Draft

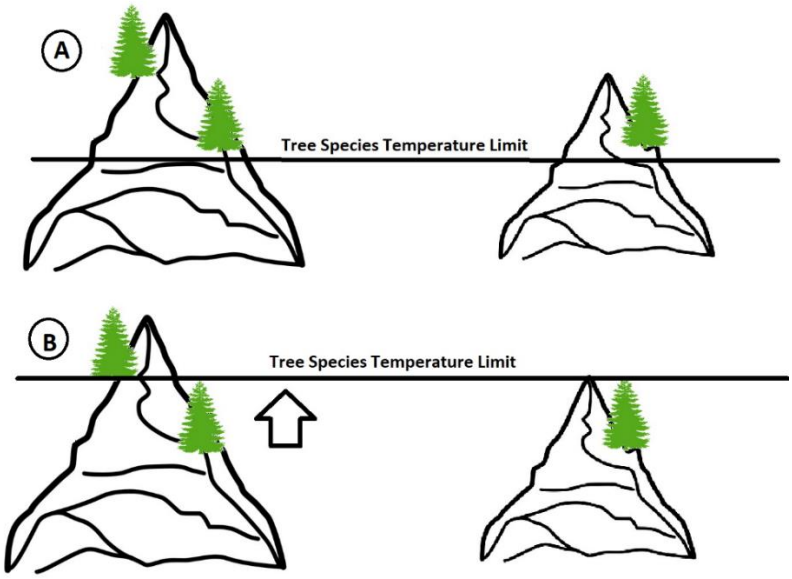
Looking for Trees in All the Wrong Places -

My Efforts to Document Trees in Remote Sites

Some may consider this hobby of mine to be a bit peculiar, especially in the “wastelands” of Nevada mountain ranges. But I like looking for particular trees in areas where they may or may not be suspected to occur. The mountains of Nevada are often thought as dry and scrubby, as you may ascertain driving through on the highways (although they can contain many spectacular places). You may just step on the gas pedal as you travel on highway 50, the “loneliest road in America” and try to get to your destination, and ignore the mountains in the distance. But there is a scientific purpose to this hobby, along with the fulfilment of visiting these highlands.

David Charlet, is a biogeographer and author of the book *Conifers of Nevada*. Now, it might not be on Oprah’s Book of the Week, but there is a significance to his effort. Besides being an exhaustive geographic record of all the conifers in Nevada, it has relevance in documenting the possible impact of climate change. Conifers are those trees that have cones, as the name would suggest, and include the pines, firs, junipers, spruce, redwoods, and a handful of other mostly evergreen trees.

The diagram below illustrates one of the situations David was trying to document. As temperatures rise the capability for a particular tree species to survive decreases, and the population may be eliminated from that elevation range. In this hypothetical situation, case “A” shows that the population exists successfully on both mountain ranges, one taller than the other. However when the climate for the area warms up, as shown in case “B” the population may be able to continue to exist on the taller mountain, even though some of the lower trees my die out. However on the smaller mountain the population may die out entirely.



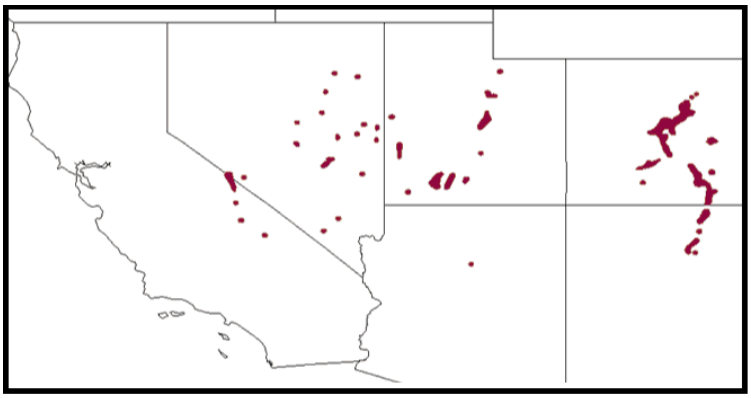
How I came into the picture about 15 years ago was assisting him in some Geographic Information Systems (GIS) projects. He had some questions about different GIS techniques in analyzing and displaying conifer locations. I have been an avid backpacker and amateur botanist for decades so I was intrigued about how he gathered the data. He invited me to follow along with one of his field reconnaissance trips in the Spring mountains west of Las Vegas. When we found a bristlecone pine at a

lower elevation than usual, he seemed crazed with excitement. His enthusiasm was infectious. I was hooked.

Basically, the field technique was to hike through the mountain ranges, often through hot, tick-infested, brush-covered, rocky areas looking for and locating conifer species. So, there is a down-side, and it isn't something that most would consider fun. I asked if I could look in some of the areas he had not gotten to yet (he has identified over 300 mountain ranges in Nevada), and he must have been satisfied with my amateur species identification abilities, because he agreed to it.

He gave me some areas that could use some reconnaissance, and using GIS I was able to identify the "holes" in his data, find areas that were fairly accessible, and that were fairly close to my then residence near Sacramento California (I now live in Bend Oregon). I visited some that I could accomplish in long day trips, and others that involved long drives and very tough hikes, often cross-country. I found very few people on my hikes, a testament to the ruggedness and unpopularity of some of the areas. Many of my efforts were futile, but many were successful. I was able to add dozens of sightings to his database and am acknowledged in two of his books. My job was to identify conifer tree species, detail some characteristics of the site, and log the latitude and longitude of the tree. I used global positioning systems (GPS) to both locate the trees, and help me find my way.

One of my notable sightings was a bristlecone pine in the Mount Moriah Wilderness Area on the eastern border of the state. Two of my cousins, Pat and Ann, and I were backpacking through the area about 2015. They had keen eyes and an adventurous spirit. Bristlecone pine trees have been identified as possibly the oldest living trees on the planet. They occur in most of the Great Basin, which includes nearly all of Nevada and parts of California, Oregon, and Utah. And they are typically at very high elevations, at 10,000 feet or more, and often the only tree on the high ridges. One that was found in the White Mountains of California was estimated to be over 5000 years old!



Known Locations of Bristlecone Pine (freegeographytools.com)

On our way out of the wilderness area after a several day trip, Pat spotted a bristlecone pine in an unusual location. We had seen many up higher, but this one was at a very low elevation, in fact, the lowest one ever documented. It was at an elevation of 6220 feet above sea level. It was found near Hendrys Creek. Many times canyons can be much colder than the surrounding hillsides because cold air will flow down into the canyon, and be more similar to the tree's normal temperature range. That is likely the reason the tree was found far from its normal altitude range. And it was on the eastern side of the mountain range, where it would receive less afternoon heat than the south and west sides.

Bristlecone Pine. (Nevadatravel.net)

Although that finding was the height of my trip, I also logged several other tree species locations. I came across these trees:

- ✓ White fir
- ✓ Engelmann spruce
- ✓ Limber pine
- ✓ Ponderosa pine
- ✓ Single-leaf pinyon pine
- ✓ Douglas fir
- ✓ Common Juniper
- ✓ Western juniper
- ✓ Rocky Mountain juniper

One of my other sightings of note was a very high altitude Douglas fir at an unusual elevation of 10,157 feet– not the the highest ever recorded, but close to their maximum altitude. I was also on the lookout for subalpine fir – not known to be in the range, however I didn't see one, even though it was fun looking for it.

But I had another calling that same summer on the absolute other side of the Great Basin, near Lake Tahoe. There was reported to be the only Pacific Douglas fir tree in the entirety of Nevada. This is a subspecies of Pseudotsuga menziesii of the variety "menziesii". There are plenty of the subspecies variety "glauca" mostly on the eastern side of the state, but there was only a single tree of this variety known in Nevada. Its general location was known, but its exact latitude and longitude wasn't. That was a challenge I couldn't resist. I hunted for a whole day before I came upon it. It was an old tree, well over 100 feet tall. I suspect it is a remnant of a larger population on the east side of the lake. I didn't find any seedlings after a very intense inspection of the local area. I also looked for other Douglas firs, walking through miles and miles of territory, but came up empty. I assume that that tree might be the last one of its kind in the state.

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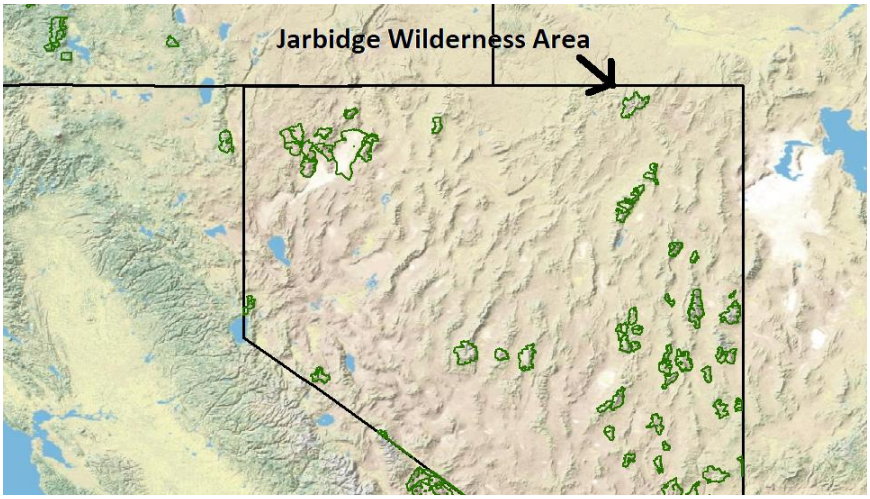
On another of my adventures about a decade ago I explored the Jarbidge Wilderness Area of northeast Nevada. Jarbidge is an anglicization of a Shoshone word that means “monster that lurks in the canyon.” I am not sure what monster they were referring to, but I only saw elk and deer. And, after an unusually wet year, I was rewarded with an incredible explosion of waist-high sunflowers:

My interest in Jarbidge was inspired by its unusual collection of conifers. In particular was the Rocky Mountain subalpine fir (abies lasiocarpa var. bifolia) very rare in Nevada. Jarbidge is the closest Nevada Wilderness to the Northern Rockies ecosystem. I also found whitebark pine and limber pine, and of course the ubitquitous quaking aspen. The thing that struck me most was the prevalence of disease, particularly in the whitebark pine. White pine blister rust, caused by the nonnative fungus, Cronartium ribicola, slowly damages and can eventually kill infected whitebark pine trees. Periodic outbreaks of native mountain pine beetle (Dendroctonus ponderosae), quickly decimate infested whitebark pine forests.

Another interesting phonomena that I found was the impact on aspect (the direction of slope) on vegetaion there. You can see by this photograph the difference is based on the slope – the left side is south facing and the right side is north facing:



Some of my explorations weren't quite as successful however. I tasked myself with finding conifers on Desert Creek Peak in Nevada, near the California border, south of Lake Tahoe. I spent several trips looking for something other than the single-leaf pinyon pine and juniper which covered the area extensively. I had logged some lodgepole and Jefferey pines at the bottom of the mountain that benefittd from the wetness of Desert Creek, but wanted to see if there were any other conifers other than the pinyon up on the dry mountain. In particular Charlet wondered if limber pine existed there. My son-in-law, Ray, a marine, and I scoured the area for the conifer. I brought him along, not only for the good company, but thinking he could haul my old ass off the mountain if necessary! We spent the whole day trekking all over the dry, hot, brushy mountain. Ray and I ended up feeding the mountain some of our blood and skin on its sharp rocks and mountain mahogany. We sat on the top of the mountain, marvelling at the grand view, but alas, the only pine we saw was pinyon pine. David, in his 2020 book *The Mountains of Nevada* said of the trip: "We are now are relatively certain that there is no limber pine…" on the mountain.