Fossil Fusulinid Evaluation Results for the Rush Valley, Wildcat Mountain, Grouse Creek, and Tremonton 30′ x 60′ Quadrangles, Utah

by

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INTRODUCTION

This open-file report makes available reports from fossil fusulinid evaluations completed to determine the age 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 fossil data. The references listed in table 1 generally provide additional information such as sample location, geologic setting, and significance or interpretation of the samples in the context of the area where they were collected. The fossil fusulinid reports were prepared by A.J. Wells, independent paleontologist, Parker, Colorado, under contract to the UGS (see appendix). Wells prepared and evaluated thin sections from rock samples submitted by UGS. These data are technical in nature and interpretation requires considerable training and experience in applicable paleontologic techniques and systematics, as well as an understanding of stratigraphic paleontology.

ACKNOWLEDGMENTS

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Clark, D.L., Kirby, S.M., and Oviatt, C.G., in preparation, Geologic map of Rush Valley 30′ x 60′ quadrangle, Tooele, Utah, Salt Lake, and Juab Counties, Utah: Utah Geological Survey Map, GIS data, scale 1:62,500.

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Kirby, S.M., 2014, Geologic map of the Faust quadrangle, Tooele County, Utah: Utah Geological Survey Map 265DM, 8 p., 2 plates, GIS data, scale 1:24,000.

Kirby, S.M., in preparation (a), Geologic map of the Lofgreen quadrangle, Tooele County, Utah: Utah Geological Survey Map, GIS data, scale 1:24,000.

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Miller, D.M., Clark, D.L., Wells, M.L., Oviatt, C.G., Felger, T.J., and Todd, V.R., 2012, Progress report geologic map of the Grouse Creek 30′ x 60′ quadrangle, and Utah part of the Jackpot 30′ x 60′ quadrangle, Box Elder County, Utah, and Cassia County, Idaho (year 3 of 4): Utah Geological Survey Open-File Report 598, 31 p., 1 plate, scale 1:62,500.

Miller, D.M., Clark, D.L., Wells, M.L., Oviatt, C.G., Felger, T.J., Langenheim, V.E., and Todd, V.R., in preparation (a), Geologic map of the Grouse Creek 30′ x 60′ quadrangle, and Utah part of the Jackpot 30′ x 60′ quadrangle, Box Elder County, Utah, and Cassia County, Idaho: Utah Geological Survey Map, GIS data, scale 1:62,500.

Miller, D.M., Felger, T.J., and Langenheim, V.E., in preparation (b), Geologic map of the Tremonton 30′ x 60′ quadrangle, Box Elder and Cache Counties, Utah, and Oneida and Franklin Counties, Idaho: Utah Geological Survey Map, GIS data, scale 1:62,500.

Table 1. *Rock sample numbers and locations for fossil fusulinid evaluation reports from the Rush Valley, Wildcat Mountain, Grouse Creek, and Tremonton 30′ x 60′ quadrangles, Utah.*

Sample No.	30′ x 60′ Quadrangle	7.5′ Quadrangle	UTM E/ Longitude (W)	UTM N/ Latitude (N)	Coordinate System	Collector	Reference
RV-2	Rush Valley	Deseret Peak East	368446	4482113	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-4	Rush Valley	Deseret Peak East	368020	4481295	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-5	Rush Valley	Deseret Peak East	368170	4481247	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-6	Rush Valley	Deseret Peak East	367900	4480583	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-8	Rush Valley	Deseret Peak East	370238	4476875	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-9	Rush Valley	Deseret Peak East	369291	4476561	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-11	Rush Valley	Deseret Peak East	369748	4476679	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-12	Rush Valley	South Mountain	378829	4480456	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-14	Rush Valley	South Mountain	376552	4480811	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-15	Rush Valley	South Mountain	380477	4482046	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-17	Rush Valley	Deseret Peak East	369168	4480498	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-18	Rush Valley	South Mountain	381540	4479849	UTM NAD83	Clark	Clark and others, 2012; Clark and others, in prep.
RV-20	Rush Valley	South Mountain	380660	4478875	UTM NAD27	Clark	Clark and others, 2012; Clark and others, in prep.
RV-22	Rush Valley	Stockton	389008	4479246	UTM NAD27	Clark	Clark and others, 2012; Clark and others, in prep.
RV-23	Rush Valley	Stockton	388761	4480243	UTM NAD27	Clark	Clark and others, 2012; Clark and others, in prep.
RV-29	Rush Valley	South Mountain	382228	4479232	UTM NAD27	Clark	Clark and others, 2012; Clark and others, in prep.
RV-38	Rush Valley	Davis Knolls	354796	4451796	UTM NAD27	Clark	Clark and others, 2012; Clark and others, in prep.
969	Rush Valley	South Mountain	382340	4478834	UTM NAD83	Kirby	Clark and others, 2012; Clark and others, in prep.
970	Rush Valley	South Mountain	379087	4481294	UTM NAD83	Kirby	Clark and others, 2012; Clark and others, in prep.
1199	Rush Valley	South Mountain	378234	4473502	UTM NAD83	Kirby	Clark and others, 2012; Clark and others, in prep.
1341	Rush Valley	Onaqui Mountains South	371041	4453435	UTM NAD83	Kirby	Clark and others, 2012; Clark and others, in prep.
1351	Rush Valley	Onaqui Mountains South	369183	4454806	UTM NAD83	Kirby	Clark and others, 2012; Clark and others, in prep.
1355	Rush Valley	Onaqui Mountains South	368066	4456102	UTM NAD83	Kirby	Clark and others, 2012; Clark and others, in prep.
245	Rush Valley	Lofgreen	383106	4440395	UTM NAD83	Kirby	Kirby, 2010a; Kirby, in prep. (a); Clark and others, 2012; Clark and others, in prep.
447	Rush Valley	Faust	381793	4443254	UTM NAD83	Kirby	Kirby, 2014; Clark and others, 2012; Clark and others, in prep.
586	Rush Valley	Vernon	382282	4439530	UTM NAD83	Kirby	Kirby, 2010b; Kirby, in prep (b); Clark and others, 2012; Clark and others, in prep.
720	Rush Valley	Lofgreen	383341	4441425	UTM NAD83	Kirby	Kirby, 2010a; Kirby, in prep. (a); Clark and others, 2012; Clark and others, in prep.
726	Rush Valley	Lofgreen	383624	4441112	UTM NAD83	Kirby	Kirby, 2010a; Kirby, in prep. (a); Clark and others, 2012; Clark and others, in prep.
1600	Rush Valley	Faust	382386	4443534	UTM NAD83	Kirby	Kirby, 2014; Clark and others, 2012; Clark and others, in prep.
1637	Rush Valley	Faust	372585	4452671	UTM NAD83	Kirby	Kirby, 2014; Clark and others, 2012; Clark and others, in prep.
1641	Rush Valley	Faust	372923	4452907	UTM NAD83	Kirby	Kirby, 2014; Clark and others, 2012; Clark and others, in prep.
1657	Rush Valley	Faust	372339	4453454	UTM NAD83	Kirby	Kirby, 2014; Clark and others, 2012; Clark and others, in prep.
D-52	Rush Valley	Tabbys Peak SW	112°59'14.5"	40°21'18.4"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-57	Rush Valley	Tabbys Peak SW	112°58'13.0"	40°19'31.0"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-65	Rush Valley	Tabbys Peak	112°58'48.3"	40°23'39.2"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-66	Rush Valley	Tabbys Peak	112°59'01.4"	40°23'28.9"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-67	Rush Valley	Tabbys Peak	112°59'16.6"	40°23'14.2"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-68	Rush Valley	Tabbys Peak	112°59'45.3"	40°23'37.1"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-69	Rush Valley	Tabbys Peak	112°59'49.6"	40°27'48.0"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-70	Rush Valley	Tabbys Peak	112°58'34.7"	40°23'08.4"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-71	Rush Valley	Tabbys Peak	112°59'05.3"	40°23'05.6"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-75	Rush Valley	Tabbys Peak	112°58'46.9"	40°28'10.9"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-76	Rush Valley	Tabbys Peak	112°56'41.1"	40°29'53.8"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-78	Rush Valley	Tabbys Peak SW	112°58'34.9"	40°20'04.3"	LL NAD27	Clark	Clark and others, 2012; Clark and others, in prep.; Clark and others, 2016
D-58	Wildcat Mountain	Wig Mountain	113°02'12.6"	40°20'59.2"	LL NAD27	Clark	Clark and others, 2016
D-60	Wildcat Mountain	Wig Mountain NE	113°01'16.8"	40°23'25.8"	LL NAD27	Clark	Clark and others, 2016
D-61	Wildcat Mountain	Wig Mountain NE	113°02'04.0"	40°23'52.0"	LL NAD27	Clark	Clark and others, 2016
D-64	Wildcat Mountain	Wig Mountain NE	113°02'01.8"	40°24'12.7"	LL NAD27	Clark	Clark and others, 2016
D-74	Wildcat Mountain	Wig Mountain NE	113°07'07.3"	40°29'06.5"	LL NAD27	Clark	Clark and others, 2016
D-77	Wildcat Mountain	Wig Mountain NE	113°02'06.2"	40°24'05.2"	LL NAD27	Clark	Clark and others, 2016
154F09CV	Grouse Creek	Kelton Pass SE	332659	4627721	UTM NAD83	Felger	Felger and others, 2016; Miller and others, 2012; Miller and others, in prep. (a)
M10GC-303	Grouse Creek	Matlin	309743	4607857	UTM NAD83	Miller	Miller and others, 2012; Miller and others, in prep. (a)
MW12GC-8A	Grouse Creek	Cotton Thomas Basin	264106	4647128	UTM NAD27	Wells	Miller and others, 2012; Miller and others, in prep. (a)
MW12GC-8B	Grouse Creek	Cotton Thomas Basin	264106	4647128	UTM NAD27	Wells	Miller and others, 2012; Miller and others, in prep. (a)
MW12GC-8C	Grouse Creek	Cotton Thomas Basin	264106	4647128	UTM NAD27	Wells	Miller and others, 2012; Miller and others, in prep. (a)
MW12GC-9A	Grouse Creek	Cotton Thomas Basin	264204	4646955	UTM NAD27	Wells	Miller and others, 2012; Miller and others, in prep. (a)
MW12GC-9B	Grouse Creek	Cotton Thomas Basin	264204	4646955	UTM NAD27	Wells	Miller and others, 2012; Miller and others, in prep. (a)
M06CV-128	Tremonton	Riverdale	396939	4622854	UTM NAD83	Miller	Miller and others, in prep. (b)
M06WH-199	Tremonton	Tremonton	382883	464875_	UTM NAD83	Miller	Miller and others, in prep. (b)
M07GB-251	Tremonton	Ridgedale Pass	384806	4638339	UTM NAD83	Miller	Miller and others, in prep. (b)

Note: Regarding samples RV-4, RV-6, RV-18, *Propseudofusuliniella* does not appear in the World Foraminifera Database, http://www.marinespecies.org/foraminifera.

APPENDIX

Fossil Fusulinid Evaluation Reports

Utah Geological Survey Rock Samples
Sample No. RV-2, UTM NAD83 368446, 4482113
LOCATION: Deseret Peak East 7.5' quadrangle

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray Biosparite: Packstone. Crinoid, fusulinid, pelecypod, pelletal, bryozoan, and a few quartz grains, Packstone.

COMMENTS:

Age date with thin sections

K. J. Wells
10/20/2008

Utah Geological Survey Rock Samples
Sample No. RV-4, UTM NAD83 368020, 4481295
LOCATION: Deseret Peak East 7.5' quadrangle

FUSULINID TAXA

Propseudofusulinella New Genus

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray Biomicrite: Wackestone. Abundant very fine - fine grained quartz sandstone with abraded crinoids and fusulinids, white calcite filled fractures in Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
10/24/2008

Utah Geological Survey Rock Samples
Sample No. RV5, UTM NAD83 368170, 4481247
LOCATION: Deseret Peak East 7.5' quadrangle

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray, fusulinid, crinoid, bryozoan, small foraminifera, very fine grained quartz sand in Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
07/15/2009

Utah Geological Survey Rock Samples
Sample No. RV-6, UTM NAD83 367900, 4480583
LOCATION: Deseret Peak East 7.5' quadrangle

FUSULINID TAXA

Propseudofusulinella New Genus

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Yellow-gray Sandstone. Abraded fusulinids in fine - medium silicified quartz Sandstone.

COMMENTS: This is very close to a quartz sandy Wackestone.

Age date with thin sections

A. J. Wells
10/24/2008

Utah Geological Survey Rock Samples
Sample No. RV-8, UTM NAD83 370238, 4476875
LOCATION: Deseret Peak East 7.5' quadrangle

FUSULINID TAXA

Schwagerina
Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolcampian lower

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray, Biosparite: Packstone. Crinoid, bryozoan, fusulinid, small foraminifera, very fine - coarse sand grains in silicified Packstone.

COMMENTS:

Age date with thin sections

A. J. Wells
10/24/2008

Utah Geological Survey Rock Samples
Sample No. RV-9, UTM NAD83 369291, 4476561
LOCATION: Deseret Peak East 7.5' quadrangle

FUSULINID TAXA

Triticites cf. T. Cullomensis
Pseudofusulinella

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Light gray Biomicrite: Wackestone. Fusulinid, very fine – fine grained quartz sand in Wackestone.

COMMENTS:

Age date with thin sections

A.J. Wells
11/03/2008

Utah Geological Survey Rock Samples
Sample No. RV-11, UTM NAD83 369748, 4476679
LOCATION: Deseret Peak East 7.5' quadrangle

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray Biosperite: Packstone. Pelecypod, crinoid, bryozoan, fusulinid, Packstone.

COMMENTS:

Age date with thin sections

A. J. Wells
11/03/2008

Utah Geological Survey Rock Samples
Sample No. RV-12, UTM NAD83 378829, 4480456
LOCATION: South Mountain 7.5' quadrangle

FUSULINID TAXA

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray calcareous, silicified, very fine grain quartz Sandstone.

COMMENTS: Highly abraded fragments of small foraminifera are present. No fusulinids were found and therefore no thin sections were made on this rock.

A. J. Wells
11/03/2008

Utah Geological Survey Rock Samples
Sample No. RV-14, UTM NAD83 376552, 4480811
LOCATION: South Mountain 7.5' quadrangle

FUSULINID TAXA
Schwagerina

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian upper lower

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray Biosparite: Grainstone. Bryozoan, crinoid, pelecypod, fusulinid, pyrobitumen, medium grained well rounded quartz sand grains in Grainstone.

COMMENTS: The pyrobitumen is scattered throughout the rock. Were the hydrocarbons slammed down deep and cooked or shallow enough for fresh water to provide bacterial biodegradation?

Age date with thin sections

A. J. Wells
12/01/2008

Utah Geological Survey Rock Samples
Sample No. RV-15 UTM NAD83 380477, 4482046
LOCATION: South Mountain 7.5' quadrangle

FUSULINID TAXA
Triticites
Schwagerina

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Light gray quartz sand in Biomicrite: Mudstone. A few very abraded fusulinids in a calcareous, very fine grained quartz sand grains in Mudstone. Quartz grains not in grain support.

COMMENTS:

Age date with thin sections

A. J. Wells
12/01/2008

Utah Geological Survey Rock Samples
Sample No. RV-17, UTM NAD83 369168, 4480498
LOCATION: Deseret Peak East 7.5'quadrangle

FUSULINID TAXA

Triticites cf. T. meeki

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian lower

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray Biosparite: Packstone. Fusulinid, bryozoan, crinoid, scattered quartz grains in Packstone.

COMMENTS: No Schwagerina was found for positive Wolfcampian age. The Triticites is very advanced and certainly appears to be Wolfcampian in age.

Age date with thin sections

A. J. Wells
12/01/2008

Utah Geological Survey Rock Samples
Sample No. RV 18, UTM NAD83 381540, 4479849
LOCATION: South Mountain 7.5' quadrangle

FUSULINID TAXA

Propseudofusulinella New Genus

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray - dark gray, fusulinid, crinoid, bryozoan, small foraminifera, partly silicified Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
07/15/2009

Utah Geological Survey Rock Samples
Sample No. RV-20, UTM NAD27 Zone 12 0380660, 4478875
LOCATION: South Mountain 7.5' quadrangle

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian lower

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray, calcareous, argillaceous, fusulinid, crinoid, very fine grain quartz Sandstone.

COMMENTS: Fusulinids, crinoids highly abraded. The *Triticites* is small and has very little fluting.

Age date with thin sections

A. J. Wells
Dec. 18, 2009

Utah Geological Survey Rock Samples
Sample No. RV-22, UTM NAD27 Zone 12 0389008, 4479246
LOCATION: Stockton 7.5' quadrangle

FUSULINID TAXA

Fusulinella

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan upper

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray, argillaceous, fusulinid, crinoid, very fine grain quartz in Mudstone.

COMMENTS: The fusulinids are highly abraded.

Age date with thin sections

AJ. J. Wells
Dec. 18, 2009

Utah Geological Survey Rock Samples
Sample No. RV-23, UTM NAD27 Zone 12 0388761, 4480243
LOCATION: Stockton 7.5' quadrangle

FUSULINID TAXA

Fusulinella

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan upper

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray, fusulinid, crinoid, calcareous very fine grain quartz Sandstone.

COMMENTS:

Age date with thin sections

A. J. Wells
Dec. 18, 2009

Utah Geological Survey Rock Samples
Sample No. RV-29, UTM NAD27 Zone 12 0382228, 4479232
LOCATION: South Mountain 7.5' quadrangle

FUSULINID TAXA

No Fusulinids

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray, crinoid, bryozoan, calcareous, silicified pelecypod, very fine - fine grain quartz Sandstone.

COMMENTS: Small highly abraded fossil debris. No fusulinids found.

A. J. Wells
Jan. 12, 2010

Utah Geological Survey Rock Samples
Sample No. RV-38, UTM NAD 27 Zone 12 0354796, 4451796
LOCATION: Davis Knolls 7.5' quadrangle

FUSULINID TAXA

No Fusulinids Found

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT

ROCK DESCRIPTION: Yellow - light gray, silicified, crinoid, bryozoan, pelecypod Packstone.

COMMENTS: Numerous thin slices of rock were cut but no fusulinids were found.

A. J. Wells
9/4/2011

Utah Geological Survey Rock Samples
Sample No. 969, UTM NAD83 382340, 4478834
LOCATION: South Mountain 7.5' quadrangle

FUSULINID TAXA

Fusulina

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian lower

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Light gray Biomicrite: Wackestone. Crinoid, bryozoan. pelecypod, fusulinid, Wackestone.

COMMENTS: The rock is very close to being a Packstone.

Age date with thin sections

A. J. Wells
10/24/2008

Utah Geological Survey Rock Samples
Sample No. 970, UTM NAD83 379087, 4481294
LOCATION: South Mountain 7.5' quadrangle

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian upper

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Tan Biomicrite: Mudstone. Fusulinid, very fine quartz sand grains in Mudstone.

COMMENTS: These may be juveniles. If so, they could be upper Missourian through Virgilian. I looked for more mature fusulinids, none were present.

Age date with thin sections

AJ J. Wells
10/24/2008

Utah Geological Survey Rock Samples
Sample No. 1199, UTM NAD83 378234, 4473502
LOCATION: South Mountain 7.5'quadrangle

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray, calcareous fusulinid Sandstone.
The fusulinids are primitive juveniles and highly abraded. The lithology is close to quartz sandy biomicrite.

COMMENTS: The fusulinids are juveniles and difficult to determine the correct age. They probably are Missourian.

Age date with thin sections

K. J. Wells
1/08/2009

Utah Geological Survey Rock Samples
Sample No. 1341, UTM NAD 83 Zone 12 371041, 4453435
LOCATION: Onaqui Mountains South 7.5' quadrangle

FUSULINID TAXA

Wedekindellina

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian lower

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Brown - gray, fusulinid, crinoid, brachiopod spines, bryozoan, Mudstone.

COMMENTS:

Age date with thin sections

A. Y. Wells
Dec. 18, 2009

Utah Geological Survey Rock Samples
Sample No. 1351, UTM NAD 83 Zone 12 369183, 4454806
LOCATION: Onaqui Mountains South 7.5' quadrangle

FUSULINID TAXA

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray, crinoid, bryozoan, pelecypod, very fine grain quartz sand, silicified Packstone.

COMMENTS: No useable fusulinids found.

A. J. Wells
Dec. 18, 2009

Utah Geological Survey Rock Samples
Sample No. 1355, UTM NAD 83 Zone 12 UTM 368066, 4456102
LOCATION: Onaqui Mountains South 7.5' quadrangle

FUSULINID TAXA

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray, bryozoan and crinoid abraded fragments in calcareous silicified fine grain quartz Sandstone.

COMMENTS: No fusulinids found.

A. J. Wells
Dec. 18, 2009

Utah Geological Survey Rock Samples
Sample No. 245, 383106, 4440395 UTM NAD83
LOCATION: Lofgreen 7.5' quadrangle

FUSULINID TAXA

Profusulinella

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan) lower Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
NONE

ROCK DESCRIPTION: Gray: Biomicrite: Mudstone. Very fine quartz sand grains in fusulinid Mudstone.

COMMENTS:

Age date with thin sections

A. J. Wells
06/30/08

Utah Geological Survey Rock Samples
Sample No. 447, UTM NAD83 381793, 4443254
LOCATION: Faust 7.5' quadrangle

FUSULINID TAXA

Triticites cf. T. cullomensis

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian lower-middle

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray Biomicrite: Wackestone. Fusulinid, small foraminifera, Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
10/20/2008

Utah Geological Survey Rock Samples
Sample No. 586, UTM NAD83 382282, 4439530
LOCATION: Vernon 7.5' quadrangle

FUSULINID TAXA

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan ?

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray Biomicrite: Wackestone. Foraminifera, ostracod, crinoid, silicified Wackestone.

COMMENTS: Due to the silica and iron replacement in the foraminifera they could not be correctly identified. They do resemble Morrowan foraminifera. No fusulinids were found.

Age date with thin sections

A. J. Wells
10/16/2008

Utah Geological Survey Rock Samples
Sample No. 720, UTM NAD83 383341, 4441425
LOCATION: Lofgreen 7.5' quadrangle

FUSULINID TAXA

Pseudofusulinella

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian
upper Missourian through Virgilian
Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray Biomicrite: Wackestone. Crinoid, bryozoan, fusulinid, pelletal, pelecypod, Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
10/20/2008

Utah Geological Survey Rock Samples
Sample No. 726, UTM NAD83 383624, 4441112
LOCATION: Lofgreen 7.5' quadrangle

FUSULINID TAXA

Pseudofusulinella: P. cf. fergusonensis

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray Biomicrite: Wackestone. Fusulinid, crinoid, pelecypod, silicified Wackestone.

COMMENTS: Pseudofusulinella ranges from upper Missourian through the Virgillian and into lower most Wolfcampian.

Age date with thin sections

A. J. Wells
10/16/2008

Utah Geological Survey Rock Samples
Sample No. 1600, UTM NAD83 Zone 12 0382386, 4443534
LOCATION: Faust 7.5' quadrangle

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian lower

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray, fusulinid, small foraminifera, pellet, fine grain quartz in Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
8/05/2010

Utah Geological Survey Rock Samples
Sample No. 1637, UTM NAD83 Zone 12 0372585, 4452671
LOCATION: Faust 7.5' quadrangle

FUSULINID TAXA

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray, silicified, gastropod, crinoid, in fine grain quartz Sandstone.

COMMENTS: Gastropods are abundant. Numerous thin slices of rock were cut and no fusulinids were found.

A. J. Wells
8/05/2010

Utah Geological Survey Rock Samples
Sample No. 1641, UTM NAD83 Zone 12 0372923, 4452907
LOCATION: Faust 7.5' quadrangle

FUSULINID TAXA

Profusulinella

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan lower

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Light gray, crinoid, abundant fine - medium quartz grains in Wackestone.

COMMENTS:

Age date with thin sections

A.J. Wells
8/04/2010

Utah Geological Survey Rock Samples
Sample No. 1657, UTM NAD83 Zone 12 0372339, 4453454
LOCATION: Faust 7.5' quadrangle

FUSULINID TAXA

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray, abraded fragments of crinoid, bryozoan, pelecypod, fine grain quartz Sandstone.

COMMENTS: Numerous thin slices of rock were cut and no fusulinids were found.

A. Y. Wells
8/05/2010

Utah Geological Survey Rock Samples
Sample No. D-52
LOCATION: Tabbys Peak SW quadrangle
N40° 21'18.4" W112° 59' 14.5"

FUSULINID TAXA

Pseudofusulinella
Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian lower

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Brown Biomicrite: Wackestone. Fusulinid, crinoid, brachiopod Wackestone.

COMMENTS: Scattered fractures up to 1mm thick are filled with sparry calcite cement.

Age date with thin sections

A. J. Wells
07/18/2007

Utah Geological Survey Rock Samples
Sample No. D-57
LOCATION: Tabbys Peak SW quadrangle
N40° 19' 31.0" W112° 58' 13.0"

FUSULINID TAXA

Triticites cullomensis

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian lower

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray Biosparite: Packstone. Tubular foraminifera, crinoid, fusulinid Packstone.

COMMENTS:

Age date with thin sections

K. J. Wells
7/18/2007

Utah Geological Survey Rock Samples
Sample No. D-65
LOCATION: Tabbys Peak quadrangle
N40° 23' 39.2" W112° 58' 48.3"

FUSULINID TAXA

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
Yes

ROCK DESCRIPTION: Yellowish-gray Biosparite:Packstone. Bryozoan, crinoid, pelecypod, brachiopod, algal, silicified Packstone.

COMMENTS: The rock sample was cut into numerous thin slices of rock and no fusulinids were found.

A.J. Wells
10/05/07

Utah Geological Survey Rock Samples
Sample No. D-66
LOCATION: Tabbys Peak quadrangle
N40° 23' 28.9" W112° 59' 01.4"

FUSULINID TAXA

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
Yes

ROCK DESCRIPTION: Dark gray Biosparite:Packstone. Crinoid, pelecypod, algal silicified Packstone.

COMMENTS: The rock sample was cut into numerous thin slices of rock and no fusulinids were found.

A.J. Wells
10/05/07

Utah Geological Survey Rock Samples
Sample No. D-67
LOCATION: Tabbys Peak quadrangle
N40° 23' 14.2" W112° 59' 16.6"

FUSULINID TAXA
Fusulinella

FUSULINID AGE
PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan) lower-upper Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Yellowish-gray Biomicrite:Wackestone. Very fine grained quartz sand in calcareous fossil detrital of pelecypods, bryozoans and fusulinids in Wackestone.

COMMENTS: The Fusulinella are not the most advanced like Fusulinella devexa and are smaller. Therefore I think they are lower upper Atokan.
I could not make a comparison between sample D 66 and D 67 per your request in letter dated Sept. 18, 2007 because there were no fusulinids found in sample D 66.

Age date with thin sections

A. J. Wells 10/07/2007

Utah Geological Survey Rock Samples
Sample No. D-68
LOCATION: Tabbys Peak quadrangle
N40° 23' 37.1" W112° 59' 45.3"

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray Biomicrite:Wackstone. Bryozoan, crinoid, fusulinid, pelecypod, very fine grained quartz sand, silcified Wackestone.

COMMENTS: I am changing the report because I think it is a juvenile. When the juveniles (Triticites) are isolated they can be most troublesome.

Age date with thin sections

A.J. Wells
12/03/07

Utah Geological Survey Rock Samples
Sample No. D-69
LOCATION: Tabbys Peak quadrangle
N 40° 27' 48.0" W 112° 59' 49.6"

FUSULINID TAXA

Triticites cf. T. meeki

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian lower

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray, Biomicrite:Wackestone. Fusulinid, small foraminifera, crinoid, Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
12/03/07

Utah Geological Survey Rock Samples
Sample No. D-70
LOCATION: Tabbys Peak quadrangle
N40° 23' 08.4" W 112° 58' 34.7"

FUSULINID TAXA

Beedeina

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PERMIAN
Virgilian

Missourian

Desmoinesian lower

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
Fragments present

ROCK DESCRIPTION: Light brown, Biomicrite:Wackestone. Fusulinid, crinoid, pelecypod, brachiopod Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
12/03/07

Utah Geological Survey Rock Samples
Sample No. D-71
LOCATION: Tabbys Peak quadrangle
N 40° 23' 05.6" W 112° 59' 05.3"

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PERMIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Light gray, Biomicrite:Mudstone. Fusulinid, ostracod, very fine quartz sand in Mudstone.

COMMENTS:

Age date with thin sections

A. J. Wells
12/03/07

Utah Geological Survey Rock Samples
Sample No. D-75
LOCATION: Tabbys Peak quadrangle
N 40° 28' 10.9" W 112° 58' 46.9"

FUSULINID TAXA

Triticites cf. T. meeki

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian lower

PERMIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray, Biomicrite:Mudstone. Fusulinid, brachiopod, scattered very fine grained quartz sand in Mudstone.

COMMENTS:

Age date with thin sections

A. J. Wells
12/03/07

Utah Geological Survey Rock Samples
Sample No. D-76
LOCATION: Tabbys Peak quadrangle
N 40° 29' 53.8" W 112° 56' 41.1"

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Reddish gray, Biomicrite:Wackestone. Fusulinid, calcareous, silicified, very fine grained quartz sand in Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
12/03/07

Utah Geological Survey Rock Samples
Sample No. D-78
LOCATION: Tabbys Peak SW quadrangle
N 40° 20' 04.3" W 112° 58' 34.9"

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PERMIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray, Biomicrite:Wackestone. Fusulinid, pelecypod, crinoid, very fine grained quartz sand in Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
12/03/07

Utah Geological Survey Rock Samples
Sample No. D-58
LOCATION: Wig Mountain quadrangle
N40° 20' 59.2" W113° 02' 12.6"

FUSULINID TAXA

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark Gray Biosparite: Packstone. Foraminifera, brachiopod, crinoid, silicified Packstone.

COMMENTS: Abundant irregular coiled foraminifera are present. No endothyra foraminifera were found.

A. J. Wells
7/18/2007

Utah Geological Survey Rock Samples
Sample No. D-60
LOCATION: Wig Mountain NE quadrangle
N40° 23' 25.8" W113° 01' 16.8"

FUSULINID TAXA

Schwagerina longisimoidea

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian middle

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Black Shale. Calcareous, crinoid, bryozoan, fusulinid, silicified Shale.

COMMENTS: The fusulinids are elongate and highly abraded. I had to send two more samples to be thin sectioned. One of these confirmed the above data.

Age date with thin sections

A. J. Wells
7/18/2007

Utah Geological Survey Rock Samples
Sample No. D-61
LOCATION: Wig Mountain NE quadrangle
N40° 23' 52.0" W113° 02' 04.0"

FUSULINID TAXA

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Brownish – Dark Gray Shale. Brachiopod, crinoid, bryozoan, calcareous, silicified Shale.

COMMENTS: The rock was sawed into numerous thin slices and no fusulinids were found.

A. J. Wells
7/18/2007

Utah Geological Survey Rock Samples
Sample No. D-64
LOCATION: Wig Mountain NE quadrangle
N40° 24' 12.7" W113° 02' 01.8"

FUSULINID TAXA

Pseudofusulinella

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN Upper Virgilian to lower most wolfcampian
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Light Gray, Biosparite: Packstone. Crinoid, brachiopod, bryzoan Packstone.

COMMENTS: The rock was sawed into numerous thin slices and two fragments of fusulinids were found and thin sectioned. They are Pseudofusulinella and are upper Pennsylvanian and lower most Permian in age.

Age date with thin sections

A. J. Wells
7/18/2007

Utah Geological Survey Rock Samples
Sample No. D-74
LOCATION: Wig Mountain NE quadrangle
N 40° 29' 06.5" W 113° 07' 07.3"

FUSULINID TAXA

Parafusulina
Schwagerina

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray, Biomicrite:Wackestone. Crinoid, fusulinid, brachiopod, very fine grained quartz sand in Wackestone.

COMMENTS:

Age date with thin sections

A. J. Wells
12/03/07

Utah Geological Survey Rock Samples
Sample No. D-77
LOCATION: Wig Mountain NE quadrangle
N 40° 24' 05.2" W 113° 02' 06.2"

FUSULINID TAXA

Parafusulina

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian lower

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray, Biomicrite:Wackestone. Crinoid, fusulinid, brachiopod, pelecypod, fine to coarse quartz sand grains, silicified Wackstone.

COMMENTS: The center area of the fusulinids are poorly replaced with silica cement. Fusulinids in polished rock slabs were used to measure size and observe Parafusulina characteristics.

Age date without thin sections

A. J. Wells
11/29/2007

Utah Geological Survey Rock Samples
Sample No. 154F09CV, UTM NAD83 Zone 12 0332659, 4627721
LOCATION: Kelton Pass SE 7.5' quadrangle

FUSULINID TAXA
Schwagerina
Triticites cf. T. cellamagnus

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian lower

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Gray, calcareous, fusulinid, very fine - medium grain quartz Sandstone.

COMMENTS: The *Triticites* are abraded and small. One has a large proloculus. The *Schwagerinas* are highly abraded down to a small highly fluted fusulinid. The fusulinids are abraded down to the inner volutions. I believe they are Wolfcampian in age.

Age date with thin sections

A. J. Wells
Dec. 18, 2009

Utah Geological Survey Rock Samples
Sample No. M10GC-303, UTM NAD 83 Zone 12 309743 E, 4607857 N
LOCATION: Box Elder County, Utah

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Light gray, fusulinid, calcareous, very fine - fine grained quartz Sandstone.

COMMENTS: The fusulinids are broken fragments and are highly abraded.

Age date with thin sections

A. J. Wells
1/4/2011

Utah Geological Survey Rock Samples
Sample No. MW12GC-8 A
LOCATION: UTM NAD27 Zone 12, 264106E, 4647128N

FUSULINID TAXA

Schwagerina
Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian lower

PERMIAN
Virgilian

Missourian

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Fusulinid, crinoid, pelecypod, bryozoan, fine to coarse quartz grains in Packstone.

COMMENTS:

Age date with thin sections

A. J. Wells
Oct. 11, 2012

Utah Geological Survey Rock Samples
Sample No. MW12GC-8 B
LOCATION: UTM NAD27 Zone 12, 264106E, 4647128N

FUSULINID TAXA

Schwagerina
Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian lower

PERMIAN
Virgilian

Missourian

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Light grey, fusulinid, crinoid, bryozoan in a fine to coarse grained calcareous quartz sandstone.

COMMENTS: Some of the fossil debris were highly abraded.

Age date with thin sections

A. J. Wells
Oct. 11, 2012

Utah Geological Survey Rock Samples
Sample No. MW12GC-8 C
LOCATION: UTM NAD27 Zone 12, 264106E, 4647128N

FUSULINID TAXA

Triticites cellomagnus Thompson & Bissell

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian lower

PERMIAN
Virgilian

Missourian

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Grey, fusulinid, crinoid, pelecypod, fine to coarse quartz grains in Packstone.

COMMENTS: The *Triticites* are abraded.

Age date with thin sections

A. J. Wells
Oct. 9, 2012

Utah Geological Survey Rock Samples
Sample No. MW12GC-9 A
LOCATION: UTM NAD27 Zone 12, 264204E, 4646955N

FUSULINID TAXA

Triticites
Pseudofusulinella

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian ? lower

PERMIAN
Virgilian

Missourian

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Light grey, fusulinid, crinoid, bryozoan, pelecypod, very fine to coarse calcareous quartz Sandstone.

COMMENTS: The *Triticites* appears to be a juveniles and difficult to be positive about age date.

Age date with thin sections

A. J. Wells
Oct. 9, 2012

Utah Geological Survey Rock Samples
Sample No. MW12GC-9 B
LOCATION: UTM NAD27 Zone 12, 264204E, 4646955N

FUSULINID TAXA

Triticites
Pseudofusulinella

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian ? lower

PERMIAN
Virgilian

Missourian

Desmoinesian

Atokan

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Light grey, fusulinid, bryozoan, pelecypod, crinoid, vey fine to coarse quartz Sandstone.

COMMENTS: The highly abraded fragments of fusulinids makes it difficult to be positive for age date.

Age date with thin sections

A. J. Wells
Oct. 11, 2012

Utah Geological Survey Rock Samples
Sample No. MO6CV-128

LOCATION:	7.5' Quad	Easting	Northing	Altitude
	Riverdale	396939	4622854	1577

FUSULINID TAXA

Schwagerina
Pseudoschwagerina ?

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian middle

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good **Fair** Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Tan, fusulinid, crinoid, calcareous very fine grained quartz Sandstone.

COMMENTS: The thin section also contains a small fragment of what appears to be Pseudoschwagerina.

Age date with thin sections

A. J. Wells
09/29/06

Utah Geological Survey Rock Samples
Sample No. M06WH-199

LOCATION:	7.5' Quad	Easting	Northing	Altitude
	Tremonton	382883	464875	

FUSULINID TAXA

FUSULINID AGE

PERMIAN
- Guadalupian
- Leonardian
- Wolfcampian

PENNSYLVANIAN
- Virgilian
- Missourian
- Desmoinesian
- Atokan (Derryan)
- Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair Poor

CALCAREOUS ALGAE PRESENT
None

ROCK DESCRIPTION: Dark gray, silty, siliceous shale. Oval and elongated shapes of black carbonaceous material present.

COMMENTS: The rock was sawed into numerous slices and polished. No fusulinids found.

A. J. Wells
09/29/06

Utah Geological Survey Rock Samples
Sample No. M07GB-251
LOCATION: Ridgedale Pass 7.5' quad, UTM Zone 12
384806E, 4638339N, altitude 1938.61 m.

FUSULINID TAXA

Triticites

FUSULINID AGE

PERMIAN
Guadalupian

Leonardian

Wolfcampian

PENNSYLVANIAN
Virgilian

Missourian

Desmoinesian

Atokan (Derryan)

Morrowan

FUSULINID PRESERVATION & ABRASION

Good Fair **Poor**

CALCAREOUS ALGAE PRESENT
NONE

ROCK DESCRIPTION: Black Shale. Crinoid, brachiopod, pelcypod, fusulinid Shale.

COMMENTS: All fossil detrital are highly abraded. The fusulinids are very poor quality but are Missourian in age. Two additional thin sections were required for age dating.

Age date with thin sections

A. J. Wells
07/30/2007