

FORM MEETS FUNCTION

A Fringe Festival Fascination

Text by Thomas Mirenda



LIFE OCCASIONALLY BESTOWS strange coincidences on us. Isn't it interesting how flowers, which evolved to appeal to insects, birds and other kinds of pollinators, are so wildly attractive to us humans as well? I thank Mother Nature pretty much every day for the beauty and stimulation she has brought to my life from an early age. When I first applied to be an orchid judge, I was asked to write about how I got started, and the identity of the first orchid I ever grew. I had to go back a very long time to my early childhood nerdiness, when, at age 8, I got in some trouble with my mother when a package showed up at our doorstep from a bulb company. I had spent my Christmas money on corms and seeds out of a mail-order catalog. The most prized of all were the tiny pea-sized bulbs of the egret flower, *Pecteilis* (then *Habenaria*) *radiata*. The picture in the catalog so fascinated me that I, like most pollinators, could not possibly resist it. Thankfully, they were easily grown and bloomed on my bedroom windowsill and so I can realistically credit this species as the ignitor that sparked the trajectory for my life in orchids.

KEN JACOBSEN



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Thomas Miranda

I was reminded of this recently by the remarkable painting of this species by my dear friend, Patricia Laspino, in which she masterfully juxtaposes the spectacular blooms with their namesake, the Great Egret — a composition of stunning, compelling imagery. But the creation of this painting was not a coincidence. I had forgotten that I had related the story of my first orchid to her years before, and never imagined that this memory would manifest itself in such a wildly beautiful creation. I was truly moved to see it, and to know that I had somehow sparked its creation and interpretation in the imagination of such a fine artist.

ANN DEPPEZ



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Orchid flowers of many genera display fringes on their lips, petals, sepals or around the column. As much as we are attracted to them and love to see them, that attraction is purely coincidental as well, as they all evolved as a means to attract pollinators — in light colored flowers, almost always a butterfly or moth. Indeed, fringes, as a character of a pollination syndrome, evolved in several unrelated orchid groups around the world, ostensibly to pander to additional pollination partners in the Hymenoptera.

The platantheras of North America (also referred to as fringed orchids as

their common name) display some of the most exceptionally lovely fringed lips in the Orchidaceae. Often brilliantly hued in orange and purple, the vibrant colors of such platanthera flowers are bold flags for attracting attention from diurnal butterflies of many types (i.e., not a species-specific partner), often resulting in hybridization and sometimes the creation of new species by introgression.

As gorgeous as these species are, I am going to focus on the white-flowered species (such as *Platanthera praeclara*, *Platanthera leucophaea* and *Platanthera*

- [1] "Watershed", multilayered oil on canvas, by artist Patricia Laspino, 48 x 36 inch (122 x 91.4 cm), inspired by the great egret (*Ardea alba*) and egret flower (*Pecteilis radiata*); www.orchidallianceproject.com
- [2] *Pecteilis radiata* 'Pope John Paul II' AM/AOS
- [3] *Pecteilis susannae* 'Malcolm' AM/AOS
- [4] *Habenaria medusa* 'Mike's Fireworks' CCE/AOS. Inset, *Hab. medusa* 'Natural World' AM/AOS, photographed by Michael Blietz.

lacera), as they so vividly illustrate a well-defined pollination syndrome for moths.

Charles Darwin astutely recognized, and taught us all, that white, night-fragrant flowers bearing nectar spurs, such as *Angraecum sesquipedale*, were clearly adapted to attract moths, often with prodigious proboscises (tongues), to come and drink a sweet fragrant nectar from equally prodigious tubular nectaries. But I have always wondered about why the fringes evolved in so many of my favorite genera (*Platanthera*, *Habenaria*, *Bartholina*, *Holothrix*, *Epidendrum*, and *Rhyncholaelia*, to name a few). We universally accept the presence of fringe as a common character of the moth pollination syndrome, but to my knowledge, no one has mind-melded with a moth to understand why fringe is so compelling to them. Perhaps it is a visual effect utilizing compound vision that makes them attractive in some way. Some think the fringe analogous to the striped nectar guides we find in so many tubular-lipped orchids to direct bees to the correct spot for pollen transfer. But I wonder if there is something else going on.

So many orchids engage in mimicry as an attractant, and one wonders if that might play a role in these types of orchids as well. If one looks at some of these fringed lips, they do bear a resemblance to a moth in flight. Another coincidence? Although I am not well versed in moth courtship rituals, it is not inconceivable that this visual similarity plays a role in the attraction of moth pollinators to these flowers. I was recently looking at photography that depicted the beating wings of a hovering hummingbird as superimposed images over the course of an instant, probably no more than a second. The images are remarkably fringe-like, and make one wonder if fringed flowers are mimicking the rapid fluttering of hawkmoth wings. Who knows how this fringe appears to the brain of a moth. I cannot even imagine the design of an experiment that would demonstrate what might be going on in their primitive, but uniquely adapted brains. In the end, it is a wonderful mystery to ponder.

I will leave you with one other strange coincidence. Dr. Margaret From of the Henry Doorly (Omaha) Zoo and I were discussing moth pollination syndromes in preparation for this piece, when she told me of a photo she had seen of a moth's brain. It is almost exactly the shape and bears the same fringing as one finds on the lip of *Pecteilis radiata*.



ROBERT SPRAGUE



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— Thomas Mirenda has been working professionally with orchids for over three decades. He is an AOS accredited judge and is the chairman of the American Orchid Society's Conservation Committee. He recently coauthored *The Book of Orchids: A life-size guide to 600 species from around the world.* (email: biophiliak@gmail.com)

Scents at dusk embark
Airborne paramours entice
Timeless dance of love

— Haiku by Tom Mirenda

[5] *Platanthera leucophaea*

[6] *Platanthera praeclara*. This species and *P. leucophaea* are essentially distinguishable by the placement of the pollinia; close and parallel in the latter and far-spaced and angled in the former. Both species are moth pollinated but hybridization doesn't occur because of this difference. The pollinia in *P. leucophaea* become attached to the proboscis of the pollinating moth and in *P. praeclara*, the pollinia adhere to the eye of the smaller pollinating moth species.

[7] *Platanthera lacera* photographed in the Millersberg Camp Shand, Pennsylvania.

[8] *Platanthera blephariglottis*.