

**University of Arizona SEG Student Chapter**

*Colorado field trip report*

*May 2018*

By Roy Greig

## **Acknowledgments**

Financial support for this trip was provided by generous donations from the Society for Mining, Metallurgy, and Exploration Arizona Conference, and from the Mining Foundation of the Southwest, which are much appreciated. A similar proportion of funds were raised via sales of mineral specimens on the University of Arizona campus and at meetings of the Arizona Geological Society.

This trip would not have been possible without the generosity and help of the volunteers who delivered the majority of the geological content, including:

- Ray DeMark for the tour of the Blanchard Mine, Bingham, NM
- Dr. Paul Barton, Jr., for the talk on the ore deposits of Creede
- Dale Hernandez, Brittany Dayley, and Brandon Bzdock of Newmont for the tour of Cripple Creek & Victor Mine
- Dean Misantoni for the tour of the Sweet Home Mine and introduction to other deposits of the Alma area
- Randy McClure of Hecla for the introduction to the Creede district
- Jack Morris and Amber at the Last Chance Mine, Creede for the collecting opportunity
- Bumper Williams for the tour of the Camp Bird Mine, Ouray

Special thanks are due to Dale Hernandez for introductions which made many of these visits possible.

## **Summary**

The goal of the field trip was to provide an introduction to the ore deposit geology of Colorado (and, briefly, northern New Mexico), focusing on epithermal deposits and districts in the Colorado Mineral Belt, via visits to mines and mining districts. This, along with some scenic and educational detours, was accomplished with 4250 km of driving over 10 days. Six members of the University of Arizona SEG Student Chapter participated: Ben Robinson, Alex Whitehead, Dan Favorito, Riley Burkart, Claire Getz, and Roy Greig.

*Day 1: Tucson to Santa Fe*

A long day of driving was relieved by a tour of the Blanchard Mine, NM, led by Ray DeMark, who very courageously led the tour while suffering from a broken foot! The tour was followed by some mineral collecting, yielding some fine fluorite specimens, among other things.



Hansonburg Mill site, Blanchard Mine area, NM

*Day 2: Santa Fe to Great Sand Dunes National Park*

An interactive introduction to the geology of the Rio Grande rift was provided by a day trip on the Rio Grande, in which the student chapter rafted and/or kayaked the Lower Gorge at low water, making for some fun technical rapid runs. Thanks to Los Rios River Runners for guiding the trip. The day was capped by a visit to hot springs north of Alamosa, CO, also within the rift.



Student Chapter at Great Sand Dunes National Park.

*Day 3: Great Sand Dunes National Park to Colorado Springs*

A morning visit to the Great Sand Dunes, an intriguing geographic feature, was followed by visit to beautiful exposures of a radial dike swarm at Spanish Peaks and a drive though “the Pittsburgh of the West” (Pueblo, CO) to Colorado Springs, where Dr. Paul Barton, Jr. delivered a fine talk on the vein ores of Creede, complete with some spectacular hand specimens, at his retirement home.



Talk on Creede; L-R: Claire Getz, Dan Favorito, Riley Burkart, Ben Robinson, Alex Whitehead, Patty Hudson, Dr. Paul Barton, Jr.



Baked sedimentary rocks at margins of dike in radial swarm, near Spanish Peaks and “the Devil’s Staircase”; Riley Burkart for scale.

#### *Day 4: Cripple Creek & Victor Mine*

The Student Chapter was “edutained” for almost a full day at Newmont’s Cripple Creek & Victor Mine by Dale Hernandez, Brittany Dayley, and Brandon Bzdock, who led a great tour that included an in-depth talk on the geology by Dale, an introduction from the operational perspective from Brittany, a tour of the Cresson Pit, and visits to some ore stockpiles.



Tour at Cripple Creek & Victor Mine, Front L-R: Brittany Dayley, Riley Burkart, Claire Getz, Alex Whitehead, Brandon Bzdock; Back L-R: Dale Hernandez (partly hidden!), Dan Favorito, Ben Robinson.



Overlook of Cresson Pit, Cripple Creek & Victor Mine.

*Day 5: Colorado Springs to Central City*

A fine morning breakfast at Chateau Burkart (courtesy of the Burkart Family) provided the prelude to a drive along the spine of the Front Range, with a stop near Devil's Head Tower to prospect a simple pegmatite for smokey quartz crystals. This was followed by a scenic drive to Golden Gate Canyon State Park, north of Central City, where the Chapter spent the night.

*Day 6: Central City to Buena Vista*

Several self-guided morning stops in the Central City district, largely following a 1989 field trip guide by P.K. Sims, were followed by rendezvous with Dean Misantoni in Alma, who gave a talk on and tour of the reopened Sweet Home Mine, followed by an introduction to the diverse mineral deposits of the Alma area. The group prospected the dumps of the Buckskin Joe Mine for Ag-Pb-Zn replacement ore nearby before heading to Buena Vista for the night.



Central City District; overview of the town of Central City, looking north from Virginia Canyon Road.



Sweet Home Mine, upper (new) adit; L-R: Dan Favorito, Alex Whitehead, Riley Burkart, Ben Robinson, Dean Misantoni, two unidentified miners.



Small jumbo at Sweet Home Mine.



An arrastra in Mosquito Creek, west of Alma. Riley Burkart for scale.

*Day 7: Buena Vista to Creede*

Self-guided stops on the way into Creede focused on features of the San Juan volcanic field and Creede Caldera, including exposures of the Fish Canyon Tuff and tufa deposits in the intracaldera Creede Formation. These followed the 2016 field guide by Larsen and Lipman. This was an informative prelude a talk and core shack visit with Hecla's Randy McClure, focusing on Hecla's Bulldog exploration project and other aspects of the ore deposits and mining activity in the Creede District. The group spent the night in Creede.



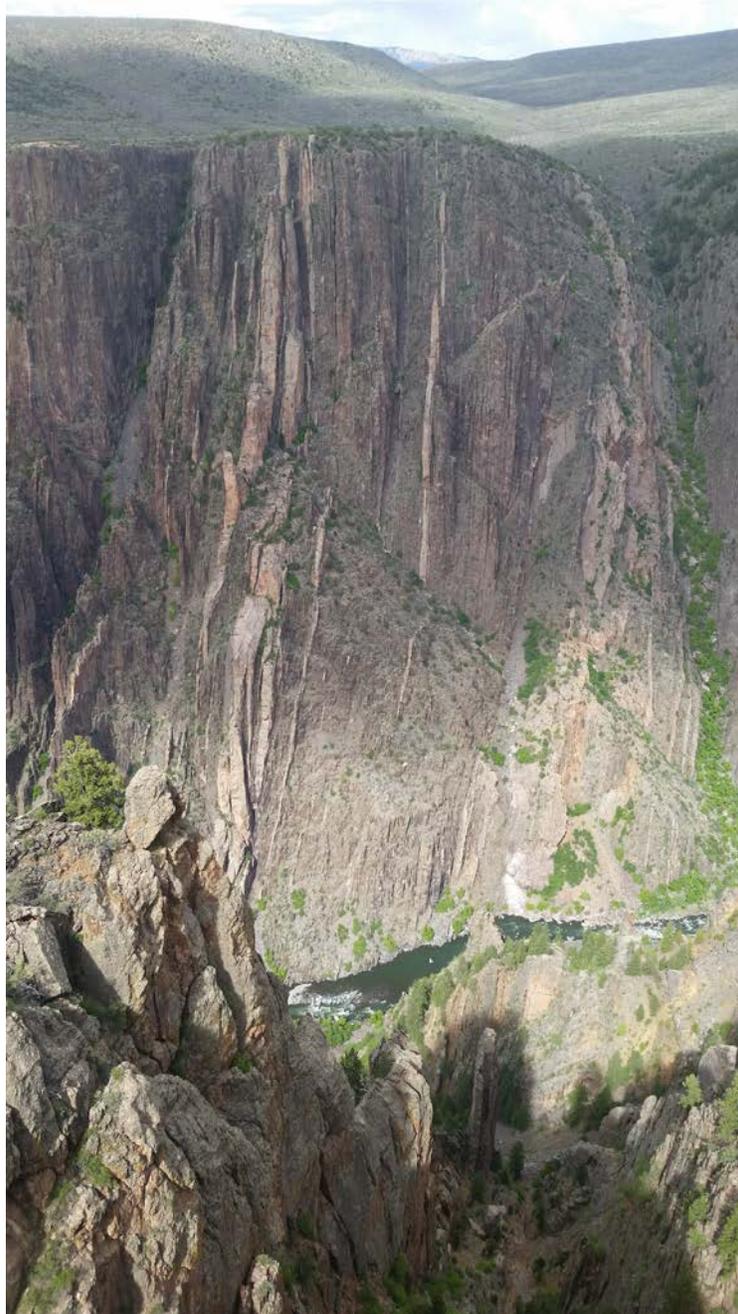
Overlooking the town of Creede from Hecla's Bulldog project site; L-R: Ben Robinson, Alex Whitehead, Riley Burkart, Randy McClure, Dan Favorito.



Mines on Amethyst Vein, Creede District.

*Day 8: Creede to Black Canyon of the Gunnison National Park*

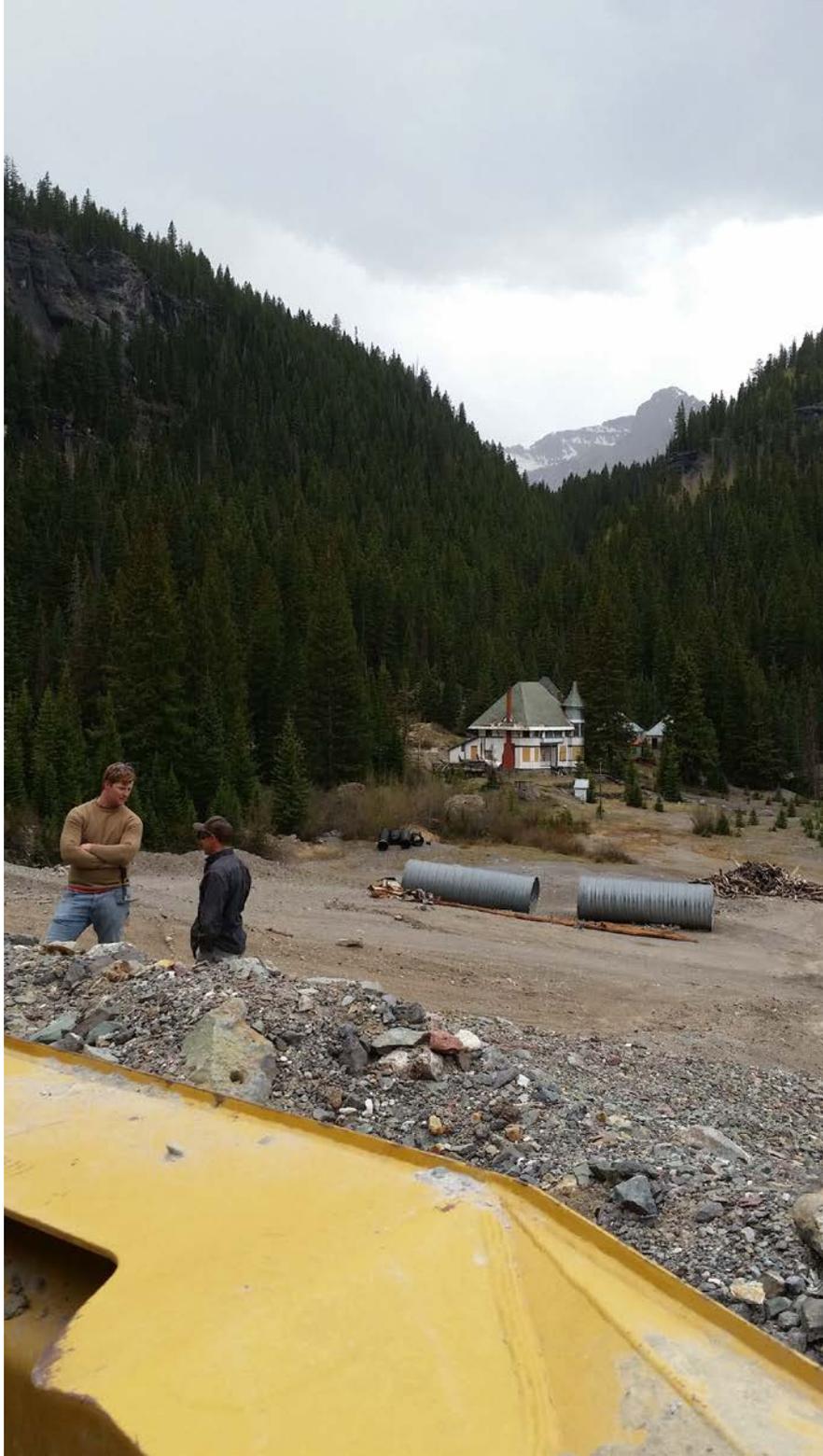
Before departing Creede, the Student Chapter prospected the dumps of the Last Chance Mine (on the Amethyst Vein system) under the watchful eye of Amber, courtesy of Jack Morris, collecting some fine specimens of “sowbelly agate”. A scenic drive via Lake City to Black Canyon of the Gunnison National Park filled the remainder of the day.



Black Canyon of the Gunnison; pegmatite dikes cutting Precambrian schist.

*Day 9: Black Canyon of the Gunnison National Park to Durango*

Travelling via Ouray, the Chapter visited the Camp Bird Mine and received a great introduction to the mine and other operations in the area from Bumper Williamson. From Ouray, the group continued through to Silverton and investigated the remnants of extensive historic mining activity northeast of the town, including prospecting the dumps at the Sunnyside mill at Eureka townsite, via fortuitously snow-free mountain roads. The group then spent the night in Durango.



View over reclaimed dumps, Camp Bird Mine.



Main tunnel at Camp Bird Mine; L-R: Dan Favorito, Riley Burkart, Alex Whitehead, Ben Robinson, Bumper Williams.



View out of main tunnel, Camp Bird Mine.

*Day 10: Durango to Tucson*

A long drive home and some spoiled iconic photos along the way.



Monument Valley, UT-AZ border.