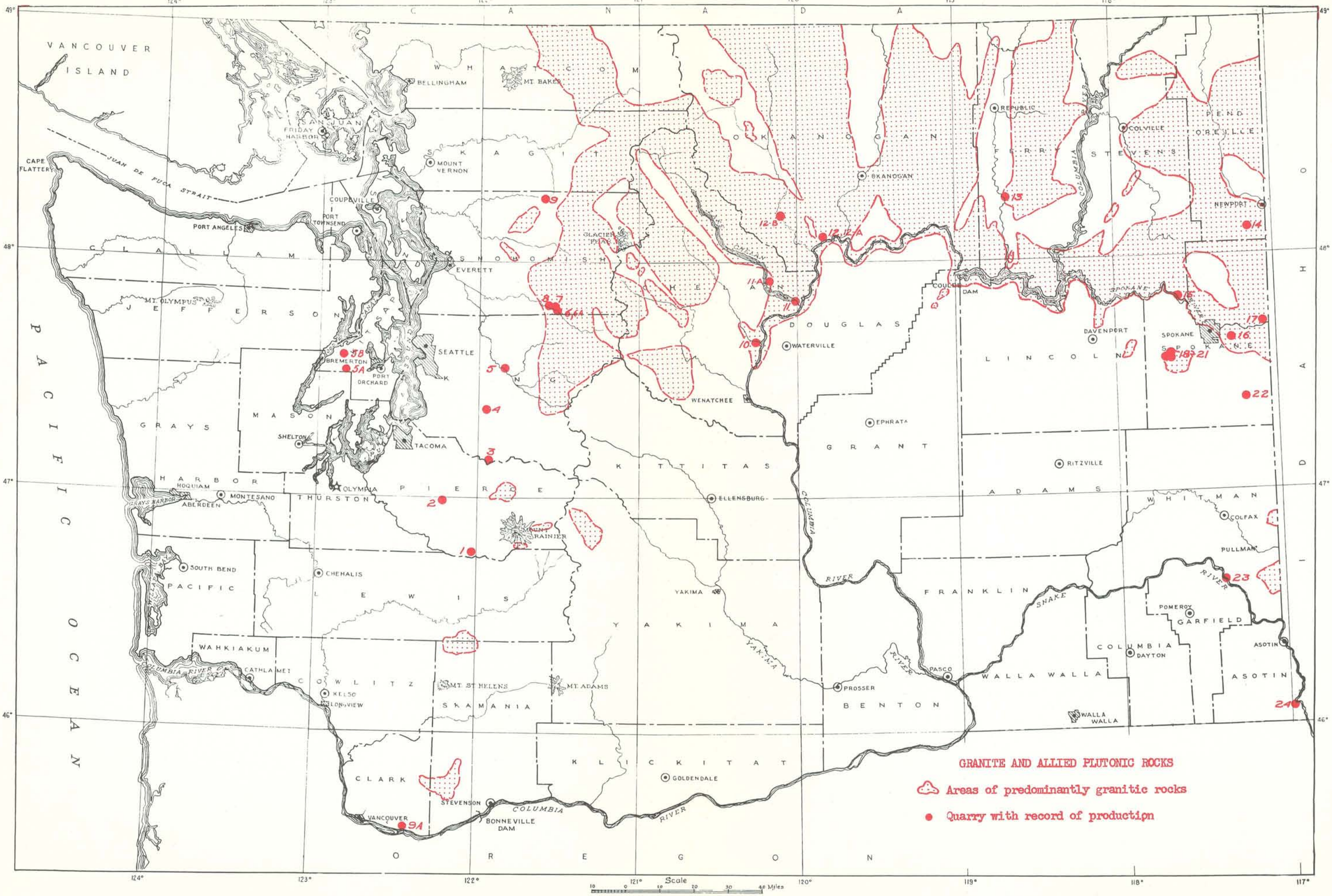
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
IDAHO
OREGON
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
COUPEVILLE
PORT TOWNSEND
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
MOUNT VERNON
EVERETT
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
SHELTON
OLYMPIA
MT. OLYMPUS
HOQUIAM
ABERDEEN
MONTESANO
GRAYS HARBOR
SOUTH BEND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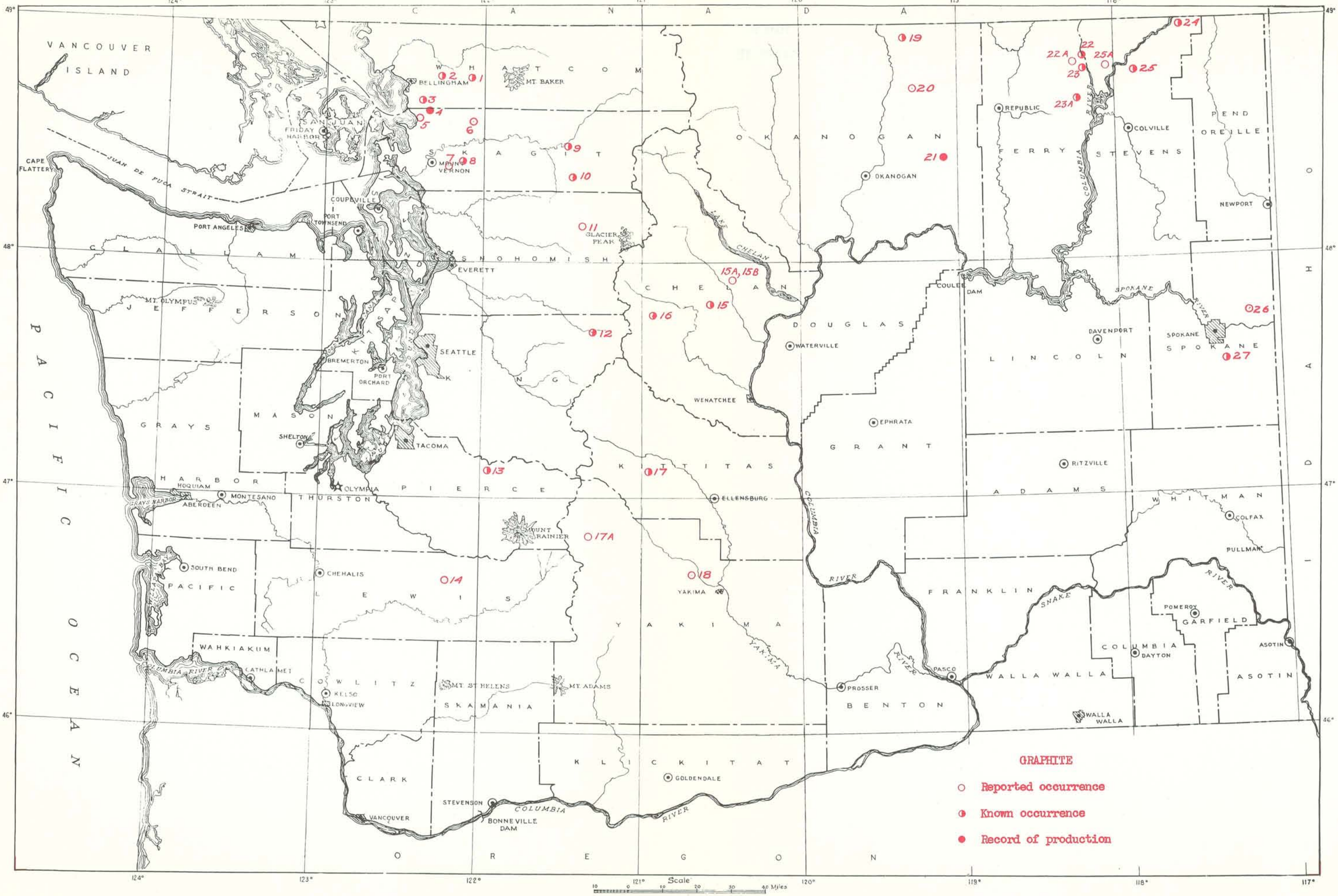
GRANITE AND ALLIED PLUTONIC ROCKS
Areas of predominantly granitic rocks
Quarry with record of production
Scale
10 0 10 20 30 40 Miles


GRAPHITE
Reported occurrence
Known occurrence
Record of production
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
OREGON
IDAHO
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
SKAMANIA
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
MT. ST. HELENS
MT. ADAMS
KLICKITAT
GOLDENDALE
YAKIMA
LEWIS
CHEHALIS
THURSTON
OLYMPIA
PIERCE
TACOMA
MOUNT RAINIER
MASON
SHELTON
GRAYS HARBOR
KITTITAS
ELLENSBURG
YAKIMA
BENTON
PROSSER
WALLA WALLA
FRANKLIN
PASCO
SNAKE RIVER
YAKIMA RIVER
COLUMBIA
WALLA WALLA
GARFIELD
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DOUGLAS
WATERVILLE
WENATCHEE
LAKE CHELAN
CHELAN
OKANOGAN
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
SNOHOMISH
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PORT TOWNSEND
GLACIER PEAK
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MT. BAKER
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REPUBLIC
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COLUMBIA RIVER
PEND OREILLE
NEWPORT
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DAVENPORT
COULEE DAM
SPOKANE
SPOKANE RIVER
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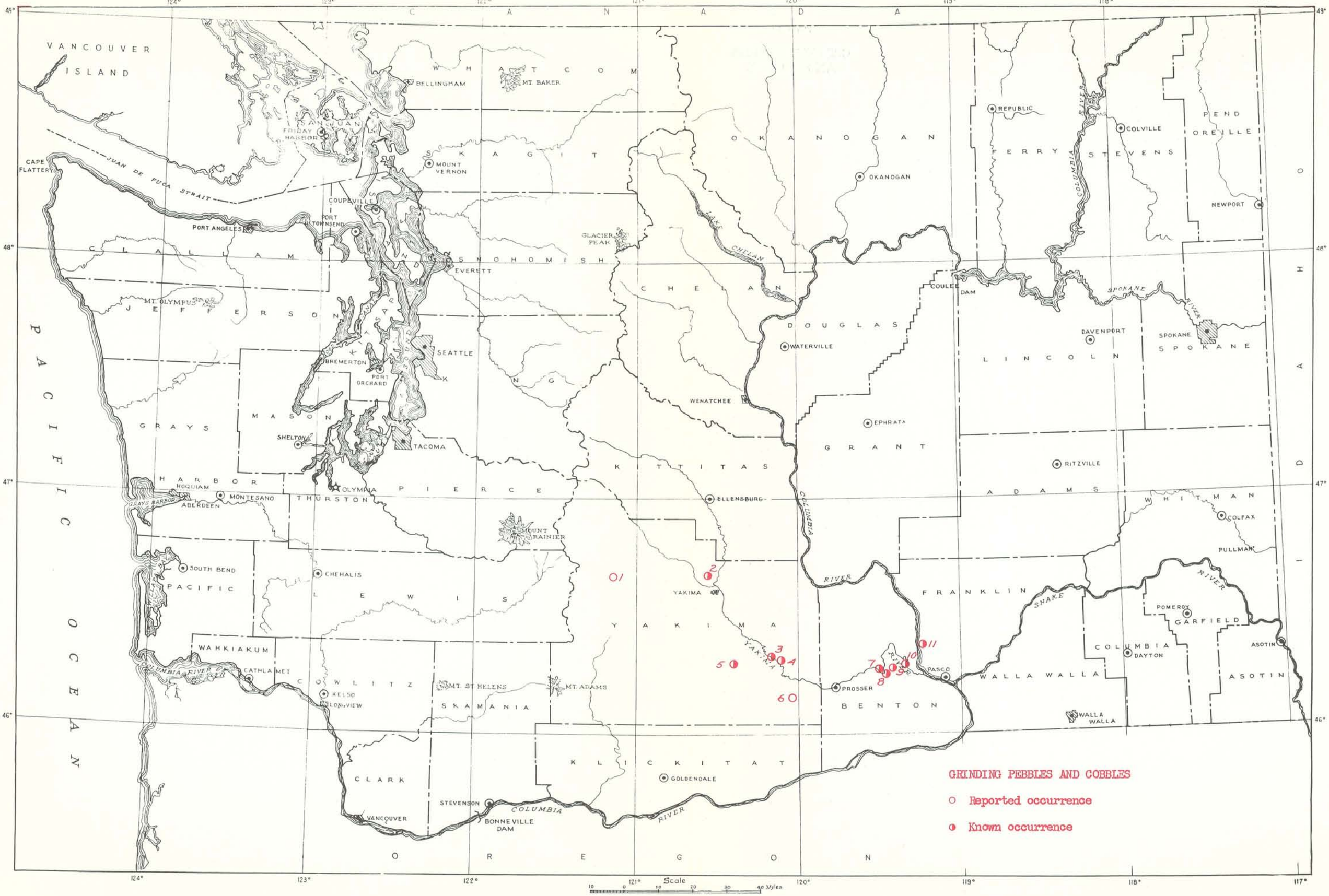
GRINDING PEBBLES AND COBBLES
Reported occurrence
Known occurrence
Scale
Miles
CANADA
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
CLALLAM
JEFFERSON
MT. OLYMPUS
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
SOUTH BEND
PACIFIC
WAHKIAKUM
CATHLAMET
COWLITZ
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LONGVIEW
CLARK
VANCOUVER
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BONNEVILLE DAM
COLUMBIA RIVER
SKAMANIA
MT. ST. HELENS
MT. ADAMS
KLICKITAT
GOLDENDALE
THURSTON
OLYMPIA
SHELTON
MASON
PIERCE
TACOMA
MOUNT RAINIER
LEWIS
CHEHALIS
KITTITAS
ELLENSBURG
YAKIMA
YAKIMA RIVER
SNOHOMISH
EVERETT
SEATTLE
KING
BREMERTON
PORT ORCHARD
KITSAP
ISLAND
SAN JUAN
FRIDAY HARBOR
WHATCOM
BELLINGHAM
MT. BAKER
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
GLACIER PEAK
CHELAN
WENATCHEE
LAKE CHELAN
DOUGLAS
WATERVILLE
GRANT
EPHRATA
OKANOGAN
OKANOGAN
FERRY
REPUBLIC
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
COULEE DAM
LINCOLN
DAVENPORT
SPOKANE
SPOKANE
SPOKANE RIVER
ADAMS
RITZVILLE
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
SNAKE RIVER
BENTON
PROSSER
RICHLAND
WALLA WALLA
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
ASOTIN
01
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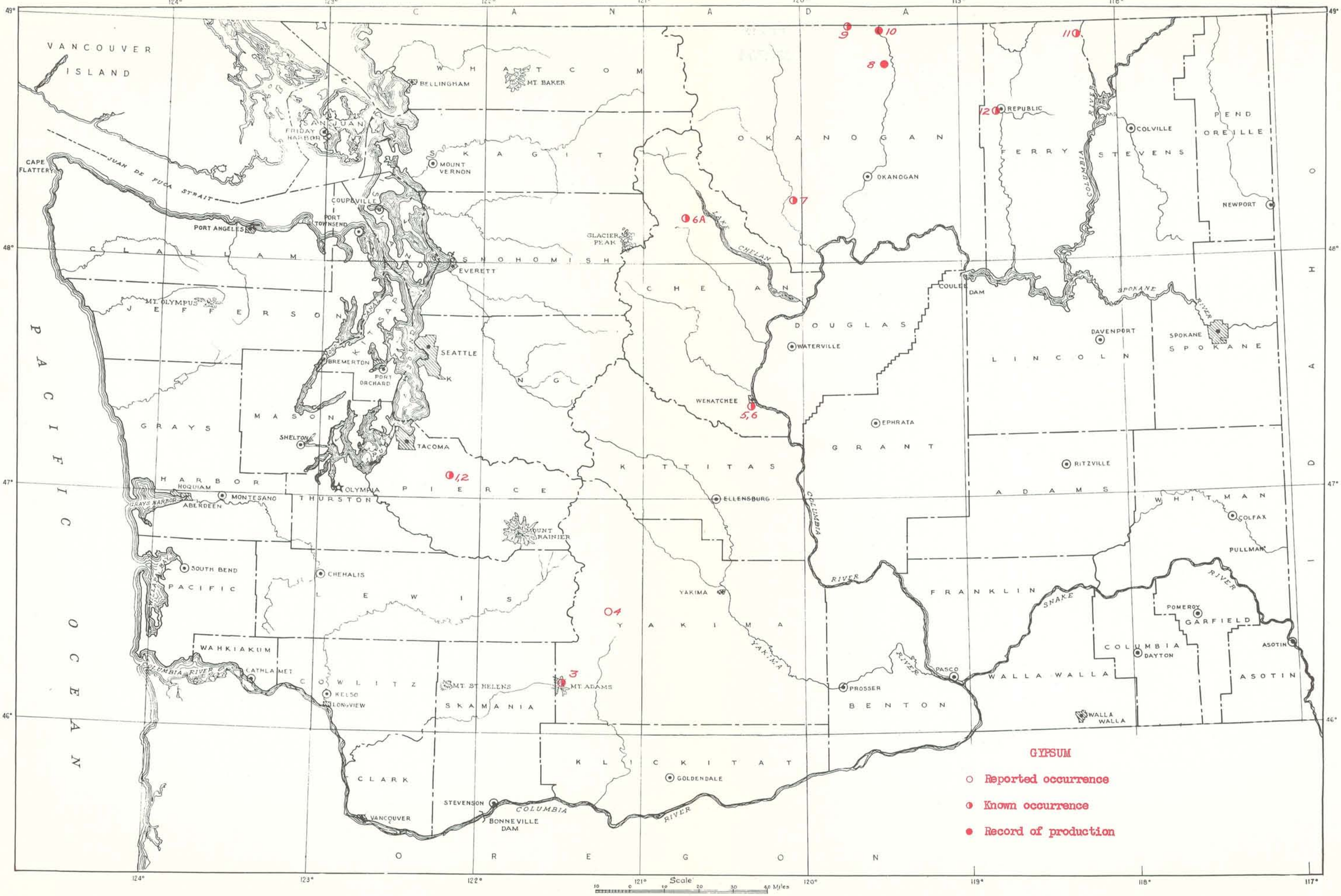
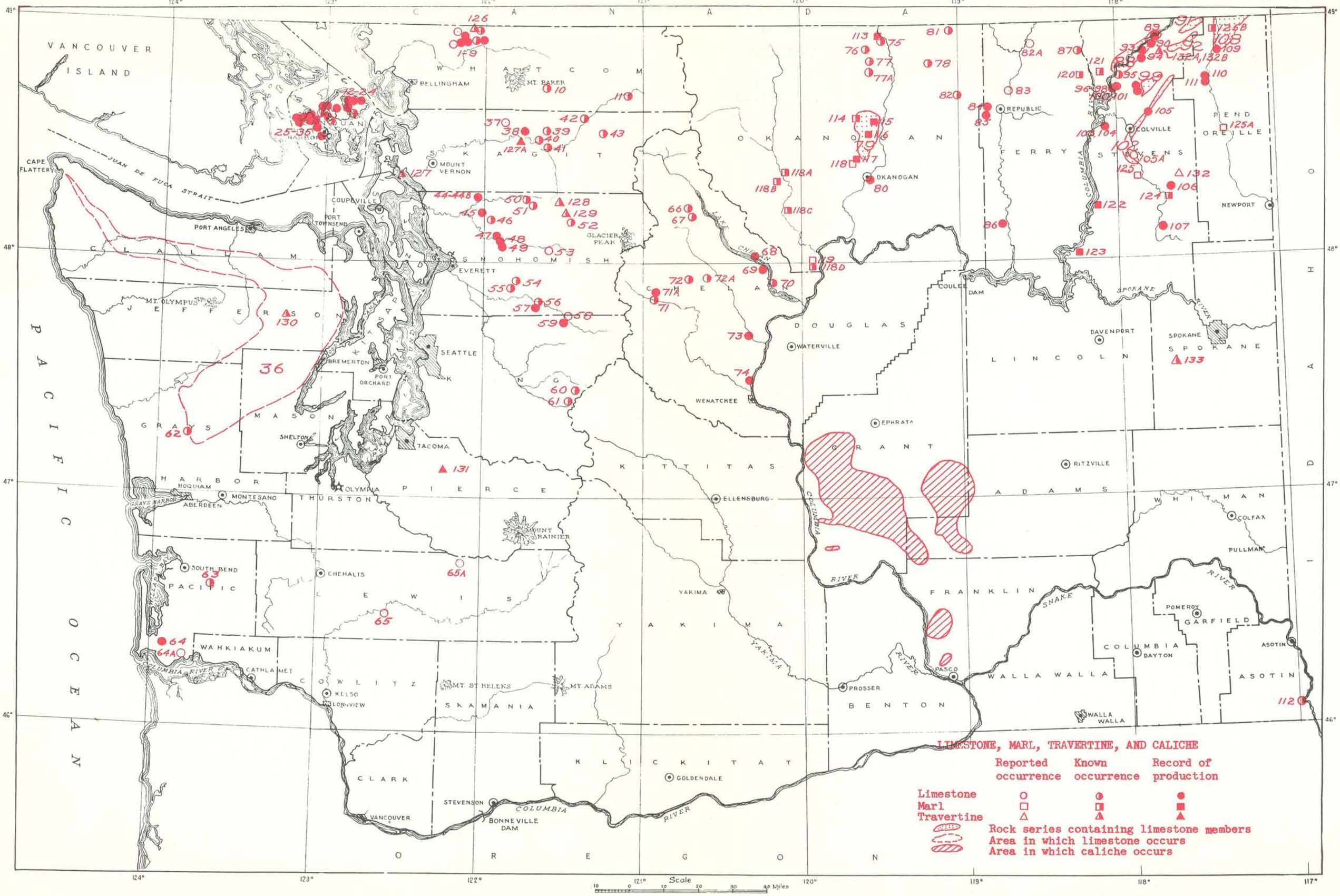
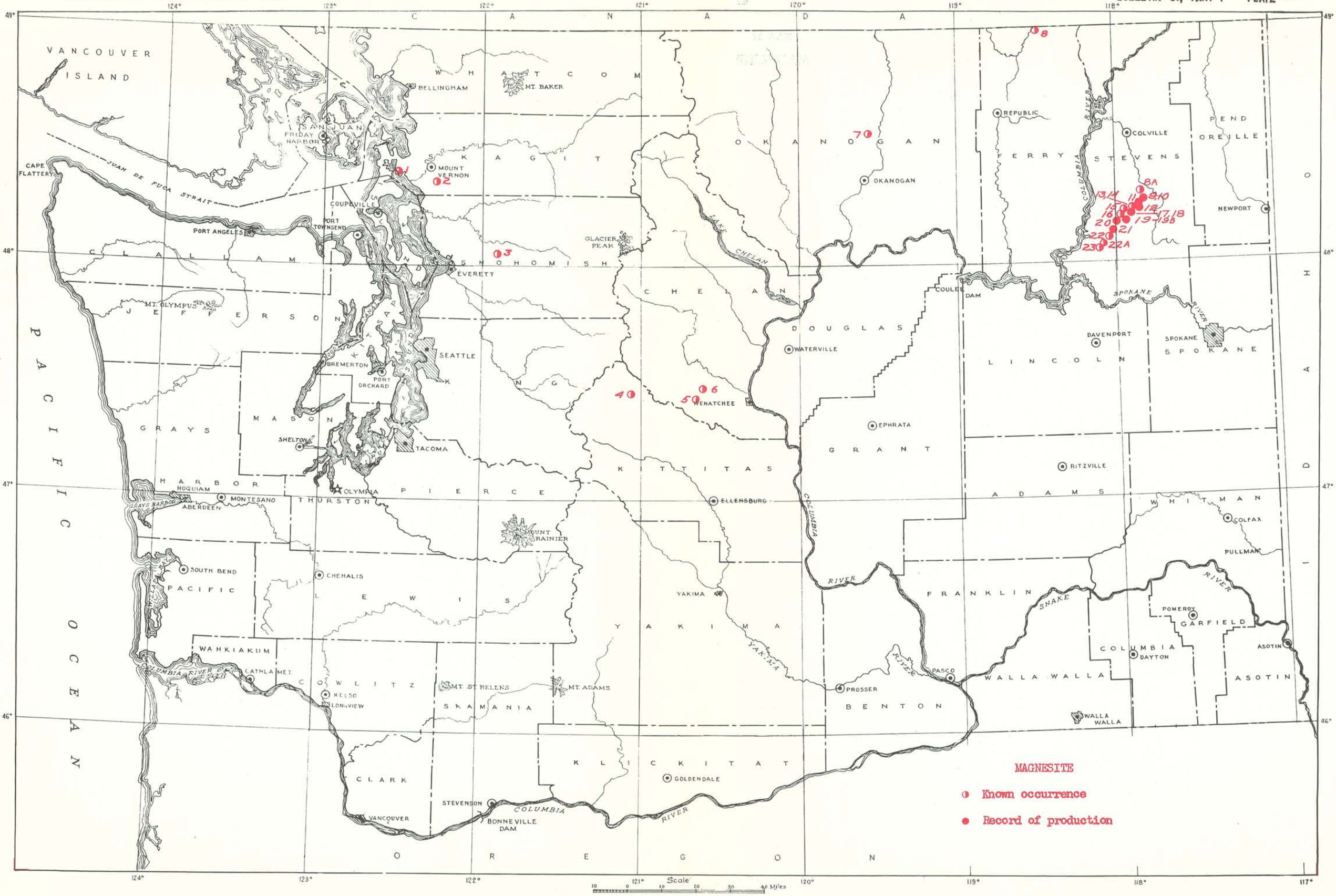
10
11


VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
PACIFIC OCEAN
CANADA
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
SNOHOMISH
EVERETT
GLACIER PEAK
MT. OLYMPUS
JEFFERSON
KING
SEATTLE
KITSAP
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
SKAMANIA
MT. ADAMS
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
OREGON
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
KITTITAS
ELLENSBURG
CHELAN
LAKE CHELAN
WENATCHEE
OKANOGAN
DOUGLAS
WATERVILLE
GRANT
EPHRATA
COULEE DAM
FERRY
REPUBLIC
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
LINCOLN
DAVENPORT
SPOKANE
SPOKANE RIVER
ADAMS
RITZVILLE
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
SNAKE RIVER
PROSSER
BENTON
WALLA WALLA
COLUMBIA
DAYTON
GARFIELD
POMEROY
ASOTIN
IDAHO
1,2
3
4
5,6
6A
7
8
9
10
11
12
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
10 0 10 20 30 40 Miles
VANCOUVER ISLAND
CANADA
PACIFIC OCEAN
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
PORT TOWNSEND
COUPEVILLE
BELLINGHAM
MT. BAKER
MOUNT VERNON
GLACIER PEAK
EVERETT
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
OLYMPIA
SHELTON
MT. OLYMPUS
HOQUIAM
ABERDEEN
MONTESANO
GRAYS HARBOR
SOUTH BEND
CHEHALIS
MOUNT RAINIER
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
WATERVILLE
WENATCHEE
EPHRATA
ELLENSBURG
YAKIMA
PROSSER
PASCO
GOLDENDALE
RITZVILLE
OKANOGAN
REPUBLIC
COLVILLE
NEWPORT
COULEE DAM
DAVENPORT
SPOKANE
COLFAX
PULLMAN
POMEROY
DAYTON
ASOTIN
WALLA WALLA
LAKE CHELAN
SPOKANE RIVER
SNAKE RIVER
YAKIMA RIVER
WHATCOM
SKAGIT
SNOHOMISH
KING
KITSAP
JEFFERSON
CLALLAM
MASON
GRAYS HARBOR
THURSTON
PIERCE
PACIFIC
LEWIS
KITTITAS
YAKIMA
KLICKITAT
OKANOGAN
DOUGLAS
GRANT
FERRY
STEVENS
PEND OREILLE
LINCOLN
SPOKANE
ADAMS
WHITMAN
FRANKLIN
COLUMBIA
GARFIELD
ASOTIN
BENTON
WALLA WALLA
OREGON
IDAHO


MAGNESITE
Known occurrence
Record of production
Scale
Miles
CANADA
PACIFIC OCEAN
OREGON
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
KING
SEATTLE
BREMERTON
PORT ORCHARD
MASON
SHELTON
GRAYS HARBOR
HOQUIAM
ABERDEEN
MONTESANO
GRAYS HARBOR
TACOMA
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
OKANOGAN
WATERVILLE
DOUGLAS
EPHRATA
GRANT
REPUBLIC
FERRY
COLVILLE
STEVENS
PEND OREILLE
NEWPORT
COULEE DAM
SPOKANE RIVER
DAVENPORT
LINCOLN
SPOKANE
SPOKANE
RITZVILLE
ADAMS
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
PROSSER
BENTON
SNAKE RIVER
POMEROY
GARFIELD
COLUMBIA
DAYTON
WALLA WALLA
WALLA WALLA
ASOTIN
ASOTIN
8
1
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4
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8A
9,10
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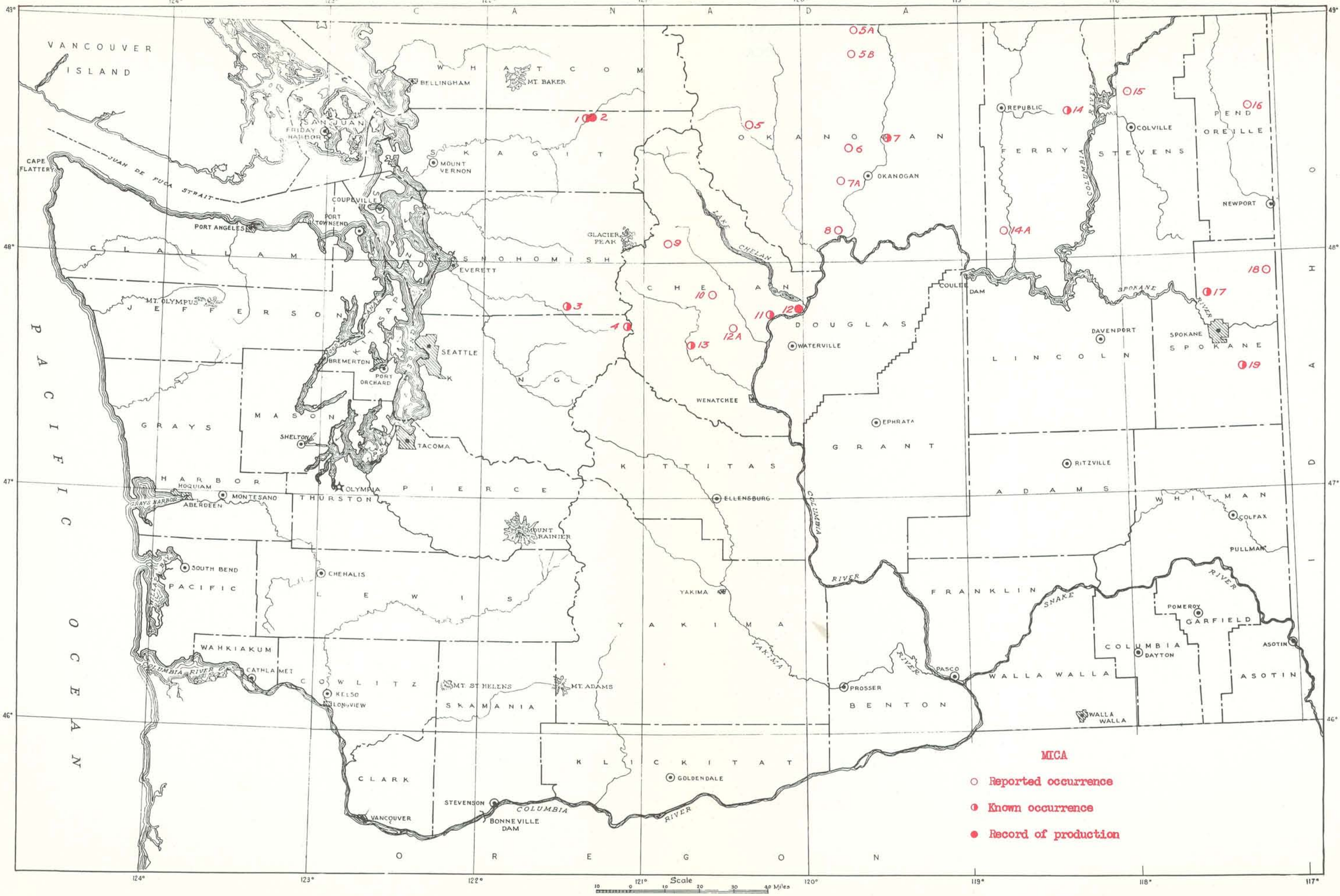
13,14
15
16
17,18
19-15b
20
21
22
22A
23


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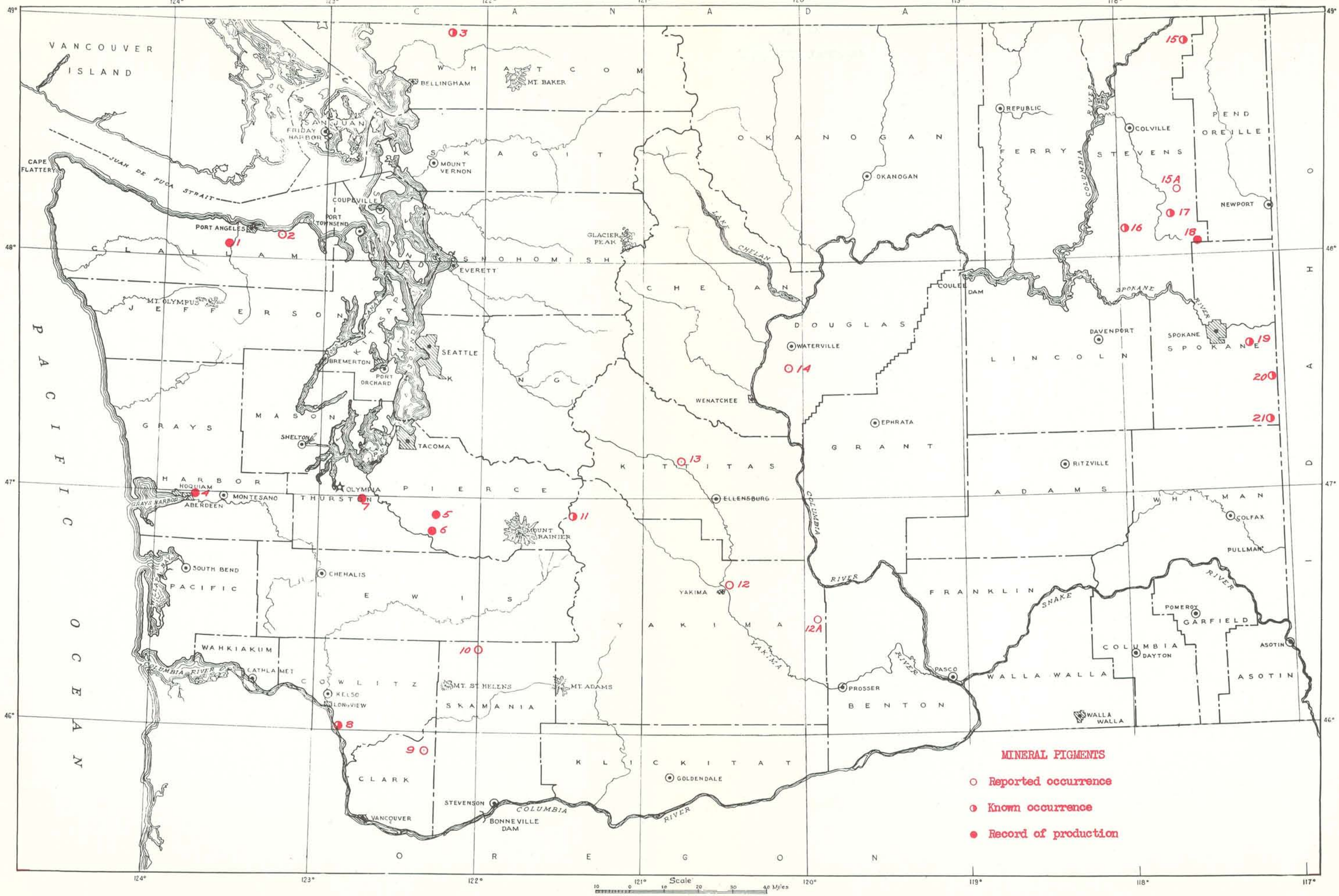
COULEE DAM
REPUBLIC
FERRY
COLVILLE
STEVENS
NEWPORT
PEND OREILLE
SPOKANE RIVER
SPOKANE
SPOKANE
DAVENPORT
LINCOLN
RITZVILLE
ADAMS
FRANKLIN
SNAKE RIVER
WALLA WALLA
WALLA WALLA
COLFAX
WHITMAN
PULLMAN
POMEROY
GARFIELD
COLUMBIA
DAYTON
ASOTIN
ASOTIN
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°
Scale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


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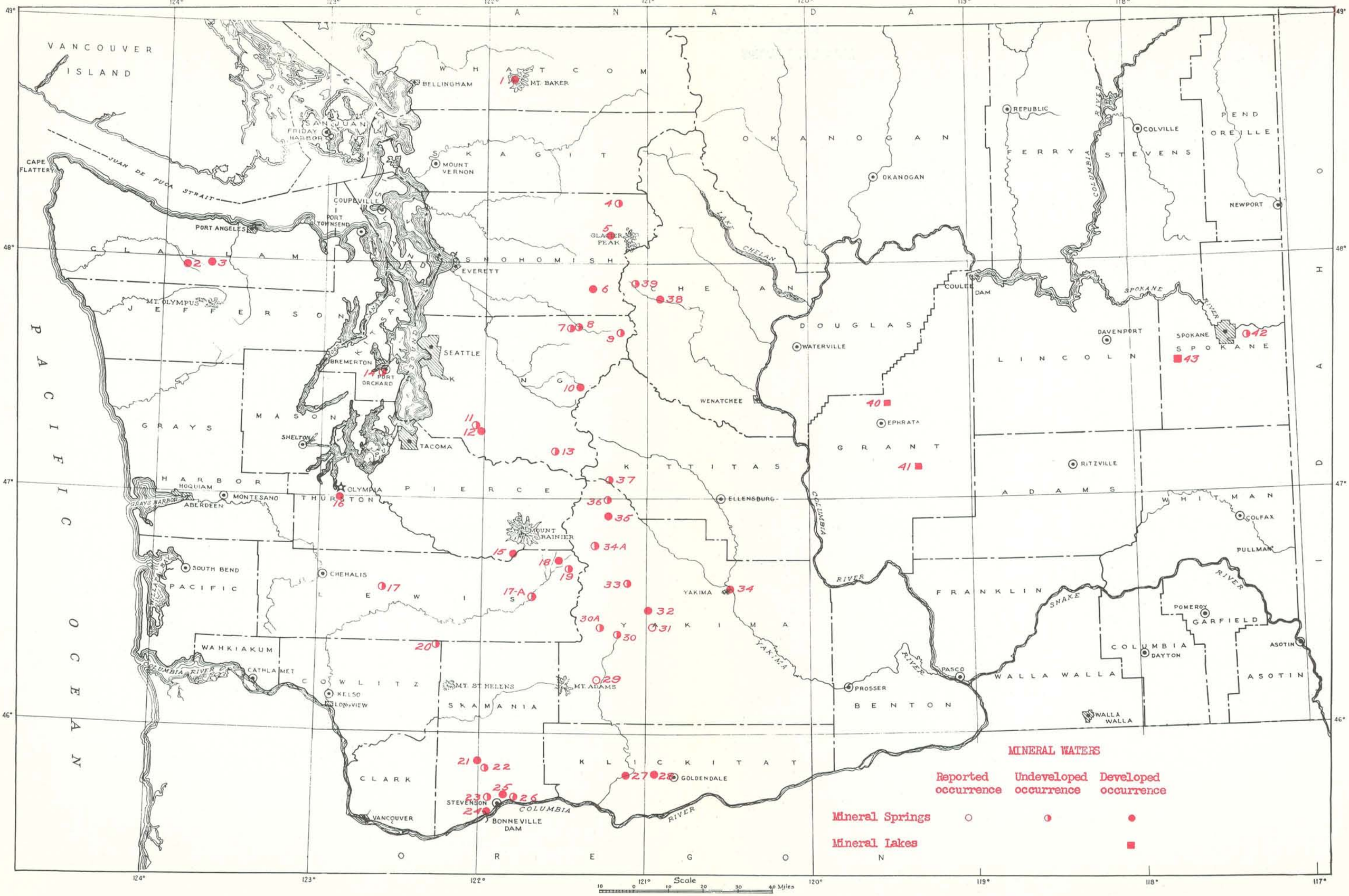
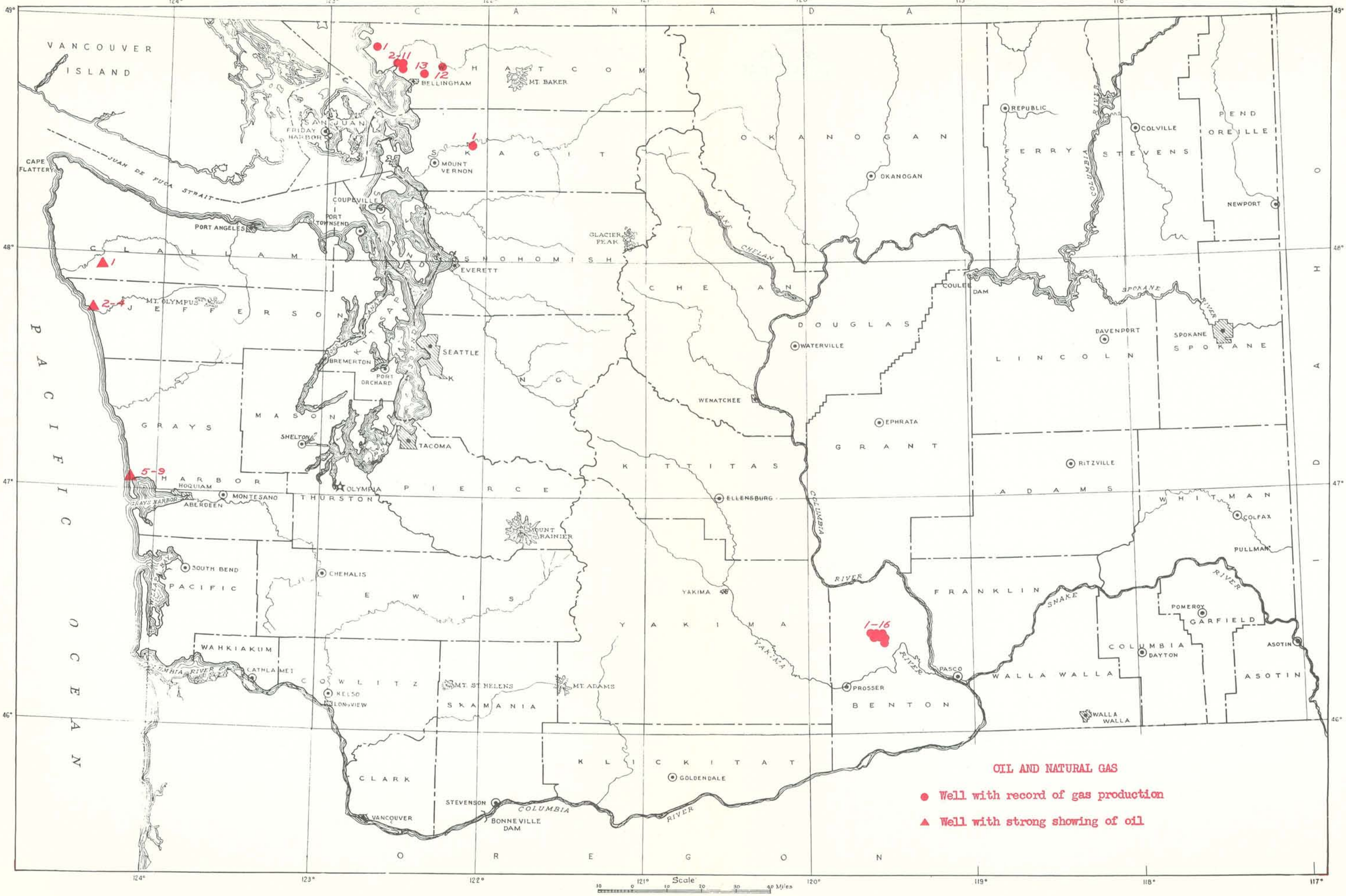
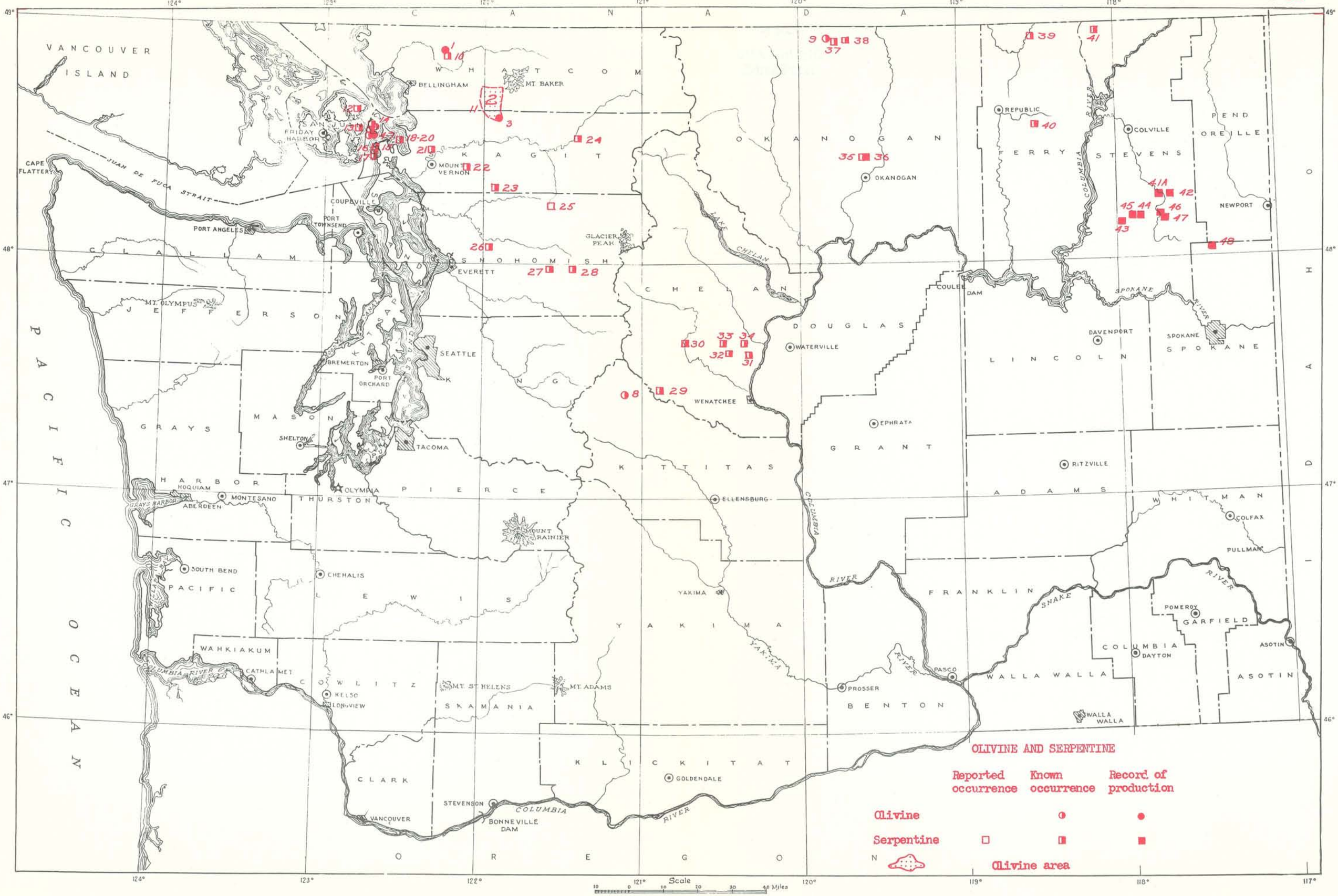
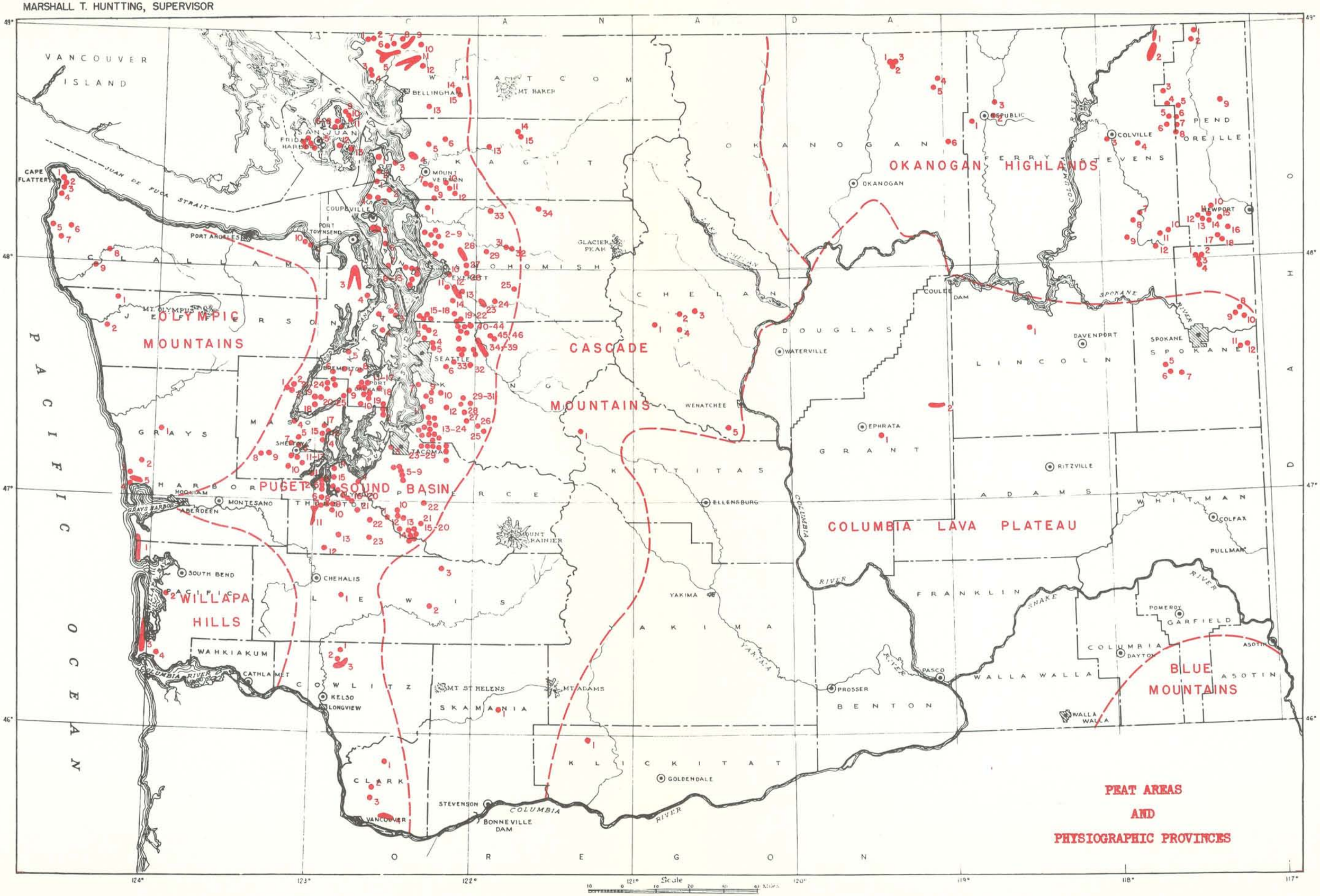
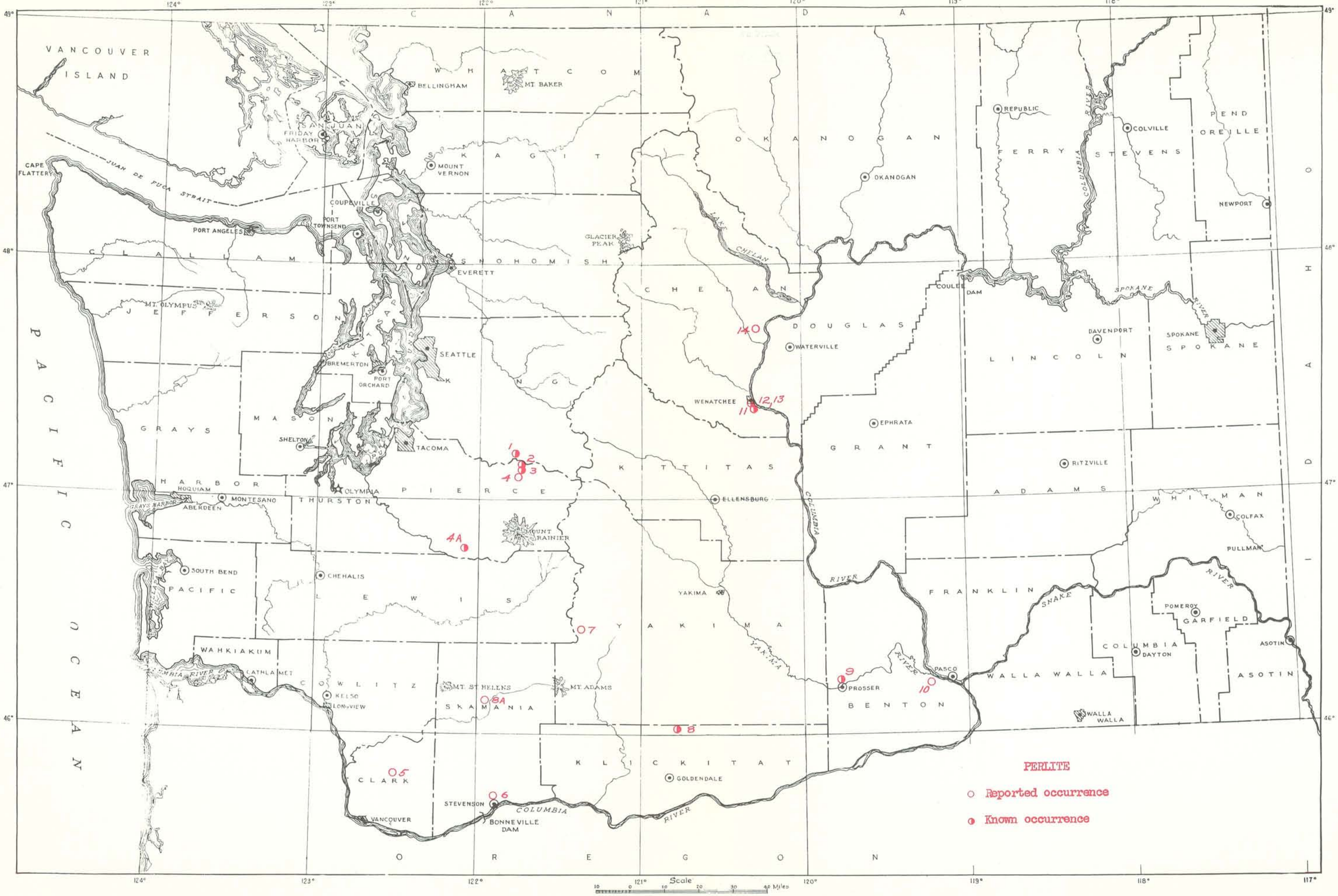
15A
16
17
18
19
20
21


VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
CLALLAM
JEFFERSON
SAN JUAN
FRIDAY HARBOR
WHATCOM
BELLINGHAM
MT. BAKER
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
ISLAND
SNOHOMISH
EVERETT
GLACIER PEAK
CHELAN
LAKE CHELAN
OKANOGAN
REPUBLIC
COLVILLE
FERRY
STEVENS
COLUMBIA RIVER
PEND OREILLE
NEWPORT
IDAHO
DOUGLAS
WATERVILLE
COULEE DAM
SPOKANE RIVER
DAVENPORT
SPOKANE
SPOKANE
LINCOLN
SEATTLE
BREMERTON
PORT ORCHARD
KING
WENATCHEE
EPHRATA
GRANT
GRAYS
MASON
SHELTON
TACOMA
KITTITAS
RITZVILLE
ADAMS
HARBOR
HOQUIAM
GRAYS HARBOR
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
ELLENSBURG
WHITMAN
COLFAX
PULLMAN
MOUNT RAINIER
SOUTH BEND
PACIFIC
CHEHALIS
LEWIS
YAKIMA
YAKIMA RIVER
COLUMBIA RIVER
FRANKLIN
SNAKE RIVER
POMEROY
GARFIELD
ASOTIN
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
PROSSER
BENTON
PASCO
COLUMBIA
DAYTON
WALLA WALLA
WALLA WALLA
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
KLICKITAT
GOLDENDALE
OREGON
124°
123°
122°
121°
120°
119°
118°
117°
49°
48°
47°
46°
Scale
10 0 10 20 30 40 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
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
SAN JUAN
FRIDAY HARBOR
WHATCOM
BELLINGHAM
MT. BAKER
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
SNOHOMISH
EVERETT
GLACIER PEAK
KING
SEATTLE
BREMERTON
PORT ORCHARD
MASON
SHELTON
THURSTON
OLYMPIA
PIERCE
TACOMA
MOUNT RAINIER
LEWIS
CHEHALIS
SKAMANIA
MT. ST. HELENS
MT. ADAMS
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
OKANOGAN
DOUGLAS
WATERVILLE
EPHRATA
GRANT
COULEE DAM
REPUBLIC
FERRY
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
SPOKANE RIVER
SPOKANE
DAVENPORT
LINCOLN
RITZVILLE
ADAMS
WHITMAN
COLFAX
PULLMAN
FRANKLIN
PASCO
PROSSER
BENTON
SNAKE RIVER
WALLA WALLA
COLUMBIA
DAYTON
POMEROY
GARFIELD
ASOTIN
OREGON
1
2-11
13
12
1
1
2-4
5-9
1-16


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


PEAT AREAS
AND
PHYSIOGRAPHIC PROVINCES
OLYMPIC MOUNTAINS
PUGET SOUND BASIN
CASCADE MOUNTAINS
OKANOGAN HIGHLANDS
COLUMBIA LAVA PLATEAU
WILLAPA HILLS
BLUE MOUNTAINS
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CANADA
WASHINGTON
OREGON
Scale


PERLITE
Reported occurrence
Known occurrence
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
JUAN DE FUCA STRAIT
CANADA
IDAHO
OREGON
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
FRIDAY HARBOR
BELLINGHAM
MT. BAKER
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
EVERETT
GLACIER PEAK
SEATTLE
BREMERTON
PORT ORCHARD
TACOMA
OLYMPIA
SHELTON
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
SAN JUAN
SKAGIT
WHATCOM
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
LAKE CHELAN
COLUMBIA RIVER
SPOKANE RIVER
SNAKE RIVER
YAKIMA RIVER
GRAYS HARBOR
1
2
3
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4A
5
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7
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8A
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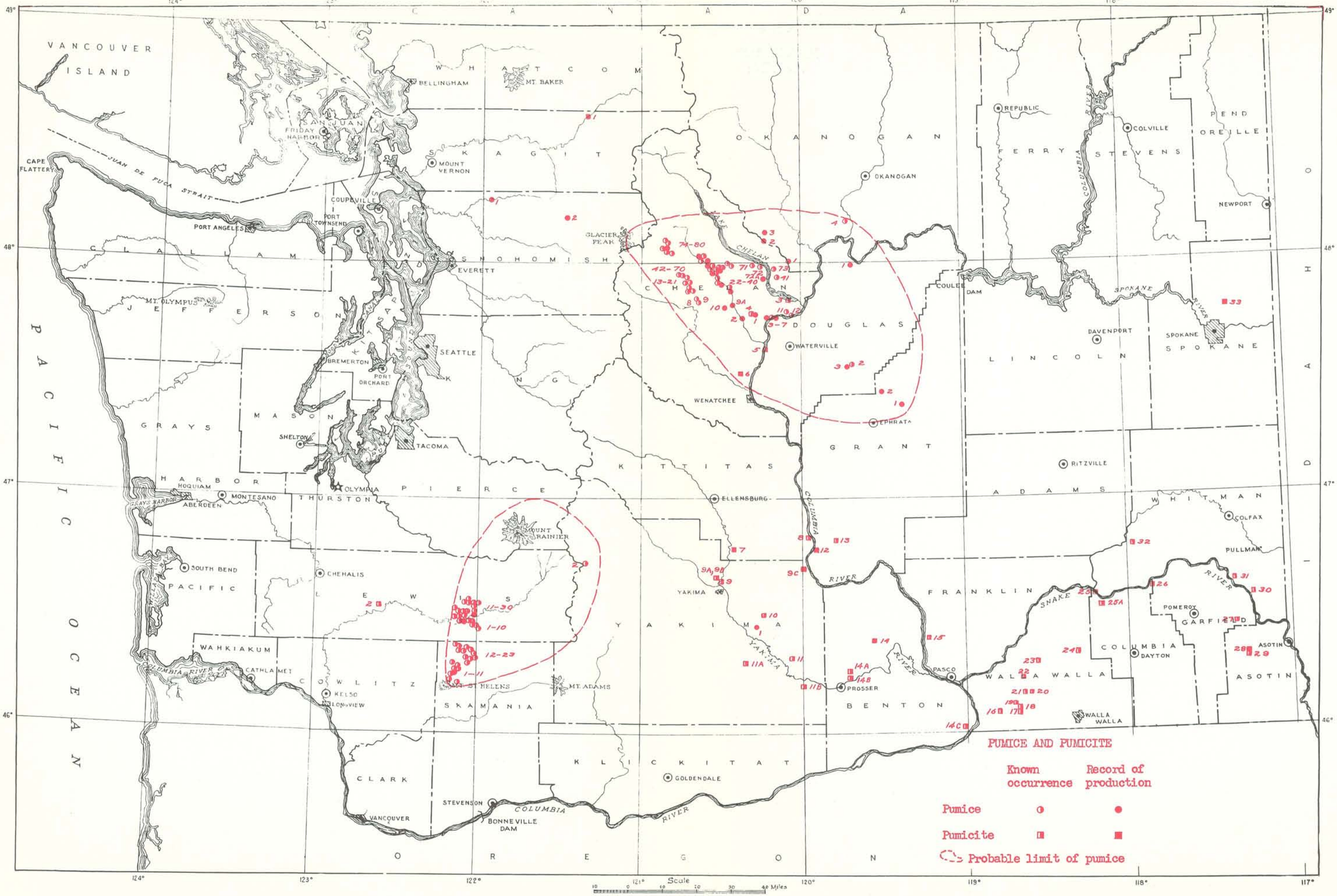
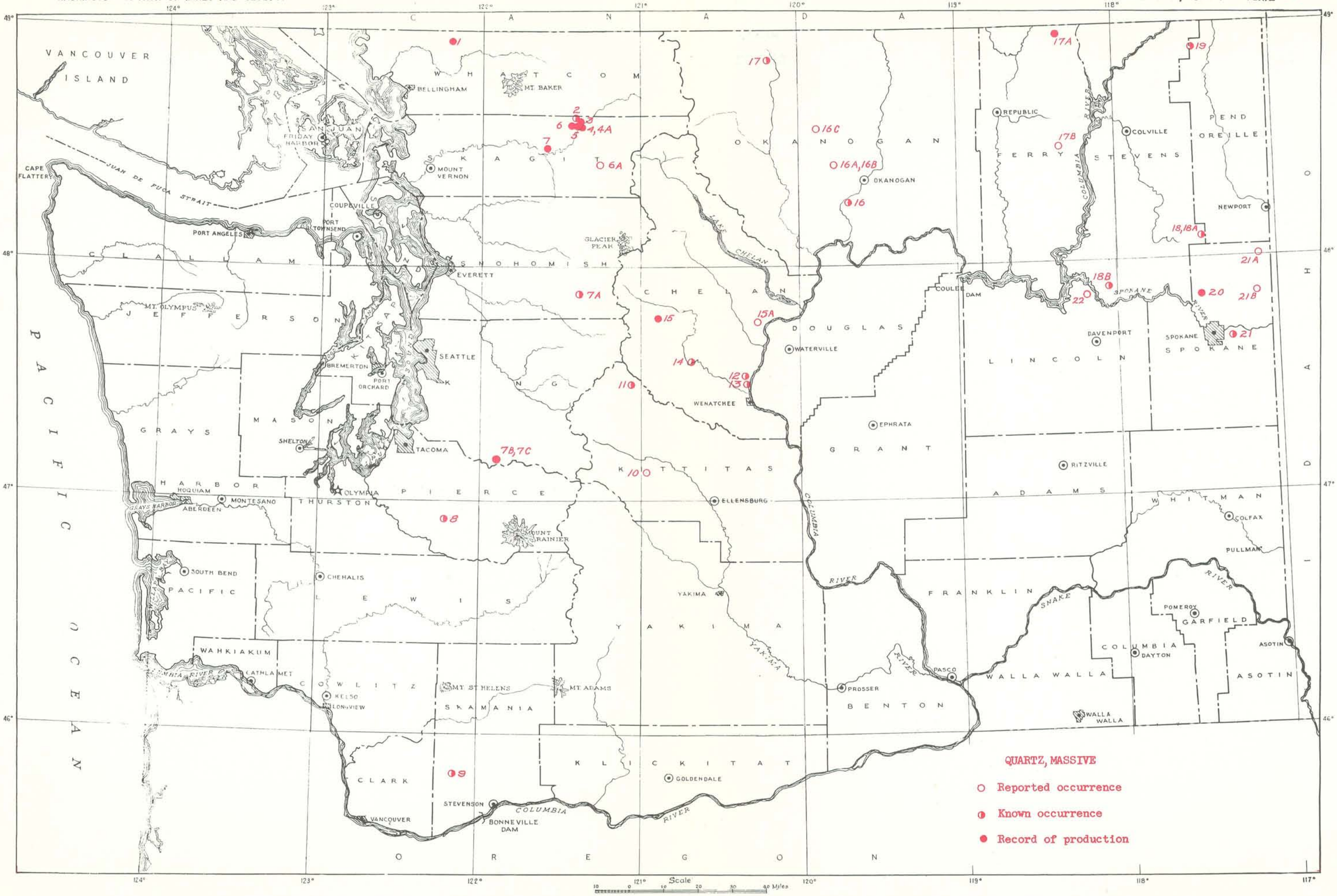
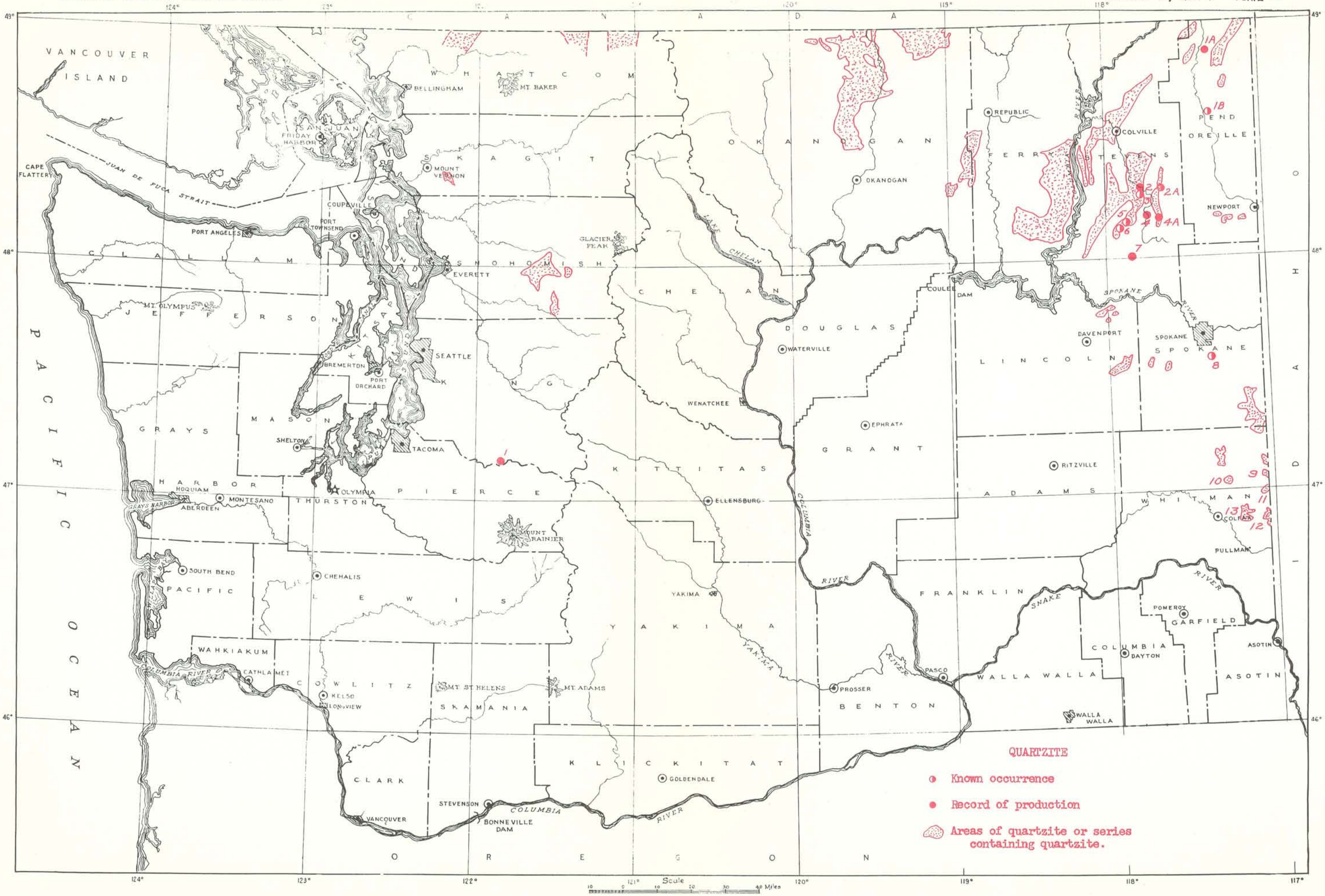
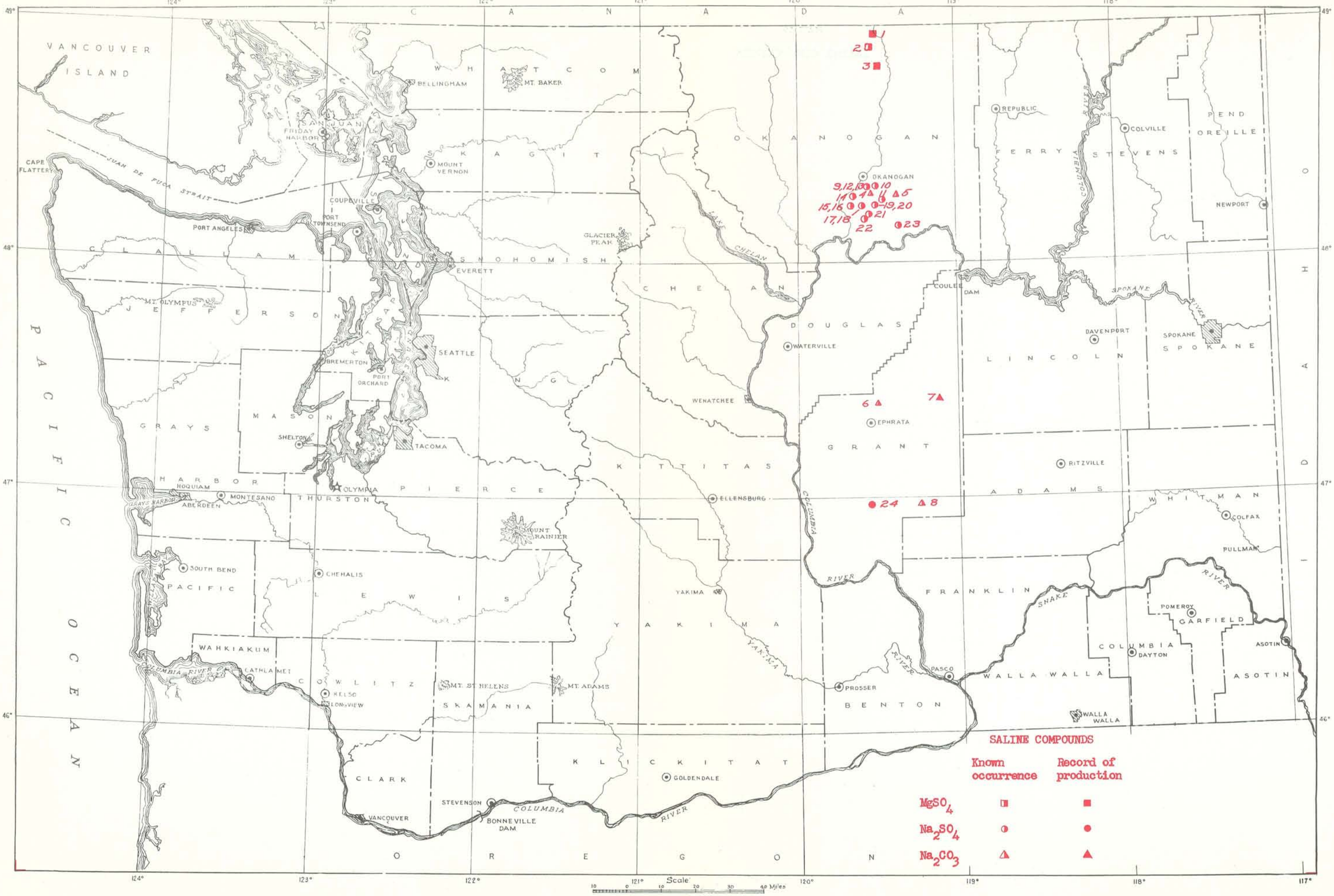
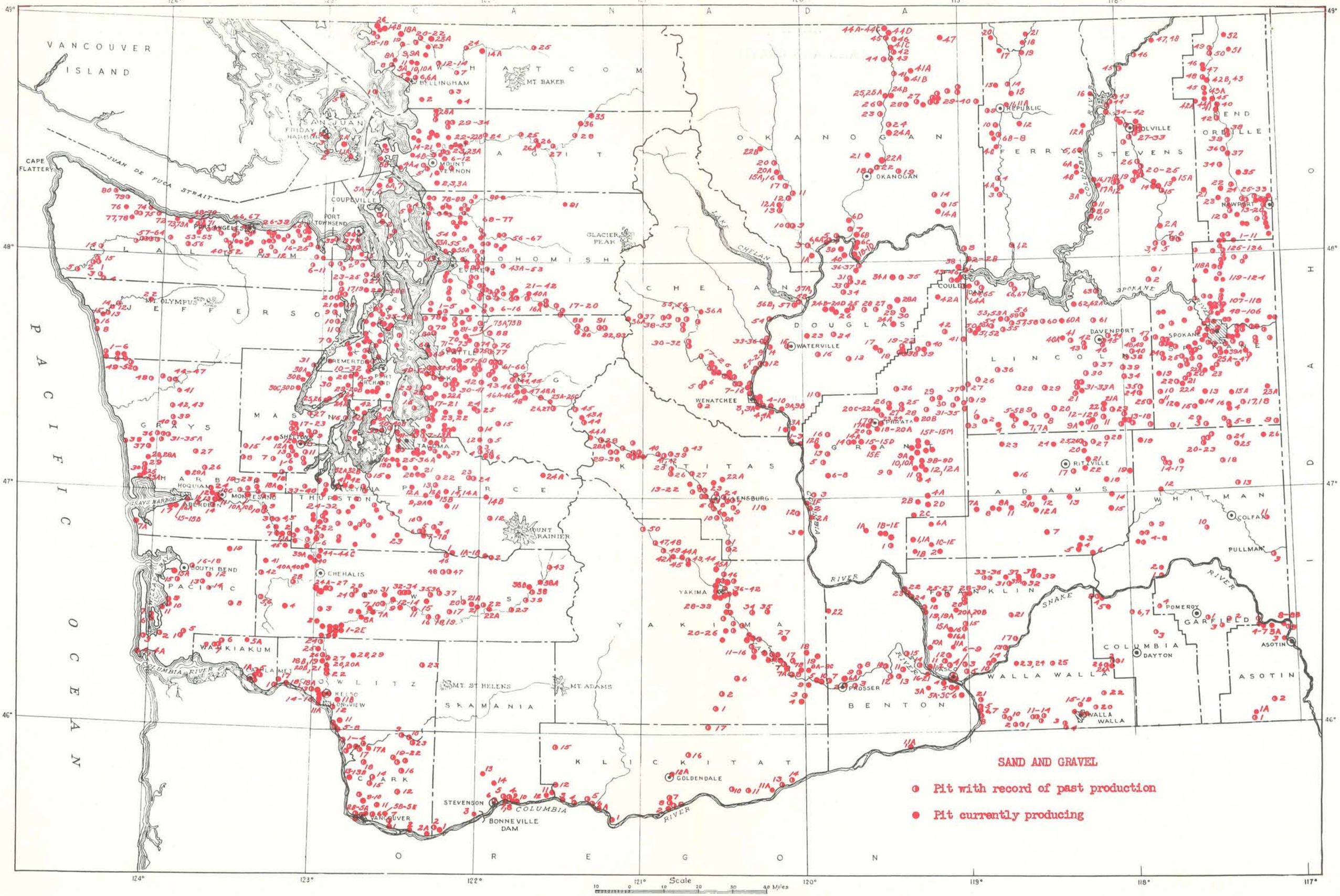
12,13
14


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


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


VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
OKANOGAN
REPUBLIC
FERRY
STEVENS
COLVILLE
PEND OREILLE
NEWPORT
CAPE FLATTERY
JUAN DE FUCA STRAIT
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
GLACIER PEAK
SNOHOMISH
EVERETT
LAKE CHELAN
CHELAN
COULEE DAM
SPOKANE RIVER
MT. OLYMPUS
JEFFERSON
DOUGLAS
WATERVILLE
DAVENPORT
SPOKANE
LINCOLN
SEATTLE
BREMERTON
PORT ORCHARD
KING
WENATCHEE
EPHRATA
GRANT
GRAYS
MASON
SHELTON
TACOMA
KITTITAS
RITZVILLE
HARBOR
HOQUIAM
GRAYS HARBOR
ABERDEEN
MONTESANO
THURSTON
OLYMPIA
PIERCE
ELLENSBURG
ADAMS
WHITMAN
COLFAX
MOUNT RAINIER
PULLMAN
SOUTH BEND
CHEHALIS
PACIFIC
LEWIS
YAKIMA
COLUMBIA RIVER
FRANKLIN
SNAKE RIVER
POMEROY
GARFIELD
ASOTIN
WAHKIAKUM
CATHLAMET
COWLITZ
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
SKAMANIA
PROSSER
BENTON
PASCO
WALLA WALLA
COLUMBIA
DAYTON
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
KLICKITAT
GOLDENDALE
OREGON
Scale
10 0 10 20 30 40 Miles
124° 123° 122° 121° 120° 119° 118° 117°
49° 48° 47° 46°
1A
1B
2
2A
3
4
4A
5
6
7
8
9
10
11
12
13
QUARTZITE
Known occurrence
Record of production
Areas of quartzite or series containing quartzite.


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


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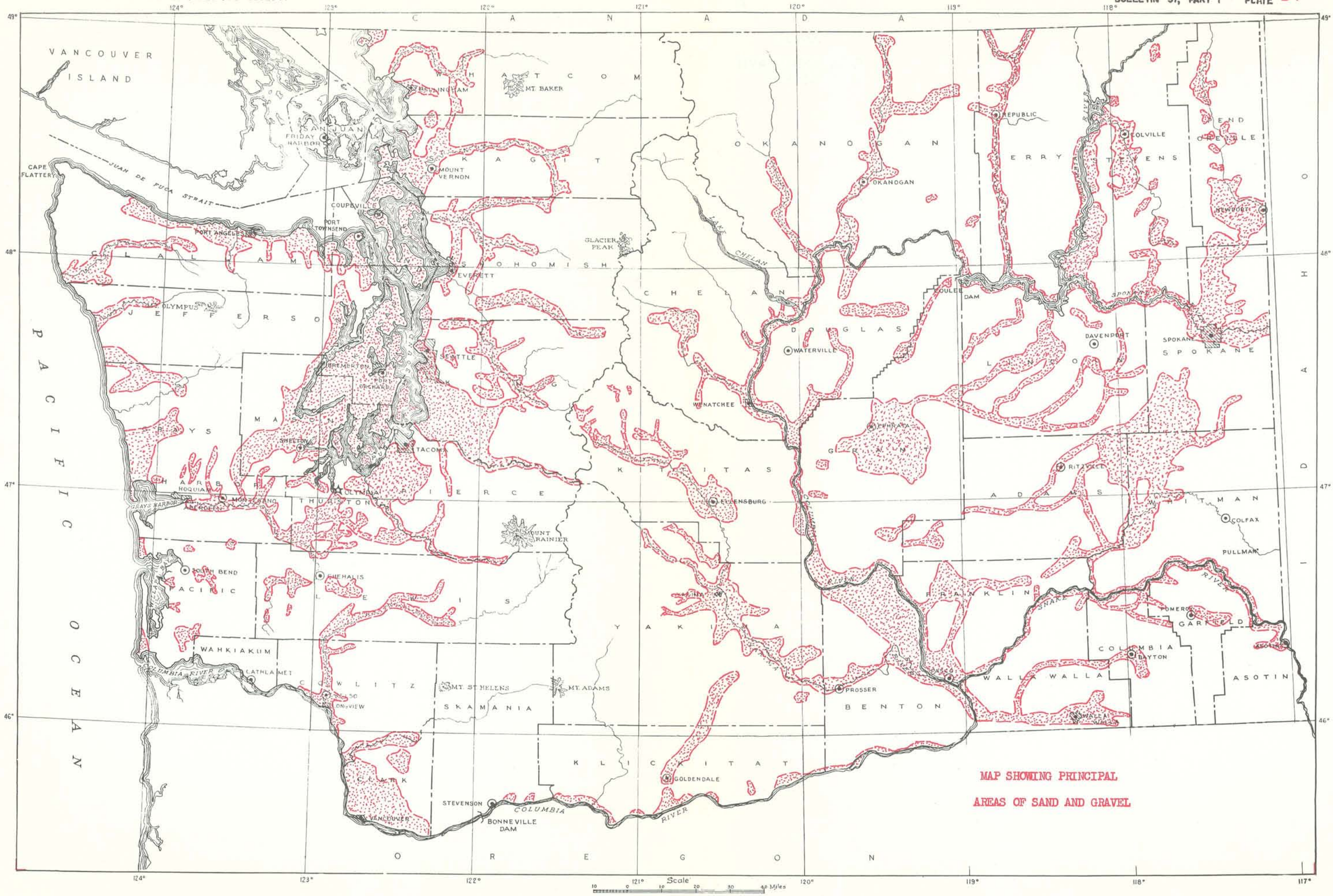
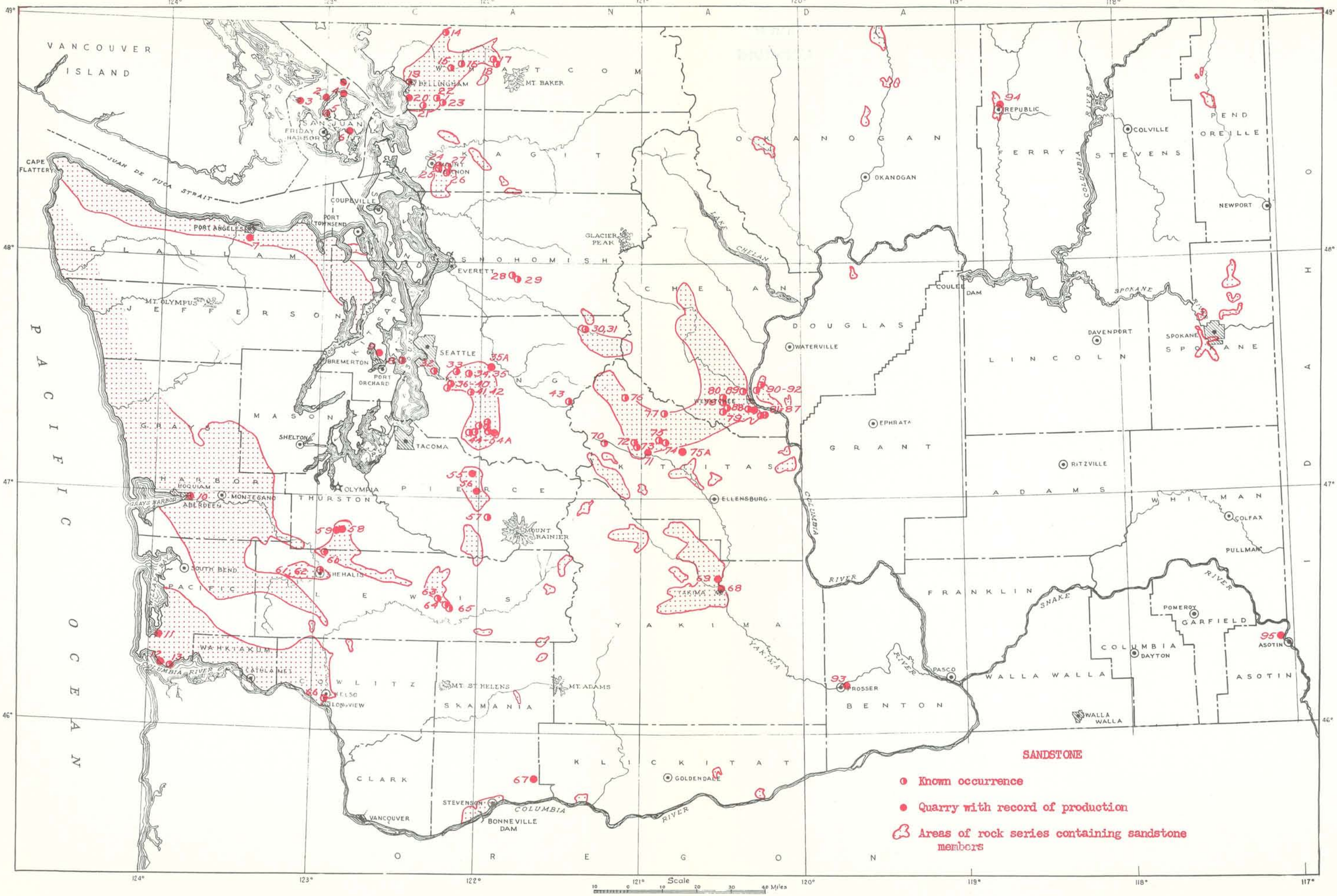
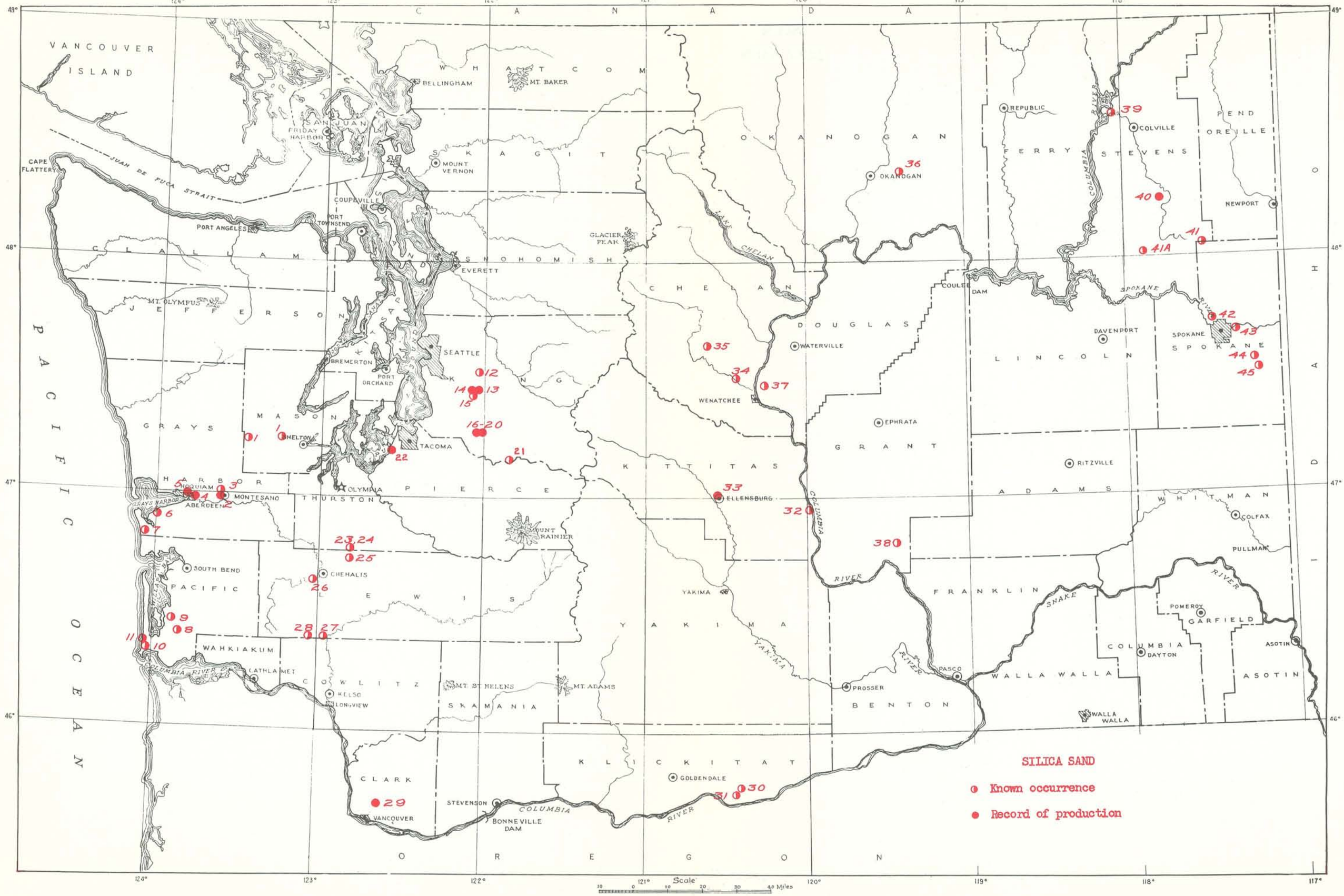
118°
117°
49°
48°
47°
46°


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


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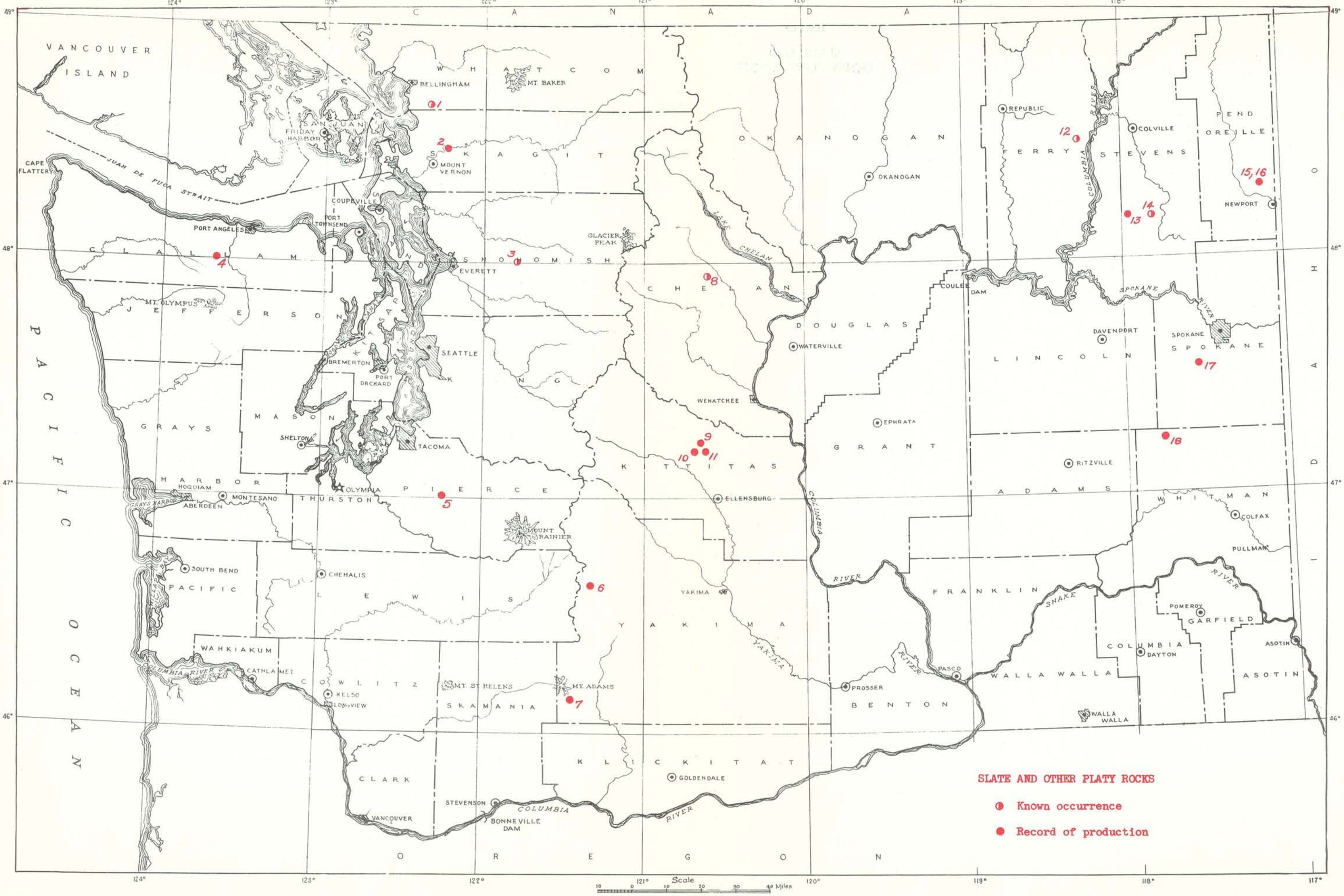
SLATE AND OTHER PLATY ROCKS
Known occurrence
Record of production
Scale
Miles
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
OREGON
IDAHO
JUAN DE FUCA STRAIT
CAPE FLATTERY
PORT ANGELES
MT. OLYMPUS
BELLINGHAM
MT. BAKER
FRIDAY HARBOR
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
EVERETT
GLACIER PEAK
SEATTLE
BREMERTON
PORT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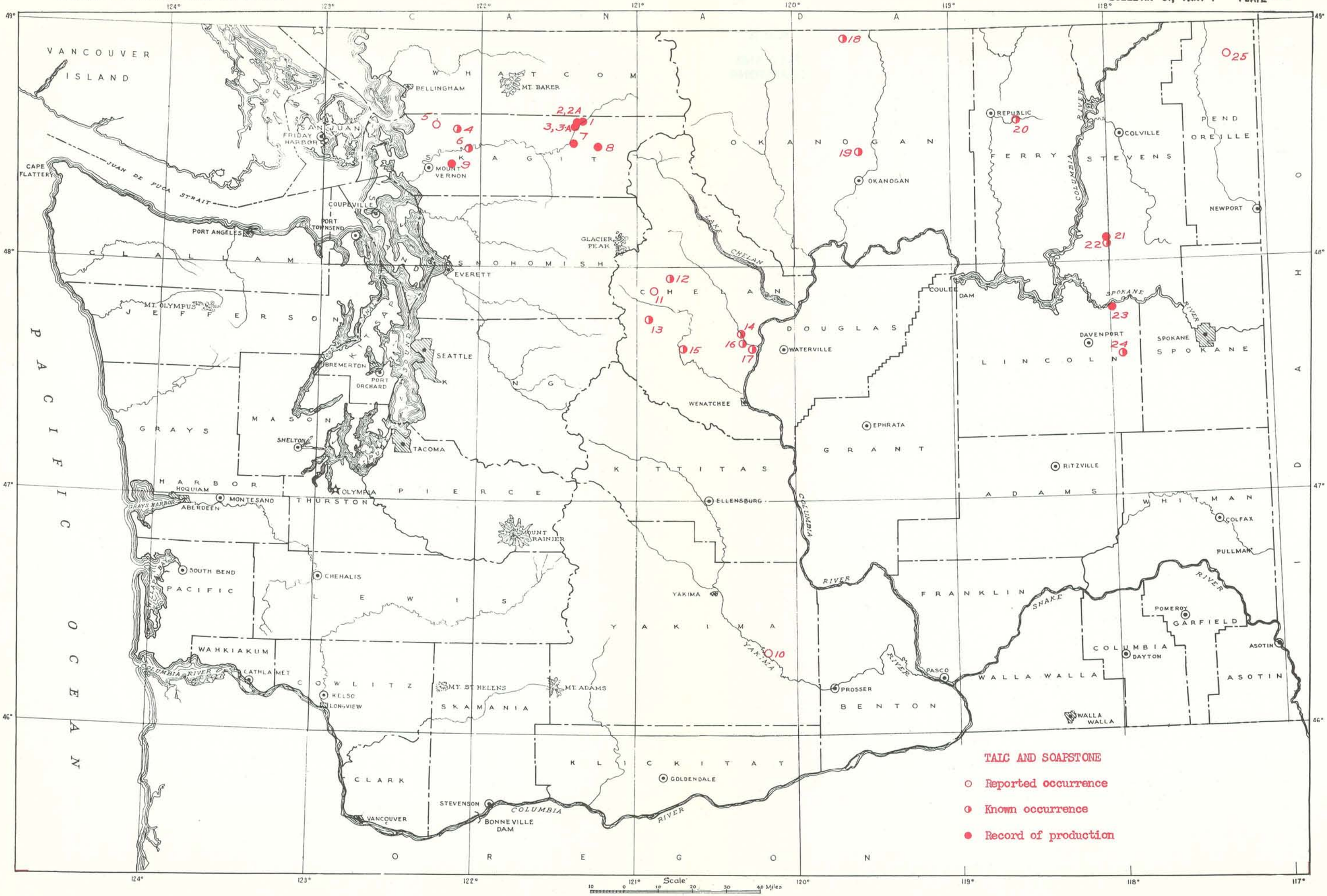
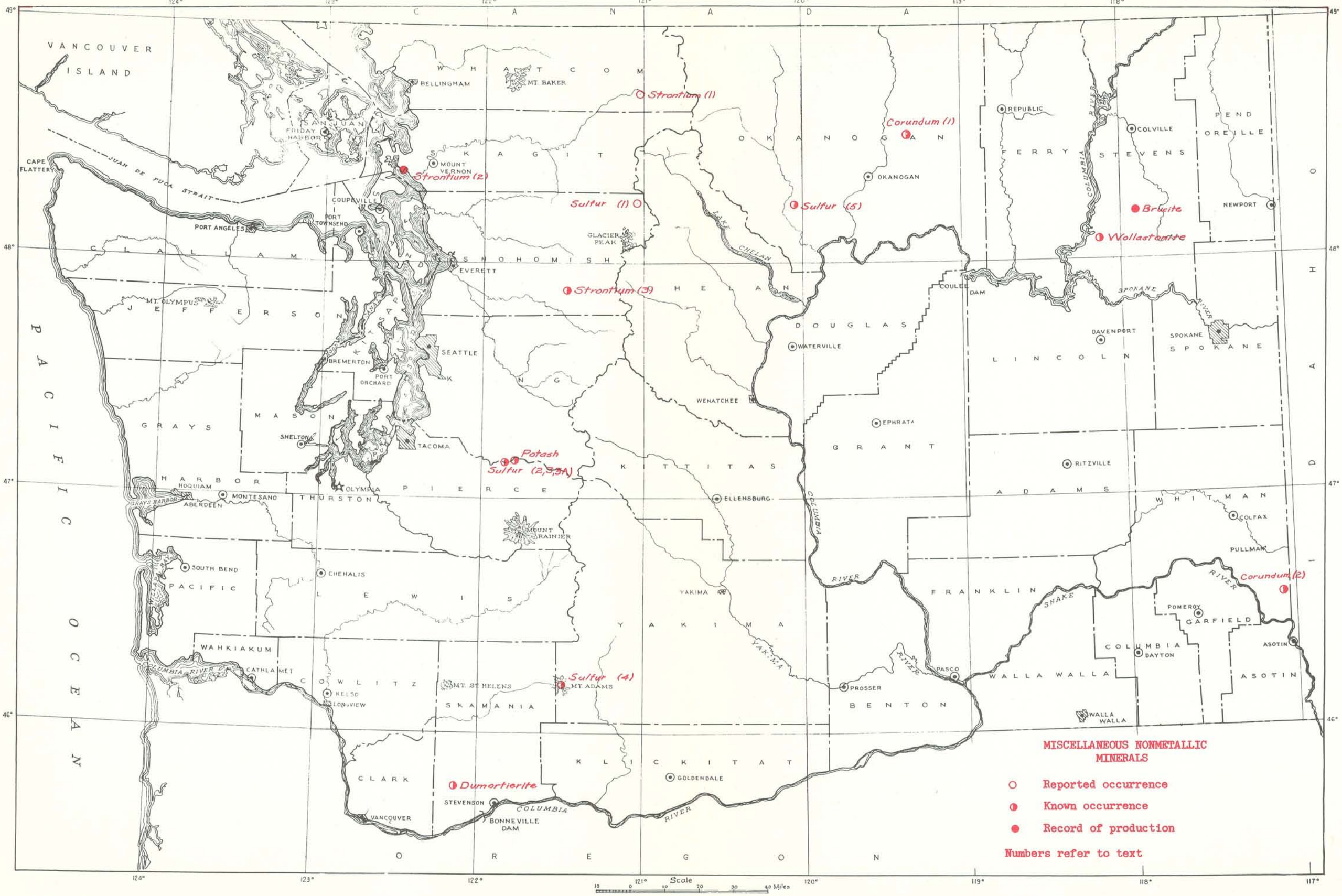

TALC AND SOAPSTONE
Reported occurrence
Known occurrence
Record of production
Scale
Miles
CANADA
PACIFIC OCEAN
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
CAPE FLATTERY
WHATCOM
BELLINGHAM
MT. BAKER
SAN JUAN
FRIDAY HARBOR
SKAGIT
MOUNT VERNON
COUPEVILLE
PORT TOWNSEND
PORT ANGELES
CLALLAM
SNOHOMISH
EVERETT
GLACIER PEAK
MT. OLYMPUS
JEFFERSON
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
SKAMANIA
MT. ADAMS
CLARK
VANCOUVER
STEVENSON
BONNEVILLE DAM
COLUMBIA RIVER
OREGON
KLICKITAT
GOLDENDALE
YAKIMA
YAKIMA RIVER
ELLENSBURG
KITTITAS
WENATCHEE
CHELAN
LAKE CHELAN
OKANOGAN
OKANOGAN
DOUGLAS
WATERVILLE
EPHRATA
GRANT
RITZVILLE
ADAMS
PROSSER
BENTON
PASCO
FRANKLIN
SNAKE RIVER
WALLA WALLA
WALLA WALLA
REPUBLIC
FERRY
COLVILLE
STEVENS
COULEE DAM
LINCOLN
DAVENPORT
SPOKANE
SPOKANE
SPOKANE RIVER
PEND OREILLE
NEWPORT
IDAHO
WHITMAN
COLFAX
PULLMAN
POMEROY
GARFIELD
COLUMBIA
DAYTON
ASOTIN
ASOTIN


MISCELLANEOUS NONMETALLIC MINERALS
Reported occurrence
Known occurrence
Record of production
Numbers refer to text
Strontium (1)
Strontium (2)
Strontium (3)
Sulfur (1)
Sulfur (2,3,3A)
Sulfur (4)
Sulfur (5)
Potash
Corundum (1)
Corundum (2)
Brucite
Wollastonite
Dumortierite
VANCOUVER ISLAND
PACIFIC OCEAN
CANADA
OREGON
WHATCOM
SKAGIT
SAN JUAN
ISLAND
OKANOGAN
FERRY
STEVENS
PEND OREILLE
CLALLAM
JEFFERSON
SNOHOMISH
CHELAN
DOUGLAS
LINCOLN
SPOKANE
GRANT
ADAMS
WHITMAN
GRAYS HARBOR
MASON
KITTITAS
THURSTON
PIERCE
PACIFIC
LEWIS
YAKIMA
FRANKLIN
GARFIELD
COLUMBIA
WALLA WALLA
ASOTIN
WAHKIAKUM
COWLITZ
SKAMANIA
BENTON
CLARK
KLICKITAT
BELLINGHAM
MT. BAKER
FRIDAY HARBOR
CAPE FLATTERY
JUAN DE FUCA STRAIT
MOUNT VERNON
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
CATHLAMET
KELSO
LONGVIEW
MT. ST. HELENS
MT. ADAMS
VANCOUVER
STEVENSON
BONNEVILLE DAM
GOLDENDALE
YAKIMA
ELLENSBURG
PROSSER
PASCO
WALLA WALLA
DAYTON
PULLMAN
COLFAX
POMEROY
ASOTIN
RITZVILLE
EPHRATA
WENATCHEE
WATERVILLE
OKANOGAN
COULEE DAM
DAVENPORT
SPOKANE
NEWPORT
COLVILLE
REPUBLIC
LAKE CHELAN
COLUMBIA RIVER
SPOKANE RIVER
SNAKE RIVER
YAKIMA RIVER
Scale
Miles