Creede shale fossils

Thompson, J. Robert, Jr.
1971, pp. 247-248. https://doi.org/10.56577/FFC-22.247

in:

San Luis Basin (Colorado), James, H. L.; [ed.], New Mexico Geological Society 22 nd Annual Fall Field Conference Guidebook, 340 p. https://doi.org/10.56577/FFC-22

This page is intentionally left blank to maintain order of facing pages.

CREEDE SHALE FOSSILS

by

J. Robert Thompson, Jr.

Glendale Community College
Glendale, Arizona

Approximately 50 miles west of Monte Vista, Colorado, is the mining and summer retreat town of Creede. The area around Creede has often been a point of interest to mining geologists. There are, at present, several mines in operation in the Creede district, including Homestake's Bulldog Mountain Project and Emperius' Commodore Mine. Mineralization and related geologic studies of the Creede mining district have been well documented by Bethke, et al. (1960), Emmons and Larsen (1913, 1923), Steven and Ratté (1960, 1965), and others.

As Creede is located in the San Juan Mountains, most of the rock units in the area are volcanic. One exception, however, is the Creede Formation, which was originally named and described by Emmons and Larsen (1923). The Creede Formation was formed primarily of lake and stream deposits and travertine from mineral springs; all of which accumulated around the margin of the Creede caldera in a structural trough. Based upon fossil plant studies the formation is probably Late Miocene to Middle Pliocene in age. After an undetermined amount of erosion the Creede Formation now extends over a vertical range of over 2,400 feet.

Several distinct facies, each of which shows many local variations, have been observed in the Creede Formation. The unit is largely a thin-bedded shale and sandstone with some tuff beds. The shale varies from fine, thin laminations to beds several inches thick. Volcanic ash is a major constituent of the usually soft and clayey shales.

At many locations, along shaley partings, carbonized plant and insect remains may be found. Knowlton (1923) mentioned 19 genera of plants, along with feathers and one possible beetle. Steven and Ratté (1965), along with Estella Leopold of the U.S. Geological Survey and R. W. Brown identified and listed the following 22 plant genera.

Pteridophytes:
- *Polytrichium*
- *Chamaebatiana*
- *Selaginella*

Gymnosperms:
- *Picea*
- *Pinus*
- *Ephedra*
- *Abies*
- *Juniperus*

Dicots:
- *Salix*
- *Poplus*
- *Anlus*
- *Carya*
- *Quercus*
- *Acer*
- *Sarcobatus*
- *Planera*
- *Edwinia*
- *Cercocarpus*
- *Crategus*
- *Sheperdia*
- *Berberis*
- *Artemisia*

Fossils of the Creede Formation are similar to those from the more famous Florissant lake beds. Knowlton (1922, p. 183), however, claims that the most abundant and best preserved plant remains have been collected from the Creede Formation.

Although there has been adequate description of the plant community, and mention of feathers (Emmons and Larsen, 1923; F. H. Knowlton, 1922; Steven and Ratté, 1965), it is interesting to note the apparent lack of information concerning insects. The author has rarely failed to find insects at most of the shaley exposures of the formation. At many localities there have been inumerable finds of well preserved carbon impressions of what appear to be bees, flies, and mosquitos, as well as abundant plant and feather remains (see Plate I). As insect studies are presently incomplete, further description cannot be presented at this time.

Two of the best areas for collecting plant and insect fossils are (1) next to Seven Mile bridge, and (2) at the intersection of the Creede airport road and Colorado Highway 149, about one-half mile southwest of Creede. Care should be taken when collecting in these areas as they are close to the highway, and it would be undesirable to either destroy the scenery or impede traffic.

REFERENCES

Bethke, P.M., Barton, P. B., Jr., and Bodine, M. W., Jr., 1960, Time-space relationships of the ores at Creede, Colorado (abs.): Geol. Soc. America Bull., v. 71, no. 12, pt. 2, p. 1825-1826.

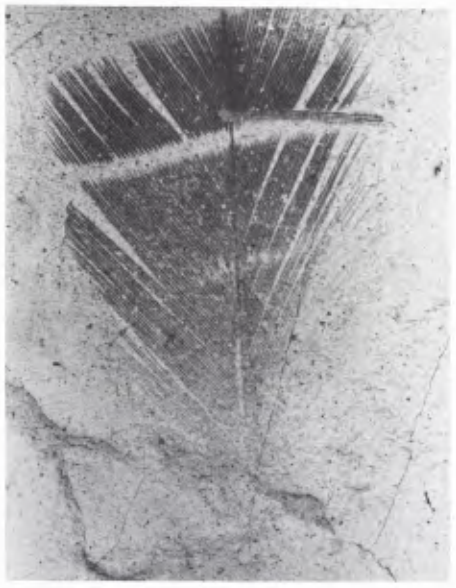
Emmons, W. H., and Larsen, E. S., 1913, A preliminary report on the geology and ore deposits of Creede, Colorado: U.S. Geol. Survey Bull. 530-E, p. 42-65.

———— 1923, Geology and ore deposits of the Creede district, Colorado: U.S. Geol. Survey Bull. 718, 198 p.

Knowlton, F. H., 1923, Fossil plants from the Tertiary lake beds of south-central Colorado: U.S. Geol. Survey Prof. Paper 131, p. 183-192.

Steven, T. A., and Ratté, J. C., 1960, Relation of mineralization to caldera subsidence in the Creede district, San Juan Mountains, Colorado, *in* Short papers in the geological sciences: U.S. Geol. Survey Prof. Paper 400-B, p. B14-B17.

———— 1965, Geology and structural control of ore deposits in the Creede district, San Juan Mtns., Colorado: U.S. Geol. Survey Prof. Paper 487, 90 p.



Feather

Phyllites leaf

Pinus stem

Pinus needles

Ribes leaf

Insect

PLATE I.

Fossils of the Creede Shale Formation.