

C.J. Gray and A.S. Engel - “Microbial diversity and impact on carbonate geochemistry across a changing geochemical gradient in a karst aquifer”

Supplemental Information

Table S3. Taxonomic diversity based on RDP Classifier analyses. Assignments for the Proteobacteria were done to the genus-level where possible, while all the other major phyla were done to the class-level.

Phylum	Class	Order	Family	Genus	Comal Springs	Girl Scout Shallow	Girl Scout Deep	LCRA Shallow	LCRA Deep	Paradise Alley Shallow	Paradise Alley Deep	Aquarena well
Acidobacteria					10	7	2	6	5	32	1	1
		Acidobacteria Group 1			0	0	1	0	0	0	0	0
		Acidobacteria Group 2			0	1	0	0	0	0	0	0
		Acidobacteria Group 3			0	0	0	0	0	5	0	0
		Acidobacteria Group 4			4	0	0	1	0	0	0	0
		Acidobacteria Group 6			4	0	1	1	0	18	1	0
		Acidobacteria Group 15			0	1	0	0	0	0	0	0
		Acidobacteria Group 16			1	0	0	0	0	0	0	0
		Acidobacteria Group 17			1	0	0	0	0	0	0	0
	Acidobacteria Group 18			0	5	0	0	2	0	0	0	
	<i>Holophagae</i>			0	0	0	4	3	9	0	1	
Actinobacteria					67	0	2	7	1	1	0	3
		<i>Actinobacteria</i>			67	0	2	7	1	1	0	3
Bacteroidetes					240	18	7	20	8	16	3	121
		<i>Bacteroidia</i>			3	0	0	0	0	0	0	100
		<i>Flavobacteria</i>			104	4	2	0	0	0	0	1
		<i>Sphingobacteria</i>			96	11	0	13	7	2	0	4
		Unclassified			37	3	5	7	1	14	3	16
Chloroflexi					4	19	30	38	3	293	17	147
		<i>Anaerolineae</i>			0	16	30	24	3	289	17	144
		<i>Caldilineae</i>			4	0	0	0	0	2	0	1
		<i>Dehalococcoidetes</i>			0	3	0	13	0	0	0	0
		Unclassified			0	0	0	1	0	2	0	2
Cyanobacteria					2	4	0	0	0	0	0	
	<i>Cyanobacteria</i>				2	4	0	0	0	0	0	
Fibrobacteres					1	0	0	0	0	0	0	
	<i>Fibrobacteria</i>				1	0	0	0	0	0	0	
Firmicutes					1862	62	36	456	659	31	2	44
		<i>Clostridia</i>			16	5	3	8	1	7	0	3
		<i>Bacilli</i>			1843	51	33	440	651	24	2	41
		Unclassified			3	6	0	8	7	0	0	0
Fusobacteria					0	0	0	0	0	0	1	
	<i>Fusobacteria</i>				0	0	0	0	0	0	1	
Gemmatimonadetes					1	0	0	0	2	3	0	0
		<i>Gemmatimonadetes</i>			1	0	0	0	2	3	0	0

Phylum	Class	Order	Family	Genus	Comal Springs	Girl Scout Shallow	Girl Scout Deep	LCRA Shallow	LCRA Deep	Paradise Alley Shallow	Paradise Alley Deep	Aqurena well
Nitrospira					5	1	0	0	1	9	0	0
	<i>Nitrospira</i>				5	1	0	0	1	9	0	0
Planctomycetes					3	0	1	2	1	3	0	1
	<i>Planctomycetacia</i>				3	0	1	2	1	3	0	1
Spirochaetes					0	1	0	0	0	1	0	1
	<i>Spirochaetes</i>				0	1	0	0	0	1	0	1
Synergistetes					0	0	0	0	0	0	0	2
	<i>Synergistia</i>				0	0	0	0	0	0	0	2
Thermotogae					0	0	0	0	0	0	0	16
	<i>Thermotogae</i>				0	0	0	0	0	0	0	16
Verrucomicrobia					32	0	1	0	7	0	0	0
	Subdivision 3				1	0	0	0	5	0	0	0
	<i>Opitutae</i>				31	0	1	0	0	0	0	0
	Unclassified				0	0	0	0	2	0	0	0
Candidate Division TM7					75	0	0	0	0	0	0	0
Candidate Division WS3					0	2	0	1	0	10	0	0
Candidate Division OD1					0	1	0	0	0	0	0	0
Proteobacteria					1779	1583	1215	798	840	829	130	2816
	<i>Epsilonproteobacteria</i>				2	4	2	0	1	0	0	214
		Campylobacterales			2	3	0	0	1	0	0	212
			Campylobacteraceae		0	3	0	0	0	0	0	139
				<i>Sulfurospirillum</i>	0	3	0	0	0	0	0	138
			Unclassified		0	0	0	0	0	0	0	1
			Helicobacteraceae		2	0	0	0	1	0	0	25
				<i>Sulfurovum</i>	0	0	0	0	0	0	0	23
				<i>Sulfurimonas</i>	0	0	0	0	1	0	0	0
			Unclassified		2	0	0	0	0	0	0	2
		Unclassified			0	0	0	0	0	0	0	48
	Unclassified				0	1	2	0	0	0	0	2
	<i>Deltaproteobacteria</i>				58	164	123	161	86	306	30	444
		Desulfarculales			0	2	0	13	0	3	9	2
			Desulfarculaceae		0	2	0	13	0	3	9	2
				<i>Desulfarculus</i>	0	2	0	13	0	3	9	2
		Desulfovibrionales			2	1	23	1	17	6	0	171
			Desulfovibrionaceae		2	1	23	1	17	6	0	166
				<i>Desulfovibrio</i>	2	1	17	1	16	5	0	158
			Unclassified		0	0	6	0	1	1	0	8
		Unclassified			0	0	0	0	0	0	0	5
		Desulfobacterales			1	0	29	0	26	204	14	15
			Desulfobulbaceae		0	0	1	0	10	2	2	0
				<i>Desulfurivibrio</i>	0	0	0	0	1	0	1	0
			Unclassified		0	0	1	0	9	2	1	0
			Desulfobacteraceae		1	0	24	0	1	175	10	14
				<i>Desulfatirhabdium</i>	0	0	10	0	0	4	0	0
				<i>Desulfonema</i>	0	0	0	0	0	1	0	8
				<i>Desulfatirhabdium</i>	0	0	0	0	0	9	0	0

Phylum	Class	Order	Family	Genus	Comal Springs	Girl Scout Shallow	Girl Scout Deep	LCRA Shallow	LCRA Deep	Paradise Alley Shallow	Paradise Alley Deep	Aquarena well
				<i>Desulfatiferula</i>	0	0	0	0	0	2	0	0
				<i>Desulfobotulus</i>	0	0	0	0	0	0	0	1
		Desulfuromonadales	Unclassified		1	0	14	0	1	159	10	5
			Geobacteraceae		1	0	6	0	0	0	0	0
				<i>Geobacter</i>	1	0	6	0	0	0	0	0
		Myxococcales			46	0	1	4	0	2	0	2
		Cystobacterineae (suborder)			4	0	1	2	0	1	0	0
			Cystobacteraceae		4	0	1	2	0	1	0	0
			Unclassified	<i>Hyalangium</i>	1	0	0	0	0	0	0	0
		Unclassified			3	0	0	0	0	0	0	0
		Nannocystineae (suborder)			1	0	0	0	0	0	0	0
					4	0	0	0	0	0	0	0
			Kofleriaceae		1	0	0	0	0	0	0	0
				<i>Kofleria</i>	1	0	0	0	0	0	0	0
			Nannocystaceae		1	0	0	0	0	0	0	0
				<i>Nannocystis</i>	1	0	0	0	0	0	0	0
		Unclassified			2	0	0	0	0	0	0	0
		Sorangiiineae (suborder)			4	0	0	1	0	1	0	0
			Polyangiaceae		3	0	0	1	0	1	0	0
			Unclassified		3	0	0	0	0	0	0	0
		Unclassified			1	0	0	0	0	0	0	0
		Sorangiiineae										
		Unclassified			33	0	0	1	0	0	0	2
		Myxococcales										
		Syntrophobacterales			0	9	11	14	2	12	2	44
			Syntrophobacteraceae		0	0	0	1	1	0	0	2
			Unclassified		0	0	0	1	1	0	0	2
			Syntrophaceae		0	8	9	13	0	12	2	42
				<i>Desulfomonile</i>	0	3	5	6	0	6	2	9
				<i>Syntrophus</i>	0	1	2	0	0	2	0	0
				<i>Desulfobacca</i>	0	3	2	0	0	1	0	32
			Unclassified		0	1	0	7	0	3	0	1
		Unclassified			0	1	2	0	1	0	0	0
		Desulfobacterales			0	44	0	48	0	0	0	0
			Desulfobulbaceae		0	24	0	20	0	0	0	0
				<i>Desulfurivibrio</i>	0	19	0	2	0	0	0	0
			Unclassified		0	5	0	18	0	0	0	0
			Desulfobacteraceae		0	4	0	21	0	0	0	0
				<i>Desulfatirhabdium</i>	0	0	0	3	0	0	0	0
			Unclassified		0	4	0	18	0	0	0	0
		Unclassified			0	16	4	7	15	27	2	1
	Unclassified				8	108	53	81	41	79	5	210

Phylum	Class	Order	Family	Genus	Comal Springs	Girl Scout Shallow	Girl Scout Deep	LCRA Shallow	LCRA Deep	Paradise Alley Shallow	Paradise Alley Deep	Aquarena well
	<i>Betaproteobacteria</i>				918	1275	871	395	641	173	17	48
		Hydrogenophilales			1	11	12	4	1	76	3	2
			Hydrogenophilaceae		1	11	12	4	1	76	3	2
				<i>Thiobacillus</i>	1	11	12	4	1	76	3	2
		Methylophilales			11	0	1	0	0	0	0	0
			Methylophilaceae		11	0	1	0	0	0	0	0
				<i>Methylobacillus</i>	1	0	0	0	0	0	0	0
				<i>Methylophilus</i>	7	0	1	0	0	0	0	0
			Unclassified		3	0	0	0	0	0	0	0
		Neisseriales			2	1	0	4	0	0	0	0
			Neisseriaceae		2	1	6	4	0	0	0	0
				<i>Deefgea</i>	1	0	0	0	0	0	0	0
				<i>Vogesella</i>	0	1	6	4	0	0	0	0
			Unclassified		1	0	0	0	0	0	0	0
		Rhodocyclales			8	78	81	119	138	3	0	0
			Rhodocyclaceae		8	78	81	119	138	3	0	0
				<i>Azoarcus</i>	0	1	0	1	0	0	0	0
				<i>Dechloromonas</i>	1	0	0	0	0	0	0	0
				<i>Methyloversatilis</i>	0	2	4	4	1	0	0	0
				<i>Shinella</i>	1	0	0	0	0	0	0	0
				<i>Propionivibrio</i>	5	0	0	4	0	0	0	0
				<i>Zoogloea</i>	0	37	45	25	5	1	0	0
			Unclassified		1	38	32	85	132	2	0	0
		Burkholderiales			756	78	57	68	43	50	2	45
			Oxalobacteraceae		332	15	15	12	21	1	0	1
				<i>Duganella</i>	1	0	0	0	0	0	0	0
				<i>Herbaspirillum</i>	1	0	3	0	0	0	0	0
				<i>Naxibacter</i>	71	1	0	2	7	0	0	1
				<i>Massilia</i>	157	12	6	8	9	0	0	0
			Unclassified		102	2	6	2	5	1	0	0
			Alcaligenaceae		5	0	0	0	0	0	0	0
				<i>Azohydromonas</i>	5	0	0	0	0	0	0	0
			Burkholderiales incertae sedis		117	3	19	7	6	0	0	36
				<i>Inhella</i>	3	0	0	0	0	0	0	0
				<i>Aquincola</i>	1	0	0	0	0	0	0	0
				<i>Rhizobacter</i>	1	0	0	0	0	0	0	0
				<i>Ideonella</i>	9	0	0	0	0	0	0	0
				<i>Xylophilus</i>	1	0	0	0	0	0	0	0
				<i>Aquabacterium</i>	7	2	1	0	1	0	0	1
				<i>Methylbium</i>	18	0	1	0	0	0	0	0
				<i>Mitsuaria</i>	27	0	2	0	0	0	0	1
				<i>Thiobacter</i>	0	0	0	5	0	0	0	0
				<i>Thiomonas</i>	0	0	0	0	2	0	0	32
			Unclassified		50	1	12	2	3	0	0	2
			Burkholderiaceae		23	4	4	0	5	0	0	0

Phylum	Class	Order	Family	Genus	Comal Springs	Girl Scout Shallow	Girl Scout Deep	LCRA Shallow	LCRA Deep	Paradise Alley Shallow	Paradise Alley Deep	Aqarena well
				<i>Thioalkalibacter</i>	0	0	0	0	0	0	0	2
			Unclassified		0	0	0	0	0	0	0	1673
			Chromatiaceae		16	5	16	4	1	1	0	1
				<i>Rheinheimera</i>	16	5	16	4	0	1	0	1
			Unclassified		0	0	0	0	1	0	0	5
		Unclassified			3	1	1	1	0	0	0	0
		Enterobacteriales			62	2	0	3	0	0	0	1
			Enterobacteriaceae		62	2	0	3	0	0	0	1
				<i>Raoultella</i>	4	0	0	0	0	0	0	0
				<i>Erwinia</i>	1	0	0	0	0	0	0	0
				<i>Pantoea</i>	2	0	0	0	0	0	0	0
				<i>Klebsiella</i>	1	0	0	0	0	0	0	0
				<i>Enterobacter</i>	2	1	0	0	0	0	0	0
				<i>Escherichia/Shigella</i>	0	1	0	0	0	0	0	0
			Unclassified		52	0	0	3	0	0	0	1
		Xanthomonadales			52	1	2	2	1	3	0	0
			Xanthomonadaceae		38	1	0	2	1	3	0	0
				<i>Thermomonas</i>	1	0	0	0	0	0	0	0
				<i>Pseudoxanthomonas</i>	3	0	0	0	0	0	0	0
				<i>Stenotrophomonas</i>	6	0	0	0	0	3	0	0
				<i>Arenimonas</i>	2	0	0	0	0	0	0	0
				<i>Lysobacter</i>	6	0	0	0	0	0	0	0
				<i>Luteimonas</i>	3	0	0	0	0	0	0	0
			Unclassified		17	1	0	2	1	0	0	0
			Sinobacteraceae		14	0	2	0	0	0	0	0
				<i>Singularimonas</i>	1	0	0	0	0	0	0	0
				<i>Steroidobacter</i>	13	0	2	0	0	0	0	0
		Pseudomonadales			158	63	158	80	47	4	0	3
			Moraxellaceae		17	27	29	28	14	1	0	0
				<i>Perlucidibaca</i>	8	0	0	0	0	0	0	0
				<i>Acinetobacter</i>	9	26	28	27	14	1	0	0
			Unclassified		0	1	1	1	0	0	0	0
			Pseudomonadaceae		140	35	126	52	33	3	0	3
				<i>Azomonas</i>	0	3	0	0	0	0	0	0
				<i>Cellvibrio</i>	19	1	1	0	0	0	0	0
				<i>Pseudomonas</i>	105	26	112	45	28	3	0	2
			Unclassified		16	5	13	7	5	0	0	1
		Unclassified			1	1	3	0	0	0	0	0
	Unclassified				96	4	3	19	10	10	0	62
	<i>Alphaproteobacteria</i>				271	23	30	114	12	198	81	4
		Rhodobacterales			3	0	1	1	0	0	1	0
			Rhodobacteraceae		3	0	1	1	0	0	1	0
				<i>Paracoccus</i>	2	0	0	0	0	0	0	0
				<i>Rhodobacter</i>	0	0	1	0	0	0	0	0
				<i>Rubellimicrobium</i>	0	0	0	1	0	0	0	0
			Unclassified		1	0	0	0	0	0	1	0

Phylum	Class	Order	Family	Genus	Comal Springs	Girl Scout Shallow	Girl Scout Deep	LCRA Shallow	LCRA Deep	Paradise Alley Shallow	Paradise Alley Deep	Aquena well
		Caulobacterales			15	2	3	2	3	6	1	2
			Caulobacteraceae		15	2	3	2	3	6	1	2
				<i>Brevundimonas</i>	3	1	2	2	2	1	1	0
				<i>Caulobacter</i>	8	0	0	0	1	0	0	0
				<i>Phenylobacterium</i>	0	1	1	0	0	3	0	2
			Unclassified		4	0	0	0	0	2	0	0
		Rhodospirillales			32	3	0	61	0	241	78	2
			Acetobacteraceae		4	0	0	0	0	0	0	0
				<i>Roseomonas</i>	1	0	0	0	0	0	0	0
				<i>Rhodopila</i>	1	0	0	0	0	0	0	0
			Unclassified		2	0	0	0	0	0	0	0
			Rhodospirillaceae		26	2	0	61	0	241	78	2
				<i>Azospirillum</i>	5	0	0	0	0	0	0	0
				<i>Inquilinus</i>	18	0	0	0	0	0	0	0
				<i>Phaeospirillum</i>	0	1	0	0	0	0	0	0
				<i>Skermanella</i>	0	0	0	1	0	0	0	0
				<i>Magnetospirillum</i>	0	0	0	60	0	237	78	2
			Unclassified		3	1	0	0	0	4	0	0
		Unclassified			2	1	0	0	0	0	0	0
		Sphingomonadales			68	4	13	5	3	5	0	0
			Sphingomonadaceae		66	4	12	5	3	4	0	0
				<i>Sphingopyxis</i>	1	0	0	0	0	0	0	0
				<i>Sphingomonas</i>	7	1	0	1	2	1	0	0
				<i>Novosphingobium</i>	7	1	10	0	1	0	0	0
				<i>Sphingobium</i>	36	2	0	0	0	1	0	0
			Unclassified		15	0	2	4	0	2	0	0
		Unclassified			2	12	1	0	0	1	0	0
		Rhizobiales			91	0	13	34	5	33	0	0
			Xanthobacteraceae		1	2	0	0	0	0	0	0
				<i>Starkeya</i>	1	0	0	0	0	0	0	0
			Unclassified		0	2	0	0	0	0	0	0
			Methylobacteriaceae		2	0	6	1	1	0	0	0
				<i>Methylobacterium</i>	2	0	6	1	1	0	0	0
			Methylocystaceae		0	0	0	2	0	0	0	0
				<i>Methylocystis</i>	0	0	0	2	0	0	0	0
			Phyllobacteriaceae		5	0	0	0	0	0	0	0
				<i>Phyllobacterium</i>	2	0	0	0	0	0	0	0
				<i>Pseudaminobacter</i>	1	0	0	0	0	0	0	0
			Unclassified		2	0	0	0	0	0	0	0
			Hyphomicrobiaceae		3	2	0	21	0	18	0	0
				<i>Devosia</i>	2	0	0	0	0	0	0	0
				<i>Hyphomicrobium</i>	0	0	0	19	0	14	0	0
				<i>Rhodoplanes</i>	0	1	0	0	0	0	0	0
			Unclassified		1	1	0	2	0	4	0	0
			Rhizobiaceae		18	3	0	0	2	0	0	0
				<i>Ensifer</i>	5	0	0	0	0	0	0	0

Phylum	Class	Order	Family	Genus	Comal Springs	Girl Scout Shallow	Girl Scout Deep	LCRA Shallow	LCRA Deep	Paradise Alley Shallow	Paradise Alley Deep	Aqurena well
				<i>Rhizobium</i>	9	3	0	0	2	0	0	0
			Unclassified		4	0	0	0	0	0	0	0
			Bradyrhizobiaceae		21	1	0	4	1	4	0	0
				<i>Bradyrhizobium</i>	4	1	0	1	0	3	0	0
				<i>Bosea</i>	1	0	0	0	1	0	0	0
				<i>Balneimonas</i>	4	0	0	2	0	0	0	0
				<i>Nitrobacter</i>	3	0	0	0	0	0	0	0
				<i>Agromonas</i>	1	0	0	0	0	0	0	0
			Unclassified		8	0	0	1	0	1	0	0
		Unclassified			41	4	7	6	1	11	0	0
	Unclassified				62	2	0	11	1	13	1	0
Unclassified					105	34	6	17	40	38	0	93
Domain Bacteria					4332	2190	2367	2107	1934	1948	186	3391
Unclassified Bacteria					251	492	1073	784	407	720	33	238
Unclassified Root					1	2	0	4	3	0	0	0