

Sky Island Mountain Ranges: “The Madrean Archipelago”

Madera Canyon descends from the peaks of the Santa Rita Mountains, one of southeast Arizona’s forested **Sky Island** ranges. Sky Island mountains rise high enough above the desert to produce a measurable decrease in temperature as elevation increases from base to top. The lower temperatures allow communities of plants and animals to live in the Sky Islands that cannot survive in the desert below. Not all of Arizona’s mountain ranges are Sky Islands; many do not possess the necessary altitude or mass.

It is well known that temperature varies with altitude. The higher one travels up a mountain, the cooler the temperature becomes. In our region, the temperature decreases about 4°F for every 1000ft. of elevation gain. Additionally, moisture increases with altitude, approximately 4” annually for every 1000ft. gained. The higher the mountain range, the more temperate the environment. Sky Island mountains are tall enough to create significant temperature decreases with altitude, creating life zones populated by non-desert communities of plants and animals that are adapted to the moist cooler temperatures up higher.

Mountain mass also seems to be a contributing factor to a generally cooler, moister environment. Larger mountains take longer to warm up from solar radiation, resulting in overall cooler temperatures and reduced moisture evaporation. These factors together, both altitude and mass, favor communities of plants and animals adapted to more temperate conditions.

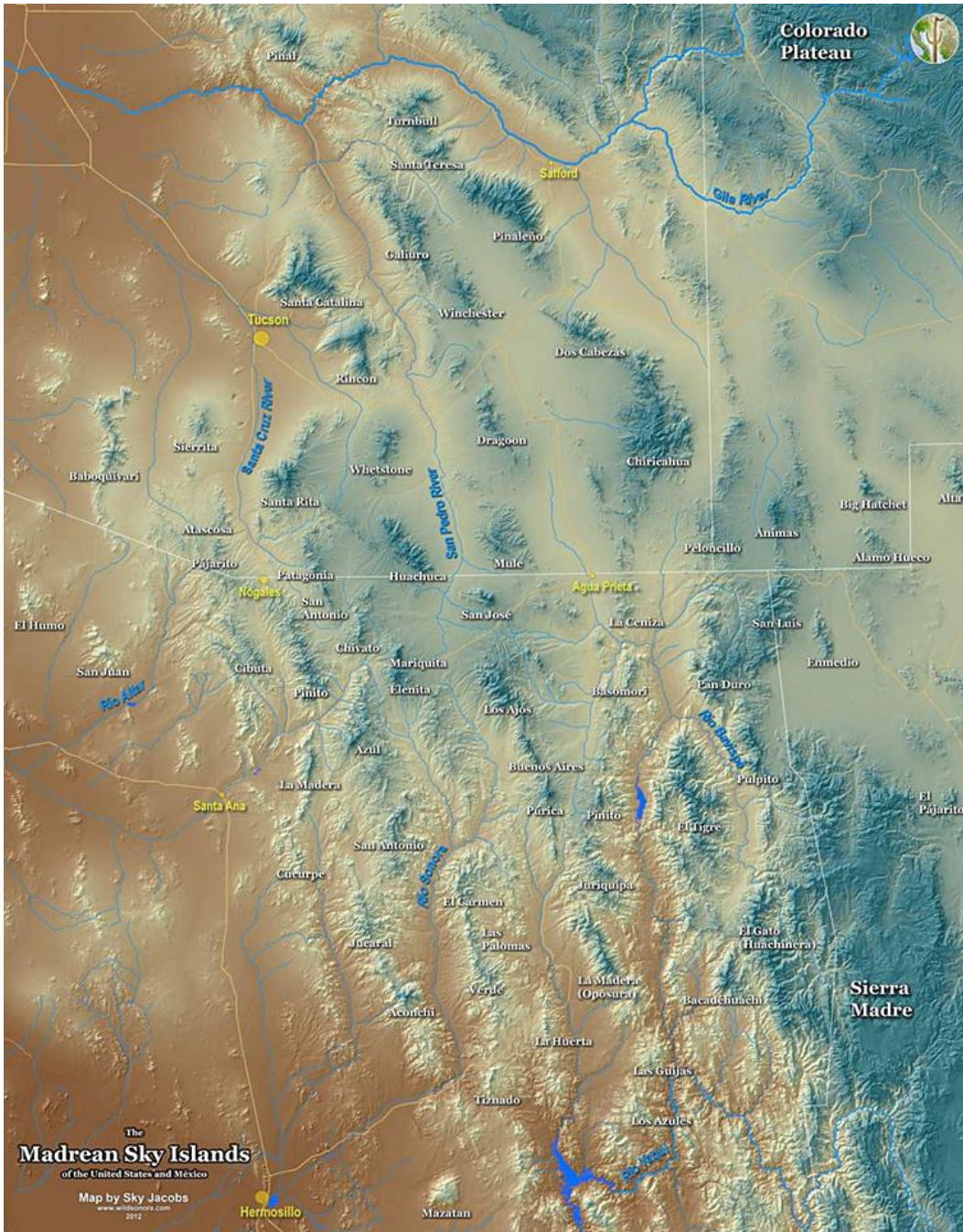


Aerial view of the Santa Rita Mountains: A Sky Island range

As islands in an ocean are isolated by the surrounding water, Sky Islands are high mountains with plants and animals isolated by surrounding hot, dry desert. Madera Canyon, with active springs and a seasonal creek, is a lush Sky Island oasis supporting an amazing diversity of life in the heart of the Santa Rita Mountains.

The Santa Rita mountain range is one of a numerous group of wooded mountain ranges considered to be Sky Islands in the desert southwestern United States and northern Mexico. Located roughly between the 30th & 33rd parallels of the North American

continent, the Sky Islands lie west of the Rio Grande River in New Mexico/Texas and east of the Baboquivari and El Humo mountain ranges of Arizona and Sonora, Mexico. These ranges form isolated mountain “wrinkles” across the landscape in the transition between the extensive Rocky Mountains to the north and the formidable Sierra Madre Occidental south in Mexico. Due to their cross-border location the Sky Islands are often referred to collectively as the **Madrean Sky Islands**, or more poetically- “Madrean Archipelago”.



Topographic map of the Madrean Sky Islands in the US & Mexico
Map: Sky Jacobs

From the nearby community of Green Valley to the west up to the 9453ft. summit of Mount Wrightson, the Santa Rita mountains rise nearly 7000 feet. As described above, moisture increases and temperature decreases with every 1000 feet of elevation gain, creating a succession of four **life zones**. For a description and explanation of these life zones and associated plant communities, please see “**Life Zones and Plant Communities of the Santa Rita Mountains and Madera Canyon**”.



Madera Canyon from the bajada with Desert Grassland plant community below