

PALYNOLOGY EVALUATION RESULTS FROM THE DUCHESNE 30' X 60' QUADRANGLE, DUCHESNE AND WASATCH COUNTIES, UTAH

by

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INTRODUCTION

This Open-File Report makes available data from palynology evaluations completed to determine the age and depositional environment of rock samples collected during geologic investigations funded or partially supported by the Utah Geological Survey (UGS) and the U.S. Geological Survey National Cooperative Geologic Mapping Program (STATEMAP). Table 1 provides the sample numbers and locations for the palynology data. The reference listed in table 1 provides additional information such as sample location, geologic setting, and interpretation of the samples in the context of the area where they were collected. The palynology report was prepared by Gerald Waanders, Consulting Palynologist, Garnet Valley, Pennsylvania under contract to the UGS (see appendix). Douglas A. Sprinkel (Utah Geological Survey, retired) collected the samples. Waanders prepared and analyzed the rock samples to determine age and depositional environment. The UGS did not receive slides, mounts, or photographs from Waanders. These data are technical in nature and interpretation requires considerable training and experience in applicable palynologic techniques and systematics, as well as an understanding of stratigraphic palynology.

DISCLAIMER

This open-file release is intended as a data repository for information gathered in support of various UGS projects. The data are presented as received from Gerald Waanders and do not necessarily conform to UGS technical, editorial, or policy standards; this should be considered by an individual or group planning to take action based on the contents of this report. The Utah Department of Natural Resources, Utah Geological Survey, makes no warranty, expressed or implied, regarding the suitability of this product for a particular use. The Utah Department of Natural Resources, Utah Geological Survey, shall not be liable under any circumstances for any direct, indirect, special, incidental, or consequential damages with respect to claims by users of this product.

The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

ACKNOWLEDGMENTS

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REFERENCE

Sprinkel, D.A., 2018, Interim geologic map of the Duchesne 30' x 60' quadrangle, Duchesne and Wasatch Counties, Utah: Utah Geological Survey Open-File Report 689, 38 p., 2 plates, scale 1:62,500, <https://doi.org/10.34191/OFR-689>.

Table 1. Summary of sample numbers and locations for palynology data from the Duchesne 30' x 60' quadrangle.

Sample Number	30' x 60' Quadrangle	7.5' Quadrangle	UTM easting N27 Z12N	UTM northing N27-Z12N	Latitude WGS84 (° N)	Longitude WGS84 (° W)	Sample Details	Report Date	Collector	Age	Map Reference
06122018-1	Duchesne	Tabby Mountain	510716	4468747	40.36923	110.87377	Collected 1 m below first conglomerate of Currant Creek Formation	6/28/2018	Sprinkel	Probable Campanian	Sprinkel (2018)
06122018-2	Duchesne	Tabby Mountain	510692	4468773	40.36947	110.87406	Collected 20 m below first conglomerate of Currant Creek Formation	6/28/2018	Sprinkel	Indeterminate	Sprinkel (2018)
06122018-3	Duchesne	Tabby Mountain	510704	4468777	40.36950	110.87391	Collected 23 m below first conglomerate of Currant Creek Formation	6/28/2018	Sprinkel	Indeterminate	Sprinkel (2018)

APPENDIX

Gerald Waanders Consulting Palynologist

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June 28, 2018

TO: Mr. Douglas A. Sprinkel
Utah Geological Survey
1594 West N. Temple, Suite 3110
P. O. Box 146100
Salt Lake City, Utah 84114-6100

RE: Palynology analysis of 4 outcrop samples collected Red Creek and Currant Creek, Utah.

PO#: 316232

PALYNOLOGY REPORT

Four samples were processed and analyzed for palynomorphs. One sample produced palynomorphs, the remaining three were barren. HCl reactions, total organic recoveries, kerogen contents, T.A.I.'s (Thermal Alteration Indices) and paleoenvironments are also provided.

1. Red Creek 06122018-1, 40.36923N, 110.87377W.

Spores and Pollen:

<i>Acanthotriletes varispinosus</i>	(R)
<i>Appendicisporites potomacensis</i>	(R)
<i>Araucariacites australis</i>	(R)
<i>Cicatricosporites australiensis</i>	(R)
<i>Deltoidospora</i> spp.	(F)
<i>Foraminisporis wonthaggiensis</i>	(R)
<i>Gleicheniidites senonicus</i>	(R)
<i>Klukisporites variegatus</i>	(R)
<i>Liliacidites dividuus</i>	(R)
<i>Momipites tenuipolus</i>	(R)
<i>Rugubivesiculites</i> sp.	(R)
<i>Tricolporopollenites labiatus</i>	(R)
<i>Tripoporopollenites granifer</i>	(R)
Undifferentiated Bisaccates	(F)

Microplankton:

<i>Alterbia</i> sp.	(R)
<i>Cleistosphaeridium</i> sp.	(R)
<i>Spiiferites ramosus</i>	(R)

HCl Reaction: None

Total Organic Recovery: Very Good

Kerogen Content: 5% Amorphous, 10% Cuticular and 85% Woody

T.A.I: 0.3-0.4 Equivalent R₀

AGE: Probable Campanian

ENVIRONMENT: Marginal Marine, Deltaic/Estuarine?

The sample is missing more typical Maastrichtian taxa such as *Proteacidites* and *Balmeisporites* known elsewhere. *Momipites tenuipolus* and *Tripoporollenites granifer* which do occur in the sample should not range below Campanian in age.

2. Red Creek 06122018-2, 40.36947N, 110.87406W.

Barren of Palynomorphs

HCl Reaction: None

Total Organic Recovery: Poor

Kerogen Content: 20% Cuticular and 80% Woody

T.A.I: 0.3-0.4 Equivalent R₀

AGE: Indeterminate

ENVIRONMENT: Nonmarine, Floodplain, Deltaic?

3. Red Creek 06122018-3, 40.36950N, 110.87391W.

Barren of Palynomorphs

HCl Reaction: Weak

Total Organic Recovery: Very Good

Kerogen Content: 50% Amorphous, 5% Cuticular and 45% Woody

T.A.I: 0.3-0.4 Equivalent R₀

AGE: Indeterminate

ENVIRONMENT: Marginal Marine, Deltaic/Estuarine?

Carbonate reaction in HCl suggests possible marine conditions.

Analysis By: Gerald Waanders