



# Stone House

## SUMMER NEWSLETTER 2021

### Community

Our Meet & Greet Party was a HUGE success! Special thanks to those who attended on Friday, June 11th. I hope you enjoyed getting to know your neighbors and spending time with friends. Next gathering will be in September. Stay tuned!



### Our Town

Did you know in Sahuarita, it does not have to be an emergency to call 911? 911 is good for parking issues to in progress crimes against persons.

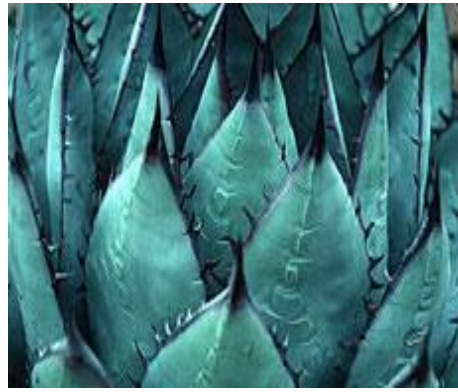
### The Heat is On

First the winds and now record temperatures blanket our community. Stay hydrated, remain indoors during the hottest hours of the day, and, if you must go out, keep it brief and wear lightweight and light-colored clothes.

### Desert Environment

The desert is a fascinating eco system and how it thrives is even more amazing. I thought you might enjoy this article provided by the Arizona-Sonora Desert Museum.

Desert plants tend to look very different from plants native to other regions. They are often swollen, spiny, and have tiny



leaves that are rarely bright green. Their strange appearance is a result of their remarkable adaptations to the challenges of the desert climate. Aridity is the sole factor that defines a desert and is the primary limitation to which desert organisms must adapt.

Desert plants have developed three main adaptive strategies: succulence, drought tolerance and drought avoidance.

Each of these is a different but effective suite of adaptations for prospering under conditions that would kill plants from other regions.

### **Succulence**

Succulent plants store water in fleshy leaves, stems or roots. All cacti are succulents, as are such non-cactus desert dwellers as agave, aloe, elephant trees, and many euphorbias. Several other adaptations are essential for the water storing habit to be effective.

A succulent must be able to absorb large quantities of water in short periods. Desert rains are often light and brief, and the soil dries rapidly under an intense sun.

To cope with these conditions, nearly all succulents have extensive, shallow root systems. The roots of a saguaro extend horizontally about as far as the plant is tall but are rarely more than four inches (10 cm) deep. The water-absorbing roots are mostly within the upper half inch (1.3 cm).

Succulents must be able to maintain their water hoards in a desiccating environment and use it as efficiently as possible. The stems and leaves of most species have waxy cuticles that render them nearly waterproof when the stomates are closed. Water is further conserved by reduced surface areas; most succulents have few leaves (agaves), no leaves (most cacti), or leaves that

are deciduous in dry seasons (elephant trees, ocotillos, boojums).

Many succulents, as well as semi-succulents such as most yuccas, epiphytic orchids, and xerophytic bromeliads, possess a water-efficient variant of photosynthesis called CAM, an acronym for Crassulacean Acid Metabolism. CAM plants open their stomates for gas exchange at night and store carbon dioxide. By day, while the stomates are closed, photosynthesis is conducted using the stored carbon dioxide. Because of the lower temperatures and higher humidity at night, CAM plants lose one-tenth as much water per unit of carbohydrate synthesized as standard C3 plants.

Another valuable attribute of CAM plants is their capability for idling metabolism during droughts. When CAM plants become water-stressed, the stomates remain closed both day and night; gas exchange and water loss nearly cease. The plant, however, maintains a low level of metabolism in the still-moist tissues. Just as an idling engine can rev up to full speed more quickly than a cold one, an idling CAM plant can resume full growth



in 24 to 48 hours after a rain. Therefore, succulents can take rapid advantage of ephemeral surface moisture.

Stored water in an arid environment requires protection from thirsty animals. Most succulent plants are spiny or toxic, often both. Some protect themselves by growing only in inaccessible locations. Still others rely on camouflage. Arizona night blooming cereus, for example, closely resembles the dry stems of the shrubs in which it grows.

### **Drought Tolerance**

Drought tolerance (or drought dormancy) refers to a plant's ability to withstand desiccation without dying. Plants in this category often shed leaves during dry periods and enter a deep dormancy. Most water loss is from transpiration through leaf surfaces, so dropping leaves conserves water in the stems. Some plants that do not normally shed their leaves have resinous coatings that retard water loss (e.g., creosote bush).



The roots of drought tolerant shrubs and trees are extensive compared to those of plants in wetter climates, covering an area up to twice the diameter of the canopy. They exploit the soil at greater depth than the roots of succulents; sometimes they extend to extreme depths (e.g., mesquite). Most of a mesquite's roots, however, are within three feet (0.9 m) of the surface. Rooting depth controls opportunities for growth cycles. In contrast to the succulents' shallow-rooted strategy, a substantial rain is required to wet the deeper root zone of shrubs and trees. After a soaking rain has fallen, shrubs such as brittlebush and creosote take a few weeks to resume full growth from deep dormancy. The tradeoff between this strategy and that of succulents is that once the deeper soil is wetted by several rains it stays moist much longer than the surface layer, supporting several weeks of growth.

Succulents can absorb water only when the soil is nearly saturated. In contrast drought tolerant plants can absorb water from soil that is much drier. Similarly, these plants can photosynthesize with low leaf moisture contents that would prove fatal to most plants.

Most Sonoran Desert annuals will germinate only during a narrow window in the fall, after summer heat has waned and before winter cold arrives. During this window of opportunity there must be a soaking rain of at least one inch for most species.

This combination of requirements is survival insurance: an inch of rain in the mild weather of fall will provide enough soil moisture that the germinating seeds will probably mature and produce seeds even if almost no more rain falls in that season. There is still further insurance: even under the best conditions not all of the seeds will germinate; some remain dormant. Although the mechanisms are not known, a percentage of any year's crop of desert lupine seeds will not germinate until they are ten years old.

Seedlings rapidly produce rosettes of leaves during the mild fall weather, remain flat against the ground as they grow more slowly through the winter, and bolt into flower in the spring. Since the plants are inconspicuous until they begin the spring bolt, many people mistakenly think that spring rains produce our wildflower displays.

Adaptations enable indigenous plants and animals not merely to survive here, but to thrive most of the time.

## **Coyote Life**

If you listen closely, you might hear the yip-howling coming from different directions; however, don't feel as though you are surrounded by hundreds of coyotes. It's an auditory illusion known as the "beau geste" effect, and is due to the variety of sounds produced by a male and female coyote and the way sound gets distorted as it passes through the environment.



Basically, two coyotes can sound like seven or eight animals. The group howling can start with the parents while the pups from this season and previous seasons may join in if they are nearby or respond with howls of their own. Once one group of coyotes starts howling, chances are that any other mating pairs nearby will respond with chorus after chorus of group yip-howls.

If you see a coyote it is important to remain calm and know that you are scary to them and they rather not be around you. Make yourself big and make some noise.

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