GEMS AND MINERALS OF WASHINGTON

BY BOB PATTIE

WASHINGTON STATE MINERAL COUNCIL

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STATE OF WASHINGTON

DEPARTMENT OF NATURAL RESOURCES

BRIAN J. BOYLE, Commissioner of Public Lands

ART STEARNS, Supervisor

DIVISION OF GEOLOGY AND EARTH RESOURCES

RAYMOND LASMANIS, State Geologist

GEMS AND MINERALS OF WASHINGTON

In June 1975 the 44th Legislature of the State of Washington designated petrified wood as the state gem because of its beauty and abundance. It is collected by visitors and displayed around the world, thus promoting Washington recreation and tourism.

Petrified wood is found throughout the state and is symbolic of our early forests. It represents a period of geological time when extensive volcanism buried great forests with volcanic ash and basaltic lava.

Ginkgo Petrified Forest State Park, located near the center of the state at Vantage, is surrounded by major petrified wood collecting sites. The park contains fossil woods representative of living trees, such as fir, hickory, sycamore, oak, cypress, and pine, as well as rare types such as Ginkgo which have few, if any, living relatives.

Petrified Wood, Saddle Mountains

The discovery of precious fire opal in a well 7 miles northeast of Pullman in 1890 led to the first significant recovery of gem materials in Washington. Mine buildings were erected, and operations commenced in July of 1891 in what became known as Gem City.

According to the U.S. Bureau of Mines, Washington State is within the top 10 producers of gem stones in the nation. Petrified wood, agates, crystals, and fossils are eagerly sought by the 10,000 or more rockhounds of the state. Rockhounding — the collecting of rocks, minerals, and fossils — and jewelry making are important economic activities in the state. In recent years, professional collectors have recovered crystals from Washington localities that are now housed in many museums including the Smithsonian. The most notable were bright red realgar crystals from Green River that are the finest in the world. Spectacular crystals of amethyst scepter (Denny Mountain), autunite (Mount Spokane), grossular garnet (Vesper Peak), and pyrite (Spruce Peak) are by far the best in the nation.

Peak years for metal production in the state were 1940 to 1970. The Holden mine, in Chelan County, produced 10.6 million tons of copper, gold, silver, and zinc ore valued at $66.5 million. Pend Oreille County was known for its large lead-zinc mines, which produced up to 18 million lbs. of lead and 22 million lbs. of zinc annually. The Knob Hill mine at Republic, in Ferry County, is still a significant producer of gold. Two large uranium mines were in operation northwest of Spokane, in Stevens County. In terms of dollar value, the mining of industrial minerals, such as basalt, clay, diatomite, dolomite, granite, limestone, silica, and sand and gravel, far exceeds that of metals. Coal mining has again achieved prominence in the state. Open-pit mines near Centralia, in Lewis County, produce 4 to 5 million tons of coal annually.

Calcite Crystals, Metaline Falls

INFORMATION CENTERS AND MUSEUMS WITH COLLECTIONS OF ROCKS, MINERALS, FOSSILS, GEMS, AND MINING HISTORY

Cashmere
Chelan County Historical Society Pioneer Village and Willis Carey Historical Museum
East Sunset Highway
Cashmere 98815

Cle Elum
Cle Elum Historical Society Museum
301 Second Street
Cle Elum 98922

Colville
Stevens County Historical Society Museum
137 N. Wynne
Colville 99114

Coulee City
Dry Falls Interpretive Center
Sun Lakes State Park
Coulee City 99115

Goldendale
Maryhill Museum of Fine Arts
Goldendale 98620

La Conner
La Conner Historical Society
La Conner 98257

Moses Lake
Adam East Museum
Fifth & Balsom
Moses Lake 98837

Toledo
Mount St. Helens National Volcanic Monument Visitor's Center
Toledo 98591

Olympia
St. Martin's College Museum
Olympia 98501

State Capital Museum
211 West 21st
Olympia 98501

Puyallup
Paul H. Korshner Memorial Museum
426 - 4th Avenue NE.
Puyallup 98371

Roslyn
Roslyn Historical Society Museum
P. O. Box 553
Roslyn 98941

Seattle
Pacific Science Center
Seattle Center
Seattle 98109

Pullen Alaska Museum
Seattle Center
Seattle 98109

University of Washington
Thomas Burke Memorial Washington State Museum
Seattle 98105

Spokane
Cheney Cowles Memorial Museum
West 2316 - 1st Avenue
Spokane 99204

Tacoma
Washington State Historical Society
215 North Stadium Way
Tacoma 98403

Vantage
Ginkgo Petrified Forest Interpretive Center
Ginkgo Petrified Forest State Park
Vantage 98950

Waterville
Douglas County Historical Society Museum
Waterville 98858

Wenatchee
North-Central Washington Museum
Wenatchee 98810

Wilbur
Wilbur Museum
Big Bend Historical Society
Wilbur 99185

Yakima
Yakima Valley Museum
Yakima Valley Historical Society
2105 Tieton Drive
Yakima 98902

Fossil Leaf, Spokane

HOW TO USE THIS BROCHURE

The list of gem stones and mineral locations, compiled by members of rockhound clubs, will serve as a guide to help you get to some good collecting sites. It is not meant to be construed as an all-inclusive catalog of collecting sites in the state or as a route map to specific sites. The intent is to create an interest in rockhounding in the state and give a general description where a large variety of material can be found. The reader should contact a rockhound club in the area of a collecting site or inquire at a CHAMBER OF COMMERCE office in a nearby town. When writing for information, just address the inquiry to the Chamber of Commerce, name of town, Washington, zip code. There are many areas that have yet to be thoroughly explored and these could yield exciting finds. Each of the specific areas listed should be thoroughly checked out in advance before planning a field trip because some of the sites undoubtedly have been "well worked" with little material left to be found, and other areas may now be restricted to public entry. Check first with local rock shops in the area or with representatives of the rockhound clubs who can be very helpful in planning a successful rock-hunting trip. It can also be beneficial to check with the local U.S. Forest Service office to determine road conditions before entering national forest land.

Unclaimed federal land and unleased state land represent the only sites where one may collect rocks, even casually or recreationally, without permission. Collecting in bulk or commercial collecting requires formal agreements with the land management agency. PERMISSION MUST BE OBTAINED BEFORE COLLECTING ON PRIVATE LANDS.

A ROCKHOUNDER'S CODE OF ETHICS

I WILL respect both private and public property and will do no collecting on privately owned land without permission from the owner.

I WILL keep informed on all laws, regulations and rules governing collecting on public lands and will observe them.

I WILL, to the best of my ability, ascertain the boundary lines of property on which I plan to collect.

I WILL use no firearms or blasting materials in collecting areas.

I WILL cause no willful damage to property of any kind, such as fences, signs, buildings, etc.

I WILL leave all gates as found.

I WILL build fires only in designated or safe places and will be certain they are completely extinguished before leaving the area.

I WILL discard no burning materials – matches, cigarettes, etc.

I WILL fill all excavation holes which may be dangerous to livestock.

I WILL not contaminate wells, creeks or other water supplies.

I WILL cause no damage to collecting material and will take home only what I can reasonably use.

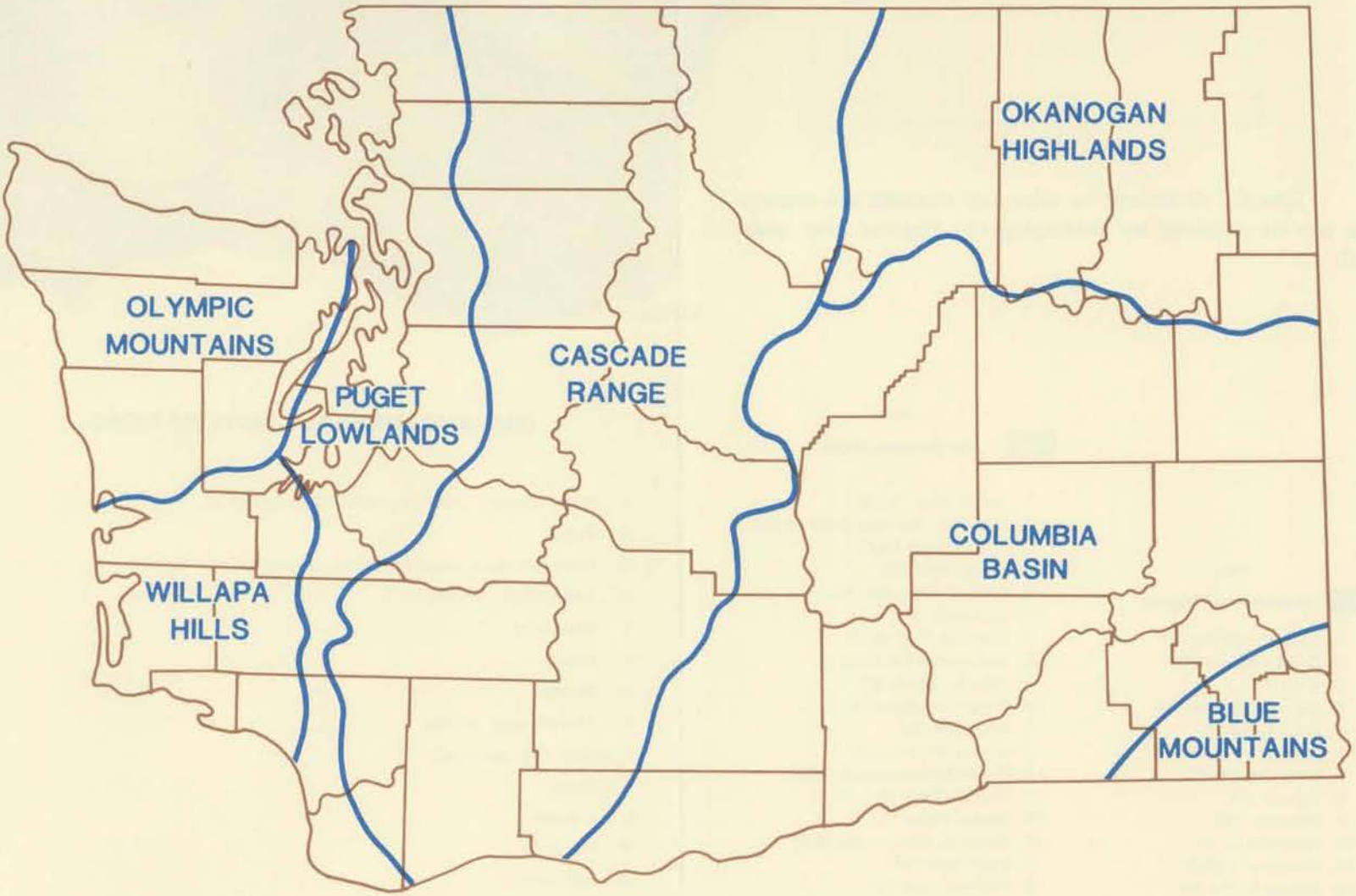
I WILL support the Rockhound Project H.E.L.P. (Help Eliminate Litter, Please) and will leave all collecting areas devoid of litter, regardless of how found.

I WILL cooperate with Field Trip leaders and those in designated authority in all collecting areas.

I WILL report to my Club or Federation Officers, Bureau of Land Management, or other proper authorities, any deposit of petrified wood or other material on public lands which should be protected for the enjoyment of future generations and for public, educational, and scientific purposes.

I WILL appreciate and protect our heritage of Natural Resources.

I WILL observe the "Golden Rule," will use Good Outdoor Manners and will at all times conduct myself in a manner which will add to the stature and public image of Rockhounds everywhere.



PHYSIOGRAPHIC PROVINCES

HAZARDS

Rockhounding, like most outdoor activities, is not without certain hazards. The roads leading to digging sites may be used by heavy trucks carrying logs, gravel, livestock, or other products. Unimproved roads can be dangerous when wet, muddy, or snowy. It always pays to inquire about road and traffic conditions before going into unfamiliar territory.

Rattlesnakes may be found in certain areas during the warm months. Watch out for them in rock slides and around damp areas, under old buildings, ledges, etc. Prompt medical treatment is always advisable if bitten. Wood ticks are found in the springtime in sagebrush and timber fringe areas where they can hang on the tips of brushy twigs. Ticks can carry spotted fever and other infections. They should be removed promptly and the bites treated.

Rockhounds may unknowingly create hazards through careless digging. Undermining the roots of trees is both destructive and dangerous, as it may cause the tree to fall. Tunneling through unsupported soil or under overhanging banks that may cave in on the digger are unsafe practices. Deep or steep-sided pits or trenches should be filled upon completion of digging, as they pose a hazard to both man and beast.

Eye protection should be used when pounding on rocks or an outcrop. Do not stand near someone that is breaking rock.

Trilobites, Metaline Falls

REGIONAL SITE AND ROCK CLUB INDEX

Note: Letters in parentheses following a collecting site are codes for gems and minerals found there. Use "Gem and Mineral Abbreviations" table at the end of this index to identify them.

I. Southwestern Region

1. Grays River (A,Z,F)
2. Altoona (Z)
3. Bear Creek (A)
4. Willapa Bay (F)
5. Twin Harbors (J)
6. Green Creek (F)
7. Kalama (A,C,H)
8. Green Mountain (A,H,J)
9. Spencer Creek (A,C)
10. Elk Mountain (Z)
11. Silver Lake (A,J,W)
12. Pigeon Springs (A,J,H)
13. Salmon Creek (A,J,W)
14. Signal Peak (A,Z)
15. Jordan Creek (A)
16. Pinto Creek (A,J)
17. Newaukum River (A,J,H)
18. Beaver Creek (A,C)
19. Chehalis River (A,W)
20. Mossyrock (A,C)
21. Vail (A,J)
22. Silver Creek (A,C,Z)
23. East Canyon Creek (Z,A)
24. Fraser Creek (A,J)
25. Bernier Creek (A,J)
26. Tono (A,J,W,F)
27. Johnson Creek (A,J,H)
28. Cedar Creek (A,J)
29. Clay City (C)

-Chehalis Valley Gem Club
Montesano, Washington

-Tenino Rock Cruisers
Tenino, Washington

II. Olympic Peninsula Region

1. Porter (F)
2. Satsop River (J,F)
3. Rock Candy Mountain (C,Z)
4. Ocean Beaches (A,D,J)
5. Lyle River (A,J)
6. Agate beach (A)
7. Lake Crescent (J)
8. Twin Rivers (F,D,A)
9. Clallam Bay (A,D,F)
10. Jefferson County beaches (A,J,W,D)
11. Higley Peak (C)
12. Rialto beach (J)
13. Port Ludlow quarry (A,J,W,D)
14. Quillayute River (J,A)

-Grays Harbor Gem & Geology Society
Aberdeen, Washington

-Kitsap Mineral & Gem Society
Bremerton, Washington

-Shelton Rock & Mineral Society
Shelton, Washington

-Tacoma Agate Club
Tacoma, Washington

-Washington Agate & Mineral Society
Olympia, Washington

III. Western-central Cascade Region

1. Green River Gorge (C,R)
2. Burma Road (A,J,H,I)
3. Kaner Flats (H)
4. Gypsy Meadows (A)
5. Greenwater River (A,J)
6. Bumping River Road (U)
7. Rim Rock Lake (H)
8. Pyramid Creek (A,J,C)
9. Cedar River (A,J,F)
10. Hanson Creek (C)
11. Mount Teneriffe (C)
12. Denny Mountain (C)
13. Quartz Creek (C,U)
14. North Fork Snoqualmie River (C)
15. Lennox Creek (C,Z)
16. Guye Peak Saddle (C)
17. Mount Roosevelt (C,X)
18. Green Ridge Mountain (C,X)

-Bellevue Rock Club, Inc.
Bellevue, Washington

-Boeing Employees Mineralogical Society
Seattle, Washington

-Evergreen Rock Club, Inc.
Seattle, Washington

-Federal Way Gem & Mineral Club
Federal Way, Washington

-Magnolia Gem & Mineral Club
Seattle, Washington

-Maplewood Rock, Gem & Community Club
Edmonds, Washington

-North Seattle Lapidary & Mineral Club, Inc.
Seattle, Washington

-Puyallup Valley Gem & Mineral Club
Puyallup, Washington

-Snoqualmie Valley Rock Club
North Bend, Washington

-West Seattle Rock Club, Inc.
Seattle, Washington

-White River Rock Club, Inc.
Buckley, Washington

IV. Northwestern Region

1. Cherry Creek (W,C,Z)
2. Cedar Ponds (C)
3. Stubbs Hill (J)
4. Silver Creek (C,Z)
5. Deer Creek (A,D,G)
6. Index (Z,C)
7. Mystery Hill mines (C)
8. French Creek (E)
9. Barr Hill quarry (A)
10. Sunset Falls (C)
11. Ethel mine (C,L)
12. Barclay Creek (G)
13. Mount Higgins (E,D)
14. Whidbey Island beaches (A,J)
15. Sumas (A,F)
16. Walker Valley (C,A)
17. Boulder Creek (D,J,A)
18. Marblemount (D)
19. Cascade River (D)
20. Chuckanut Drive (F)
21. Finney Creek (M,H,D)
22. Segelson Creek (A,H,C)
23. Brooks Creek (G)
24. Cultus Mountain (D,A)
25. Vesper Peak (G,C)
26. Garnet Creek (G)
27. Sloan Creek (G)
28. Silvertip Peak (C)
29. Fidalgo Island (D,C,R)
30. Lost Creek (G)

-East Kingco Rock Club Inc.
Redmond, Washington

-Everett Rock & Gem Club, Inc.
Everett, Washington

-Marysville Rock & Gem Club, Inc.
Marysville, Washington

-Mount Baker Rock & Gem Club
Bellingham, Washington

-Skagit Rock & Gem Club
Mount Vernon, Washington

-Snohomish Lapidary Club, Inc.
Snohomish, Washington

-Whidbey Pebble Pushers
Langley, Washington

V. Ellensburg Region

1. Teanaway River (A,J,C)
2. Red Top Mountain (A,C,H)
3. First Creek (A,C)
4. Frost Mountain (A,H)
5. Green Canyon (A,J,C)
6. Reecer Creek (A,J,C)
7. Yellow Hill (A,J)
8. Jack Creek (A,J,H)
9. Horse Canyon (A,C)
10. Old Blewett Pass Road (A,J,C,E)
11. Crystal Mountain (C,A,J)
12. Dry Creek (A,J,C)
13. Kachess Ridge (C,A)
14. Liberty (A,C)
15. Lion Rock (A,C)
16. Boulder Creek (A,C,H)
17. Easton Ridge (A,H,C)
18. Beverly Creek (D,J)
19. Quartz Mountain (A,H)
20. Lake Cle Elum (C,H)

-Cle Elum Chamber of Commerce
Cle Elum, Washington

VI. Southern Region

1. Yakima Canyon (W)
2. Umtanum Ridge (O,W)
3. White Bluffs (W,O)
4. Horse Heaven Hills (W,O,A)
5. Roosevelt (W,O)
6. Vantage (W)
7. Diatom Pits (O)
8. Whiskey Dick (W)
9. Saddle Mountains (W,O)
10. Selah (J)
11. Skamania mines (U,C)
12. Spring Creek (A)
13. Crater Creek (A,H,C)
14. Lackamas Lake (C)
15. Mount Pleasant (A,J)
16. Poison Creek (W)
17. White Salmon (Puckerhuddle) (W)
18. Table Mountain (A,J)
19. Rock Creek (O,A,Z)
20. Warwick (A,W,J)
21. Goodnoe (O)
22. Bickleton (W,A,J)
23. Wawawai (Granite Point) (C)
24. Busby (C)
25. Asotin Creek (W)
26. Moses (J,I,A)
27. Bald Butte (C)
28. Goldendale (A,J,W)
29. Tekoa Mountain (C)

-Lakeside Gem & Mineral Club
Kennewick, Washington

-Three Rivers Mineralogy Society, Inc.
Tri Cities, Washington

-Upland Rock & Mineral Club
Yakima, Washington

-Yakima Rock & Mineral Club
Yakima, Washington

VII. North-central Region

1. Lake Wenatchee (N)
2. Quincy Canyon (W)
3. Plain (N)
4. Sears Creek Road (N)
5. Icicle Creek (C)
6. Cannon Mount (C,X)
7. Lake Creek (B,G)
8. Gaynor (G)
9. Palisades (W)
10. Riverside (L,G)
11. Conconully (C,J)
12. Aeneas Valley (A)
13. Mazama (C,F)
14. Four Metals mine (G,C)
15. Mineral Hill (C)
16. Tunk Creek (T,X)
17. Topaz Mountain (C)
18. Windy Peak (C,B)
19. Cascade Pass (G)
20. Slide Ridge (L,C)
21. Happy Hill (V)
22. Wauconda (A,G)

-Ginkgo Mineral Society
Wenatchee, Washington

VIII. Northeastern Region

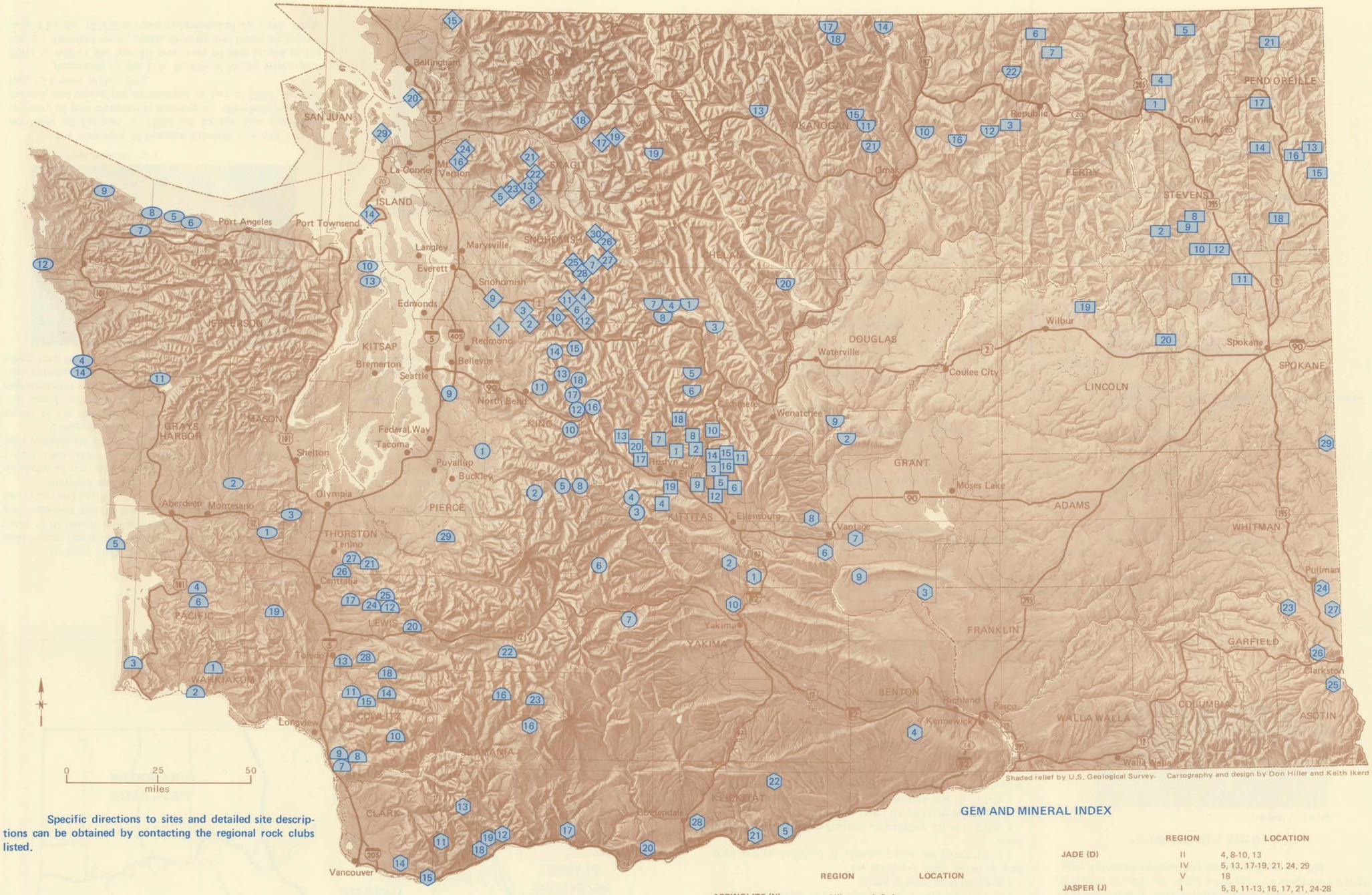
1. Kettle River (B,V)
2. Chewelah (Railway Dike) (B,G,X)
3. Frosty Creek (A,C)
4. Evans Camp (C)
5. Flagstaff Mountain (C)
6. Curlew (A,H)
7. Fransom Peak (A,C)
8. Cleveland mine (C,U)
9. Cardinal Dump (U)
10. Crystal prospect (C)
11. Deer Park (C)
12. Loon Lake mine (U)
13. South Baldy Mountain (C,X)
14. Calispell Peak (B,C,X)
15. Squaw Valley (C)
16. North Skookum Lake (C,B)
17. Lost Creek (B)
18. Sacheen Lake (G)
19. Creston/Roosevelt Lake (W)
20. Mondovi (I)
21. Metaline Falls (C)

-Columbian Geological Society
Spokane, Washington

-Inland Empire Rockhound Club
Spokane, Washington

-Rock Rollers Club, Inc.
Spokane, Washington

-Wilbur Gem & Mineral Club
Wilbur, Washington



Specific directions to sites and detailed site descriptions can be obtained by contacting the regional rock clubs listed.

Shaded relief by U.S. Geological Survey. Cartography and design by Don Hiller and Keith Ikerd

GEM AND MINERAL ABBREVIATIONS

A - Agate (banded, carnelian, moss, plume, sagenitic)
B - Beryl
C - Crystals (quartz, amethyst, pyrite, calcite, epidote, barite)
D - Jade (jadeite, serpentine)
E - Rhodonite
F - Fossils
G - Garnet
H - Thunder eggs, geodes
I - Opal (fire, common)
J - Jasper
L - Fluorite
M - Hematite
N - Actinolite
O - Opalized wood
R - Realgar
T - Thulite
U - Chrysocolla, malachite, azurite
V - Aventurine
W - Petrified wood (agatized)
X - Tourmaline
Z - Zeolites (stilbite, natrolite, heulandite, thomsonite, laumontite, chabazite, scolecite, mesolite, mordenite)

GEM AND MINERAL INDEX

	REGION	LOCATION
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	III	2, 4, 5, 8, 9
	IV	5, 9, 14-17, 22, 24
	V	1-17, 19
	VI	4, 12, 13, 15, 18-20, 22, 26, 28
	VII	12, 22
	VIII	3, 6, 7
AVENTURINE (V)	VII	21
	VIII	1
BERYL (B)	VII	7, 18
	VIII	1, 2, 14, 16, 17
CHRYSOCOLLA, MALACHITE, and AZURITE (U)	III	6, 13
	VI	11
	VIII	8, 9, 12
CRYSTALS (C)	I	7, 9, 18, 20, 22, 29
	II	3, 11
	III	1, 8, 10-18
	IV	1, 2, 4, 6, 7, 10, 11, 16, 22, 25, 28, 29
	V	1-3, 5, 6, 9-17, 20
	VI	11, 13, 14, 23, 24, 27, 29
	VII	5, 6, 11, 13-15, 17, 18, 20
	VIII	3-5, 7, 8, 10, 11, 13-16, 21
FLUORITE (L)	IV	11
	VII	10, 20
FOSSILS (F)	I	1, 4, 6, 26
	II	1, 2, 8, 9
	IV	15, 20
	VII	13
GARNET (G)	IV	5, 12, 23, 25-27, 30
	VII	7, 8, 10, 14, 19, 22
	VIII	2, 18
HEMATITE (M)	IV	21
JADE (D)	II	4, 8-10, 13
	IV	5, 13, 17-19, 21, 24, 29
	V	18
JASPER (J)	I	5, 8, 11-13, 16, 17, 21, 24-28
	II	2, 4, 5, 7, 10, 12-14
	III	2, 5, 8, 9
	IV	3, 14, 17
	V	1, 5-8, 10-12, 18
	VI	10, 15, 18, 20, 22, 26, 28
	VII	11
OPAL (I)	III	2
	VI	26
	VIII	20
OPALIZED WOOD (O)	VI	2-5, 7, 9, 19, 21
PETRIFIED WOOD (W)	I	11, 13, 19, 26
	II	10, 13
	IV	1
	VI	1-6, 8, 9, 16, 17, 20, 22, 25, 28
	VII	9
	VIII	19
REALGAR (R)	III	1
	IV	29
RHODONITE (E)	IV	8, 13
	V	10
THUNDER EGGS and GEODES (H)	I	7, 8, 17, 27
	III	2, 3, 7
	IV	21, 22
	V	2, 4, 8, 16, 17, 19, 20
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THULITE (T)	VII	16
TOURMALINE (X)	III	17, 18
	VII	6, 16
	VIII	2, 13, 14
ZEOLITES (Z)	I	1, 2, 10, 14, 22, 23
	II	3
	III	15
	IV	1, 4, 6
	VI	19