

Jade State News

WYOMING STATE MINERAL AND GEM SOCIETY, Inc. - P.O. Box 697, CODY, WYOMING 82414
Volume 2016, Issue 2

THE GREEN RIVER FORMATION LAGERSTATTEN

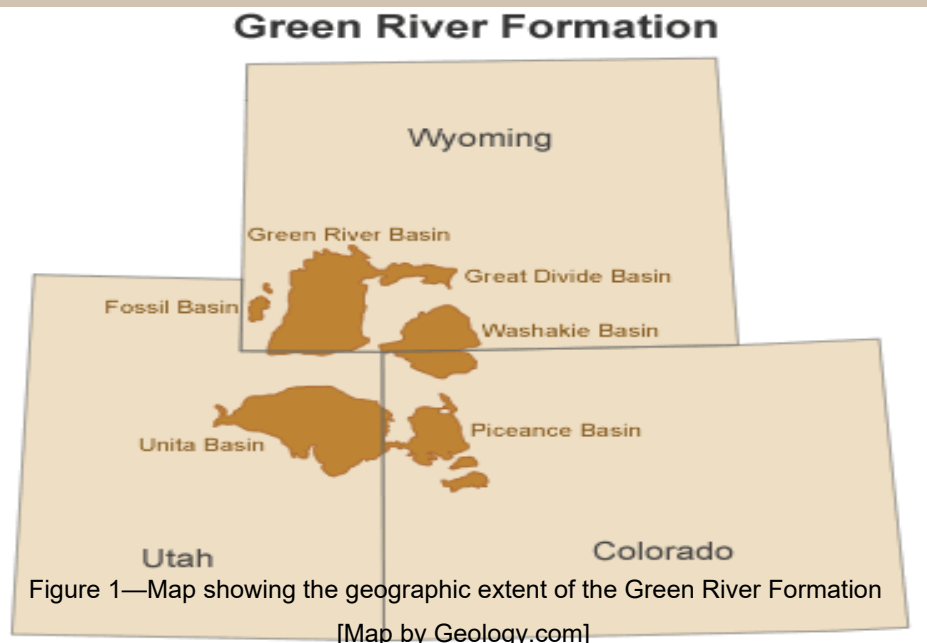
Article research & assembled By Stan Strike



**June 2016
In this issue**

Green River Formation	Pages 1, 5, 6, 7, 8
WSMGS Officers Directory	Page 2
WSMGS Affiliated Clubs	Page 17
WSMGS Updates	Pages 2, 3
Hunting Fossils at Lake Gosuite	Pages 6, thru 11
WYO Rockstar Doc Ellis	Page 11
Club News	Pages 14, 15, 16
Rock Show Events	Pages 18, 19, 20

Lagerstätten are geological fossil deposits that are rich with varied, well-preserved fossils, representing a wide variety of life from a particular era. The Green River Formation that is exposed in southwest Wyoming is a lagerstätten.



I. THE ORIGIN OF THE GREEN RIVER FORMATION

Rocks that make up the Green River Formation contain a story of what the environment was like about 50 million years ago during the Eocene epoch of the Cenozoic Era in what is now parts of Colorado, Utah and Wyoming. At that time, forces within the Earth were almost finished with the job of uplifting the Rocky Mountains and the landscape consisted of rugged mountains separated by broad intermountain basins.

Article continued page 3

Wyoming State Mineral & Gem Society

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WSMGS Board reports are published in our newsletter, the
[Jade State News](#)



WSMGS ELECTRONIC BOARD MEETING

MAY 9, 2016

By Stan Strike, President

I. President's Report:

[Board members are encouraged to submit old or new business items that have not been included in this meeting and a special attachment will be sent out for the entire WSMGS Board's consideration.]

2016 RMFMS CONVENTION--WICHITA, KANSAS

A. The WSMGS Board would like to thank "ALL=100%" of the WSMGS affiliated clubs for sending in their Proxies/Delegate Forms for the 2016 RMFMS Convention!! Upon registration in Wichita, your six forms put



the total over the required number for the 2016 RMFMS Annual Meeting to become an official meeting.

B. At the Awards banquet, the Wyoming Jade State Newsletter received a FIRST PLACE in the Large Newsletter category competition. Our Jade State Newsletter will be forwarded to the American Federation of Mineralogical Societies competition and compete against the other six AMFS regions. Congratulations to our Jade State News Editor-Verne Orcutt.

NEW WSMGS CLUB-SUBLETTE COUNTY ROCKHOUNDS

A. On June 4, 2016 at 1:00p.m. an organizational meeting for the Sublette County Rockhounds will be held at the Marbledon, WY Senior Center. The organizational meeting will be conducted by WSMGS Board members:

1. Brief introduction to the WSMGS, RMFMS, and AFMS
2. Selection of Club Name
3. Membership Dues-\$10/single or \$15/ family
4. Election of Officers-President, Vice President, Secretary, and Treasurer
5. Consideration of club organization: Board/Officers or Club Membership directed?
6. Incorporation with Wyoming Secretary of State? Such as Articles of Incorporation
7. Development of club's by-laws?

Continued on Page 3

The Wyoming State Mineral and Gem Society (WSMGS) is a non-profit organization, with the purpose of educating, promoting and developing an interest and understanding in the Earth Sciences, Lapidary Arts, and their related fields for its affiliated members as well as the general public. The WSMGS is a member of the Rocky Mountain Federation of Mineralogical Societies (RMFMS) and the American Federation of Mineralogical Societies (AFMS). WSMGS Member Clubs are located in Casper, Cheyenne, Cody, Powell, Riverton, and Torrington, Wyoming. The WSMGS invites you to explore our website for information about Wyoming's minerals, rocks, fossils, and gemstones as well as for an introduction to the people and places that rockhounds can visit, explore and learn.

You can find us at: <http://www.WSMGS.org>

WSMGS INFORMATION AND UPDATES *continued from page 2*

8. Determine meeting dates, time, location
9. Field Trips? Club Program suggestions
10. Raffle winners
11. Announcements: State Show etc
12. Adjournment

B. WSMGS will conduct attendance sign up registration and issuance of raffle prize tickets. After adjournment, membership signup with dues payment, silent auction for donated rocks, and refreshments.

C. A special thanks to Jim & Leane Gray of the JL Gray Rock shop for helping to facilitate this organizational meeting.

II. Vice President Report:

A. Club Rockhound of the Year nominations were submitted : Cody 59ers Rock Club-Roger & Joy Lyons
Shoshone Rock Club-June Rich
State Rockhound of the Year Nomina-

tion: Jim McGarvey

All of the above will be considered for selection as 2016 WY State Rockhound of the Year.

B. Vice President, Linda Richendifer is recovering from puncture wounds from falling on field trip.

III. Treasurer's Report:

Beginning Balance –March 31, 2016
\$2929.87

Expenses (2016 RMFMS Convention-Wichita, KS) \$439.91

Current Balance: \$2489.96

IV. Secretary's Report:

Natrona County Rockhounds are updating People's Choice Award and WY State Rockhound of the Year plaque.

V. Old Business:

A. As voted upon in the January 21, 2016 Electronic Board Meeting, a \$50.00 check award will be given to the District 4-H office for 2016 Wyoming State Fair 4-H- Geology Division winner. The \$100 Museum Award recipient will be voted

upon at the 2016 Annual Meeting.

B. Jim McGarvey, our past WY RMFMS State Director, is recovering quickly from his surgery and is presently at the River-ton Rehab Center.

VI. New Business:

The Riverton Mineral & Gem Society has submitted a bid to host the 2017 WSMGS Mineral and Gem Show to be approved at the 2016 WSMGS annual meeting.

VII. UPCOMING EVENTS:

May 14–15, 2016 Cheyenne Rock Show

Cheyenne, Wyoming

June 25–26, 2016 WSMGS Mineral &

Gem Show Torrington, Wyoming

[Click for more information](#)

July 9–10, 2016 Natrona County Rock

hounds 69th Annual Gem & Mineral Show

Casper, Wyoming

[Click for more information](#)

THE GREEN RIVER FORMATION *Continued from page 1*

Tectonic highlands supplied the Eocene sedimentary basins with sediment from all directions: the Uinta Mountains in the center; the Wind River Mountains to the north; the Front Range, Park Range and Sawatch Range of the Colorado Rockies to the east; the Uncompahgre Plateau and the San Juan Mountains to the south and finally, the Wasatch Mountains of Utah and the ranges of eastern Idaho to the west.

Streams draining the steep mountains eroded large amounts of sand, silt, mud, and dissolved minerals, which were deposited in lakes and swamps that occupied the intermountain basins. Over time, the sand, silt and mud formed layers of sedimentary rock and minerals in these intermountain basins and became known as the Green River Formation.

The Green River Formation was deposited in a large area named for the Green River, a tributary of the Colora-

do River. There were three separate intermountain basins that the Green River Formation sediments were deposited. These three basins lie around the Uinta Mountains of northeastern Utah: (1) an area in northwestern Colorado east of the Uintas, (2) a larger area in the southwest corner of Wyoming just north of the Uintas known as Lake Gosiute, and (3) the largest area, in northeastern Utah and western Colorado south of the Uintas, known as Lake Uinta. (Figure 1 *illustrated on page 1*)

The sediments were deposited in very fine layers, a dark organic layer during the growing season and a light-hue inorganic layer in the dry season. Each pair of layers is called a varve and represents one year. These varves, much like tree rings, were counted in core sampling of the Green River formation as provided evidence in determining the cumulative age of the layers of sediments. The sediments of the

Green River Formation in southwest Wyoming are unique compared to other Eocene deposits worldwide, in that they present a continuous record of the Eocene epoch for six million years.

There were three ancient lakes that formed in the three major intermountain basins during the Eocene epoch 50 million years ago: Lake Gosiute, Lake Uinta, and Fossil Lake. The makeup of the sediments deposited in these lakes were varied and included sandstones, mudstones, siltstones, oil shales, coal beds, saline evaporite beds such as trona, limestones and dolostones. Volcanic ash layers were also deposited within the various sediments from the then active Absaroka Volcanic field to the north in the vicinity of Yellowstone and the San Juan volcanic field to the southeast and provided dateable horizons within the sediments.

Continued at the top of page 4

THE GREEN RIVER FORMATION *Continued from page 3*

The three primary lakes formed as a consequence of the water drainage and sediments that were deposited as the Rocky Mountains were uplifted during Tertiary Period. Fossil lake, centered in Southwest Wyoming, is the smallest and appeared briefly during the early Eocene. The Lake Gosiute deposits span the period from Lower to Middle Eocene, and the largest deposit from Lake Uinta that ranges across the Utah-Colorado border, spans most of the Eocene Epoch. Therefore the Green River Formation is actually a complex mixture of sediments that are different in ecological, geological characteristics, timeframe and hence fauna and flora.

they left behind a wealth of animal and plant fossils that accumulated in the lake sediments that turned into the rock layers known as the Green River Formation. The Green River swamps and lakes provided an exceptional environment for fossil formation. The lakes and swamps were calm environments where remains were quickly buried by sediment. The fossils in the Green River Formation are among the most nearly perfectly preserved fossilized remains in the world. This resulted in one of Earth's most spectacular deposits of exceptionally preserved plants, animals, insects, and fish - a Wyoming Lagerstätten. (Figure 2)

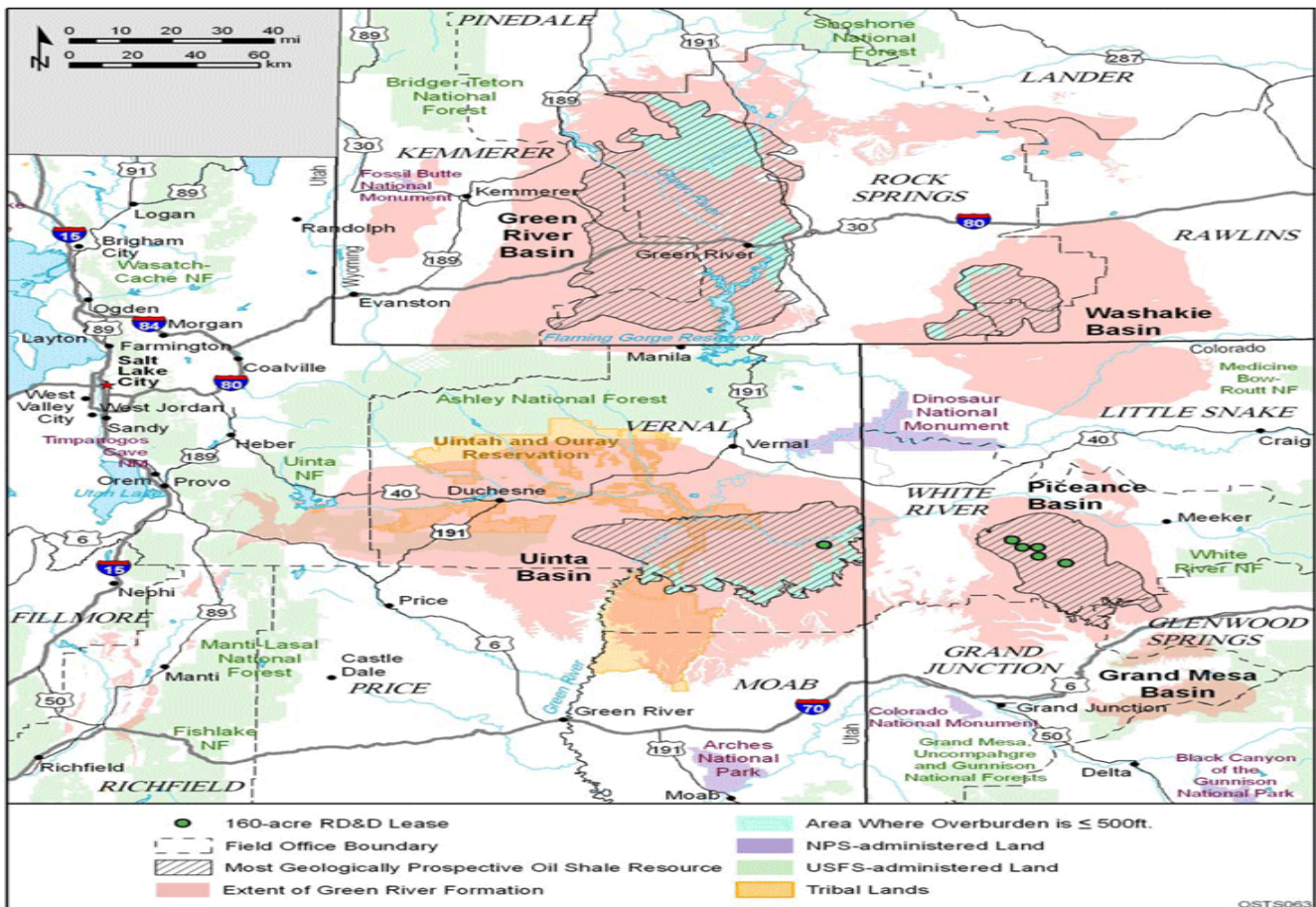
II. FOSSIL CLUES WITHIN THE GREEN RIVER FORMATION

The Green River Formation Lagerstätten has provided important climate clues for understanding the Eocene. The Green River site is important because it reveals information about the climate during the Eocene and the transitions during the period itself, including the significant faunal change that occurred in North America. The site reveals much information because so many of the fossils were found intact. The placement and orientation of these fossils also tells researchers about the conditions at Green River during the Eocene. Fossil evidence provides proof that this region was located at much the same latitude as it is today,

All of these lakes are gone today, but

Draft: OSTS PEIS

December 2007



Green River Formation Basins in Colorado, Utah, and Wyoming; the Most Geologically Prospective Oil Shale Resources; the Areas Where the Overburden above the Oil Shale Resources Is ≤500 ft; and Locations of the Six RD&D Projects

Figure 2- Geopolitical Map of Green River Formations
 [<https://www.google.com/search?hl=en&q=green+river+formation&tbm>]

Continued on page 5

THE GREEN RIVER FORMATION *Continued from page 4*

with less seasonal variations in temperature.

The climate during the Eocene was moist and warm - perfect for rapid plant growth. This allowed a dense community of plants to spread across the swampy areas along the lake margins. These plants dropped a steady supply of leaves, branches, seeds and woody materials into the swamp waters. The water cover of the swamp protected the plant debris from decay and it accumulated rapidly along with the eroded sediments to form layers on the bottom of the intermountain lakes.

Conditions in the lakes were also ideal for thriving blooms of blue-green algae. They spread over many parts of the lakes as a thick scum of green filaments and strands. For several million years enormous amounts of algal debris sank to the bottom and were also incorporated into the lake sediments.

Therefore, the climate in which the organisms lived, differs somewhat from that of the present-day western United States. The fossils, especially plants, found at this site indicate that the climate was moist temperate or sub-tropical, with temperatures ranging from 15 to 20 degrees Celsius. In addition to the plants, another piece of evidence suggesting that the climate was sub-tropical was the presence of fossilized crocodiles. Crocodiles can only survive in areas with a constant, warm temperature.

If you were able to visit the Green River locality during the Eocene, you would see palms, cat-tails, sycamores, and other familiar plants from North America, but you would also see some that are today more common in, or restricted to, eastern Asia. A series of large inland lakes extended across the region, and it is in the bottoms of these lakes that various plants and animals were buried and fossilized. These lakes later dried up as the local climate changed, and many of the plants and animals living here went extinct.

III. THE FOSSIL BUTTE NATIONAL MONUMENT-WYOMING'S LAGERSTATTEN

Some of the most extraordinary of the Green River Formation fossils were preserved in the smallest of the three prehistoric lakes-Fossil Lake in southwest Wyoming. Fossil Lake, is represented today by a flat-topped remnant of rock that stands where the center of Fossil

Lake once was. Fossil Butte National Monument- west of Kemmerer, WY- preserves the butte and its invaluable, fascinating record of the past. Fossil Lake, was 50 miles long and 20 miles wide at its maximum, nestled among mountains in a lush green forest of palms, figs, cypress, and other subtropical trees and shrubs. Willows, beeches, oaks, maples, and ferns grew on the lower slopes, and on the cool mountain sides were a spruce and fir forest.

In and around the warm waters of Fossil Lake, animal life was diverse and abundant. A broad range of fish inhabited the tributaries, shallows, and deep water of Fossil Lake. Fossil evidence provides a list of some of the fish species that existed in Fossil Lake: gars, paddlefish, bowfins, and stingrays, herring, perch, and mooneyes. The lakeshore was alive with crocodiles and turtles; insects, dog-sized horses, and early primates inhabited the land; birds and bats mastered the air.

The fossils of Fossil Lake are remarkable for their numbers and the broad spectrum of species found here: more than 20 kinds of fish, 100 varieties of insects, and an as yet uncounted number of plants. For number, variety, and detail of fossil fish, few places can equal ancient Fossil Lake. Its fossils enable us to take a close look at what life was like at Fossil Lake 50 million years ago. Fish are the most common fossils by far. Fish fossils of *Diplomystus* and *Knightia* are found in Fossil Lake but not in Lake Gosiute. Only Lake Gosiute has fossils of catfish (Ictaluridae and Hypsi- doridae) and suckers (Catostomidae). The catfish are found mostly in the deepest parts of Lake Gosiute.

The Green River Formation is best known among paleontologists for its superbly preserved fossil fish. Some slabs of the Green River Formation contain hundreds of individual fish and likely represent an instantaneous die-off. Dozens of fish species have been identified. One species, *Knightia*, a small fish, usually less than six inches in length is especially common. Specimens of *Knightia* have made their way into thousands of fossil collections around the world. [Figure 3]



Figure 3-Diplomystus (lower left) and Knightia (below in center column), two common fossil herrings fish from the Green River Formation (Photo by Photolitherland)

Millions of herrings that swarm in schools are preserved as images-in-stone. Specimens of bigger predatory fish, such as 5-foot-long gars and a 4-foot-long bowfin, are rarer. Altogether more than 20 species of freshwater fish have been identified at Fossil Lake; many are recognizable as ancestors or close cousins of some of today's species. [Figure 4]



Figure 4- Rare Green River gar fish: *Lepisosteus simplex* - 29 inches in length. (Fossil Museum.net)

Besides the fossil fish, there are hundreds of other forms of life captured in stone. The delicate bones of a fossil bat, the oldest known flying mammal in North America. This organism, a bat, *Icaronycteris index*, was preserved with its skeleton, membranes and cartilage intact. It was discovered along with food still inside its body and waste not yet disposed, so some of the flora, algae, pollen and arthropods of the time can be studied. It is rare that a complete fossil is found, and this makes the bat fossil very useful for paleontologists to study. [Figure 5]



Figure 5- The bat fossil *Icaronycteris*, shown above, is the oldest known flying mammal in the fossil record. (Fossil Museum.net)

THE GREEN RIVER FORMATION *Continued from page 5*

Snail shells, insect impressions, snakes, crocodiles, freshwater turtles, bird skeletons, feather impressions, and plant remains (leaves, seeds, stems, and flowers blown or washed out into the lake - these, and more, are part of the buried treasure of fossils unearthed at Fossil Lake.

The limestone matrix of many of the fossils is so fine-grained that the fossils include rare soft parts of complete insects and fallen leaves in spectacular detail. [Figure 6] An abundance of fossil plants have been found in sediments that accumulated along the edges of the lake. Palm leaves, ferns and sycamore leaves are very common fossils of these Green River swamp sediments.



Figure 6— Dragonfly

As an example of the Green River Formation lagerstätten, two hundred and seventy six different leaves, seeds and flowers are known from the Fossil Lake deposits. More than twenty-two orders of insects are represented in the Green River collection at the Smithsonian Institution in Washington, D.C. [Figure 7]



Figure 7-Fossil Plant Leaf

Photo illustrations Fig 6&7 above courtesy Fossil Butte National Monument Photos

IV- ROCKHOONDING IN THE GREEN RIVER FORMATION

The Fossil Butte National Monument does not allow any collecting by rockhounds but the monument is surrounded by Bureau of Land Management (BLM) and privately controlled land - therefore

collecting is allowed in these areas. The Green River Formation within the Fossil Lake area has two distinct zones of very fine-grained lime muds are particularly noted for preserving a variety of complete and detailed fossils. The majority of fish fossils are taken from two layers: 1) the so-called 18-inch layer; and 2) the split fish layer. The most productive zone—called the split fish layer—consists of a series of laminated lime muds about 6 ft (1.8 m) thick, which contains abundant fish and other fossils. The limestone easily splits along the laminated layers to reveal the fossils. This thin zone represents some 4000 years of deposition. The composition of the limestone indicates that the layer was formed in deep water far from shore.

The second fossil zone, the 18 inch layer, is a consolidated layer about 18 in (46 cm) thick that also contains abundant detailed fossils, but is harder to work because it is not composed of layers that are easily separated.

Paleontologists, the scientists who study fossils, and private collectors have unearthed thousands of specimens during the past 100 years. Many billions more lie buried in the Fossil Butte National Monument area and are federally protected and preserved for future paleontologists to study. The fossils are remarkable for their detail. Many of the fish, for example, retain not only their entire skeletons, but their teeth, delicate scales, and skin as well. And perhaps most remarkable of all is the story the fossils tell of an ancient life and landscape. [Figure 8]



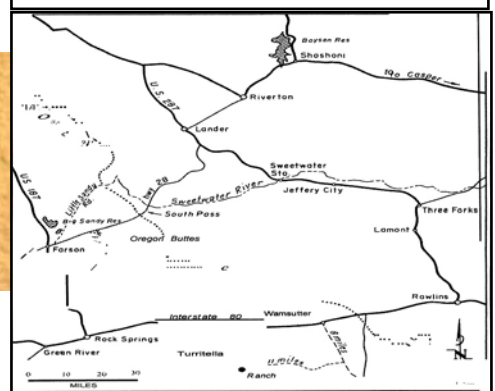
Figure 8: Diplomystus dentatus from the Split Fish Layer of the Green River Formation [Fossil Shack]

Rockhounds can view the fossils contained in the Wyoming Green River Formation Lagerstätten by visiting the Fossil Butte National Monument in Kemmerer, WY AND can contract with one of the local privately controlled dig sites to directly gain an appreciation of these unique Wyoming fossils. ✦

Adapted References for THE GREEN RIVER FORMATION LAGERSTATTEN by Stan Strike

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HUNTING FOSSILS AT WYOMING'S LAKE GOSUITE *by Floyd Oles*



“Within the rough triangle formed by Interstate 80 on the south, between Rawlins and Rock Springs,” writes the author, “and on the west by U.S. 187 from Rock Springs to Farson and Wyoming 28 from Farson to Lander, and on the east by U.S. 287 from Lander to Rawlins, are to be found some of the very finest of the fossils of ancient Lake Gosuite.”

Article continued on page 7

Hunting fossils along borders of Wyoming's Lake Gosuite is a unique experience, since the lake itself is unique. *It disappeared over 50 million years ago.*

Once Lake Gosuite occupied vast areas not all of which have been identified. Certainly it is known that areas of southern Wyoming represented today by the counties of Sweetwater, Sublette, Fremont, and Carbon were once submerged beneath the widespread but shallow waters of that inland sea. At one time, say the scientists, Lake Gosuite occupied an area equivalent in size to present-day Michigan, if not more.

Shallow but teeming with life, Lake Gosuite was surrounded in the distant day of forests of palms, figs, magnolias and other tropical growth, as well as many conifers and hardwoods. Strange fishes swam in its waters. Primal worms, snails and salamanders wandered along the rushes and edges along its borders. During the lake's life of perhaps millions of years, periods of heavy rainfall would expand its borders, and succeeding droughts would restrict it. Over the forest growth, drowned by its rising waters, grew a thick blanket of algae, which in turn was buried by periodic showers of volcanic ash that from time to time erupted in the region.

As the waters of Lake Gosuite gradually subsided and dried up, the various layers of sediments and algae slowly solidified and in many cases the wood became petrified.

Petrified wood can still readily be found in many parts of the area. It is usually covered by concretions of solidified mud and clay, and often by a covering of petrified algae. This wood constitutes one of the most desirable fossils that we seek in the area of this ancient lake.

But the lake also teemed with fish, most of them of species no longer to be found in living form, though many are similar to modern fishes. As the lake evaporated, many of these fish died in the drying mud which later turned to shale. Where they may still be found by the enterprising explorer. These fine grained and light-colored shales are found in many places in the great basin which now occupies the

area of long extinct Lake Gosuite.

One great deposit of fish-bearing shale is found near the town of Kemmerer, but the area to which my wife and I have so repeatedly returned for fossil hunting has been in the rough triangle formed by Interstate 80 on the south between Rawlins and Rock Springs, and on the west by U.S. 287 from Rock Springs to Farson and Wyoming 28 from Farson to Lander, and on the east by U.S. 287 from Rawlins to Lander.

Within this rough triangle, or adjacent to it, are to be found some of the very finest of the fossils of ancient Lake Gosuite.

In exploring this area, we have found it wise to spend at least several days on each trip. Our two favorite locations from which to start our various journeys around the ancient lake bed have been the towns of Rawlins and Lander, in each of which there are excellent motels and restaurants. But the same can be said of Rock Springs, which has excellent facilities.

One of our first ventures into this highly fossiliferous area was from the town of Lander, where we went to attend the Wyoming Gem and Mineral Show. Since to Wyoming natives distances by automobile are virtually meaningless. The fact that we were traveling 70 or 80 miles out into the desert each day, and back in the evening, was regarded by local rockhounds as only a trifling bit of exertion.

One of our first excursions took us some 70 miles from Lander to the vicinity of Farson. Our aim that day was to discover the famous fish beds in the area generally referred to as Eden Valley. It was June, the ideal month for exploring anywhere in Wyoming, and we found the trip both invigorating and delightfully scenic as well.

The elevation of Eden Valley is somewhere around 7,000 feet, just a little lower than the Continental Divide, which crosses State Highway 28 between Lander and Farson. To the north and north and northeast looms the high and snowy summits of the

Article continued on page 8



One can drive a car directly to the Eden Valley fish beds-and there are lots of fossil fish to be found. Helga Oles found two in this thin layer of shale.



A general view of the Eden Valley fossil fish beds, with snow-covered mountains in the background. "Even the dogs were digging on the day we were there"



This huge mound on the eastern flank of the Oregon Buttes is virtually a small mountain of exposed petrified algae. The algae, reportedly of the species *Chloelapses* and Eocene in age, appears to have been a blue-green freshwater algae that grew on the forests of ancient Lake Gosuite

Wind River Range. At South Pass can be seen the monument marking the Oregon Trail. But, the ruts of pioneer wagons, still clearly visible, are a more remarkable monument.

Also near South Pass, at 7,500 feet elevation, is the great open cut iron mine of the United States Steel Corporation. A lookout point will give you an overall view of this sprawling operation.

About 7 miles east of Farson, the Eden Valley Road takes off north from Highway 28. A marker indicates this also the road to the Big Sandy Reservoir. The turnoff is clearly marked and you will also see a sign reading "Tri-Territory Marker," indicating an historic site nearby.

As one follows the Eden Valley Road, it in turn follows Little Sandy Creek for some distance. The Little Sandy, incidentally, is not much of a creek. At about 8 miles from the highway one comes to clearly visible diggings on both sides of the road. The search object here is primarily Eden Valley wood-petrified wood once covered by the waters of Lake Gosuite, and later imbedded in concretions of petrified algae as the waters dried up.

However, on this trip we were looking for the fish beds, so at about 9 miles from the highway we turned sharply left. Only a short distance from the road we found mounds of shale. One of the peculiarities of the [mounds] and much of this abandoned or overlooked shale contained fossil fish as well as other fossils of both plant and animal life.

One can drive a car directly to this site, and there are lots of fossil fish here. We found dozens in the shale on the

dumps where others had either missed them or disregarded them. As a matter of fact, the fish are easier to find in the dried-out shale. One of the peculiarities of the area, at least in June, is that the shale is sopping wet not over a couple of feet below the surface, and wet shale is very fragile indeed, although it hardens when it dries. Looking around at this vast expanse, one is astonished to find water just below the surface of an otherwise arid desert.

The shale splits easily and flat fossil fish are often found in the interior of very thin layers. Scientifically, we were told that all we had found were of the genus *Osteichthyes*, which means "bony fish," and of the species *Priscacara*. These fish flourished in the Eocene period over 50 million years ago.

Let me interpolate here that I have been nagging-and I use the word advisedly-all of the authorities I could reach for years to try to achieve some protection for the fossils of Lake Gosuite. I have written to all of the Congressional delegation from Wyoming, and repeatedly to the headquarters and various offices of the Bureau of Land Management. The latter seemed concerned, but helpless in view of the lack of appropriate legislation to enable them to treat fossil fish and petrified algae in the manner they do petrified wood.

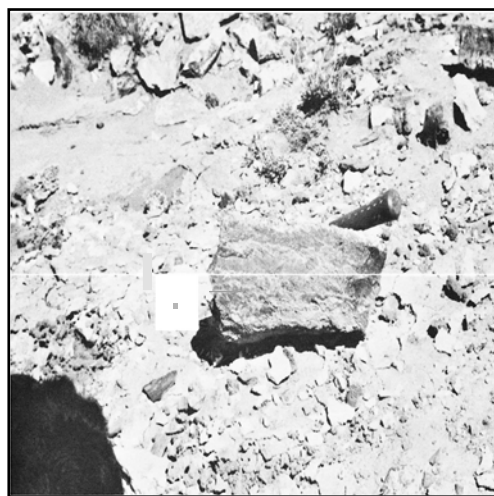
The latter, as you doubtless know, is under a special regulation of the Bureau of Land Management, applying to public lands only, which limits collection by any one hobby-ist to 250 pounds in a year, or 25 pounds plus one piece for any single day. While enforcement of this regulation is admittedly spotty

or lacking, it nevertheless places a moral obligation on hobbyists to be guided accordingly, and upon commercial exploiters to refrain from exploiting.

But thus far, in spite of continuing efforts, I have been unable to prevail upon anyone to introduce legislation to apply much the same regulation to other fossils. As a consequence, not only the fish but the petrified algae and the turrítella agate in the southern part of the area are still being commercially exploited.

If one starts back toward Farson from the fish beds, goes perhaps a third of a mile, and then takes off on a fairly good dirt road to the north, he will come in about 5 miles to what are called the cane beds. By dint of hard digging in a mixture of shale and lava rock, one can here unearth petrified wood of several kinds, but notably the "canes" which are said to be unique in this locality.

The wood resembles bamboo due to the fact that it is jointed, but it is solid and not hollow like bamboo. There are many leached-out small pieces, but the best and largest come inside large, roundish concretions. Many abandoned examples are scattered about, each showing the hollow tube from which some persistent rockhound extracted a cane.



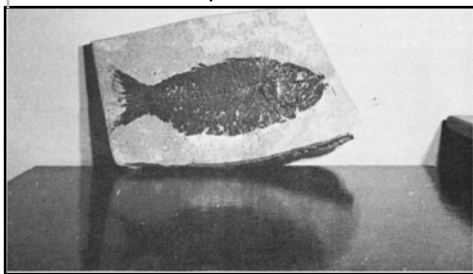
A typical algae boulder from what the author terms the "Algae Mound," adjacent to the Oregon Buttes. "The petrified algae of Oregon Buttes is by far the most attractive in design and appearance of any we have seen" he writes, "including specimens we have from other Wyoming locations."

Hunting fossils at Wyoming's Lake Gosuite continued from Page 8

While Eden Valley wood of many different kinds is to be found in the entire Farson area, particularly north of Farson itself, areas where rockhounds have been able to unearth quantities of petrified wood can usually be identified by the mounds and hollows resulting from their operations. The area known as the cane beds is odd in one way, in that you can dig without result in one spot, then move a few feet away and find some fine petrified wood, usually in the concretions, some of which are as much as a foot thick.

As most rockhounds know, Eden Valley wood is distinguished by its combination of vivid black and white designs, and the fact that it will take a high polish. Weathered pieces found on top of the ground, however, are usually porous and will not polish well.

You must dig to get the good wood. The digging, either here at the cane beds or elsewhere in Eden Valley, calls for shovel, pick and crowbar.



A typical fossil from the Eden Valley fish beds. Of the genus *Osteichthyes*, which means "bony fish," and the species *Priscacara*, these fish flourished in Lake Gosuite during the Eocene period over 50 million years ago.

Besides the petrified wood you may find other fossils, including plants, leaves, twigs, algae, insects and various others. Unidentified. Most of the petrified wood will be covered with a whitish outer layer, but breaking off even a small piece with your rock hammer will reveal the glossy black interior of the typical Eden Valley type of wood.

South across Highway 28 from the cane beds and the fossil fish area is the upstanding profile of the Oregon Buttes, noted for varied types of fossils including petrified wood, but particularly for its petrified algae. The Buttes can be reached by a road which turns south from Highway 28 about half a mile west of the Sweetwater River crossing. The river, at this point, is only a small creek.

The Oregon Buttes are simply a group



The Oregon Buttes, with the author's station wagon in the foreground. A landmark on the old Oregon Trail, the Buttes are noted for varied types of fossils including petrified wood, but particularly for petrified wood.

of outstanding, bare knobs on the desert, clearly visible from the highway, and were given that name because they were a land mark on the old Oregon Trail. The road south from Highway 28 is easily followed and brings one to the east side of the Buttes. The road leads along a ridge, down into a shallow valley, and then up a sharp incline to a bench on the side of the Buttes with a gorgeous view toward the Wind River Range to the North and northeast. From this spot the fossils are easily accessible. Our speedometer showed that on arrival at the Buttes we were 11 miles from the highway.

The Oregon Buttes constitute a long-famed area for petrified and agatized wood, and for petrified algae that formed on the wood in ancient times. The best material we were able to gather was on a kind of huge mound adjacent to the Buttes on the east. Here what is really a small mountain of petrified algae is exposed.

The algae, said to be Eocene in age, appears to have a blue-green freshwater algae from ancient Lake Gosuite, presumably grown on forests of the lake. It is said to be the species *Chlorellopsis*. There is plenty of it available, so one can be selective and take only the best. The algae appears as brownish whorls on a darker background, and often with an outside covering of crumbly white rock. The material is of varying hardness, but most of it polishes well and some we have from other Wyoming locations.

Eden Valley is in Sublette County and the Oregon Buttes are in Sweetwater County, despite their close proximity. Both are on publicly owned land at least in in large part. Federal regulations specify limits on the collection of petrified wood and this applies to the algae that grew on the wood. The limits are thus stated by the Wyoming Natural Resources Board:

"Not more than 250 pounds can be gathered by one person within a year's time. A daily of 25 pounds, plus one piece, is also in effect."

It is also worthwhile to quote from the Wyoming Rock Hunter's Guide an official publication:

"In general, the public lands are open to any person to take and remove rock material without charge, for non-commercial purpose."

In all of our explorations of the area, one of the most attractive items we have found has been the fossil shells of the Wamsutter area, known as turritella agate. In that area, and covering many square miles, are found the turritella agate beds. These are the exposed reefs of an ancient sea where the turritella snail, known scientifically as the *Geneobases*, thrived in the waters of Lake Gosuite. It is presumed that the snail favored a certain depth of water, and for that reason its fossil remains are found only where those conditions were favorable to *Geneobases* development.

Continued on page 10

These fossil relics of that ancient sea are highly silicified, constituting a unique form of agate which can be cut and polished, and the best of the examples are capable of taking a very high polish. Most of the material is dark brown in color, shading to black and alternating with light colors. The shells themselves averaging perhaps a half inch in length, making a very pleasing design when cut and polished.

There are many places in the area where the ground is completely littered with turrutella agate, mostly in broken piece, giving the appearance of a solid cover, several inches in thickness, broken up by weathering. For the most part, that found on top of the ground does not take a very good polish. The best material is found by digging beneath the surface, and in those areas where surface material is seen, there is usually what seems to be a limitless quantity of material just beneath the surface of the desert.

Along with the turrutella agate is of ten found small limb casts and other petrified wood, and occasionally examples of oolite, also capable of taking a polish.

The town of Wamsutter has changed materially since the first time my wife and I visited it and went agate hunting 10 or 12 years ago. The it was merely a wider place in the road. Today, it is a thriving small town with motels, stores and garages.

To get to the turrutella agate diggings, drive south across the railroad tracks on a dirt road. About 8 miles from Wamsutter there is a well traveled road, the only one which can be so described, heading west. Drive west for 11 miles, through rolling desert country, and you will come to a ranch and a flowing creek with a sheet-metal building on the left hand side of the road. From this point on one is in turrutella agate country. We have found the best material, however, by driving on a mile or two before turning to the right, up onto the hills, on top of which turrutella agate lies scattered in every direction.

There roads of a sort crisscrossing each other all over this area and it is well to keep a sense of direction, since getting lost here is not a comfortable experience. Turrutella agate is everywhere to be seen, and to be dug, in such quantities that one is able to pick and choose and take only solid materi-

al capable of being cut and polished.

On our last visit to the agate beds, we were surprised as well as discouraged to find that the turrutella agate was being commercially exploited. We talked to people who were collecting it in truck loads taking it to Wamsutter, and shipping it to dealers in California. There, they were told it was being used for such things as building interiors and other construction purposes.

This kind of exploitation, of course, makes rockhounds and other hobby collectors shudder-and also to protest, as we have done, though admittedly without visible results. We watched one group load a truck with over a ton of turrutella agate, which they collected thoughtfully and selected carefully. The truck followed us back into Wamsutter.

Nonetheless, there is undoubtedly plenty of material to be had still, for a reasonably diligent and strong-armed rockhound, and along with the turrutella agate he will also take home the inspiration of this still primitive desert country, and memory of the beauty of its scenery which no exploiter can take away.

As with any article which encourages people to visit an area, there must go with it admonitions as to the hazards involved. The area of ancient Lake Gosuite is a desert. Some of it you will find labeled on the map as the Red Desert. Desert driving has its own built-in hazards, but they can be rendered harmless by thoughtful precautions and adequate preparation.



The "cane beds" are located 5 miles north of Eden Valleys fossil fish beds. The petrified wood unearthed her is unique to the locality, and resembles bamboo, due to the fact that it is jointed. But unlike bamboo the canes are solid and not hollow.

In June, Wyoming days are sunny and warm, but the nights are cold and always present chance of being caught out at night suggests adequate clothing. Desert walking is rough and heavy boots are a necessity. The general elevation is around 7,000 feet, and at Oregon Buttes and the turrutella agate beds it is between 8,000 and 9,000 feet. Neither my wife nor I have suffered any ill effects from the altitude, despite some pretty heavy exertion. But those who feel they may be affected should bear in mind that this is high country. We have been warned that it is also rattlesnake and tick country, but neither we nor our dog have ever encountered either. A much greater hazard is that of getting lost, since the desert in most places is crossed and crisscrossed by endless ruts and trails, some of them dating back to the days of the Oregon Trail.

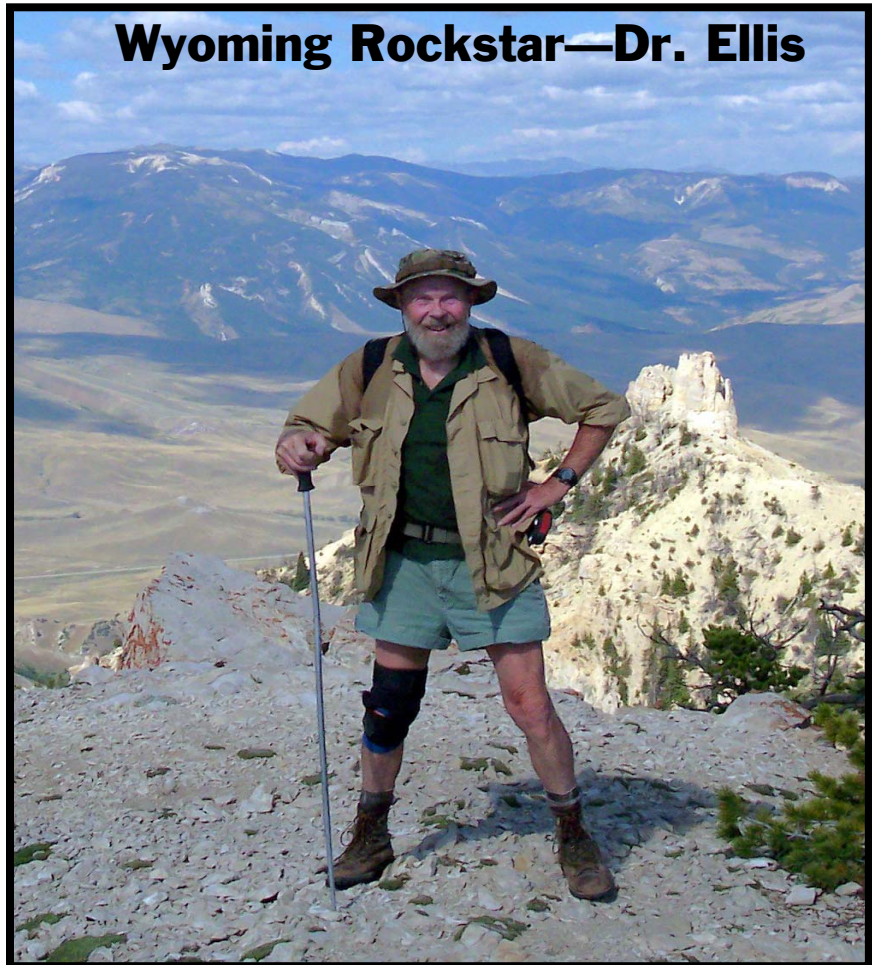
It is my suggestion that you do not venture into any of these desert areas alone, away from the highway. Travel with some other car. Be prepared to send one car for help if the other breaks down or gets bogged down. Take an adequate supply of water, first-aid supplies, spare tires, and make certain you have plenty of gas and oil before you leave the highway. Be sure you have a tool kit with you, including a workable car jack, and bear in mind that the Wyoming desert is subject sudden, violent rain squalls, which can usually be seen coming over the desert in the form of a rapidly approaching dark cloud.

If you see such a cloud coming, you probably have a half hour to get out of the area and back on pavement or a solid road.

One of the less attractive features of much of the area of ancient Lake Gosuite is the kind of gumbo mud produced by rain storms. Dirt roads, so readily traversable when dry, become about as hard to drive on when wet as if they were covered with a 6-inch layer of lard. So at any time on the desert, be prepared if necessary to park calmly for a day or two, without panic, and without suffering from lack of either food or water.

Bearing in mind the above admonitions, you will find a visit to Wyoming's Lake Gosuite an intensely interesting scenic as well as fossil-hunting adventure. Moreover, you will undoubtedly find that in this article we have barely scratched the surface of Lake Gosuite's possibilities, which in addition to what we have listed, include the famed dinosaurs of nearby Como Bluff, jade hunting around Jeffrey City, agates along the Sweetwater River, and other wonders almost without end.

Author: Floyd Oles



Doc Ellis was a Nebraska farm kid, but after serving four years in the U.S. Air Force, he forsook the Midwest for the Rocky Mountains.

Doc Ellis was a supervisory economic mining geologist with the U.S. Bureau of Mines before retiring. Coming to live in Wyoming's Big Horn Basin more than 20 years, he continues to pursue his interest in all things geological.

Doc not only continues to study and collect rocks but loves to climb on them—having climbed his 800th peak during the summer of 2014. He says that the Bighorn Basin is a wonderful place to live and be a rockhound for the diversity of things to collect are exceptional.

Doc Ellis has not only explored the Bighorn Basin but has taken the time and effort to share his finds with other rockhounds by publishing four outstanding books. These books describe in written detail and photos the exact map locations with driving directions, descriptions, and identifications of minerals / rocks / fossils he has found. The titles of these four books are:

- ♦ *ROCKHOUDING ADVENTURE IN THE BIGHORN BASIN*
- ♦ *ROCKHOUDING THE BIGHORN BASIN AREA-THE ADVENTURE CONTINUES*
- ♦ *WILD MINERALS OF THE BIGHORN BASIN AREA*
- ♦ *UPPER CRETACEOUS INVERTEBRATE MARINE FOSSILS AT LINE CREEK, PARK COUNTY, WYOMING*

Doc Ellis has also given several public presentations, related to rockhounding in the Bighorn Basin, at Northwest Community College in Powell, Wyoming. He also has led several field trips for the local rock clubs. At the 2015 Rocky Mountain Federation of Mineralogical Societies' Mineral & Gem Show in Cody, he volunteered to serve as the "Rock Guy" to identify unknown rocks.

Doc Ellis is a Wyoming Rockstar because he chose not to retire but assures us - his search is not over and he will continue to explore and share his findings with his fellow rockhounds.

First Time Flying -

Pilot: Have you ever flown in a small plane before?

Passenger: No, I have not.

Pilot: Well, here is some chewing gum. It will help to keep your ears from popping.

Pilot (after the plane landed): Did the gum help?

Passenger: Yep. It worked fine. The only trouble is I can't get the gum out of my ears

Humor courtesy Joke of the day, author unknown

**Rocky Mountain Federation of Mineralogical Societies, Inc.
2016 Annual Report for:
Public Lands Access Committee
Wyoming Representative**

Wyoming is seeing a lot of activity from the environmental groups who are trying to close all roads in the National Forests and create "Wilderness Areas". Attending meetings of the Forest Service has made this very clear.

Negating the effects of the environmental groups will require the efforts of all the clubs in our member States (actually, all clubs in the country) to make comments to the governmental agencies as the environmental groups are already doing. Their members, from all over the country, comment on as many agency activities as they can and as a result, the agencies end up with hundreds or even thousands of comments from all over the USA.

Attending local meetings is key to counteracting the environmental groups input to the agencies. If you don't attend, you won't know what is happening and the government only hears one side! The environmental groups have maps of what they want to do with "Public Lands"!

If rockhounds want to continue to collect rocks, they are going to have to COMMIT to getting involved with the government agencies and attending meetings!

It is impossible for one or two individuals to cover an entire State, even if there were adequate funding. To keep "Public Lands" open for rockhounding, requires the participation of ALL Rockhounds in the processes.

**Respectfully submitted by:
Rich Gerow
Jim McGarvey**

Wyoming State Director RMFMS Report
For 2016 RMFMS Convention-Wichita, KS

[A] Gain of 122 (=28.5% gain) state wide members from October 31 2014(total 428) to October 31 2015 (total 550). Perhaps some recognition at Annual meeting for membership gains?:

Cheyenne 78-134 (+56)

Cody 63-102 (+39)

Natrona 64-66 (+2)

Riverton 160-185 (+ 25)

Rex Young 23-26 (+3)

Shoshone 40-37 (-3)

[B] Correlation between clubs promoting field trip schedules (Cheyenne & Riverton) and sponsoring State Show (Cody)?? WSMGS suggests that all persons attending WSMGS Club sponsored field trips, pay membership dues prior to participating in a field trip. This means liability insurance is in effect in case of mishap.

[C] WSMGS also has initiated Alias Email Addresses and personal contact information for all WSMGS Club contacts and WSMGS Board members that is available to the general public-such as in our Jade State Newsletter and on our WSMGS website: wsmgs.org. This is recommended by the AFMS.

[D] I need to call Marbleton Rock shop to get ball rolling on new club in that area.

[E] Since Bob King resigned, Cheyenne club is having to reorganize-I would like to attend one of their meetings to encourage everyone to volunteer and consider hosting the State Show in 2018 (Riverton wants 2017)-Cheyenne meets 2nd Wednesday of the month.

Stan Strike-WSMGS President
WY RMFMS Director Report for Jim McGarvey

CLUB NEWS AND ANNOUNCEMENTS

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JSN Report-Shoshone Rock Club March-April 2016

March: President Gary Olson opened the SRC meeting at the Powell Library club room with 16 members and guests in attendance. Stan Strike, club member and President of the WSMGS had a number of items to talk to the club about nominate a club Rockhound of the Year, Roger Lyons hosting a large rock sale, the state rock show in Torrington, with the theme, Wyoming's Ancient Sea Life, and Northwest College was asking clubs for a donation for the geology department. Club members nominated June Rich our club Rockhound of the Year! June has been a club member since 1970 and has presented many programs over the years, been a board member, a dealer at state shows, and still regularly attends meetings at 85 years of age. Dorine Strom won the door prize. Former member, Cheryl Thomas, has moved back to the area and signed up as a new member again. Refreshments were supplied by Mary Ann Northrup and Donna Brasher. June Rich gave a wonderful program on jade! My thanks to Linda Thomas for filling in as Secretary for the meeting.

April: Shoshone Rock Club celebrated their 65th anniversary at the Homesteader Museum with a potluck dinner and guest speaker, Beryl Churchill, who talked about Polecat Bench, its history and paleontology. The Churchill family has long been interested in paleontology and had offered their home to many scientists over the years studying this famous area. Sometimes, as many as 200 guests at one time were at the Churchill's. The Churchill's were rewarded for their friendship, assistance, providing food, lodging and much more, by a number of new fossil finds being named for them. In the Polecat Bench area, just last year, excavating had begun for a dinosaur. One of the famous paleontologists visiting their place was Kenneth D. Rose, who she called the "Holy Grail" of paleontologists. She carried his book to the meeting, *The Beginning of the Age of Mammals*. Amazon lists this book new at \$160 or a used one can be purchased for \$44. Again, interesting programs brings in new members and five family memberships were signed up: Ella and Bob See, Ronda and Rocky McLean, Carl and Sharon Brown, JoAnn Wilkerson, Jim McEvoy. We thank them for joining! Dorine Strom let it be known a

field trip will be held possibly April 23rd, weather permitting, to the Crystal Creek area. Thirty two members and guests were able to attend and Ronda McLean won the door prize, a slab of Wyoming Tempskya, (fossil fern). A wonderful evening for all.

Participants on the April 23rd Crystal Creek Field Trip are Linda Thomas, Ella See, Cheryl Thomas

Respectfully Submitted, *Linna Beebe*, Sec.



Cody 59ers recently freshened up the their exhibit which is located on the lower level corridor of the County Court House



A FIELD TRIP TO:

Big Cedar Ridge Plant Fossil

Site This field trip is open to all who agree to abide by the AFMS Code of Ethics, follow the directions of the field trip leader and practice safe rockhounding / fossil collecting.

Call or email the field trip leader beforehand to sign up and for further information.

Remember to **sign in and sign out** with the field trip leader.

An Informed Consent, Assumption of Risk and Waiver of Liability form must be signed before trip start.

TRIP LOCATION –	Big Cedar Ridge, Washakie County, SE of Worland, WY.
DATE / MEET TIME –	June 18 (Saturday) 7:00 am.
MEET LOCATION –	Cody – K-Mart parking lot near Albertson’s Grocery.
SPONSORING CLUB –	Cody ‘59ers
LEADER & CONTACT INFO –	Ross Gorman (307) 250-6036 rossgorman@aol.com
TRIP DIFFICULTY RATING	
Vehicle Access & Parking –	Moderate – paved highways then rutted dirt roads to site.
Access Collection Site –	Easy – some hill climbing over short distances.
Collecting Activity –	Moderate – digging with pick/shovel.
VEHICLE REQ’S –	High-clearance vehicle not necessary, but helpful. Full Tank of gas advised. 120 miles one-way.
MEMBER’S GUESTS –	<u> X </u> Allowed Not Allowed
COLLECTION MATERIAL –	FOSSILS – Plants from the Late Cretaceous - 73 mya.
PROPOSED SCHEDULE –	Meet at K-Mart @7:00 am. Arrange carpools. Travel to Worland BLM Office & regroup ETA of 9:00 am. Travel to site w/ ETA of 10:00 am. Orientation, then dig/explore until 3:00 pm.
CAMP/FACILITIES –	No Facilities at dig site. Bring toilet paper and shovel.
TOOLS / EQUIPMENT –	Pick, Shovel, Rock Hammer, Work Gloves, Eye Protection. Knife or other tool w/ short strong blade for splitting blocks. (Chisels are too fat.) Also need soft paper for wrapping => lots of Toilet Paper and some Tape. No plastic bags => need to vent
SAFETY CONCERNS –	Uneven Surfaces, Loose Rocks/Soil, Rattle Snakes, Scorpions, Ticks, Sun Exposure, Eye Hazards.
CLIMATE/WEATHER –	Open/Exposed range land. Prepare for wind, rain, & sun.
CLOTHING –	Sun & Weather Exposure - Hat, Long-sleeved shirts, Long Pants, Sunscreen, Hiking Boots, Sunglasses, etc.
OTHER REMARKS –	Moderately difficult. Bring Water & Lunch. 4G cell available

2016 WYOMING STATE ROCKHOUND OF THE YEAR NOMINEES

Each Wyoming State Mineral and Gem Society member club/society may nominate individuals as their Club Rockhound of the Year as to the WSMGS by-laws (article III-section 8):

-- One (1) adult member OR one (1) adult couple

AND

-- one (1) junior member (Age 17 or Younger)

Individuals can also submit a nomination using the Wyoming State Rockhound of the Year form.

These WSMGS member nominees will be recognized at the Annual WSMGS Membership meeting. In addition all nominees' names will be submitted to the Rocky Mountain Federation of Mineralogical Societies (RMFMS) for possible recognition in the RMFMS Newsletter.

All Club and State Rockhound of the Year nominations will be eligible to be selected as the Wyoming State Rockhound of the Year. The following individuals are eligible to be selected as the Wyoming State Rockhound of the Year:

A. Roger & Joy Lyons-Cody 59ers Rock Club

Roger and Joy Lyons have provided leadership for the Cody 59ers Rock Club. Roger served as President for two years and is presently Treasurer. Joy volunteered to serve as Secretary when the position was vacated midyear due to health issues and is currently the club's Vice President. Roger was the Chairman and host for the 2015 RMFMS Mineral and Gem Show in Cody, WY. Roger and Joy have spent countless hours preparing for club activities including the storage, organizing, and selling the club's rocks. Their home has served as a work place for the club's lapidary equipment with members always welcome. Because of their leadership and communication skills, our club membership has increased 39 members in two years.

B. Jim McGarvey-Riverton Mineral and Gem Society

Jim was a member of the Natrona County Rockhounds prior to moving to Kinnear in 1994. Jim joined the Riverton Mineral and Gem Club during the fall of 1994. He has served as President and Treasurer in the Riverton club and volunteers to lead field trips and provide materials and his time for his club's Mineral & Gem Shows.

Jim has been active in the Wyoming State Mineral and Gem Society by serving on the WSMGS Board for over 20 years. During that same time interval, Jim has served as the Rocky Mountain Federation of Mineralogical Societies' Wyoming State Director and is presently the RMFMS webmaster.

Jim McGarvey represents all Wyoming Rockhounds by being active in his local rock club, the state group (WSMGS), and the regional organization (RMFMS) for over 20 years. He is not a silent participant and has worked hard to promote the hobby of rock-hounding for today as well as for the future.

C. June Rich-Shoshone Rock Club

Shoshone Rock Club was proud to vote June Rich as our club Rockhound of the year at our March 2016 club meeting. June and her husband, S.T. Rich, joined the club in 1970 and June is still a member today. In the past she has served as an officer, presented many programs for the club meetings, been a dealer at many state sponsored rock shows, attended field trips, opened her home & shop to showcase her collections and for sales, & attends meetings regularly, although now at 85 years of age. She always has a smile and is a lovely, friendly, & knowledgeable lady that adds enjoyment to our meetings. It is people like her that keep our club going!

WYOMING STATE MINERAL AND GEM SOCIETY, INC.

2016 CLUB DIRECTORY

Information subject to change; updates will be posted upon notice
Please contact the Editor with any changes at: jsn@wsmsg.org

Cheyenne Mineral & Gem Society:

Mail: P.O. Box 21412, Cheyenne, WY 82001
Email: cheyennemgs@wsmsg.org
Meets Sept. – May 2nd Wednesday 7:00 p.m. LCCC Health Science Bldg., 1400 E. College Dr., Room 309, Cheyenne
[Google Map](#)

President: Donna Arnold
Treasurer: Jan Shively

Cody Fifty-Niners Rock Club:

Mail: P.O. Box 1251, Cody, WY 82414
Email: cody59ers@wsmsg.org
Meets 4th Thursday 7:00 p.m. Park County Courthouse, Cody
[Google Map](#)

President: Ron Bice
Vice-President: Joy Lyons
Treasurer: Roger Lyons
Secretary: Linda Jennings
JSN: Linda Jennings
Historian: Jackie Platt
Club Web site: www.Cody59ers.com

Natrona County Rockhounds:

Mail: P.O. Box 123, Casper, WY 82644
Email: natronarockhounds@wsmsg.org
Meets 1st Thursday 7:00 p.m. Clubhouse, 5211 Rambler, Mills, Casper
[Google Map](#)

President: Mac Goss
Vice-President: John Hines
Treasurer: Jennifer Flowers
Secretary: Samantha Hansen

Rex Young Rock Club:

Mail: 112 East 3rd, Lingle, WY 82223
Email: rexyoungrockclub@wsmsg.org
Meets 2nd Wednesday 7:00 p.m. Senior Center, 216 E. 19th, Torrington
[Google Map](#)

President: Kim Nielsen
Vice-President: Sherman Lenhart
Treasurer: Leroy Meiniger
Secretary: Joyce Trowbridge
JSN: Joyce Trowbridge
Historian: Joyce Trowbridge

Riverton Mineral and Gem Society:

Mail: P.O. Box 1904, Riverton, WY 82501
Email: rivertonmgs@wsmsg.org
Meets Sept.–May 2nd Monday 7:00 p.m. 303 E. Lincoln, Riverton
[Google Map](#)

President: Alice Gustin
Vice-President: Cathy Cline
Treasurer: Melvin Gustin
Secretary: Kim Brown
JSN: Kim Brown Club Web site: www.RivertonMGS.com

Shoshone Rock Club:

Mail: P.O. Box 256, Powell, WY 82435
Email: shoshonerockclub@wsmsg.org
Meets 2nd Tuesday 7:30 p.m. Powell Library, 317 E. 3rd Street, Powell
[Google Map](#)

President: Gary Olson
Vice-President: Mary Vogel
Treasurer: Linna Beebe
Secretary: Linda Thomas
JSN: Linna Beebe
Historian: Linna Beebe

NCRC present the 69th annual

Gem & Mineral Show

July 9-10, 2016

Sat 9-5 Sun 9-4

Admission \$3 under 12 free

Parkway Plaza

123 West E st, Casper WY

Raffle: *Amethyst Cathedral plus more*

Silent Auctions: *WY rocks in the ruff*

Door Prizes: *\$10 rockhound bucks*

Demonstrations: *Gem Faceting,
Flint Knapping & Primitive Stone Tools,*

Enter e-mail for 1 free raffle ticket

e-mail: _____
used to notify of upcoming NCRC events only



**Actual Raffle
Item
14" tall**

Gems of Wyoming

Contact info. 307.277.7175 jlflowers@xmc.com

2016 Wyoming State Gem & Mineral Show

Ron Harroun Memorial Show Presents

Wyoming's Ancient Sea Life

**GOSHEN CO. FAIRGROUNDS
RENDEZVOUS CENTER
HWY. 26/85 W. TORRINGTON, WY**

June 25th & 26th, 2016

Hosted by the "Rex Young Rock Club"

Silent Auction--Demonstrations
Dealers--Displays--Raffles

SATURDAY 9 A.M. TO 6 P.M.

SUNDAY 10A.M. TO 4 P.M.

Admission: Adults \$2 per day

Children under 12: free when accompanied by paid adult

For more information contact:

Kim Neilsen 602-209-3918 or 308-632-2385

Dale Tikalsky 308-631-7814 or rockhound0720@hotmail.com

Tulsa Rock and Mineral Society's
**Gem - Mineral
& Jewelry Show**



Saturday, July 9

9-6

Sunday, July 10

10-5

**Exchange Center
Tulsa County Fairgrounds**

21st between Harvard & Yale

Gems - Beads - Fossils

Jewelry - Crystals

Exhibits - Free Kid's Zone

Demonstrations

Admission \$6 - Adults

\$10 - Two Day Pass

Kids 12 and under FREE

with paid adult

Scout and Military FREE

in uniform

Lapidary tips

From Brad's Bench Tips

DRILLING SMALL ITEMS

Small pieces need to be held securely while drilling to prevent them from spinning if the drill catches. Having sliced my fingers occasionally in my younger days, I avoid Band-Aids now by using flat-jaw pliers or a ring clamp. Pliers also save you if the piece gets hot. Put a little tape over the jaws of the pliers if needed to avoid scratches.

DRILLING A STONE

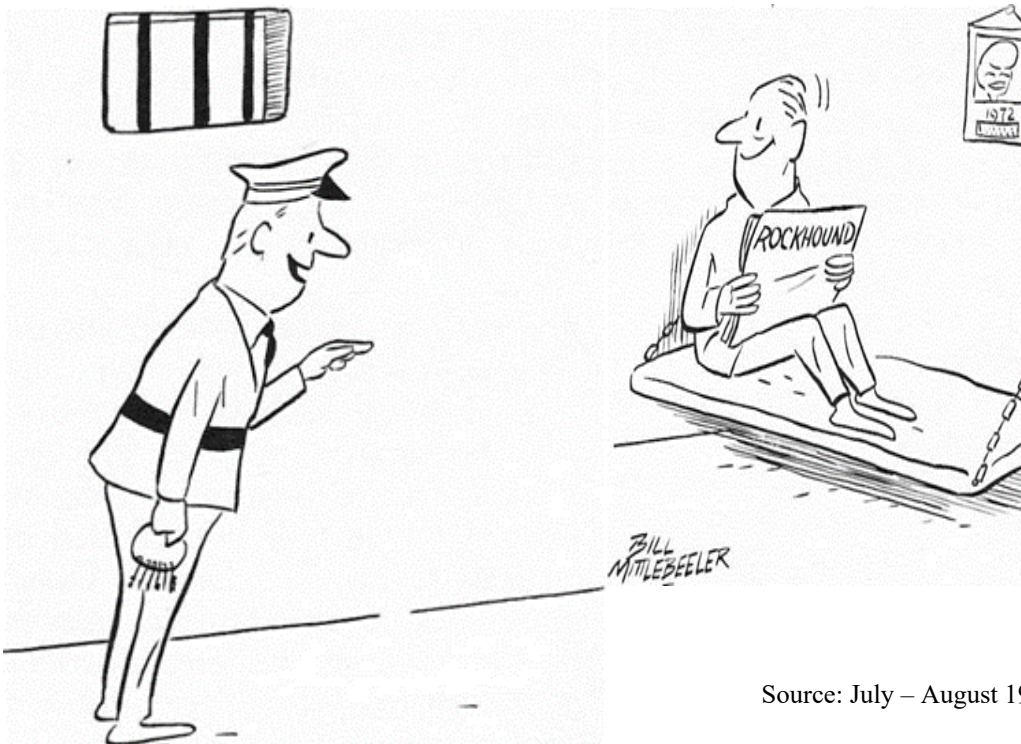
One of the things my students often ask to do is drill a hole through a piece of gemstone. The usual thought is to get a diamond drill, but I've been disappointed with them. I think the reason is that the tip of the drill is just pivoting in the hole and does not cut well. When it looks like the drill isn't cutting, the tendency is to push with more force. The drill gets hot, and the diamond grit falls off.

A much better approach is to use a core drill. This is a small hollow tube with a coating of diamond grit at the business end. The diamonds easily carve out a circular arc without undue pressure or heat buildup.

Core drills are readily available from lapidary and jewelry supply companies. They come in sizes as small as 1mm and are very reasonable in price. For instance, a 2mm diameter drill is about \$6.

Chuck up the core drill in a drill press, Dremel or Foredom and be sure to keep the drilling zone wet to cool the tool and to flush out debris. Also, if you're drilling a through hole, go very easy on the pressure as the drill is about to cut through. Otherwise you will usually chip off some of the stone surface around the hole.

Brad's Bench Tips for May [www.BradSmithJewelry.com]



Source: July – August 1972 publication of the “Rockhound”

“Good news, Filbert-your request to work on the rock pile has been granted!”

JADE STATE NEWS

Jade State News has become an award winning newsletter as judged by the Rocky Mountain Federation of Mineralogical Societies



As members of the affiliated clubs to the Wyoming State Mineral and Gem Society, this success has been achieved by your continued interest in not only the pursuance of your hobby, but also contributions by all of the volunteers over the years as trip leaders, elected officers and active members. This award is a tribute to all of you. Without YOU and YOUR participation, we could not have achieved this recognition.

Now, we need your help...

The annual Wyoming State Gem & Mineral Society member meeting will be held at the WSMGS annual show in Torrington. There will be vacancies for board members which will need to be filled; please consider nominees for these upcoming vacancies, or consider the idea of becoming a board member volunteer .

Due to travel commitments, electronic (email) board meetings provide a convenient means to participate without the long drive for a two hour meeting. Can we count on your participation?

**JADE STATE NEWS
WYOMING STATE MINERAL
AND GEM SOCIETY
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**VISIT US ON OUR WEB-
SITE
WSMSG.ORG**

