A Bit O’ Botany: the Asteraceae Family

By Cindy Murray

Syrphid fly on wild aster

You may recall from your high school biology class that every living thing can be classified, or arranged, according to specific similar phenotypes (observable traits) and genotypes. The different levels, or taxa, are arranged from the most inclusive to the most exclusive: Kingdom, Phylum, Class, Order, Family, Subfamily, Tribe, Genus, Species. Today we’ll hone in on the family Asteraceae, which is in the Plant Kingdom.

Asteraceae (sometimes known as daisy, sunflower, or aster families), holds the largest number of species of any plant family in North America. And we’re all familiar with a number of them: dandelions, daisies, asters, and, of course, the ubiquitous sunflowers.

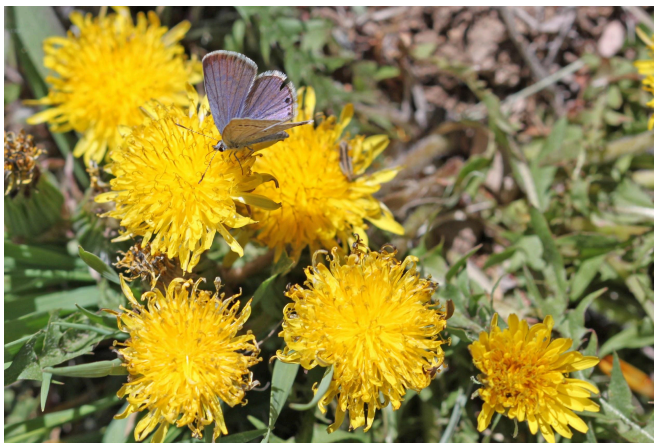
But did you know that several Asteraceae can be found in the produce section of your grocery store? These include lettuce, globe artichokes, Jerusalem artichokes, radicchio, and endive.

About now, you may be asking yourself, “How can a sunflower and a globe artichoke have anything in common?” First, what most of us would commonly think of as a traditional flower on an Asteraceae plant is actually an inflorescence holding a composite of multiple individual flowers termed “florets” on a receptacle. What we would call petals are, in reality, tiny individual flowers we call rays. Not only that, each tiny bulge in the center (disk) are individual tubular flowers. The ray flowers bloom first, in a spiral fashion from the outside towards the center, and then likewise, the discoid flowers bloom. This is one of Mother Nature’s beautiful inventions: The colorful rays attract pollinators, then when the disk flowers bloom later, pollinators will be in the vicinity.

Each disk and ray flower have either sepals represented by a hairy “pappus” at its base or no sepals at all. Rather, bracts hold the inflorescence on the receptacle.

While all members of the Asteraceae bear composite flowers, not all of them have both ray flowers and disk flowers. Like all members of the Thistle/Artichoke subfamily, Carduoideae, artichoke inflorescences present only disk flowers. The edible portions of an artichoke are the bases of its bracts and the receptacle (heart). Other members of this subfamily are the Scotch thistle, which has become a

nasty invasive weed in Northern Arizona, and the native Arizona and Wheeler thistles. These natives are noninvasive, and unlike Scotch thistle, don't expose wing-shaped spines up and down the stems.



Western square-dotted blue butterfly on dandelion

Dandelions, salsify, lettuce, and the weed prickly lettuce, members of the Dandelion/Chicory subfamily, Cichorioideae, bear only petal-like flowers extending to the center of the inflorescence. They are called ligulate flowers and the inflorescence is termed a ligulate head. Ligulate flowers have both male and female parts, and are therefore "perfect."

The Aster subfamily, Asteroideae, also comprises some species producing only disk flowers, like our native pearly everlasting and pussytoes, which are dioecious, meaning that they produce staminate (male) flowers and pistillate flowers (female) on separate plants.

But let's not forget the asters, daisies and sunflowers themselves, which are all in the aster subfamily, displaying inflorescences with central disk flowers surrounded by ray flowers. Helianthus is the generic name for the seventy-two species of sunflowers, and H. annuus, or common sunflower, originated in the Americas. These are the sunflowers in the Flagstaff area that display brown centers. We also have gorgeous fields

of yellow-rayed flowers with gold centers belonging to Asteroideae called golden crownbeard or cowpen daisy (Verbesina encelioides).

We typically think of daisies as composites of white ray flowers with yellow centers, and sunflowers as having yellow ray flowers and brown centers, but this does not always hold true (think yellow cowpen daisy and mahogany sunflower).

Asters, on the other hand are typically purple or pink with smaller central disks. I adore my wild tansy asters with their profusions of delicate-appearing purple-rayed flowers and yellow disks.

Asteradeae also embraces many aromatic plants: western yarrow, sagebrushes, chrysanthemums, chamomile, and marigolds.

Ultimately, across a spectrum of noxious weeds, edibles, wildflowers, aromatics, and cultivated ornamentals, the Asteraceae family is indeed diverse. Whether its species bears ray flowers or discoid flowers or both, what a wondrous family Asteraceae is!