

WRI- Family Activity

My wife and I had a wonderful weekend this past week. It was our anniversary and we wanted to go on a fun trip together, but we also did not want to spend a lot of money. I spent a few days looking at different options of places near St. George and learning about some, reviewing travel distances and checking travel times.

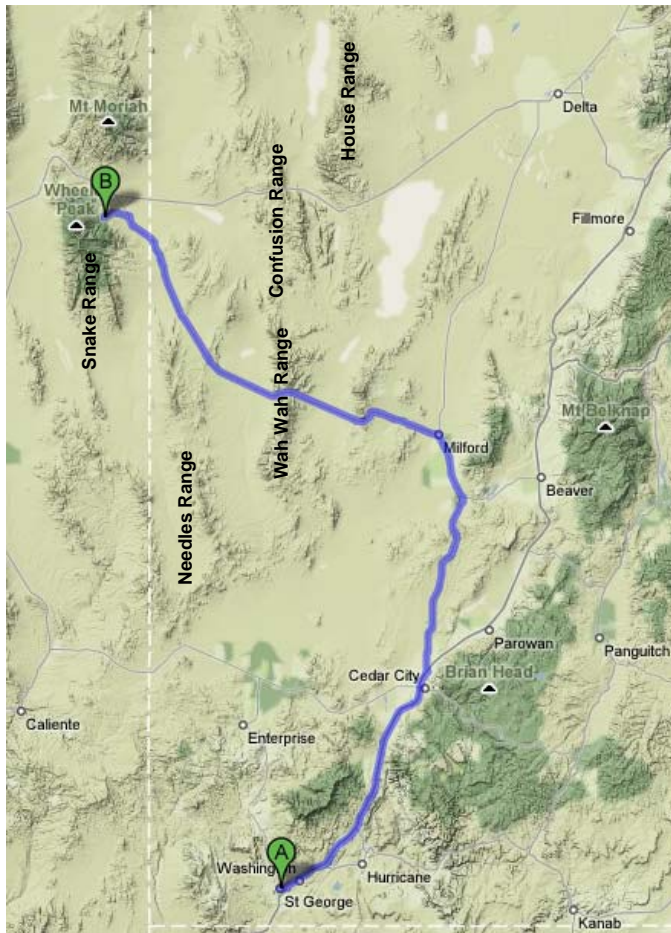


Figure 1 Route to Great Basin National Park & Major Mountain Chains Discussed in Text

Finally we decided on Great Basin National Park. I will do a series of write ups on the trip. This one covers the drive there and back. Another will tell a little about the things to see there and a final one will focus on the flora we learned about.

A few years ago, when we had first moved here, I made a table of many nearby places of interest, including State & National Parks, archaeology sites I wanted to visit, and other points of interest. I have included the list at the end of this write up if you want ideas on cool places to visit (Appendix 1). I made the list by talking to people, looking at numerous maps, etc. I then used Microsoft Streets & Trips to figure out distances and approximate travel times. At the time I had only been to a few of these locations. I have now been able to visit most of them and they are inspiring. We are very blessed to be surrounded by many incredible places here in St. George. Millions of people travel thousands of miles every year to visit our backyard. We are very blessed.

Great Basin National Park is quite out of the way, as far as cities and typical places of interest go. It is located in far eastern Nevada, just a few miles from the Utah border. The nearest sizeable town is . . . well, there are no nearby towns. Provo and St. George are probably the nearest sizeable towns and they are both hundreds of miles away. There are many little towns along the way though and they all have water and sell gas so there is no need for fear.

No matter which road you take to Great Basin National Park you will see the same thing. A series of long narrow mountain ranges separated by a series of long narrow valleys. They call this topography the Basin and Range, “basin” referring to the valleys and “range” being the mountains. Geologists know it as horsts and grabens. Here “horsts” are the mountains and

“grabens” are the valleys. They were created as the west was torn apart. The mountains are all made of similar geologic layers that were once a solid plain. As they were torn apart the valleys filled with debris from the broken mountains in fault blocks and later by sediment carried there by the rivers that came out of the hills. This topography stretches from Salt Lake City to Reno

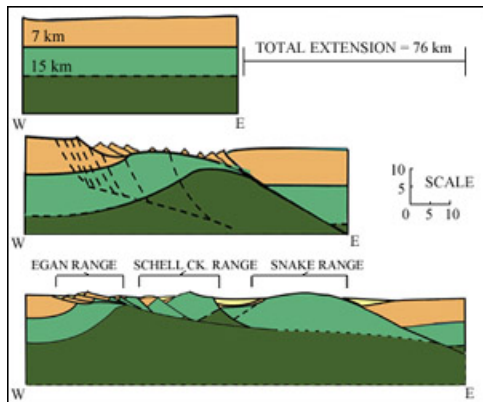


Figure 2 Cross-section of Snake Range Showing Sequence of Basin & Range Extension

and from northern Nevada to St. George. On a wider scale it also extends in various locations down through Baja California and Chihuahua to Jalisco, Mexico. Scientists say that this separation began between 40 and 50 million years ago as the Pacific Plate changed directions and continued until the present. Several key periods of violent tectonics are identified. Each time the tearing of the continent became more severe, widening the distance between ranges and extending the zone that was being torn. In our research we correlate these key periods of destruction to Joshua (Early Oligocene 35-40 MYA), David (Early Miocene 20-25 MYA), Isaiah (Mid Miocene 12-15 MYA), and Christ (Pliocene 5-8 MYA).

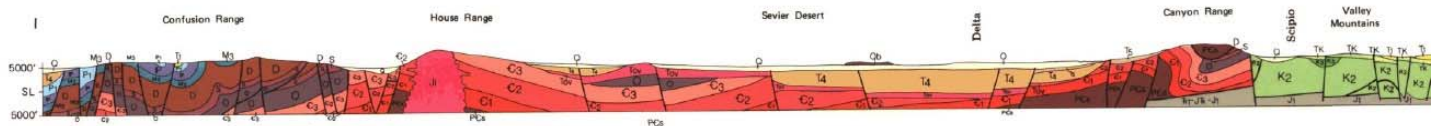


Figure 3 Cross-section of Western Utah through the House Range & Confusion Range Showing Basin & Range Fault Blocks

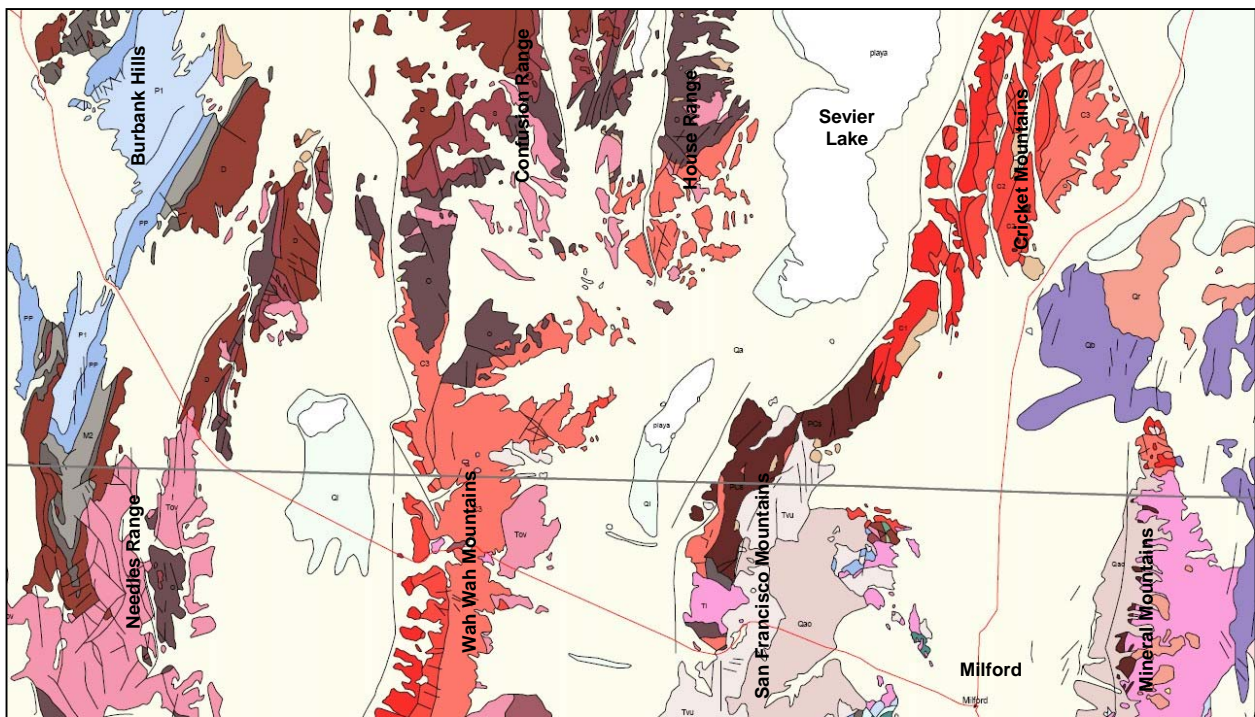


Figure 4 Geologic Map of Western Utah Showing Age of Rocks & Sediment on Surface (whites & creams are recent deposits, largely from Lake Bonneville; purple is Tertiary Volcanics; blues, reds, browns & grays are largely Limestones from the Paleozoic and earlier; notice how many of the mountain ranges look like shattered glass that could be slid back together if the white was removed).

We started our trip in St. George traveling north on I-15. We chose to use the route from St. George to Cedar City to Minersville to Milford to Baker. It seemed like the most direct route. We took I-15 to Cedar City, then took the Enoch Exit (Exit 62) on the far north end of Cedar City. At the light we turned left, or west, across the overpass. This road becomes Highway 130 which will take you directly to Minersville. From Enoch, the highway travels almost directly north to the far north end of Cedar Valley and then into the Black Mountains. About 10 miles north of Enoch you will see a turn off to the Parawon Gap. If you take this little diversion you will see a huge rock of Indian petroglyphs, probably one of the biggest ones in the area.

Minersville is about 40 miles north of Cedar City. It was settled in 1859 by Mormon Pioneers because of the lead deposits in the surrounding hills (to get an idea of when that was remember Jacob Hamblin first settled Santa Clara in 1854, Washington City was settled a few years later in 1857, and St. George was not settled until late 1861). Minersville has under 1000 people today. Highway 130 will end at an intersection on the far end of town where it meets Highway 21. Turn left (west), then continue as the highway bends northward. As you are leaving town you will see a fairly good size pioneer cemetery. There is a pretty good map and cemetery index on the northeast end of the cemetery (closest to the highway). If you have pioneer ancestry there is a good chance you will recognize many of the surnames buried here.



Figure 5 Granite Peak in the Mineral Mountains

As you travel north between Minersville and Milford you will see the Mineral Mountains to the east. From Milford they are an interesting patchwork of greens and grays. The green is vegetation of course. The gray is mostly granite and quartz monzonite, much like our Pine Valley Mountain. It dates to the same time period; what is known as the explosive caldera period in Utah's geologic history.

This was a period in which numerous large calderas exploded across Utah and in which many large igneous intrusive bodies were formed, like the Mineral Mountains and Pine Valley Mountain (this dates to about 40 MYA, late Eocene and early Oligocene; our Joshua period). The Mineral Mountains are famous for crystal collecting. Quartz and feldspar crystals are prevalent in the Rock Corral Canyon area for those who are interested.

In the center of town you will make a left turn (west), which will keep you on Highway 21. As you approach the top of the hill you will see a sign for the city park. If you are interested, this is where the town cemetery is located. As we walked around it we were surprised at how few of the surnames we recognized. Milford was not settled until the early 1870s and it was only a cattle ranch for a couple of brothers at the time. It grew over the ensuing decades due to ranching and mining; but it was never really a pioneer town. Milford has about 1500 people today and two gas stations.

As you continue west across the desert you will next pass through the San Francisco Mountains. Most of the areas near the highway are Tertiary volcanics, further to the north there are Precambrian and early Paleozoic sedimentary rocks, mostly limestones. Part way through the hills there is a little ghost town called Frisco. As with most ghost towns in Utah it was a mining town that had its hay days in the 1880s and 1890s. Coming down the backside of the range you enter Wah Wah Valley. As you drive across the valley look to the north and to the south. Here it is easy to see the patchwork of older hills sticking up out of the newer valley deposits.



Figure 6 Wah Wah Range Looking East from Pine Valley

The next range, the Wah Wah Mountains, are more impressive to me. The foothills are again Tertiary volcanics, mostly Oligocene in age. These are pyroclastic deposits, mostly tuffs I believe, which means they were material ejected from the volcanoes of the period. Volcanic material that reaches the surface or is ejected from a volcano is called extrusive igneous rock (like lava, basalt, pumice, and tuff). Volcanic material which lithifies or hardens below the surface is known as intrusive igneous rock (like granite and quartz monzonite). Large intrusive igneous bodies are known as batholiths and laccolith. As you work your way back into the higher hills and down the back side the rocks are much older, mostly limestones and quartzites of the Cambrian period.



Figure 7 Layering of Cambrian Limestones & Quartzites of Wah Wah Range

The next valley is called Pine Valley. This valley seems as misnamed as our own namesake. We call our mountain a valley and whoever named this valley must have been blind because there is not a native pine in miles.

We had an exciting experience as we drove down into the valley. Perched on one of the roadside reflectors was a beautiful hawk. As we zoomed past at 65 mph or so he just sat and watched. I wanted a closer look, and a picture for my boys, so I turned around and headed back the other way, this time much slower. He stayed there, completely still, watching us. It was amazing to see such a large bird sitting on such a skinny pole, right there in front of us at eye level. He was very beautiful and we could see his legs and pretty colors very well. When we were about 40 feet away he finally took flight. I didn't get the picture I wanted because of the angle of the car but we could see him very well. Once he took off he just circled around the car for some time playing in the drafts of air.



**Figure 8 Hawk
Along Highway 21**

One strange thing we saw in this valley was an isolated green patch to the north of the highway. I did not know if it was a ranch or what. It was surprising because of its very remote location, did somebody live clear out here? On my map it was labeled “UNESCO Desert Experiment Range”. I personally don’t prefer to see Unesco on things here in the United States so I looked into it. From what I can tell, the facility, and the research done in the area, is conducted by the U.S. Forest Service. I looked into it a bit, but couldn’t really pin down a definition of what they are doing out there. The greenery is their headquarters and has a couple of houses and such. If you want to find out about it I would recommend that you start on the Forest Service website: <http://www.fs.fed.us/rmrs/experimental-forests/desert-experimental-range/>. Good luck.



Figure 9 Marsh Along Stream into Pruess Lake near Garrison, Utah

Continuing west we enter the Needles Range. The first set of hills are Tertiary volcanics on the south and Paleozoic dolomite to the north. The second set of hills are Permian limestones. My favorite part of this range of mountains was the little stream and the marsh that has grown around the reservoir. We saw two antelope, several rabbits, and a deer in and around the marshland.

As you leave the reservoir area there are some cool erosional features to the west of the highway and some cool little caves in the Paleozoic dolomite to the east. The highway has bent quite far north by now. The next little stop is Garrison, Utah. Garrison’s claim to fame is a movie called “The Covered Wagon” that was shot here by Paramount Pictures in 1922 (a full length silent Western of long bygone days). Garrison was settled as early as 1861 (the same year as St. George), but from what I can tell, its early history was filled with bandits and outlaws that liked the remote location and the ability to dodge back and forth across the state line to avoid getting caught. Many of these remote towns appear to have a colorful history. It would be fun to study more about them. From the little bit I have studied this area of Utah appears to have been the gun slinging, bar room brawling, outlaw filled “Wild West” we see in western movies.

Congratulations, you made it! As you drive across Snake Valley you can see Wheeler Peak looming to the West. One last left, at Baker, will take you to the foot of the Snake Mountains and the entrance to Great Basin National Park. There is no gate and no entrance fee. It is a beautiful park with many natural wonders to see, but we will save those for another write up.

In the end we drove approximately 430 miles round trip. We did it over two days. Driving time was about three hours each way (plus stops). I use cruise control and set it at the posted speed limit which was 65 on most roads. My car gets a little over 20 miles to the gallon so we spent about \$80.00 in gas total. I have put some trip stats in Appendix 2 if your interested.



Appendix 1 Cool Places to Visit

<u>LOCATION</u>	<u>ROUTE</u>	<u>DISTANCE</u>	<u>EST. TIME</u>
Quail Lake	SR9	12	0:19
Red Cliffs	thru Leeds	13	0:21
Sand Hollow Reservoir	SR9	14	0:25
Snow Canyon SP	SR18	17	0:35
Toquerville Springs Rd.	thru Toquerville	23	0:29
Gunlock	SR8	23	0:45
Oak Grove	I-15	24	0:40
The Gorge, AZ	I-15	25	0:27
Pine Valley	SR18	37	1:12
Kolob Canyon	I-15	37	0:45
Kannaraville Fold	I-15	40	0:52
Zion	SR9	41	0:44
Kolob Reservoir	thru Virgin	49	1:06
Virgin River RA, NV	Riverside/Bunkerville	56	0:57
Pipe Springs NM, AZ	thru AZ	59	1:30
Beaver Dam SP, NV	thru Enterprise	75	2:18
Parawon Gap	Parawon	80	1:20
Coral Pink Sand Dunes	thru Zion	86	2:06
	thru AZ	98	2:42
Cathedral Gorge SP, NV	thru Enterprise	89	2:43
Valley of Fire, NV	I-15	105	1:46
Las Vegas, NV	I-15	120	2:00
Grand Stair Case	thru Paria	122	2:39
Bryce Canyon	thru Zion	125	2:13
Grand Canyon- North Rim	thru AZ	143	3:27
Lake Powell	thru AZ	153	3:11
Hoover Dam, NV	thru Las Vegas	156	2:23
Great Basin NP, NV	thru Cedar	185	4:18
	thru Beaver	218	4:30
	thru Fillmore	307	5:27
Escalante (Calf Creek)	thru Cedar	193	3:55
	thru Zion	212	4:59
	thru Richfield	278	5:16
Yuba Lake	I-15	199	2:55
Manti	I-15	211	3:11
San Rafael Swell	thru Richfield	225	3:23
Wupatki NM, AZ	thru AZ	246	4:43
	thru Zion	262	4:21
Monument Valley	Powell/Kayenta	284	6:08
	Lees Ferry/Tuba City	328	5:14
Arches NP	thru Richfield	330	5:07
Grand Junction, CO	thru Richfield	387	5:22
Mesa Verde, CO	thru Powell	392	8:26
	thru Richfield	473	7:39



Appendix 2 Trip Statistics

Driving Time (each way) 3:15 hrs

Mileage from St. George (per odometer)

Start near Red Cliffs Mall	0 mi
Arrive at Park Entrance	197 mi
Leave Park	232 mi
Arrive Home	431 mi

Mileage Summary

St. George to Great Basin	197 mi
Driving around Park	35 mi
Great Basin to St. George	199 mi

* We stopped at different side excursions each way

Gas Prices along the Way (multiple octanes shown)

St. George- High	\$4.31 / \$4.41 / \$4.51
St. George- Low	\$4.09 / \$4.19 / \$4.24 / \$4.29
Cedar City	\$4.08 / \$4.15 / \$4.27
Minersville	\$4.19 / \$4.29 / \$4.39
Milford- High	\$4.21 / \$4.33 / \$4.45
Milford- Low	\$4.14 / \$4.26 / \$4.38
Baker	\$4.26 / \$4.36 / \$4.46

* St. George has the highest and lowest gas prices we saw on the trip, but all were quite similar- very high!