Bromeliads: Diverse, Delightful — and Delicious!

If you've ever eaten a pineapple, you've eaten a bromeliad! (bro-MEE-lee-ad) Pineapples are members of a plant family known as Bromeliaceae, which contains more than 3000 species. The family includes species as diverse as the pineapple (the only bromeliad cultivated for food), the Spanish moss adorning trees in the South, and the fascinating air plants that have become popular houseplants.

Bromeliads are a neotropical family of plants; that means that most are native to the tropics and subtropics in the New World, including South America, Central America, and the Caribbean. Bromeliad species can be found in hot, dry deserts; rainforests; and 14,000' high mountain ranges. Some bromeliads are small and moss-like; others have towering flower stems up to 15' high. Foliage may be pliable and fine as a needle, or stiff, broad, and flat. There are species that grow in the ground, on rocks, and in trees.

Common Features

The incredible diversity of bromeliads means that there are few readily discernable commonalities among species. Here are two:

Bromeliads have leaves composed in a spiral arrangement (this can be difficult to see in tiny species or filamentous Spanish moss).

The leaves of all bromeliads are covered in tiny scales called trichomes. These serve to absorb moisture from the air and help protect desert species from intense sun.

Life in the Trees

About half of all bromeliads are epiphytes. An epiphyte is an organism that grows on the surface of a plant and derives the moisture and nutrients it needs from the air, rainwater, atmospheric dust, and debris that accumulates around it. Unlike parasites, epiphytes cause no harm to their host plant. (One exception to this would be a tree so laden with Spanish moss that branches break under its weight.) The roots of bromeliads are primarily used for clinging to the host plant rather than for nutrient absorption, which takes place mostly through the foliage.

It may come as a surprise, but bromeliad species that live in the rainforest must contend with drought, such as brief dry spells during which rainfall is scarce, or the rain isn't sufficiently intense to penetrate the dense tree canopy above. Some bromeliads have adapted by using a special type of photosynthesis, called crassulacean acid metabolism (CAM). This allows the plants to open their stomates at night, when it's cooler, rather than during the daytime, to reduce water loss. CAM is more common in plants native to arid climates, but is also found in other rainforest epiphytes, including some orchids.

An Ecosystem in a Cup

A signature characteristic of some epiphytic rainforest bromeliads is a rosette of stiff, overlapping leaves, which creates a cup-like reservoir. Perched high in tree branches, these bromeliads' reservoirs collect rainwater. As organic debris (such as dead leaves) falls in, algae and other tiny organisms begin to colonize the reservoirs. These life forms, in turn, attract insects, tree frogs, and other larger animal life. The small reservoirs become ecosystems in themselves! What do the bromeliads get for playing host? As organisms decompose, the nutrients they contain are released into the water, where the bromeliads' foliage can absorb them.

These cup-forming bromeliads, including Guzmania and Neoregelia species, have become popular houseplants. Take care when holding them, though — many types have sharp spines along their leaf edges! [link to new growing guide for these species]

Life Cycle

When some species of bromeliads are preparing to bloom, the center of the leaf rosette begins to change color. Other species send up a colorful stalk. Although often referred to as flowers, these are actually bracts, or modified leaves. The true flowers are small and may form in the center of the water-filled cup, or within the bracts at the top of the stalk.

Bract colors in some species include eye-popping shades of yellow, orange, red, and pink, giving rise to common names such as scarlet star, painted feather, silver vase, blushing bromeliad, flaming sword, and pink quill.

Although research continues on the subject, it appears that most bromeliads are pollinated by birds (usually hummingbirds) or bats. The vibrant bract colors are a beacon for birds; it's less clear what attracts the night-flying bats.

Once the flowers are pollinated they form seedpods containing numerous seeds. Most bromeliads have only one bloom cycle (although the array of small flowers may open over the course of several weeks), after which the plant begins to fade. Before the plant dies, however, it also produces offshoots at the base — "pups" that are clones of (genetically identical to) the original plant. Thus, the plant helps ensure its survival through sexual reproduction (pollination/seeds) and asexual reproduction (pups).

Pineapples — The Edible Bromeliad

The most familiar bromeliad is surely the pineapple. Related to neither pines nor apples, the pineapple is a terrestrial bromeliad in the genus *Ananas*, which is comprised of fewer than 10 species, all of which are native to Central and South America.

The pineapple is a biennial plant. In its first year it grows as a rosette of large, sword-shaped leaves. During its second year, it produces a short stalk with many flowers. Each flower produces fruits (berries, botanically speaking). Then the stalk swells and produces a sweet, fleshy mass on which these fruits are embedded. A crown of short leaves tops it off. A single plant produces two to four pineapples. How did the pineapple get its name? According to some sources, the name is derived from a pinecone's shape and an apple's sweet, firm, flesh.

If you'd like to explore pineapples further with your young gardeners, check out our Kitchen Scrap Gardening activity.

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