

ROCK HUNTING SUGGESTIONS FOR WYOMING

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Wyoming has long been a center of attraction for fossil and rock hounds. Its abundant natural resources provide an almost endless supply of material for collectors. However, the supply is not really endless, and there are areas of the state which have been completely depleted of particular specimens. This is one of the reasons that laws concerning collecting have been established. Before you start collecting anything in Wyoming make certain that you are not breaking any regulations. When you do collect, try to do so in moderation. One or two good specimens are better than half a dozen poor ones and something is left for the person whom comes after you.

The most important thing to do before you start rock hunting in Wyoming is to determine who owns the land where the specimens are located. One of the best sources for this information is to obtain a free map showing the general location of public lands in Wyoming. Write:

The Bureau of Land Management
Federal Office Building
Cheyenne, Wyoming 82001

In general, fossils and archaeological materials may not be collected on Wyoming State Lands without a permit. The Antiquities Act of 1906 states that a person may not, without permission, "appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity" on lands under federal government control. Permits are usually issued only to representatives of scientific institutions. Write:

State Land Commissioner
State Capitol Building
Cheyenne, Wyoming 82001

The only exception to the collecting rules is petrified wood. Twenty-five pounds may be collected on public lands without a permit in one day. In total, not more than 250 pounds can be gathered by one person within a

year's time. For more specific questions concerning regulations and permits, write to the Bureau of Land Management.

There are numerous National Parks and monuments in Wyoming and collecting specimens is absolutely prohibited on these lands. On other federally-owned lands in the state some collecting is allowed, but permission must be obtained from the federal agency that administers that portion of the federal land. (This is often the U. S. Forest Service - check a land map to be sure.)

Although collecting specimens is restricted in many areas of Wyoming, similar rocks often crop out on land nearby and can be collected there with permission of the owner. There are no rules restricting what can be collected from private lands, except that permission to trespass should first be obtained.

Most towns in Wyoming have amateur mineral and fossil collectors and many of the larger towns have formal organizations. Local Chambers of Commerce can usually give the names of persons or groups interested in rocks and minerals. In addition, inquiry may be made in towns mentioned for specific directions on how to reach places cited. If we would provide an exact description of each collecting site, these areas would soon become so completely picked over there would be nothing left for future collectors. Instead, we chose to provide collectors with some general information and let them hunt for the exact sites. You should not have much trouble locating the well known areas, and perhaps you might even discover some new ones.

The minerals and locations described below are only a few of the more common ones that you might expect to find in Wyoming. Check the list at the end for more complete references on Wyoming. Minerals are usually not described completely in this paper since it was written primarily to provide information regarding localities. For descriptions and diagnostic field test use a good field guide to rocks and minerals.

AGATES, CHALCEDONY AND PETRIFIED WOOD

Agates are rather common in many areas of Wyoming and occur in many different forms. They are found alone or in association with petrified wood. The most common types are rainbow agates, Goniobasis agates, banded (fortification) agates and moss agates. An agate is a cryptocrystalline variety of quartz, a type of chalcedony, characterized by variegated colors in bands, irregular clouds, or moss-like forms.

Rainbow Agates - These are finely banded agates which diffract light into the colors of the rainbow.

Fremont County - Along the Wind River near Riverton.

Moss Agates - These are non-banded agates which are marked by irregular or dendritic patches of darker coloration. They are often known as "Sweetwater Agates".

Fremont County - Southeast of Wind River and north of Sweetwater River.

Along Sage Hen Creek, 18 miles northwest of Split Rock.

Albany County - Near Marshall, about 45 miles north of the town of Rock River.

Goniobasis Agate - Brown agates crowded with silicified shells of the fossil snail Goniobasis.

Sweetwater County - Green River Basin, found in flint layer capping buttes along Highway 30 between Blacks Fork, west of Green River and the town of Granger.

Banded Agates

Big Horn County - 12 miles northeast of Lovell, south of the Pryor Mountains in the Dryhead Creek area.

Platte County - Veins are found a few miles northeast of Guernsey. (These are locally known as "Youngite".)

Chalcedony - This mineral, a cryptocrystalline form of quartz, can be white, gray, bluish-brown, dark-gray or black in color.

Big Horn, Hot Springs, Park and Washakie Counties - Chalcedony is found in stream gravels throughout the western half of the Big Horn Basin.

Lincoln, Sweetwater and Uinta Counties - Chalcedony is found in stream gravels between La Barge and Granger.

Sublette County - Chalcedony is found in stream gravels north of Farson.

Sweetwater County - East of Farson chalcedony is found in stream gravels.

North of Wamsutter chalcedony is found in outcrops of the Bridger Formation.

Steamboat Mountain in the Leucite Hills has amygdaloidal lavas which are occasionally lined with crusts of chalcedony.

Quartz Crystals

Albany County - Fairly good crystals are found in feldspar pits south of Laramie along Highway 287 near the Colorado-Wyoming border.

Petrified, Agatized and Opalized Wood

Carbon County - Petrified wood is found 35 miles north of Medicine Bow near the old road leading to Casper.

Agatized and opalized wood is found a few miles west of Saratoga and north along Highway 130 to Walcott Junction.

Park County - It is also found in the Absaroka Mountains near the head of Frontier Creek.

Sweetwater County - Petrified wood is widely known in areas northwest, north and northeast of Eden.

Agatized and opalized wood is found south of Wamsutter along the road to Baggs.

FOSSILS

Fossils of many types are widespread over Wyoming. The Paleozoic rocks most commonly yield brachiopods and corals. The marine Mesozoic rocks are characterized mainly by molluscs - snails, oysters, clams and ammonites. Among the ammonites the baculites and scaphites are most common, but there is a great variety. The internal guard of squids, called belemnites, are common in the Jurassic Sundance formation. The nonmarine Mesozoic rocks have yielded a variety of dinosaurs. The Cenozoic rocks are all nonmarine and are replete with mammalian fossils and fossil wood of various sorts. Beautifully preserved fossil fish occur in western Wyoming, and Fossil Butte, where the finest specimens have been quarried, is presently being considered as a National Monument.

Good places to look for fossils include quarries, road cuts and natural cliffs. Any hills or steep slopes with outcrops of sedimentary rocks would also be good places to check. Be certain you know who owns the land before you start collecting!

GOLD

In Wyoming gold is found in both placer and vein deposits, mostly in Precambrian rocks. It is most often confused with pyrite or chalcopyrite, also known as "fools gold". This mineral is harder than gold and usually found in much larger quantities.

Park County - Gold is found associated with Tertiary igneous rocks in areas around Wood River and Sunlight Creek.

Weston County - Black Hills area.

Albany and Carbon Counties - Gold can be panned from Douglas Creek in the Medicine Bow Mountains about 10 miles west of Foxpark.

Fremont County - Sweetwater River and tributaries in south part of Wind River Mountains can be panned for gold.

Teton County - Panning is also done along the Snake River in the Southern part of Jackson Hole.

JADE - NEPHRITE

Wyoming Jade varies in color, ranging from black and olive green to apple green. It occurs in veins or pods in Precambrian basement rocks or as boulders, sometimes up to one foot in diameter. When found among river gravels, the naturally polished pieces of jade are known as "slicks". This mechanical weathering was done by wind or water or both. Jade is also subject to chemical weathering and may be completely covered with a brown, tan or light gray rind.

Jade is an extremely popular mineral to collect in Wyoming and as a result some areas have been so thoroughly picked over in the last ten years that even an experienced jade hunter may search for several days without finding specimens of value. In addition, there are two other green rocks, occurring commonly in the same areas, which superficially resemble jade. One is a green serpentine and the other is a green quartzite.

Here are some simple tests you can make in the field to see if the specimen you found is really jade.

- 1) If an end is ground off a suspected slick, the fresh surface should not sparkle in the sun. If it sparkles or glitters, it is not jade.
- 2) Try scratching the piece with the point of a knife. If you can scratch it is not jade.

- 3) Jade is heavy and the rock should be heavier than a common rock of similar size.
- 4) The rock will have a smooth, almost waxy look if it is jade.

Fremont County - Jade has been found in boulders up to 1 foot in diameter along the Sweetwater River between Crooks Creek on the east and Wind River Mountains on the west.

Jade is also present as veins and pods in Precambrian rocks near the northern part of the Granite Mountains southeast of Hudson and Riverton.

PEGMATITE MINERALS

Sometimes granitic rocks form with extremely large crystals, or crystals are found in dikes in rocks of this type. These are pegmatites and often yield beautiful and unusual mineral specimens. Dikes containing quartz, feldspar and mica occur in all the Precambrian Age mountain areas of the State. Complex dikes are those which contain less common minerals in addition to those already listed. Complex dikes are found in the following areas:

Goshen County - In the Haystack Range northeast of Fort Laramie.

Albany and Carbon Counties - In the Medicine Bow Range.

Natrona and Johnson Counties - In the Big Horn Range.

Fremont County - In the Copper Mountain area northeast of Shoshoni.

OBSIDIAN

Obsidian is usually a black-colored, compact volcanic glass that shows curved (conchoidal) fracture. It may also be red, green, brown, or gray.

Park County - In the Absaroka Mountains.

ADDITIONAL MINERALS

The following are minerals that are less often sought by the average collector. Good specimens are found in Wyoming and are worth the effort to locate them.

ARAGONITE

Aragonite, a form of calcite, occurs in crystal form in several areas of Wyoming.

Albany County - Near Red Mountain on the Wyoming-Colorado border.

Carbon County - In geodes near Coad Mountain.

Park County - On west slope of Spar Mountain, 25 miles west of Meeteetse.

ASBESTOS

The mineral is found exclusively in Precambrian metamorphic rocks.

Converse County - South of Banner Mountain, about 20 miles southeast of Casper.

Fremont County - North of Atlantic City.

Natrona County - At Casper Mountain, southwest of Edgerton.

MAGNETITE

This black magnetic mineral is most commonly found concentrated as disseminated grains in brownish-black colored beds.

Albany County - Magnetite is found at Iron Mountain in the Laramie Range and at Sheep Mountain near the Medicine Bow Range.

Big Horn County - Near Cowley and Lovell.

Fremont County - At Copper Mountain east of the Wind River Canyon.

Hot Springs County - Near Grass Creek and Cottonwood Creek.

ONYX MARBLE

A dense, usually laminated variety of marble found in Wyoming that takes a very attractive polish. It is usually deposited from cold-water solutions, often in the form of stalagmites and stalagtites in caves.

Platte County - This marble is found north of Guernsey.

URANIUM

Known occurrences of uranium are reported in 20 of Wyoming's 23 counties. Major producing areas are listed below, which might be very interesting to visit. Permission should be obtained from the company office at the area before attempting to visit or collect from these properties.

Albany and Carbon Counties - Shirley Basin area.

Campbell and Converse Counties - Pumpkin Buttes area.

Crook County - Black Hills area.

Fremont County - Crooks Gas area.

Fremont and Natrona Counties - Gas Hills area.

VERMICULITE

Vermiculite is an interesting magnesium-aluminum-iron silicate which grows larger and exfoliates when heated or treated with acid. It is usually found in Precambrian rocks.

Carbon County - Vermiculite is found northeast of Riverside near the Encampment River at Baggott Rocks.

Albany, Converse, Sheridan, Fremont, Natrona, and Platte Counties - Numerous occurrences of vermiculite are reported.

ROCKS, MINERALS AND FOSSILS LISTED

ACCORDING TO COUNTY

ALBANY - Moss Agates, Gold, Quartz-Crystals, Pegmatite minerals,
Aragonite, Magnetite, Uranium, Vermiculite.

BIG HORN - Banded Agates, Quartz-Chalcedony, Magnetite.

CAMPBELL - Uranium.

CARBON - Agatized and Opalized Wood, Gold, Petrified Wood, Pegmatite
minerals, Aragonite, Uranium, Vermiculite.

CONVERSE - Asbestos, Uranium, Vermiculite.

CROOK - Uranium.

FREMONT - Rainbow Agates, Moss Agates, Gold, Jade, Pegmatite minerals,
Asbestos, Magnetite, Uranium, Vermiculite.

GOSHEN - Pegmatite minerals.

HOT SPRINGS - Quartz-Chalcedony, Magnetite.

JOHNSON - Pegmatite minerals.

LARAMIE -

LINCOLN - Quartz-Chalcedony.

NATRONA - Pegmatite Minerals, Asbestos, Uranium, Vermiculite.

NIOBRARA

PARK - Gold, Quartz-Chalcedony, Petrified Wood, Obsidian, Aragonite.

PLATTE - Banded Agates, Onyx Marble, Vermiculite.

SHERIDAN - Vermiculite.

SUBLETTE - Quartz-Chalcedony.

SWEETWATER - Agatized and Opalized Wood, Goniobasis Agate, Quartz-
Chalcedony, Petrified Wood.

TETON - Gold.

UINTA - Quartz-Chalcedony.

WASHAKIE - Quartz- Chalcedony.

WESTON - Gold.

REFERENCES

MINERAL RESOURCES OF WYOMING

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Geological Survey of Wyoming, Bulletin #50 (\$1.00)

FOSSILS OF WYOMING

Michael W. Hager, 1971, Geological Survey of Wyoming, Bulletin #54
(\$2.00)

TRAVELER'S GUIDE TO THE GEOLOGY OF WYOMING

D. L. Blackstone, Jr., 1971, Geological Survey of Wyoming,
Bulletin #55 (\$2.00)

MINERALS AND ROCKS OF WYOMING

Forrest K. Root, 1972, Geological Survey of Wyoming, Bulletin #56
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MINERAL AND MINING LAWS OF WYOMING

from the Compiled Wyoming Statutes of 1957 and Cumulative Supple-
ment of 1971, 1973, Geological Survey of Wyoming (\$2.00)

Geological Survey of Wyoming
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Also available from the Geological Survey is a pair of Wyoming
minerals for 25¢ in postage stamps or coins. Specimens of Wyoming
minerals may be purchased from Wyoming dealers if you do not care to
hunt for your own. A complete list of gemstone dealers may be obtained
on request from the Geological Survey.