

FORSYTH GEM AND MINERAL CLUB, INC.

Nature's Treasures

April 19, 2018

*** **Public Version** ***



MEETING: The next meeting of the Forsyth Gem and Mineral Club will be held at **7:30 PM, April 19, 2018**, the third Thursday of the Month, at **Vulcan Materials Company's Training Center, 4401 N. Patterson Ave., Winston-Salem, NC**.



PROGRAM: The April presentation for the Forsyth Gem & Mineral Club will feature Richard Hightower, whom many of us know as a dealer in our September show (Stones & Bones). Richard's talk will be entitled, "Green River Fish Fossils", and will cover a few of the prominent collecting areas of Kemmerer, Wyoming. Please join us for what promises to be an educational evening!



Refreshments: Refreshments for the October meeting will be provided by **the Whickers and Becks**. The Club will provide cups and napkins and ice for the refreshments. Those volunteering to provide refreshments need only provide sufficient drinks and snacks, such as, cookies, cakes, crackers, or donuts **and ice**

2018 Refreshment List

January	Fulchers and Bakers	July	*** Two Needed ***
February	Myers and Gaskills	August	Picnic
March	Goodes and McGilvarys	September	Show
April	Whickers and Becks	October	Schlottmans + One Needed
May	Brouhles and McGilvarys	November	Marions, Reeds
June	Caroline Jones and Daniel Bowles	December	Holiday/Show Dinner

If you enjoy the refreshments, please be prepared to take a turn in furnishing them. NOTE: if you volunteer to bring refreshments, please do so. If you are unable to attend for any reason, contact Vickie or Al Gaskill prior to the meeting so that alternate arrangements can be made.

Note: Due to equipment issues in the meeting area kitchen, it will be necessary for the refreshments providers to also bring ice for the drinks, at least for the next couple of months.

Dates To Remember:

May 11, 12, & 13, 2018: Franklin, NC -Gem & Mineral Society of Franklin, NC

June 2nd: Greensboro (NC) Gem & Mineral Club

September 7-9 – Annual Gem, Mineral, Jewelry and Fossil Show



DON'T FORGET YOUR NAME TAGS



Roster Delay

Due to several time conflicts and other issues the roster will again be delayed.



Upcoming Shows

May 11, 12, & 13,: Franklin, NC -Gem & Mineral Society of Franklin, NC -Fri. & Sat., May 11th & 12th, 10:00 AM - 5:00 PM - Sun., May 13th, 10:00 AM- 4:00PM - Carpenter Community Center, 1288 Georgia Rd. (US441), Franklin, NC - No admission charge, indoor, climate controlled, rough and finished gemstone and jewelry, minerals, fossils and demonstrations. -Contact: Norman Holbert, 828-634-0350, normholbert@comcast.net

June 2nd : - Greensboro (NC) Gem & Mineral Club hosts its 7th Annual Piedmont Open Air Gem, Mineral and Jewelry Show - Saturday hours - 9 A.M. to 5 P.M. - Piedmont Farmers Market - Sandy Ridge Road off I-40, Colfax, North Carolina - Free admission - Door prizes hourly - Hand crafted Jewelry, Lapidary, Minerals, fine specimens, Gemstones, gold jewelry, beads, geode cutting - Lots of fun for the young, the old, the curious, and the collector - Email Gary Parker redrutile@bellsouth.net



Legal Aspects of Rock, Mineral, and Fossil Collecting

David Goode recently came across an article that addresses various legal considerations for collectors. As the lead from the article:

“While fishing in a mountain stream, you find a small gold nugget. Is it yours to keep? Imagine digging in your backyard to install a new deck and unearthing several fossils. Do you own them? As you hike with your family in a national park on vacation, your children happen upon several small pieces of petrified wood. Are your children able to take them home? Picture yourself strolling on a long, sandy beach when your spouse’s attention is caught by several beautiful stones gleaming under the shallow water. Can your spouse wade into the water to retrieve the stones and take them home as a souvenir? You and some friends are having a great day rock-climbing in a nearby state park when your activities reveal several interesting crystalline minerals. Is it legal for you to put them in your pack to show your non-climbing friends? In keeping these specimens, would the individuals have done something wrong?”

These questions evoke fairly common and seemingly innocuous scenarios. Nonetheless, the question of legality underscores the legal framework in which such simple activities take place. Would someone be doing something illegal in keeping one of the found specimens? Quite possibly. Depending on a host of factors including the exact type, weight, and location of the specimens taken, someone may have subjected himself or herself to criminal and civil legal actions. Not following applicable laws when rock, mineral, and fossil collecting can result in serious consequences.

Regardless of whether specimen collecting is referred to as rock hunting, rockhounding, or amateur geology, the legal issues associated with collecting remain the same. One of those issues cuts straight to the heart of the activity: is it legal? As with many legal questions, the answer is “it depends.” And it really does just depend. The legalities of rock, mineral, and fossil collecting are multi-faceted and fact-specific. Questions about the legality of specimen collecting sit at the intersections of multiple areas of law, including real estate law, environmental law, mining law, and public law in both civil and criminal contexts. As a result, there are few easy answers, and many answers will be nuanced answers that are heavily-reliant on the particulars of individual instances of collecting. Without being trite, determining whether specimen collecting is legal or illegal in any given situation is a veritable “who-what-where-when-why-how” exercise. The purpose of this article is to explain many of the legal principles related to rock, mineral, and fossil collecting so as to enable specimen collectors to better evaluate the legality of their activities.

As collecting is one of the major activities of the club and its members, it behoves all of us to stay up to date on current laws and limitations.

The remainder of the article can be found at:

<https://geology.com/minerals/legal-aspects-of-rock-collecting/>



Dixie Mineral Council Field Trip

An Official Field Trip of the Aiken Gem, Mineral, & Fossil Society (Aiken, SC) - HOST
An Official Field Trip of the Forsyth Gem & Mineral Club

Note: DMC Field Trips are for club members of DMC-affiliated clubs and their families only. Liability issues mean that these trips cannot be attended by the general public unless otherwise noted.

Graves Mountain

No limits on # of attendees

Registration Required: At site day of trip

Suggested Donation \$15 per person

TRIP: Graves Mountain is a unique collecting site and probably the most well-known mineral site in the state of Georgia. A working mine from the 1920s to 1990, Tiffany's once mined this site for rutile which it used in polishing diamonds.

COLLECTING: Many specimens are available, including rutile, lazulite, pyrophyllite, kyanite, iridescent hematite, pyrite, muscovite, fuchsite, barite, quartz, and a variety of microminerals.

BRING: Rock hammer, potato rake, 5 gallon bucket, shovel, safety glasses, gloves, safety helmet, newspapers to wrap your specimens. Watch for the weather forecast and dress appropriately. If sunny, wear a hat and bring plenty of sunscreen. Area can be muddy if recent rain has occurred. Extra water is always a good idea. Small wagons are also allowed.

REQUIREMENTS: No power tools allowed. No digging into the cliffs or rock walls. Please fill holes before you leave. While children are welcome, they must be closely supervised by parents at all times. Any pet must be kept on a leash and supervised at all times.

SPECIAL CONDITIONS: There are several pools of acid water on the site. Avoid all pools of standing water. Area can be very muddy and slippery if there have been recent rains. Parking is approximately 1 mile from the site; however, golf cart rides are available for a donation of \$3 per person per trip (drivers do not make change – have plenty of dollar bills for exact change!). Stay away from ledges. It is strongly recommended that no one climb the rock walls.

FEE: \$15 per person (donation for maintenance of the site)

REGISTRATION: Advance registration not required. Each person will have to register at the site (there will be a tent for this) and sign a liability waiver.

CHILDREN (Yes): There is no age limit; however, this site is not suitable for small children. All children must have close adult supervision at all times.

PETS (Yes): Dogs are allowed but must be kept leashed and supervised at all times. Owners must also clean up after their pets.

FACILITIES: Many portapotties are available at the registration tent and in the quarry. Food (hot dogs, hamburgers, etc) & drink will be sold on the site at reasonable prices. Picnic tables are also available.

ADDITIONAL INFORMATION: Many vendors will be on site selling rock hounding equipment and a wide variety of specimens.



Reviewing: Epidote

From Geology.com/minerals

Epidote is a metamorphic mineral and the name of a silicate mineral group.

What is Epidote?

Epidote is a name that is used in two different ways in mineralogy: 1) the "Epidote Group" is the name of a group of silicate minerals that share common structural and compositional characteristics; and, 2) "Epidote" is the name of the most common mineral in the Epidote Group.

Physical Properties of Epidote

Chemical Classification	Silicate
Color	Usually yellowish green to pistachio green, sometimes brownish green to black
Streak	Colorless
Luster	Vitreous to resinous
Diaphaneity	Transparent to translucent to nearly opaque
Cleavage	Perfect in one direction, imperfect
Mohs Hardness	6 to 7
Specific Gravity	3.3 to 3.5
Diagnostic Properties	Color, cleavage, specific gravity
Chemical Composition	$\text{Ca}_2(\text{Al}_2,\text{Fe})(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$
Crystal System	Monoclinic
Uses	Semiprecious gem

What is Epidote (the mineral)?

Epidote is a silicate mineral that is commonly found in regionally metamorphosed rocks of low-to-moderate grade. In these rocks, epidote is often associated with amphiboles, feldspars, quartz, and chlorite. It occurs as replacements of mineral grains that have been altered by metamorphism. It is frequently found in veins that cut granite. It occurs as monoclinic crystals in pegmatites. It is also found in massive form and as monoclinic crystals in marbles and schists that were formed or altered through contact metamorphism.

Epidote usually ranges between yellowish green to pistachio green in color. Less often it is brownish green to black. In massive form it is usually translucent with a vitreous luster. Well-formed crystals from marble and pegmatite are often transparent.

Epidote has a chemical composition of $\text{Ca}_2(\text{Al}_2,\text{Fe})(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$. It is an end member of a solid solution series with clinozoisite. In that series, the iron of epidote is gradually replaced by aluminum to the end member clinozoisite composition of $\text{Ca}_2\text{Al}_3(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$. Clinozoisite is usually lighter in color than epidote because iron is what produces epidote's greenish to brownish color.

Mineral	Chemical Composition
Allanite	$(\text{CaX})(\text{Al}_2\text{Fe})(\text{Si}_2\text{O}_7)(\text{SiO}_4)\text{O}(\text{OH})$ - X is one of these rare earths: Ce, La, Nd, Y.
Askagenite	$(\text{MnNd})(\text{Al}_2\text{Fe})(\text{Si}_2\text{O}_7)(\text{SiO}_4)\text{O}_2$
Clinzoisite	$\text{Ca}_2\text{Al}_3(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$ - Sr sometimes substitutes for one Ca.
Dissakisite	$(\text{CaX})(\text{Al}_2\text{Mg})(\text{Si}_2\text{O}_7)(\text{SiO}_4)\text{O}(\text{OH})$ - X can be Ce or La.
Dollaseite	$(\text{CaCe})(\text{Mg}_2\text{Al})(\text{Si}_2\text{O}_7)(\text{SiO}_4)(\text{OH})\text{F}$
Epidote	$\text{Ca}_2(\text{Al}_2\text{Fe})(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$ - Pb or Sr can substitute for one of the calcium.
Ferriallanite	$(\text{CaX})(\text{Fe}_2\text{Al})(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$ - X can be Ce or La.
Hancockite	$(\text{CaPb})(\text{Al}_2(\text{Fe},\text{Mn})(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$
Khristovite	$(\text{CaCe})(\text{MgAlMn})(\text{SiO}_4)(\text{Si}_2\text{O}_7)(\text{OH})\text{F}$
Manganipiemontite	$(\text{XY})(\text{Mn}_2\text{Al})(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$ - (XY) can be (MnLa) or (CaSr).
Mukhinite	$(\text{Ca}_2)(\text{Al}_2\text{V})(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$
Piemontite	$(\text{X})(\text{Al}_2\text{Mn})(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$ - (X) can be (Ca2), (CaPb) or (CaSr).
Uedaite	$(\text{MnCe})(\text{Al}_2\text{Fe})(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$
Zoisite	$\text{Ca}_2\text{Al}_3(\text{SiO}_4)(\text{Si}_2\text{O}_7)\text{O}(\text{OH})$

What is Epidote (the mineral group)?

Members of the epidote mineral group have a crystal structure that consists of isolated and paired silica tetrahedrons. They share a generalized chemical composition of A2M3(Si2O7)(SiO4)O(OH). "A" is a pairing of calcium, manganese, strontium, lead, or sometimes a rare earth element. "M" is usually aluminum pairing with iron, magnesium, manganese, or vanadium. Some of the member minerals of the epidote group are listed in the table with their chemical compositions.

Epidote in Rocks

Epidote is a rock-forming mineral. Many regionally-metamorphosed rocks contain small amounts of epidote. Two rock types that contain significant amounts of epidote are epidosite and unakite. Locations where these rocks can be found are rare, but at those locations significant amounts of these rocks can be present.

Epidosite is a metamorphic rock composed mainly of epidote with small amounts of quartz. It forms when basalts in sheeted dikes and ophiolites are transformed by hydrothermal activity or metasomatism.

Unakite is a rock that forms from the metamorphism of granite. Less-resistant minerals in the granite are altered to epidote or replaced by epidote, with the orthoclase and quartz remaining. It is an interesting pink and green colored rock that was first discovered in the Unakas Mountains of North Carolina, from which its name was derived.

Uses of Epidote

Epidote has no significant use as an industrial mineral and has only minor use as a gemstone. High-quality transparent crystals are sometimes cut into faceted stones. These have never attracted much interest in the commercial jewelry market, probably because their colors are not customer favorites. Most of the faceted stones produced are purchased by gem and mineral collectors.

Unakite is a popular rock used by lapidaries to make beads, ornamental objects, and cut into cabochons. It is considered to be a semiprecious stone. The bright pink and pistachio green colors are very unusual and attract attention. Unakite is popular as a tumbled stone. A small amount of epidosite is also cut into cabochons.



Meeting Minutes

3/15/18 FGMC Meeting Minutes - The club met at the Vulcan Training room North Quarry with 23 members present.

Alex Glover was our guest speaker. His presentation was titled "Adventures of a professional Industrial Minerals Geologist." Alex is a former club member and his talk and slides carried us through his career as a geologist at various quarries and locations. Alex was his lively self and very entertaining.

Door prizes- two were awarded due to none at the last meeting. Alex Glover won the first drawing and chose a specimen of petrified wood from Arizona. Arvil Marion won the second drawing and chose a specimen of petrified wood from Arizona.

Refreshments were provided by David Goode and Alex McGilvary .

June refreshments will be provided by Carolyn and Daniel Jones.

President Al Gaskill announced that Dick Hartz and Joe Gutierrez – club members for many years- both passed away recently.

A mineral collection has been donated to FGMC. There may be a silent auction at a future meeting.

Also, a possible auction for gem club members to auction mineral specimens with percentage of the profits being donated to FGMC. Details and/or feasibility to be discussed later.

Field trip 3/31/18 -Saturday. Graves Mtn. , GA. Meet at mine site at 9 am. Map will be emailed to club members.

Jeff Schottman has volunteered to speak to Ms. Haley Cox' class of 4th graders at Rural Hall Elementary School.

Upcoming mineral/ gem shows: March 23-25 Hickory, NC, , April 6-8 Raleigh, NC

Respectfully Submitted,
Lisa Reed, Secretary



Nature's Treasures

Nature's Treasures is the monthly newsletter of the Forsyth Gem and Mineral Club.

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