

Cactus of Academy Village

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Today we will discuss some botany basics as to what are Succulent plants, what makes Cactus unique within the Succulent world, and Cactus native to the area around Academy Village.

References:

Anderson, Edward F. 2001 *The Cactus Family*, Portland, OR; Timber Press

Breslin, Peter; Romero, Rob; Starr, Greg; and Watkins, Vonn 2017 *Field Guide to Cacti & Other Succulents of Arizona*, Tucson, AZ; Arizona Lithography

Resources:

www.tucsoncactus.org

www.cssainc.org

Succulent Plants

Succulent plants have developed strategies for storing water in arid climates to survive periods of drought.

Succulent plants may have succulent stems, leaves, root systems or utilize a storage tuber called a caudex, which may be partially or fully underground.

Succulents still lose water in the process of photosynthesis.

Succulent plants found in Arizona that you may be familiar with include members of the Agave, Bursera, Dasylirion (desert spoon), Dudleya, Fouquieria (ocotillo), Graptopetalum, Hesperoyucca, Jatropha, Nolina and Yucca genera.

What sets Cactus apart

Cacti are distinguished by the use of axillary buds called areoles which can be closed during the day without interrupting photosynthesis.

Cacti utilize a photosynthesis process termed crassulacean acid metabolism (CAM) first discovered in the Crassula, or stonecrop family.

In CAM photosynthesis the stomata only open at night, thus conserving water because much less water vapor is lost during cooler night hours. During the night, carbon dioxide enters the chlorophyll-containing cells of the stem and is converted to organic acids that are briefly stored in the cell vacuole. At the same time, oxygen is released and only a small amount of water vapor is lost. (Anderson)



Echinocactus ingens aeroles (tucson-gardener.com)

Cactus found in Academy Village or surrounding Rincon Valley:

Carnegiea gigantea, or saguaro

Coryphantha robustispina, or Pima pineapple cactus

Cylindropuntia arbuscula, or pencil cholla

Cylindropuntia bigelovii, or teddy-bear cholla

Cylindropuntia fulgida, or chain-fruit cholla

Cylindropuntia leptocaulis, or Christmas cholla

Cylindropuntia spinosior, or cane cholla

Cylindropuntia versicolor, or staghorn cholla

Echinocereus engelmannii, or Engelmann hedgehog

Echinocereus rigidissimus, or rainbow hedgehog

Echinomastus erectocentrus, or needle spine cactus

Escobaria vivipara, or beehive cactus

Ferocactus wislizeni, or fishhook barrel

Mammillaria grahamii, or Graham fishhook

Opuntia chlorotica, or pancake pricklypear

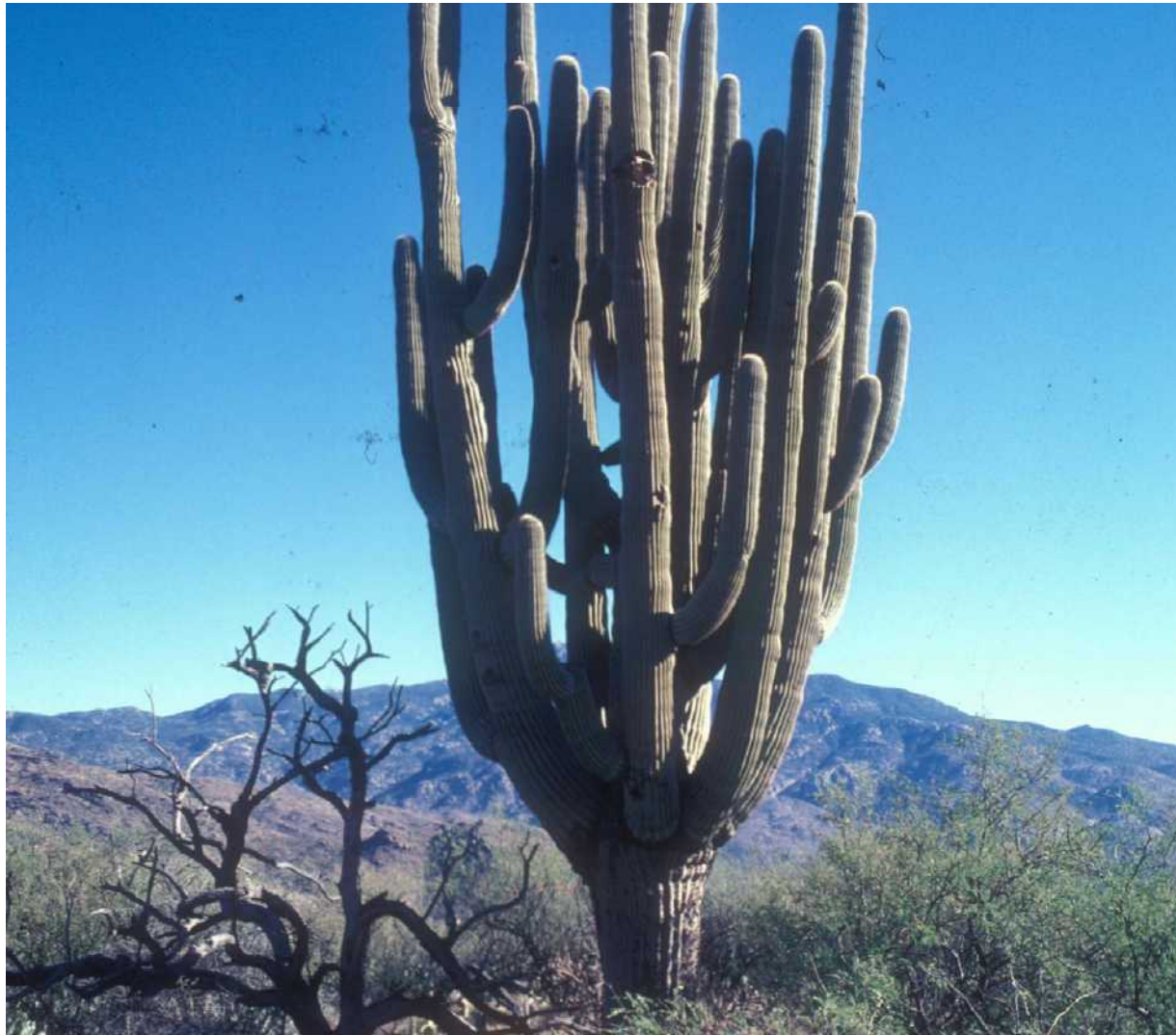
Opuntia engelmannii, or Engelmann pricklypear

Opuntia macrocentra, or black-spined pricklypear

Opuntia phaeacantha, or brown-spined pricklypear

Opuntia santa-rita, or Santa Rita pricklypear

Peniocereus greggii, or queen of the night



***Carnegiea gigantea* (National Park Service)**



Saguaro “crest” (National Park Service)



***Coryphantha robustispina* (cactiguide.com)**



***Cylindropuntia arbuscula* (wikipedia.org)**



***Cylindropuntia biglovii* (National Park Service)**



***Cylindropuntia fulgida* (Desert Botanical Garden)**



Cylindropuntia leptocaulis Echinomastue r



***Cylindropuntia spinosior* (saguaro-juniper.com)**



***Cylindropuntia versicolor* (National Park Service)**



Echinocereus engelmannii (wikipedia.org)



***Echinocereus rigidissimus* (little.com)**



***Echinomastus erectocentrus* (hasbrouck.asu.edu)**



***Escobaria vivipara* (cactiguide.com)**



***Ferocactus wislizeni* (saguaro-juniper.com)**



***Mammillaria grahamii* (americansouthwest.net)**



***Opuntia chlorotica* (calphotos.berkeley.edu)**



***Opuntia engelmannii* (National Park Service)**



***Opuntia macrocentra* (wildflower.org)**



***Opuntia phaeacantha* (hasbrouck.asu.edu)**



***Opuntia santa-rita* (desertcrestllc.com)**



***Peniocereus greggii* (static.naturalist.org)**

Arizona Native Plant Law

All native cacti in Arizona are protected by Arizona's Native Plant Law, administered by the Arizona Department of Agriculture.

Under this law, it is illegal to kill, damage, or remove any cacti or other listed plant in Arizona. Any land owner may destroy or remove for sale listed plants from their property, but must notify the Arizona Department of Agriculture 60 days prior to obtain a permit. This requirement is designed to allow as many plants as possible to be relocated instead of destroyed.

For more information, see agriculture.az.gov/protected-arizona-native-plants.

Some Arizona cacti are also protected by the Endangered Species Act of 1973. (Tyna Yost in Breslin, et al)