

University of California, Irvine

Arboretum Quarterly

For members of the Friends of the UCI Arboretum

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The Mists of the Marsh

By Dr. Peter A. Bowler, UCI Arboretum and Herbarium Director

Mists in marshes have long held human fascination, from Henry James' "Daisy Miller" to Dickens' accounts in "Great Expectations." While watching the sliver of fog that occasionally dances above the Marsh it is easy to reminisce, and appreciate that this remarkable condition supports a fascinating microhabitat in the band of the several dozen feet it touches along the bluffs. This thin skein of moisture creates a special humid rich habitat that allows lichens and bryophytes to thrive. Although there is an occasional fog that floats in on the onshore breezes from Back Bay, this fine, ephemeral ground-fog is different. Within the first few moments of exposure to the morning sun it dissipates, but has already worked its magic on poikilohydric (meaning able to draw moisture from the air) lichens and mosses. When the sun causes the mist to vanish, these organisms gradually become dry and physiologically less active until the mist again moistens them. Lichens become stiff and friable when dry, but while wet they are pliable and flex without breaking. Along its contact zone in the badlands the lichen-inhabited sagebrush and buckwheat are immediately evident. *Candelaira concolor* and *Xanthoria candelaria* form bright yellow and orange cloaks on old branches, and there are tufted fruticose species such as *Ramalina farinacea* and several other *Ramalinae* present—otherwise absent outside this narrow microhabitat.

I was astonished to find an excellent specimen of *Ramalina*

menziesii, the "lace lichen" that festoons California's coastal oaks, on buckwheat in this zone. This is a first record of the species in the Marsh, and it is completely dependent upon the unique microclimate produced by the seasonal the ground-fog. On the soil there are rich assemblages of a cup-forming *Cladonia* species, as well as many mosses. Because of their ability to absorb water from the air, unique lichen communities are often found in extremely dry coastal or high elevation environments that have fog presence, and the limits of fog zones also define their local distributions. For example, at San Quintin in Baja California, there are ten volcanic cinder cones that are often capped with low clouds and have a lichen flora completely distinct from the dry flats below them. This local ground-fog condition in the Marsh sustains a special habitat that does not exist in

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Notes from the Nursery - Spring 2012

by **Laura Lyons, Nursery Manager, UCI Arboretum**

The nursery staff has been busy this fall and we have an interesting assortment of new plants on sale, plus some nice items back in stock. More items are in early production for our spring sales but we anticipate having the following items after the New Year.

New plants

Cremnosedum "Crocodile" – These succulents are hybrids between a rarely seen genus called *Cremnophila* and the popular genus *Sedum*. *Cremnosedum* "Crocodile" has very dark green leaves with subtle patterning. It grows less than 1 foot tall, 1-2 feet wide, and loves sun. Like most succulents, it needs little water once established.

Aeonium pseudotaulaeformis – Dinnerplate *Aeonium* – This interesting species of *Aeonium* sports large, very flat rosettes of bright green leaves, often as much as 1 foot across, hence the common name. Best in full sun, gets 1-2 feet tall, 2-3 feet wide. Colorful yellow flowers in springtime.

We have two new *Echeveria* in the nursery right now. *Echeveria shaviana* "Ruffles" is similar to many other selections of this species with its deeply ruffled pink-silver leaves that are a treat.

We also have a very interesting new variety, *Echeveria* "Madre del Sur" The leaves are a very pale silver, and deeply ruffled.

Like most *Echeverias*, these varieties like part shade to full sun, need little water once established,

and do well in pots or in the garden. They grow about 1 foot tall and spread by offsets.

Ptilosus 'Plantinum Wallaby.' A new perennial, easy to grow but slow, reaching about a foot tall and wide with unusual periwinkle blue flowers.

Stapelia verigata - A small evergreen succulent, upright and narrow, reaching less than a foot tall, but

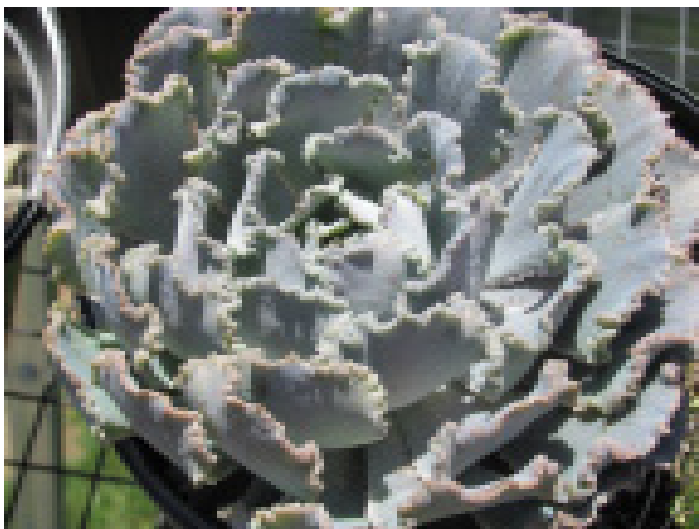


spreading. Full sun or part shade. Has large, star-shaped flowers in earth tones. This unusual succulent is pollinated by flies, not bees, so some people find the faint smell unpleasant.

Back in stock

Protea neriifolia "Pink Ice" – One of the most beautiful *Proteas* with rich true pink flowers. Generally grows about 6 feet tall and wide. Pots are great, or well draining garden soil – raised beds or planting it on a slope or mound is helpful.

Calandrinia spectabilis – This beautiful succulent with silvery leaves and show stopping fuschia pink



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flowers. 1-2 feet tall, spreads to 3 feet. Spectacular at maturity.

Crassula "Campfire" – this colorful succulent has a bright red tint to the leaves. The more sun, the redder the foliage gets. It has spikes of white flowers in fall. 1-2 feet tall, spreading at least 2 feet.

Faucaria tigrifolia - Tiger jaws - charming small succulent, looks fierce but the 'spines' are actually quite

soft. Less than 1 foot tall, spreading, great for rock gardens. It has yellow flowers in fall.

Our spring and summer bulbs are sprouting right now so look for them to start appearing by April. We also have a variety of new succulents and perennials we hope to debut at the June Bloom sale.

“June Gloom? No, June Bloom!”

June Bloom Plant Sale

June 16 9 a.m. to 3 p.m.

Choose summer succulents, perennials and blooming bulbs from our nursery



Many unique and easy to grow items for your garden

Expert advice on selection and care

Clearance sale on remaining spring stock

Free admission and parking

For more information please call (949) 824-5833
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New Signage is Up in our Aloe and Succulent Gardens, Supplementing Our *Ex Situ* Conservation Efforts

By Peter A. Bowler
UCI Arboretum and Herbarium Director

One of the first things visitors to the Arboretum wish to know is the identity of the magnificent plants they see – “What’s the name of that plant and where does it naturally occur?” Thanks to the generous contribution of a donor, hundreds of permanent, waterproof plaques have been mounted on metal stakes and indicate the scientific and common names, plant family, country or area of origin, and the accession number (keyed to precise acquisition data) if the specimen is a formal part of our scientific collection. Most of the aloes and succulents have been labeled, and it is a joy for visitors to learn from them. In the near future, similar labels will be erected in the California garden exhibits and signs will describe each section of the Arboretum’s living exhibits. The accessioned living plants are *ex situ* vouchers of populations in the wild. It is this scientifically valuable aspect of botanic gardens and arboreta that distinguishes them from simply being pleasant parks with attractive trees, flowers and exhibits.

Arboreta and botanic gardens have strong roles in modern conservation efforts, and having accessioned plant material with known origin and collector data is an important aspect of plant protection. Many of our accessioned collections are endangered and cannot be manipulated or sampled in the wild, while we can provide researchers with samples from a living plant. Some arboreta sustain seed and pollen collections that can be re-introduced into their indigenous distribution, while others provide samples of many kinds from accessioned specimens to scientists all over the world. As Rinker (see link below) summarizes, the role and rationale for arboreta and botanic gardens have evolved in western culture beginning with “Medicinal Gardens” (growing medically important plants of the 16th and 17th century), “Colonial Gardens” (tropical botanical gardens assisting colonial expansion and commercial uses in the 17th and 18th centuries), “Linnean Gardens” of the 18th and 19th centuries that emphasized utilitarian study of plants, “Civic Gardens” (19th and 20th centuries designed to advance horticultural aspects of living collections), to the current “Specialist Gardens” (20th and 21st centuries, including experimental stations and

sites that showcase research on special plant groups like orchids) and “Sanctuary Gardens” emphasizing genetic protection of threatened species and *ex situ* protection of economically and ecologically important taxa.

Since a part of our mission is in the arena of the Sanctuary Garden role, the UCI Arboretum is participating in a Botanic Gardens Conservation International and the International Organization for Succulent Plant Study inventory of accessioned rare, sensitive, endangered cactus and succulent species (<http://www.bgci.org/ourwork/cactusandsucculentsurvey>). We have numerous sensitive, rare, threatened or endangered species with accession information, thus they are significant living vouchers of populations at risk in the wild.

The Arboretum is also a Cooperator in the Plant Conservation Alliance’s Federal Native Plant Conservation Committee, and we will link our native plant accession data with this broader effort. Along with several other UC Arboreta, we are participants in a collaboration between the UC Natural Reserve System (UCNRS) and UC botanic gardens to establish living *ex situ* vouchers of selected plant species occurring on the thirty-seven UCNRS Reserves. In our Mojave Desert sections we have and will continue to establish taxa from the Burns Pinyon Ridge Reserve (<http://nrs.ucop.edu/reserves/burns/burns.htm>) and from the recently established Steele Burnand Anza-Borrego Desert Research Center (<http://nrs.ucop.edu/reserves/anza-borrego/anza-borrego.htm>). UCI administers the Burns, Anza Borrego, and the San Joaquin Marsh Reserves. Since the Arboretum is immediately adjacent

the San Joaquin Marsh Reserve it isn’t necessary to extend an *ex situ* effort for it.

The UCI Herbarium (abbreviated and formally designated as





IRVC) is one of the nineteen active members of the Consortium of California Herbaria Participants in the Consortium of California Herbaria, including the UCI Herbarium are listed and described at <http://ucjeps.berkeley.edu/consortium/participants.html>, and, as you can see at http://herbaria4.herb.berkeley.edu/cch_numbers_table.html, less than 20% of UCI's collections have been entered in the digital herbarium database by my students. We have significantly more entries that have been prepared for entry into the Consortium database, and anticipate many thousands more to be available electronically in the near future.

The University of California, Irvine Herbarium (IRVC; <http://arboretum.bio.uci.edu/herbarium.cfm>) was established in 1965, and is one of seven herbaria within the University of California campuses. IRVC holds ca. 35,000 vascular plant collections from the western United States, especially southern California and Orange County, and Baja California, Mexico. Many of the specimens collected by the well-known ecologist R.H. Whittaker are curated at IRVC. IRVC is recognized in the Index Herbariorum and Biodiversity Collections Index (<http://www.biodiversitycollectionsindex.org/collection/view/id/13078>) and it is part of the University of California, Irvine Arboretum.

As those of you interested in the flora of the California Floristic Province are aware, in the past three decades taxonomic nomenclature has changed dramatically from Munz's early floras in 1959 and 1968, to the first edition of the Jepson Manual in 1993, to the current and second edition of the Jepson Manual (Baldwin, et al., 2012). The "dynamic concordance" translator between the 1993 and 2012 editions of the Jepson Manual may be accessed electronically at <http://ucjeps.berkeley.edu/interchange/JMtoJMII.html>. We are in the process of making the appropriate taxonomic updates in our collection, and follow the nomenclature accepted in the second edition of the Jepson Manual. The University and Jepson Herbaria and the many Jepson related projects are hosted and maintained at UC Berkeley (see <http://ucjeps.berkeley.edu/>) and at the Consortium of California Herbaria homepage <http://ucjeps.berkeley.edu/consortium/>.

References

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti and D.H. Wilken, editors. 2012. The Jepson manual: vascular plants of California, second edition. University of California Press, Berkeley.
See H. B. Rinker's short article, "The Weight of a Petal: The Value of Botanical Gardens" at <http://www.actionbioscience.org/biodiversity/rinker2.html>

Arboretum calendar - Summer 2012

June 16	<i>June Gloom? No, June Bloom!</i> June Bloom Plant Sale	9 a.m. to 3 p.m.
July 4	Arboretum closed, Independence Day	
July 14	Bulb repotting day, 8:30 a.m. to 11 a.m.	
July 21	Saturday plant sale, 9 a.m. to noon	
August 11	Saturday Plant sale, 9 a.m. to noon	



Marsh Mist continued

Back Bay or elsewhere in the county. Our preliminary Marsh lichen checklist prepared decades ago (Bowler and Riefner, 1990) clearly needs updating! Ironically, that checklist pre-dated the resilient coastal sage scrub restoration that now dominates the zone – so that in the past two decades these species have colonized an historic restoration!

In the dry cattail pond bottoms, the blades of the plants act as condensation plates, and glisten as the thin layer of aerial moisture dissipates. This condition



has only existed in recent years – perhaps enhanced by the berm the Irvine Ranch Water District built along its side of Campus Drive. The berm helps block air movement, aiding the entrapment of the low mist inside the embracing arms of the bluffs and hovering over the wetlands. During the late summer and fall before the cattail cells of the Marsh are filled with water, there is a seasonally successional plant of great beauty that densely colonizes the dry pond bottoms. *Sesuvium verucosum* (western sea-purslane) is a monotypic species in the Aizoaceae (iceplant family) that is native to western North America. This lovely mat-forming annual has brilliant purple flowers that attract Lycaenid butterflies such as the Marine Blue.

The mists of the Marsh hold and sustain secrets that, when revealed, show the true value of magical microhabitats and their treasures. It is all the more rewarding to see this happen over a period of twenty years at a protected restoration site!

Bowler P.A. and R. Riefner. 1990. A Preliminary Lichen Checklist for the University of California, Irvine, Campus and the San Joaquin Wetlands. *Crossosoma* 16 (6): 1-10

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