



Arizona Rocks 40

Text and photos by Ray Grant

In 2008, I first wrote this column for the Mineralogical Society of Arizona and I said if Arizona had a state mineral it would have to be wulfenite. We also have fantastic azurite from places like Bisbee and Morenci, but there are other localities in the world with azurite as good as or better than that found in Arizona. At present, there is no place that has wulfenite as good as Arizona's. Randall Heath and I are working on a project to document all of Arizona's wulfenite localities. At present I have about 184 wulfenite localities for Arizona. Randall and I think that when we are done compiling all the data, it is possible there will be more than 250 localities.

Wulfenite has been found in every county in Arizona with the exception of Apache and Navajo Counties. The following is a list of Arizona counties with the number of wulfenite localities that I have for each: Coconino - 1, Cochise - 18, Gila - 18, Graham - 7, Greenlee - 1, La Paz - 20, Maricopa - 8, Mohave - 37, Pima - 18, Pinal - 17, Santa Cruz - 12, Yavapai - 9, and Yuma - 18.

Many of these localities are world famous (Red Cloud mine, Glove mine, Defiance mine, Mammoth-St. Anthony mine, Tombstone, Rowley mine, Old Yuma mine and 79 mine) and well known to collectors. Many of the others have produced only micro-crystals and some are not well documented and need further investigation.

Why does Arizona have so much wulfenite including the best in the world? There are several reasons for that. First, you need lead and molybdenum to make the chemical formula of lead molybdate ($PbMoO_4$). There are many lead deposits in Arizona and molybdenum is also fairly abundant. Most of these deposits formed in the state during a time period from 15 to 30 million years ago.

Second you need to have the right conditions for the formation of the wulfenite. This is complex and depends on ground water availability, acidity of the water, oxidation conditions, and other factors. Conditions over much of Arizona must have been good for the formation of wulfenite.

This year a bill was introduced in the Arizona State Legislature to make wulfenite the state mineral, but it did not pass. I guess they didn't like these arguments for it.



Case at the 2016 Tucson Gem and Mineral Show promoting wulfenite as the state mineral



Wulfenite from Red Cloud Mine, La Paz County