GSA DATA REPOSITORY 2015274 Saltzman "Persistent oceanic anoxia...."

Part I. NOTES ON CAMBRO-ORDOVICIAN CARBON ISOTOPE COMPOSITE CURVE IN FIG. 1

CAMBRIAN COMPOSITE REFERENCES FOR FIG.1

Data all originally published in this paper:

Saltzman, M.R., 2005, Phosphorus, nitrogen, and the redox evolution of the Paleozoic oceans: Geology, v. 33, p. 573–576, doi:10.1130/G21535.1.

Age Model from this paper:

Saltzman, M.R. and Thomas, E., 2012, Carbon isotope stratigraphy, The Geologic Time Scale 2012, eds Gradstein, F., Ogg, J., Schmitz, M.D., and Ogg, G., p. 207-232. DOI: 10.1016/B978-0-444-59425-9.00011-1

Cambrian composite built from a series of segments in the House Range of Utah and Shingle Pass, Nevada. The portion included in Fig. 1 here – Series 3 through the Furongian are from:

1. **Series 3** – House Range, Utah, Little Horse Canyon (Big Horse Limestone)

2. **Paibian** - Shingle Pass, Nevada (see also Saltzman, M.R., Runnegar, B. and Lohmann, K.C., 1998, Carbon-isotope stratigraphy of the Pterocephaliid Biomere in the eastern Great Basin:

Record of a global oceanographic event during the Late Cambrian. Geological Society of America Bulletin, v. 110, p. 285-297.

3. **Jungshanian to "Lawsonian"** – lower part from Sneakover Limestone, including Steptoean-Sunwaptan "biomere boundary", is from House Range, Utah, Little Horse Canyon (see top of section in Saltzman et al., 1998 above). Upper part is from Whipple Cave Formation, Christmas Tree Canyon in South Egan Range, Nevada (see Ph.D. thesis of M.E. Taylor).

*Note: **Ordovician** composite portion of Fig. 1 entirely from Argentina section (Buggisch et al., 2003) with age model from Saltzman and Thomas 2012 above

Part II. CAPTIONS - SUPPLEMENTARY FIGURES

Figure. DR1. Locality map after Edwards and Saltzman (2014) showing close up of Ibex sections LDN, B, and 1965-C from Ross et al. (1997).

Figure. DR2. Cross plot of carbon versus oxygen isotopes. Note that this plot does not include a small number of LDN and B-Top samples that were late additions to manuscript **Fig. 3** in the final revision (see **Tables S1-S3** for complete listing of carbon and oxygen isotopes).

Figure DR3. Lithologies of the upper House Limestone. A. View of section BTop. The "brown siltstone" is a silty dolostone that overlies an irregular erosion surface (low rank, ?4th order sequence boundary), and may represent a thin LST (Miller et al., 2003). A succeeding transgressive interval includes rhynchonelliform brachiopod shell beds (r.b.). The resistant "top bed of the House Formation" comprises most of a cycle that begins with a small-scale TST of intraclastic rudstone–grainstone with thrombolitic buildups, and an overlying HST of subtidal heterolithic facies comprising layers of lime mudstone–wackstone, calcisiltite and biointraclastic packstone–grainstone. The base of the Fillmore Formation is traditionally placed at a break in slope at the "top bed" (Fig. S4A) but is placed herein at a lithologic change that occurs about a meter higher.

B. Condensed, transgressive, fining upward succession of intraclastic rudstone (r) and grainstone layers separated by planar to irregular hardgrounds. This interval also includes thrombolitic buildups. Photographed along strike from BTop at section LDN (Fig. S1).

Figure DR4. Phanerozoic extinction percentages from Bambach et al. (2004), showing interval of data that are plotted in Figure 1 in our paper.

Part III. DATA TABLES

The following pages include the individual data tables for the three sections (Lava Dam North, B-Top, and C-1965) used to build the composite in Fig. 2 and the close up of the base Stairsian in Fig. 3. The datum used to merge the sections and build the composite was the top of the House Limestone. In addition, the 'brown siltstone' and brachiopod shell beds in the uppermost House Limestone was utilized for Fig. 3.

Table DR1: Isotope data from Lava Dam North section, Ibex, Utah

Sample #	Feet	$d^{13}C$	$d^{18}O$	Notes on fossil tie points	
7318	225	0.86	-9.00		
7322	245	0.85	-9.09		
7325	260	0.45	-8.78		
7329	280	0.03	-8.84		
7333	300	-0.43	-9.07		
7337	320	-0.55	-9.02		
7341	340	-0.74	-8.65		
7345	360	-0.74	-8.75		
7349	380	-0.67	-8.81		
7353	400	-0.68	-8.83		
7357	420	-0.71	-8.76		
7361	440	-0.83	-8.72		
7365	460	-0.60	-8.91		
7369	480	-0.85	-8.75		
7373	500	-0.80	-8.69		
7377	520	-0.85	-8.79	*note this is first LDN point used in Fig. 3	
7381	540	-0.88	-8.81		
7382	545	-0.90	-9.06		
7383	550	-0.71	-9.04		
7385	560	-0.72	-8.64		
7386	565	-0.80	-9.00		
7387	570	-0.94	-9.14		
7388	575	-0.59	-8.84		
7389	580	-0.27	-8.81	<u>Hintze</u>	<u>Adrain-Westrop</u>
7390	585	-0.34	-8.87	?Bellefontia at 585.5	"Brown siltstone" at 585.7 ft (148.7m)
7391	590	0.02	-8.96	Paraplethopeltis at 586	Brach bed at 588 4 ft (149.5 m)
7392	595			Paraplethopeltis at 593 and Leoistegium	Thrombolitic buildup, 592.3 ft (150.7m)
7393	600	0.55	-8.48		
7395	610	1.03	-8.94		

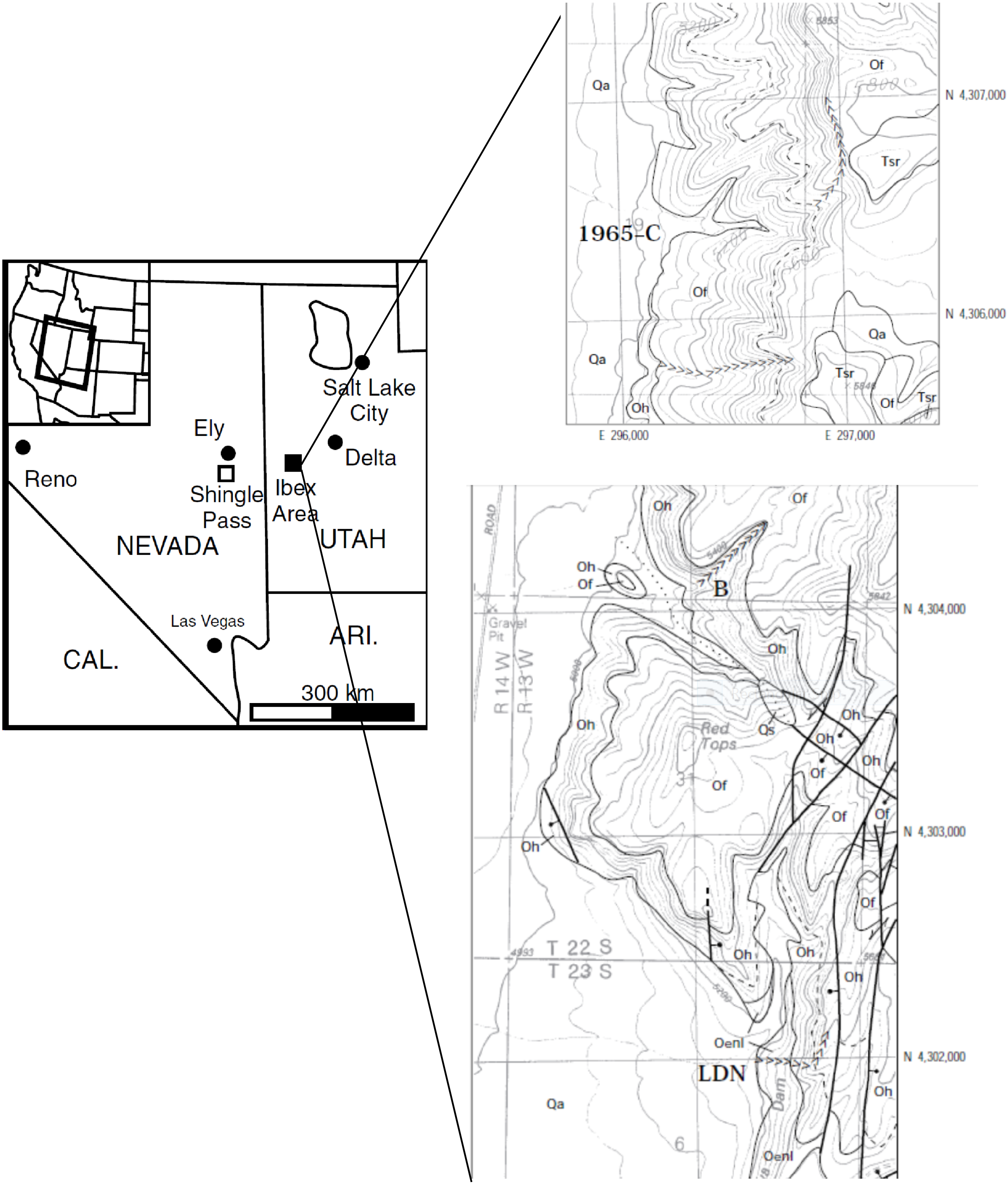
Table DR2: Isotope data from B-Top section, Ibex, Utah

Sample #	Feet	$d^{13}C$	$d^{18}O$	Notes
7396	0	-0.78	-8.76	
7397	2.46	-1.10	-9.05	
7398	4.92	-0.93	-8.91	
7399	7.38	-0.77	-8.98	
7400	9.84	-0.45	-8.53	
7400b	9.84	-0.81	-9.16	
7401	12.3	-0.25	-8.96	
7402	14.76	-0.27	-8.96	
7403	17.22	-0.42	-8.93	
7404	19.68	-0.25	-8.69	brown siltstone at 19.68 ft (6m)
7404b	19.68	-0.41	-9.03	
7405	22.14	-0.27	-8.78	brachs/extinction at 22.14 ft (6.75m)
7406	24.6	0.02	-8.99	
7407	27.06	0.51	-8.96	thrombolites at 26.24 ft (8m)
7408	29.52	0.49	-8.70	
7408b	29.52	0.37	-9.06	
7410	34.44	0.91	-9.01	
7411	36.9	0.77	-9.06	
7412	39.36	0.92	-8.62	top House Fm. at 38.54 ft (11.75m)
7416	49.2	1.23	-8.34	
7420	59.04	1.06	-8.57	
7424	68.88	1.36	-8.90	
7428	78.72	0.40	-8.82	

Note: Section measured from the top of the "brown siltstone"

Table DR3: Isotope data from C-1965 section, Ibex, Utah

Sample #	Feet	d^{13}C	d^{18}O
7530	0	0.72	-8.84
7532	10	0.91	-8.41
7534	20	0.94	-8.71
7536	30	1.00	-8.98
7538	40	0.85	-8.97
7540	50	0.28	-9.00



Salt Lake City
Ely
Delta
Reno
Shingle Pass
Ibex Area
UTAH
NEVADA
Las Vegas
ARI.
CAL.
300 km
Qa
Of
N 4,307,000
Tsr
1965-C
Of
N 4,306,000
Qa
Qa
Tsr
Of
Tsr
Oh
E 296,000
E 297,000
ROAD
Oh
Of
Oh
Of
B
N 4,304,000
Gravel Pit
R 14 W
R 13 W
Oh
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Red Tops
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Qa
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Figure DR1

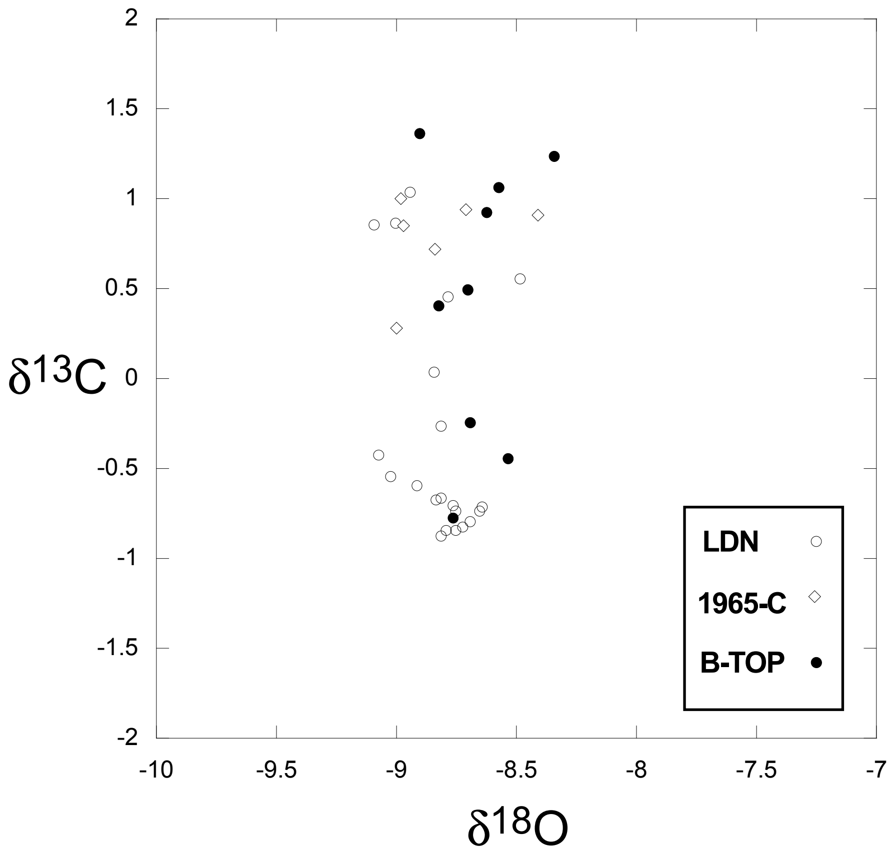

Figure DR2

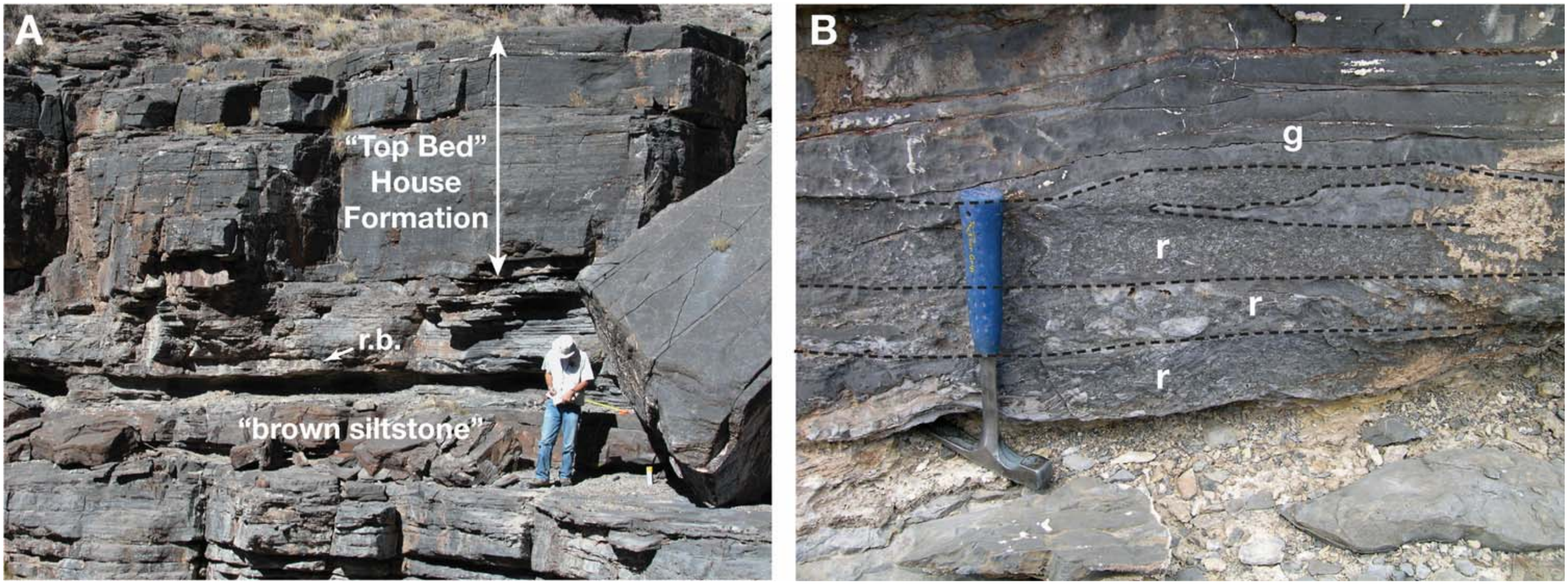

Figure DR3

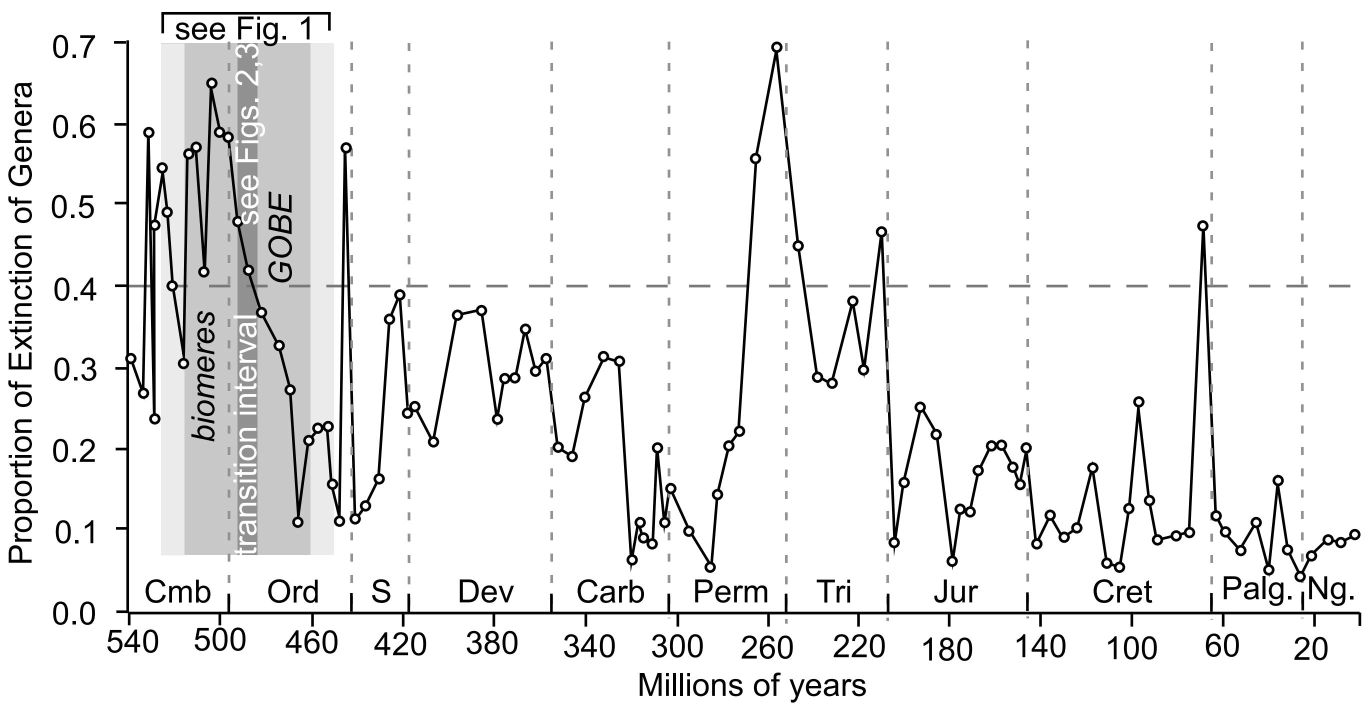

Figure DR 4. Saltzman et al. base Stairsian (modified after Bambach et al. 2004)