

the TROPICAL GARDEN

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A Beautiful Deformity

Fasciation in the plant kingdom

Text and Photos by Kenneth Setzer



Plants offer probably the greatest variety of form; even within one species there can be great deviation in shape, color and texture, depending on the plant's growing conditions, age or even simple idiosyncrasies. But even with such variety possible, too extreme of a variation can be viewed as a deformity or mutation. One kind of mutated growth in plants is referred to as fasciation or cresting.

You may have encountered fasciated plants before without even realizing it. A plant's flowers might appear to be elongated as though they've been stretched out horizontally, or the growing tip of a plant's stem (the apical meristem) looks unusually flattened and broad, as though multiple stems had fused together instead of growing in the more typical cylinder shape.

I first encountered this phenomenon in a firespike plant, *Odontonema strictum* (an absolute hummingbird magnet that, for me, thrives on neglect). Firespike normally produces long, tubular red flowers arranged along a spike. Set against its deep green foliage, firespike flowers can be quite striking. But recently, some of the inflorescences on my firespike formed into a flattened structure that resembled a folding paper fan or a shoehorn that had been melted a little to include some waves and ruffles at the end. Very odd! I thought initially this was caused by a disease of the plant, and left the unusual growths alone.

A second example of fasciation also grew in my yard. Fasciation is somewhat rare, so to have it present itself in two separate plant species in my small yard seems almost

miraculous. A now-deceased lantana (*Lantana camara*) flowered profusely, but eventually produced what looked like broccoli florets, along with the normal flowers. They were almost as large as actual broccoli, were green and soon wilted to brown or black. A wondrous oddity only the kingdom of plants could produce!

What exactly is fasciation?

First of all, it's important to know that fasciation is not a disease. It's the plant's reaction to any number of mostly external forces, taking form as abnormal development in which cells grow perpendicularly to their normal pattern. Fasciation has been noted as a reaction to insect attacks, fungi, viruses, physical damage, a genetic mutation or the bacterium *Rhodococcus fascians*. Exposure to frost has even been implicated. In short, it seems nearly anything can induce fasciated growth. Some older sources I found even blamed excess nutrition for the uncontrolled growth, or an uneven distribution of auxin, the plant growth hormone. That last one makes sense, but it's more of a description than an explanation. We would need to ask what causes the inconsistent auxin levels.



1. Firespike (*Odontonema strictum*) inflorescences showing fasciated (a) and normal (b) growth. Note the much smaller flowers, in far greater numbers, on the fasciated example.
2. *Pachypodium lamerei* 'cristata' with fasciated growth (a) and the normal *P. lamerei* (b).
3. Extremely fasciated growth on a pygmy date palm (*Phoenix roebelenii*).
4. The fasciated bloom of an *Aechmea* bromeliad.

Photo by Marilyn Griffiths/FTBG

Fasciation can manifest in stems, roots, fruits or flowers, though you are less likely to know about it in roots for obvious reasons. It is most apparent in stems and flowers.

There are even variations within fasciation. The abnormal growth may be flattened and fan-shaped, often referred to as “crested.” Or it may appear diffusely branched like the business end of a broom, coiled like a snail shell (as in some cactus fasciations) or as a tangled mess of Medusa-like coils. Flowers or leaves growing from fasciated stems are often clustered, undersized and overabundant.

Fasciation doesn't seem to be limited to a particular species or variety of plant. I found references to fasciation in plants as varied as hoop pines (*Araucaria cunninghamii*) and saguaro cacti (*Carnegiea gigantea*)—the former is a gymnosperm, while cacti are flowering plants, angiosperms. These two groups of plants diverged from a common ancestor a very long time ago and are not very closely related.

Commercial appeal

How many times have you heard “one of a kind” as a selling point? We humans at first tend to shy away from the odd ones out, but eventually we prize and value the unique and unusual. Such is often the case in horticulture and plant collecting as well. Therefore, it should come as no surprise to find fasciated plants cultivated as marketable varieties. One such example is the *Celosia*, a genus of plants in the amaranth family. If this plant's flowerheads are of the fasciated variety, they are sold as “cockscorn” celosias. The flowers look quite different than the normal variety, somewhat similar to brain coral. This crested form of fasciation is reflected in the plant's full name: *Celosia cristata*.

Another commonly marketed fasciated plant is *Euphorbia lactea* 'Cristata.' It's sometimes sold as a cactus, though isn't one. The crest is grafted onto rootstock for commercial purposes, and indeed the fasciation is further cultivated to produce ever more startling colors and variegations. Common names for it include crested elkhorn or crested euphorbia. Crested ferns are another ornamental oddity sometimes cultivated for sale. The frond or leaflet tips are the fasciated parts and resemble tiny outstretched hands.

Edible oddities

You must have encountered those huge, misshapen strawberries that look like someone fused together multiple berries and flattened the whole thing a bit. Yep, fasciation again! This can also be found occasionally in tomatoes. Genetic researchers have even looked into fasciation as the reason domesticated tomatoes are so much larger than their supposed wild relatives. Even way back in 1948—ancient history in terms of modern genetics research—an author in *The Botanical Review* noted something to ponder:

“The commercial value of the tomato owes its existence largely to the increase in fruit size brought about by a prehistoric fasciation mutation in some tropical American valley.”

I savor the romantic notion of some prehistoric Native American in the neotropics running across a fasciated tomato and contemplating the idea of cultivating it.

If you don't like having fasciated plants in your garden, just remove any afflicted parts. The odd growth most likely will not return—unless you're lucky.

