

# CENTRAL OREGON ROCK COLLECTORS



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## Apatite: The Versatile Mineral Behind Fertilizers, Gems, and Human Health

by Rock Seeker. Part 2

### Formation and Geological Occurrence

Apatite forms under a wide variety of geological conditions and is found in igneous, metamorphic, and sedimentary rocks. The most important deposits are typically found in marine and lacustrine sedimentary environments, where phosphatic organic debris such as bones, teeth, and scales accumulate and are mineralized over time. These deposits are so rich in phosphorus that they are mined for use in agriculture (fertilizers) and industrial applications (phosphoric acid production).



In addition to sedimentary environments, apatite also occurs as well-formed hexagonal crystals in hydrothermal veins and pegmatites. These crystal-rich environments can produce vibrant, transparent specimens with vivid colors such as blue and green, making them highly prized by mineral collectors and gem enthusiasts. Apatite crystals from these environments are often clearer and more vibrant than those found in sedimentary rocks, adding value to the stones.

# Uses of Apatite



Apatite's primary use is in the production of phosphate fertilizers, making it an essential mineral for global agriculture. It is also used in the production of phosphoric acid and hydrofluoric acid, and it can serve as an ore for rare earth elements. Due to its bright colors, apatite is sometimes used as a pigment in the manufacture of paints.

In addition, high-quality apatite specimens with good clarity and color are cut into gemstones.

However, apatite's brittleness and relatively low hardness make it more popular with collectors than for mainstream jewelry use. It's often cut into faceted stones or cabochons, and stones containing inclusions of rutile can display the "cat's eye" effect, known as chatoyancy, when cut en cabochon. Transparent specimens of apatite that display vivid colors such as green, blue, yellow, or pink are often cut into faceted gems. Heat treatment is commonly used to enhance the color of some apatite stones, particularly blue ones.

## Gemology of Apatite

The more attractive translucent stones with excellent color are cut en cabochon, and rare examples of apatite containing fine rutile inclusions can exhibit a chatoyant "cat's eye" effect. These are particularly desirable among gemstone collectors.

However, despite its beauty, apatite is not ideal for everyday jewelry due to its Mohs hardness of 5, which makes it susceptible to scratching and damage. As a result, it is more frequently found in gem collections than in rings or bracelets meant for frequent wear.



## Identification Tips

- **Color:** Apatite can appear in a range of colors, with green and blue being the most common in gem-quality specimens.
- **Hardness:** A defining mineral for the Mohs hardness of 5, apatite can be scratched by harder materials like quartz or topaz.
- **Crystal Form:** Apatite typically forms hexagonal crystals and can often be brittle, showing signs of fracture.
- **Diagnostic Features:** Its range of vivid colors, hexagonal crystal form, and moderate hardness (which makes it scratchable with a steel knife) are key identifying features.

## Notable Locations

Significant deposits of apatite are found worldwide, but some of the most notable sources for gem-quality apatite include:

- **Brazil:** Known for producing vibrant blue and green apatite crystals.
- **Madagascar:** A source of stunning green and yellow apatite.
- **Mexico:** Known for its brilliant blue apatite specimens.
- **Myanmar (Burma):** Home to high-quality violet apatite.
- **Canada and the USA:** Both countries have notable phosphate deposits, particularly for industrial use.

## Apatite in Human Biology



Interestingly, a form of apatite—hydroxylapatite—is an important component of human bones and teeth. This form of apatite provides the mineral structure that makes up about 70% of human bone mass and is the primary mineral in tooth enamel, giving it strength and durability. As a result, apatite not only plays a crucial role in industry and gemology but also in biological systems, highlighting its significance in human health.

## Conservation and Care

Apatite is a brittle gemstone that should be worn with care to avoid damage. Avoid harsh impacts or abrasions that could fracture the stone. Clean it with warm, soapy water, and avoid exposure to strong chemicals or ultrasonic cleaners, which could weaken the stone's structure.

## Fun Facts

- **Biological Significance:** Hydroxylapatite is a major component of tooth enamel and bone in humans and animals.
- **Phosphate Source:** Apatite is the most important source of phosphorus for fertilizers, supporting global agriculture.
- **Color Variety:** Apatite occurs in more colors than many other minerals, making it popular among gemstone collectors.



Apatite's diverse applications in industry, gemology, and even biology make it one of the most important and versatile minerals on Earth. While its beauty makes it a gem collector's favorite, its significance in agriculture and the biological world cannot be understated.



# Next Field Trip

## 3 Amigos CORC Claim



**October 11th & 12th**

RSVP to [corc.rocks@gmail.com](mailto:corc.rocks@gmail.com) and specify which day you plan to go.

Those going on Saturday have the opportunity to go to Mitchell and have a late lunch at Tiger Town Brewing Co.

If this is your plan please let us know in the RSVP as they are a small venue, especially if you plan on ordering the fish and chips.

*We will meet at 7:30am in the Ray's parking lot in Prineville*



# Next Club Meeting

**October 15, 2025**

Doors open at 5:30pm, meeting starts at 6pm

Speaker: TBD

Meetings are held at:  
3800 SE Airport Way, Bldg 3, Redmond, OR 97756

If you won at Bingo please bring a rock related item.  
We will also have time for show and tell.



# Fun for all Ages!!

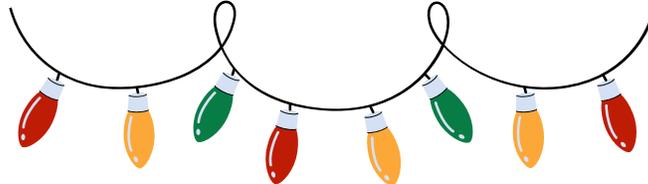


## Build Suncatchers at Petersen Rock Garden October 4<sup>th</sup> 10 am to 3 pm



*Join us for a Suncatcher Party  
at Petersen Rock Garden. All  
materials and tools provided.  
There is a small cost for some of  
the larger pieces, like the  
flowers and hearts. Everything  
else is free.*

*Come anytime between  
10am and 3pm.*



## Upcoming Holiday Party November 8, 2025



Watch for the invite in your email for our  
Annual Holiday Party

*Please RSVP*

Main dish provided by Baldy's.  
Bring a side dish or dessert to share.



We will have a gift exchange. If you want to participate  
bring a rock related item.

Set up will be at 9am. Doors open at 10 am

Hugh Hartman School.

2105 W Antler Ave

Redmond, OR 97756. Food will be served at 11:30

# Joe Cota's Rock Castle

Great Day



# The Living Rock Studios Brownsville, Oregon



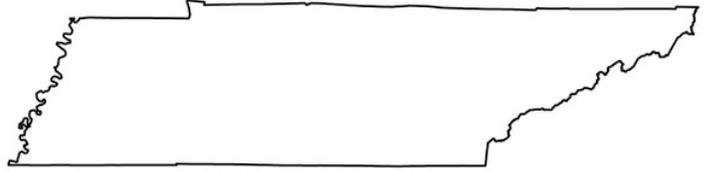
Thank you Dee  
and Ralph  
for the photos



# STATE BY STATE

## ROCKS, GEMS,

## MINERALS



### Tennessee

#### State Gem: Tennessee River Pearl



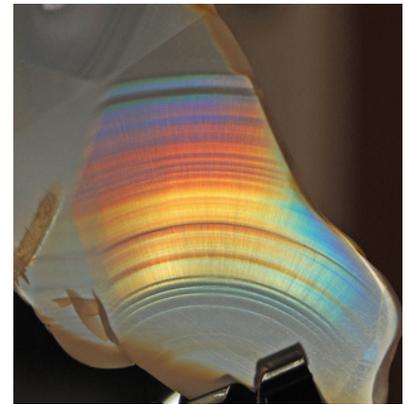
River pearls are created by mussels and are found in all colors and various shapes (spherical, pear-shaped, and irregular). Tennessee river pearls are among the most beautiful and durable in the world.

After World War I, dams were built on many Tennessee rivers and the mussels lost their swift and shallow shoals. The waters also became more toxic. Tennessee river pearls are collected and

crafted into rings, cuff links, stick pins, and other jewelry.

#### State Mineral: Agate

Agate is found only in a few areas of Tennessee. It's a semiprecious gemstone described as a waxy, cryptocrystalline variety of mineral quartz with colors appearing in bands, clouds, or distinct groups.



#### State Rock: Limestone



The Tennessee marble industry began nearly 200 years ago. Marble quarried in Tennessee was used as the primary building material for the state's capitol building. Tennessee marble has been used in major civic and government buildings from New York to California, including the National Gallery of Art, The Smithsonian, the Jefferson and Lincoln Memorials, and the National Cathedral.

#### Lime

Lime is also produced from limestone. Lime was used as a mortar at least 7,000 years ago in Turkey (ancient Egyptians also used lime to make plaster and mortar). Today lime is used mostly in steel manufacturing and power plants to remove impurities and reduce emissions. Lime is also used in mining, paper production, water and waste-water treatment, road construction, and building construction.



## Texas

### State Stone: Petrified Palmwood

What is now arid Texas was a lush tropical forest 100 million years ago. Trees that fell into mineral-rich mud before having a chance to decay became petrified wood, which is actually a quartz-like stone. The organic wood cells were replaced over time by minerals, often retaining the detailed shape of the original prehistoric wood. Petrified wood is called the most beautiful of fossils.

The spotted look of palmwood is caused by fossilized rod-like structures within the original wood. Depending upon the angle the stone is cut, they show up as spots, tapering rods, or lines. Petrified palm wood is very hard and takes a wonderful polish, making beautiful jewelry.



### State Gem: Texas State Gem & Gemstone Cut



The Lone Star cut, designed by two native Texans, is a special gemstone cut that reflects a five-pointed star (the Lone Star of Texas).

Topaz comes in all colors; a golden orange-yellow (called "imperial topaz") is considered the most valuable. Topaz is commonly thought of as a sky-blue gem, but a deep blue hue is rare in nature (colorless and light-hued stones are heat-treated to achieve the blue color).

The largest gem topaz deposits are in Brazil and Russia. Other locations include Mexico and the USA (Texas, Colorado, Utah).

#### *References:*

statesymbolsusa.org google.com gisgeography.com. georgestones.com  
geologysciencerockseeker.com. en.wikipedia.org. rockchasing.com.  
oregondiscovery.com duckduckgo.com. sciway.net



# Upcoming Elections for Secretary and Treasurer

Every 2 years we vote in new officers. This year it is for the Secretary and Treasurer. The duties are as follows:

**Secretary** – the Secretary shall attend and keep minutes of all regular, special, and Executive Board meetings. He or she shall monitor all correspondence pertaining to club business. The Secretary shall send minutes of club meetings to the Newsletter Editor and the Social Media and Webmaster. The Secretary shall maintain a record of club minutes, CORC Bylaws, and other records in compliance with rules for a 501 (c) (3) nonprofit corporation. In addition, he or she shall maintain a log of club assets. The Secretary shall maintain current contact information on the club roster.

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**Treasurer** – The Treasurer shall maintain the check register, accounts books and receipts for all club expenditures. He or she is the first signature on the bankcard for disbursement of funds. The treasurer shall give a report of club expenditures at each regular club meeting. He or she shall make payment of all general upkeep bills, without the approval of the general membership, such as mailings, cards, printing supplies and reproductions, meeting hall rent and affiliated membership dues. The general membership shall vote at a regular meeting to approve the disbursement of any funds that are not for general upkeep.

*If you are interested in serving in either of these offices, contact Tonia at: [corc.rocks@gmail.com](mailto:corc.rocks@gmail.com)*

As of now we do not have anyone willing to step up to the secretary position.

Lupe is running for the treasurer position.

*Voting will take place at the October 15<sup>th</sup> meeting*



## 2025 CORC Board Members

President

Tonia Smith

Vice President

Nancy Johnston

Secretary

Snow Hartley

Treasurer

Lupe Severson

Field Trip Committee

Co-Chair

Ken Lawson

Field Trip Committee

Co-Chair

Eric Smith

Claims Committee Chair

Barb Thompson

Program Committee Chair

Scott "Plaid" Peterson

Past President

Patricia Moreland

## Non Board Members

Newsletter Editor

Nancy Johnston

Webmaster

Ashton Bowlin

Volunteer Coordinator

Vacant

Social Media

Chenowa Hartley

James Shaman

Barb Thompson

Ed Taft

OCRMC Representatives

Ed Taft

James Shaman

Bruce Vanderzanden



## MEMBERSHIP

**Renew ONLINE at the  
CORC website**  
(corockcollectors.com)

**Renew by MAIL or IN PERSON.**  
Print the membership form from the CORC  
website and mail it to:  
Central Oregon Rock Collectors (CORC)  
4817 SW Volcano Ave  
Redmond, OR 97756  
or bring it to the next meeting or field trip.

**Annual membership dues are:**

\$20 for individuals,  
\$25 for household  
and \$5 for juniors.

(Note: Junior memberships are for minors  
who are accompanied by a club member  
from a different household.  
e.g. Grandparents, aunts, uncles)



### Contact Us

**Email:** corc.rocks@gmail.com

**Mailing Address:**

4817 SW Volcano Ave  
Redmond, OR 97756

**Meeting Address:** 3800 SE  
Airport Way, Bldg 3, "The Annex",  
Redmond, OR 97756

# ANNOUNCEMENTS

EST. 1935  
**PETERSEN**  
ROCK GARDEN



Visit our Gift Shop

**Museum/Garden/Gift Shop Hours:**  
Thursday, Friday, Saturday,  
Sunday and Monday 10-4



**Do You Need  
a Rock Cut?**

Check out the  
pinned post  
on our Facebook  
page to find  
someone  
that can  
help you out!

**Coming Soon**

**“ Rockhound Tail Gate Event”  
contact CigarBoxRock for  
more information**

**CigarBoxRock  
Lapidary**

63291 Nels Anderson Rd  
Bend, Or  
Open Tuesday- Saturday  
9:00am - 3:00 PM  
CBR@Bendnet.com  
541-389-9663 Or  
541-280-5574

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Cigarboxrock.com

**Sanding/Polishing  
Slabs/Thundereggs**

.50/square inch

**Contact: Dan Siroshton  
(541)954-8234**



**Faceting and Cabbing**

Dale B. Barrett, lives in Redmond, is  
offering to cut and facet stones for CORC  
members at a very affordable price.

Contact Dale @ 541-694-0325  
or

Email: [Commandchief68@gmail.com](mailto:Commandchief68@gmail.com)

