Stayin' Alive

Where rain

is unreliable and water is in short supply, plants and animals must adapt to an arid environment or die. Despite the Arizona Upland's two rainy seasons, precipitation is unpredictable—a summer's worth may fall all in one day or months may go by with none. Desert plants and animals must be able to take advantage of rain when it does come, save water for the future, or wait out dry times.

Juicy Plants

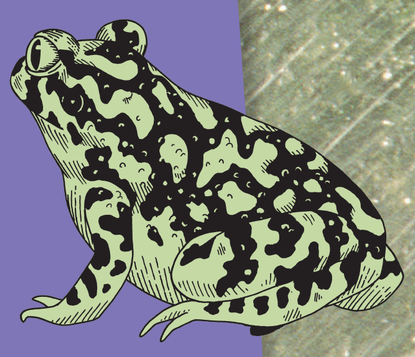
Succulent plants store water in special tissues in their stems, roots, or leaves—all cacti are succulents and many signature desert plants such as agaves and yuccas practice some form of water storage. Taking advantage of sporadic rainfall, these plants collect large quantities of water in a short time with wide-spread, shallow root systems. In the case of an agave, the leaves direct rainwater directly to the plant's base.

Frugal Plants

The stems and leaves of many desert plants have a waxy coating that reduces evaporation. To conserve water, leaves are small or sometimes nonexistent. Drought deciduous plants will even shed their leaves when it gets too dry; they may look dead but they are actually just marking time until it rains again. The ocotillo is a drought deciduous shrub that acts like a succulent and can respond to rain with new leaf growth in just a few days.

Racy Toads

The rumble of thunder and the drumming sound of monsoon rain on the desert floor bring Couch's spadefoot toad to the surface after 11 months underground. Spadefoots need water to reproduce and hundreds will gather in shallow ephemeral pools to mate each summer. In a race for survival, fertilized eggs hatch within a day and the countdown from tadpole to toad is about 9 days.



Short-lived…

Other plants avoid drought all together by growing and reproducing in a single wet season. These annuals produce seeds that can lie dormant for long periods, sometimes for decades, and then germinate only when conditions are right. Examples of this are the desert's spring wildflower displays, which are highly dependent on winter rains that arrive early and last into spring. Opportunists like desert marigold will bloom whenever there is sufficient rain.

…but Showy

Self-sufficient

Neither kangaroo nor rat, the nocturnal kangaroo rat never drinks water. This water-smart rodent gets all the moisture it needs from its food, metabolizing water from carbohydrates in the dry seeds it eats—one gram of grass seeds produces ½ gram of "metabolic" water.

Cactus Dodgers

That loud buzzing sound that heralds the summer monsoon is a male desert cicada or "cactus dodger" calling for a mate. How can he keep his cool in the middle of a hot, dry June day? Just like us, cicadas sweat! Their evaporative cooling system extracts water from their blood and carries it to the surface of the thorax where it evaporates, quickly removing excess body heat.

"In the desert... rain falls down wet and gets up green." — Alberto Ríos

tadpole symbolizing spring rains

quote from "Sometimes It Rains" by Alberto Rios in *The Dangerous Shirt*, Copper Canyon Press, 2009