

## CRISTATE CACTI

A cristate condition in a naturally growing cactus is a relatively rare condition. It occurs when an abnormal condition occurs to the growth tip of the plant. There is no general agreement as to what causes the abnormal growth to occur. Some experts consider it to be a genetic mutation while others speculate that it is caused by physical damage to the cells in the growth tip of the plant. This damage could originate from numerous possible causes such as freezing or mechanical injury to the growth tip. Some speculate that electromagnetic energy during electrical storms could affect cell division. The cristate can take many different forms or configurations and is unique to each plant. There are four types of cristate cacti that Green Valley Hiking Club hikers are most likely to encounter in their hikes, the Saguaro, the Cholla and the Barrell and the Rainbow. If we go a little farther than our normal hikes, say to Organ Pipe Cactus National Monument, we may find another example of a cristate cactus (a cristate Organ Pipe cactus). Photographs of these five types are shown.

**CRISTATE SAGUARO CACTUS.** The cristate cactus that Green Valley Hiking Club members are most familiar with is the cristate Saguaro. Even though the cristate Saguaro is considered to be relatively rare, about one in every 200,000 plants, examples of it can be found on quite a few of the Hiking Club hikes as well as in other areas of southern Arizona. You can even spot cristate saguaros from your vehicle as you drive to the various trailheads. There is a nice example on the south side of the “S” curve on Sahaurita Road and another on the west side of I-19.



Cristate Saguaro – Cougar Canyon – Tortolita Mtns.  
Photo by Jim Chisholm – April, 2013



Cristate Saguaro – Sonoran Desert Museum  
Photo by T. Johnson



The cristate Saguaro in these two pictures above is truly unique. It has multiple cristates, including cristates on two of its arms. Judging from its size, it is extremely old, probably over 200 years. It is located in the West Desert Preserve just west of Green Valley. Left photo by Tom Johnson. Right photo by Duane Dotson



**CRISTATE CHOLLA CACTUS.** From this hiker's experience, the cristate Cholla is extremely rare. In all of the areas where the Hiking Club hikes, the cristate Cholla has been found in only one. However, in that area, there are numerous examples of cristate Cholla leading to the credence that genetic mutations may play a part in their development. Where is this area containing numerous cristate Cholla? Take the Chavez Siding exit off of I-19, go north on the West Frontage Road for a few hundred yards and then west on Forest Road 684. The heaviest concentration of cristate Cholla is on Coronado National Forest land on the mesa just before FR-684 descends to the valley and the junction with FR-4141. Most of the cristate Cholla are located on the south side of FR-684 but there are also a number of examples on the north side.



Cristate Cholla – Tumacacori Highlands  
Photo by Jim Chisholm - 2013



Cristate Cholla – Tumacacori Highlands  
Photo by Jim Chisholm - 2013





Cristate Cholla – Tumacacori Highlands  
Photo by Jim Chisholm - 2013

**CRISTATE BARRELL CACTUS.** The third type of cristate cactus that hikers may encounter is the cristate Barrel cactus. From this hiker's experience, this type of cactus is extremely rare but three examples of it have been located in areas where GVRHC hikes. The first of these areas was the Tortolita Mountains. Then, another example of a cristate Barrell was discovered in the eastern foothills of the Santa Rita Mountains near Kentucky Camp. The most impressive of the three was found along the Cactus Forest Trail in Saguaro National Park East north of Javalina Wash.



Crestate Barrell Cactus – Saguaro NP  
Photo by T. Johnson



Crestate Cactus – Saguaro NP  
Photo by T. Johnson





Cristate Barrel Cactus – Tortolita Mountains  
Photo by Jim Chisholm



Cristate Barrel – Santa Ritas  
Photo by JimChisholm

CRISTATE RAINBOW CACTUS – Our sharp eyed hikers recently (February 2019) came across another rare cristate cactus. This was a cristate Rainbow cactus and the first cristate that we have seen in a member of the Mammillaria Cactus family. This specimen was seen on the trail to Samaniego Peak in the Sierrita Mountains



Rainbow – Sierrita Mtns.  
Photo by Jim Chisholm



Rainbow – Sierrita Mtns.  
Photo by Jim Chisholm

CRISTATE ORGAN PIPE CACTUS. The fifth type of cristate cactus that hikers may encounter if they go far enough afield is the cristate Organ Pipe cactus that may be found in Organ Pipe Cactus National Monument. A photo of this cactus is shown below.

Article prepared by Tom Johnson in May 2013 and updated in February 2018, March 2019 and January 2020.

**Additional Material:** GVRHC Library File 4



Cristate Organ Pipe Cactus  
Photo by Bill White