Vitrinite Reflectance Measurements of Cretaceous Outcrop Samples from the Wyoming Thrustbelt, Southwestern Wyoming

by Mark Pawlewicz[1] and Mark Kirschbaum[1]

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic Code. Any use of trade names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Open-File Report 2004-1360

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

[1]Denver, Colorado

Vitrinite Reflectance Measurements of Cretaceous Outcrop Samples from the Wyoming Thrustbelt, Southwestern Wyoming

By

Mark Pawlewicz and Mark Kirschbaum

Eleven outcrop samples from the Wyoming thrustbelt region in southwestern Wyoming (fig. 1) were collected for analysis as part of the U.S. Geological Survey's ongoing oil and gas assessment project for selected basins in the western United States. The samples are all Cretaceous in age (fig. 2). Latitude and longitude data were obtained with a global positioning system unit. The lithology of these samples is either mudstone or coal.

The samples were examined with a reflected light microscope to determine their degree of thermal maturity by vitrinite reflectance. Sample quality and abundance of organic matter were good except for one mudstone (number 3 in table 1) where the presence of organic matter was reduced because of its lithology. The results of the analyses are listed in table 1.

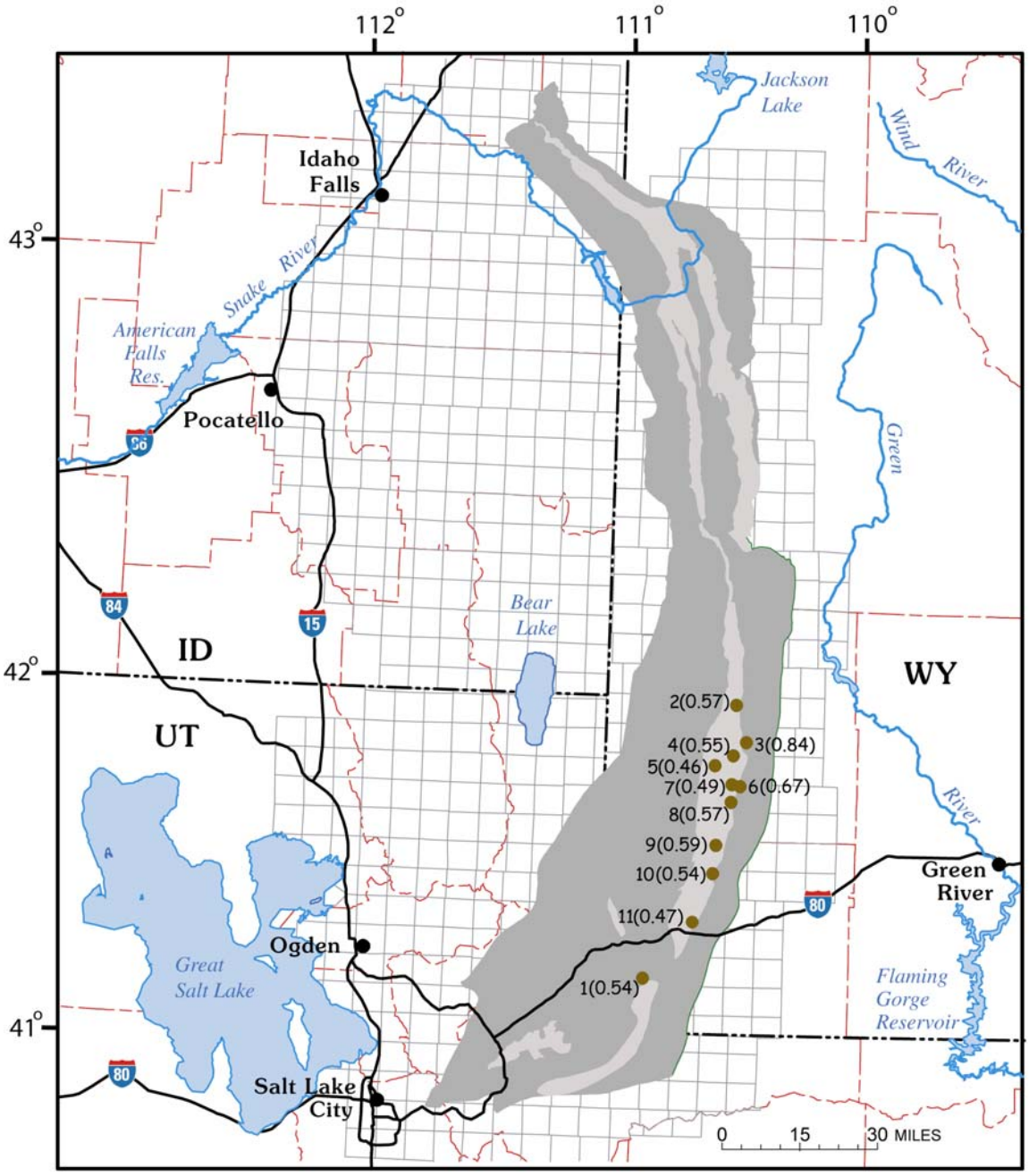

Figure 1. Wyoming thrustbelt region of southwestern Wyoming with sample locations plotted. First number refers to map no. in table 1. Numbers in parentheses are mean vitrinite reflectance values, also listed in table 1. Darker gray color is general outline of Wyoming thrustbelt region, and the lighter gray color represents general location of Cretaceous coal.

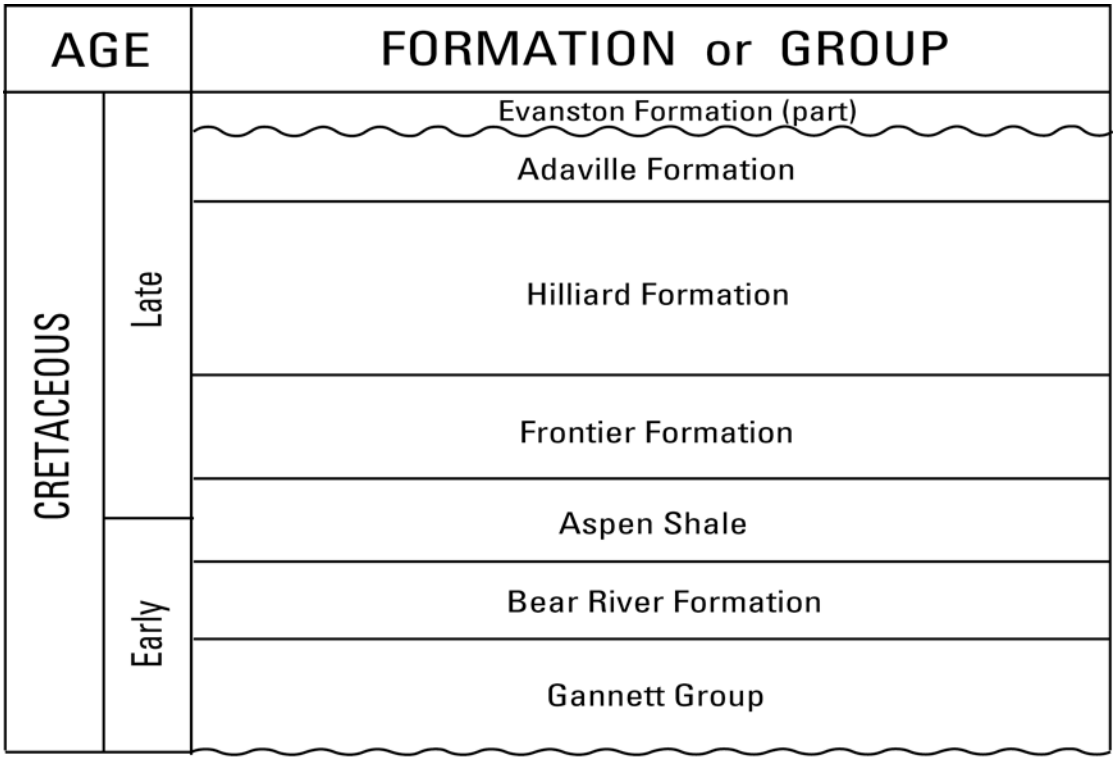

Figure 2. Generalized stratigraphic section for Cretaceous rocks of Wyoming thrustbelt region of southwestern Wyoming.

Table 1. Mean vitrinite reflectance values and locations for Wyoming thrustbelt samples in southwestern Wyoming.

[Map no. refers to numbers plotted in figure 1. Ro, vitrinite reflectance in percent; n, number of measurements;

Ceno., Cenomanian; Fm, Formation; Mbr, Member.]

Map no.	Formation	Age	Longitude	Latitude	Lithology	State	County	Ro (mean)	n
1	Bear River Fm.	Albian	-110.8641	41.1635	mudstone	WY	Uinta	0.54	27
2	Frontier Fm, Dry Hollow Mbr.	Cenomanian	-110.5245	41.9862	coal	WY	Lincoln	0.57	31
3	Aspen Shale	Albian/Ceno.	-110.4806	41.8756	mudstone	WY	Lincoln	0.84	9
4	Frontier Fm, Dry Hollow Mbr.	Cenomanian	-110.5309	41.8352	coal	WY	Lincoln	0.55	27
5	Adaville Formation	Campanian	-110.6028	41.8043	coal	WY	Lincoln	0.46	25
6	Aspen Shale	Albian/Ceno.	-110.5005	41.7438	mudstone	WY	Lincoln	0.67	15
7	Frontier Fm, Dry Hollow Mbr.	Cenomanian	-110.5337	41.7491	coal	WY	Lincoln	0.49	25
8	Frontier Fm, Chalk Creek Mbr.	Cenomanian	-110.535	41.6962	coal	WY	Lincoln	0.57	29
9	Frontier Fm, Chalk Creek Mbr.	Cenomanian	-110.0592	41.5772	coal	WY	Uinta	0.59	27
10	Frontier Fm, Chalk Creek Mbr.	Cenomanian	-110.6000	41.4818	coal	WY	Uinta	0.54	25
11	Frontier Fm, Oyster Ridge Mbr.	Cenomanian	-110.675	41.3364	coal	WY	Uinta	0.47	25