

# Pacific Iris

Almanac of the Society for Pacific Coast Native Iris



[www.pacificcoastiris.org](http://www.pacificcoastiris.org)

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# *Iris hartwegii* in its many forms



*Iris hartwegii* subsp *hartwegii*



*Iris hartwegii* subsp *pinetorum*



*Iris hartwegii* subsp *australis*

The various subspecies of *Iris hartwegii*,  
as supplied by Erin L. Riggs.

For information see Erin's article on pages 6-12



*Iris hartwegii* subsp *columbiana*

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***Iris douglasiana* at Point Reyes  
National Foreshore**

**Photo: Garry Knipe**

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Members are encouraged to join this group, which provides a simple online way to ask questions about finding and growing PCI among all members. To join this site, you must register with Yahoo, but do not need a Yahoo e-mail account. You may post photos here, check on scheduled activities, and contact other SPCNI members.

## 'Bay Street' streets ahead



Joe Ghio continued his incredible run of success in the Sydney B. Mitchell Medal stakes again this year winning the top prize with his 2008 introduction 'Bay Street'.

Joe has won nine times in the past ten years—'Bay Street' this year; 'Rodeo Gulch', 2014; 'Lines that Rhyme', tied in 2013; 'Ocean Blue' and 'Blue Plate Special', tied in 2012; 'Bar Code' and 'Star of Wonder', tied in 2011; 'Cozumel' in 2006, and 'Sierra Azul' in 2005.

This year's runners up included Debby Cole's 'Egocentric', 'Pinole Prince' from Vernon Wood, 'Eye Catching' bred by Joe Ghio and another Debby Cole-bred cultivar, 'Periwinkle Persian'.

The American Iris Society's Sydney B. Mitchell Medal is the highest award for Pacific Coast Iris.



# from the editor's desk

Fellow Pacific Irisarians

It is the middle of spring as I write. In the east of New Zealand, especially in a season that is already being tagged as an 'El Nino' one, that means lots of wind and not too much rain. The Pacific Iris are not too concerned about those conditions of course, but other taller growing irises need a little cossetting. The dry weather is good for hybridisation, as it means most of the flowers still hold pollen when I get home, meaning I can carry out some of those crosses I have been thinking about over the winter.

This winter has been a little different for the Head Gardener and I. In April, we made a flying visit to the United States, ostensibly to visit our Arizona-based son, who is on a post-doc fellowship in Phoenix. The Arizona desert was an eye-opening place, but not somewhere for a Pacific Iris fan to find his favourite plants.

As I report in this issue, we spent some time in San Francisco on the way home – and the Pacific Coast Iris were in flower. What a treat to meet up with fellow Pacifica fans, and to see some of their gardens – especially Garry Knipe's turquoise-infused seedlings in his garden at Cupertino.

It was also a delight to see some PCI in the wild, although we mainly saw *I. douglasiana*. A particular long-held desire to photograph a PCI in flower with the Golden Gate Bridge was also achieved on this trip.

As I report, the Botanic Garden at U.C. Berkeley was a special treat, as lots of well labelled PCI species were in flower, with information on where they were collected. This was the first time I had seen many of the species, and I spent many happy hours in the garden.

Oddly enough, two of the species I was keen on seeing were not in flower – *I. munzii* and *I. hartwegii*. The latter has been well covered for us in a very interesting piece by Erin L. Riggs from the Leach Botanical Garden in Portland. She has some results to report about the relationships within the *hartwegii* complex, which will be of interest to many of you who have a particular passion for the wild species that make up the series Californicae.

Erin's article and our visit to UC Berkeley reinforced to me the importance of botanic gardens in preserving and displaying precious species not normally found in other municipal gardens. Rancho Santa Ana Botanic Garden does sterling work in Southern California. Their native plant nursery is our featured nursery this issue, and I was interested to see that they are such big fans of 'Canyon Snow'. This cultivar has been around for a long time but continues to hold a special place in the garden. It is not grown in New Zealand, so I was excited to finally see it when we visited San Francisco.

While we were there, Garry Knipe and Immediate Past President, Debby Cole asked us to join them as they explored Point Reyes National Seashore looking for wild iris. Unfortunately, we were already booked in to visit a New Zealand friend who now lives in the Bay area, but judging by their report in this issue, we missed a great day.

For those of you in the Northern Hemisphere, it is seed pool time again. If you still have those carefully-harvested seeds, especially those of modern hybrids, knocking around the house, send them immediately to the seed pool. For details look at the society's website [http://www.pacificcoastiris.org/spcni\\_seedexchangeabout.html](http://www.pacificcoastiris.org/spcni_seedexchangeabout.html)

Happy gardening!

Gareth Winter  
Editor



# North-eastern news

**Susan Lambiris, Raleigh, NC:**

I'm sorry not to have much to say about my Pacificas this year. One really cold night in late March (25 F after three weeks of pleasant mild weather) did a surprising amount of damage to my garden, apparently including aborting essentially my entire Pacifica bloom for the year. Even my old reliables, 'Big Money' and 'Rodeo Gulch', produced only a scattering of blooms. Most of my well-established plants soldiered on through the summer, despite the un-Pacific weather, but almost all the ones planted in fall of '14 died, so even with a favorable bloom next year I'll have nothing much new to report by either. However, I'm eagerly awaiting my usual large purchase of newcomers, and (also as usual) hoping for better luck with them!

**Ernest de Marie, Briarcliff Manor, NY (about 30 miles north of NYC):**

I had a white and a purple one I grew from seed that was hardy for years back in Tuckahoe NY where we were until we moved in late 2012. I moved them but only the purple one made it. It has done very well and continues to expand. I also planted some seedlings this spring but the weather wasn't cooperative and only two I think are still there. I have just planted out a bunch more in a different location and since the weather is cooling down I hope they will establish. They are small as I had them crowded in two pots all summer but they made pretty long roots and if our winter isn't as bad as the last two were that would be in their favor. I also got some divisions of a brownish flowered one from friends who have a wonderful rock garden on the other side of our town, and planted those last week, again figuring they need cool weather to establish.

I believe that moving them in hot weather isn't a good idea. From the size of their patch it must be many years old and is maybe six or so feet across, so PCI can definitely survive here. I think the reason they are not more popular is that they don't move as well as other irises, at least in places with warm humid summers, and they need to be replanted right away unlike bearded or bulbous irises. By growing from seeds from the seed lists Mother Nature will decide what is hardy and what isn't. I am sure some varieties would not do well here but I do believe that with selection and maybe someone trying to hybridize them on the east coast we could end up with PCI well adapted to our conditions.

**David Schmieder, Concord, MA:**

As 2014 came to a close, the only iris I found time to protect with salt marsh hay were my PCI. However, the first two months of 2015 had a good snow cover (much too good for many people in the Boston area!), so most iris varieties we grow were protected from the usual bitter cold anyway. Unfortunately normal spring temperatures and rain were both very slow and sporadic in developing after that, with PCI bloom occurring about a month later than normal. Less than a dozen older seedlings bloomed, with no new colors, patterns or forms appearing. Ill-timed rain made photos nearly impossible, as well as crosses either by me or insects. The new seedling bed I mentioned in the Fall 2014 issue took a hit not only from rodents, but also from one half of a nearby twin 80 foot white pine, blown over by a wind micro-burst during the winter. Now, in September, there are only four of the 24 seedlings I planted there in 2014 left. I have counted about 45 of my older seedlings left in the bed by the kitchen window, many of which are struggling to beef up enough to bloom. Later in the summer I got a severe case of tick-borne babesiosis, resulting in further neglect of all our iris varieties. Our own and our neighbor's trees continue to steal more of the available light, moisture and fertility every year. Add in my age and condition, and one must wonder why I continue to attempt growing and hybridizing anything, let alone the PCI that seem averse to thriving here. Well, I can only say it's just plain interesting and exciting done at any level, and I will try my best to spare my Northeast-tolerant PCI project from our necessary efforts to downsize our gardens.



*Ernest de Marie's tough purple Pacifica.*

# Phylogenetic relationships among the *Iris hartwegii* complex re-examined using Chloroplast and Nuclear DNA sequence data and morphology

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## INTRODUCTION

The subject of this research is the *Iris hartwegii* complex. This complex of beardless iris is placed within series Californicae (Diels) Lawrence. Iris series Californicae, also known as the Pacific Coast Irises, includes 17 other species and several infraspecific taxa in addition to the *I. hartwegii*.

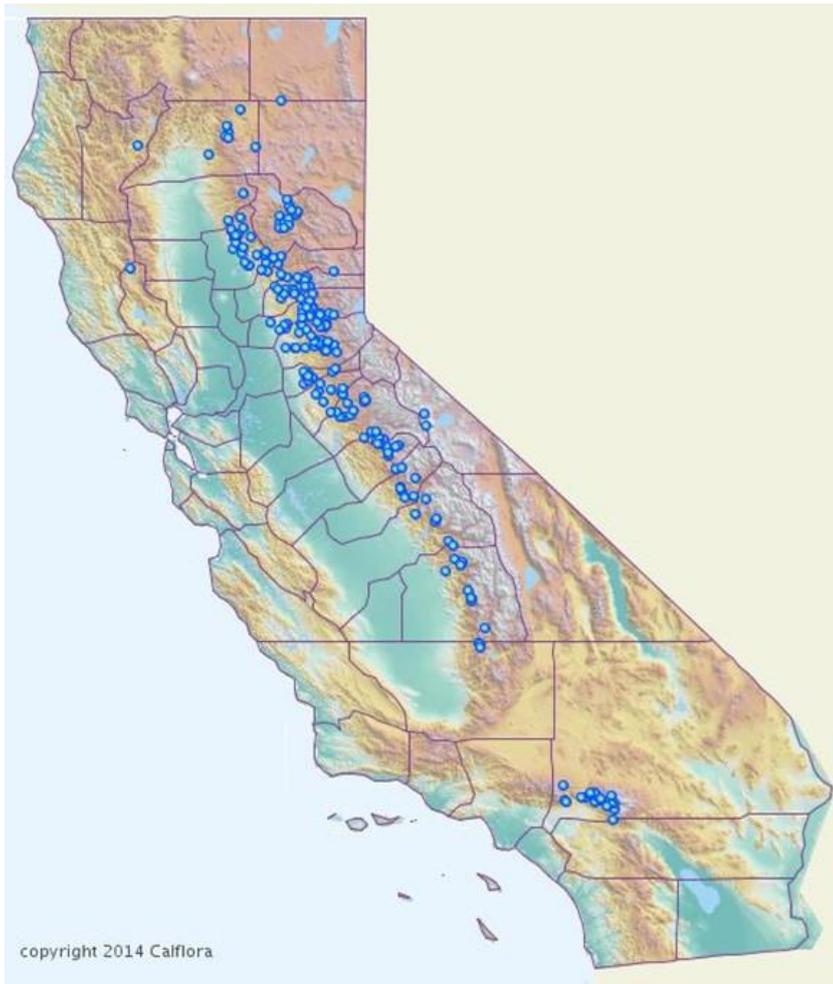
The Californicae is characterized by a high diversity of narrow endemics; 7 of the 18 taxa in this clade have a range of 10 km or less.

The *I. hartwegii* complex is comprised of four subspecies, *Iris h.* subsp. *hartwegii* Baker, *Iris h.* subsp. *columbiana* Lenz, *Iris h.* subsp. *pinetorum* (Eastwood) Lenz, and *Iris h.* subsp. *australis* (Parish) Lenz (Lenz 1958) (Fig. 1).



**Figure 1. The *Iris hartwegii* complex. Clockwise from top left *Iris hartwegii* subsp. *pinetorum*, *Iris hartwegii* subsp. *hartwegii*, *Iris hartwegii* subsp. *columbiana*, *Iris hartwegii* subsp. *australis*.**

Members of the *I. hartwegii* complex are distributed in foothills along the north-south axis of the Sierra Nevada, San Bernardino and San Gabriel ranges (Fig. 2). *Iris h.* subsp. *hartwegii* is distributed from the northern Sierra Nevada to their southern termination. *I. h.* subsp. *pinetorum* occurs on the northeastern edge, *I. h.* subsp. *columbiana* is centrally located, and *I. h.* subsp. *australis* is separated from other *Iris hartwegii* subspecies by the Mojave Desert (Fig. 2)



These subspecies are of particular interest to the Iris community due to the varied taxonomic changes. Lenz (1958) described *I. h.* subsp. *columbiana* as a new subspecies that was possibly the result of an ancient hybridization event between *I. munzii* and *I. hartwegii* (Lenz 1959). Foster (1937) doubted that *I. pinetorum* was a distinct species and suggested that it was a hybrid of *I. hartwegii* and *I. tenuissima* (a member of the series Californicae). Lenz also proposed *I. h.* subsp. *australis* became isolated from other *I. hartwegii* populations during the Holocene with the upheaval of the San Bernardino fault block. This geologic upheaval coupled with the increase in aridity during the Holocene resulted in the formation of the Mojave Desert (Lenz 1959). The Mojave potentially cut off gene flow between *I. hartwegii* and *I. h.* subsp. *australis*.

## Figure 2. Distribution of *Iris hartwegii* complex

In the half century since the work of Lenz, there has been a resurgence of interest in Iris series Californicae. Young (1996) was unable to resolve relationships within the series Californicae, although reciprocal transplant experiments did establish that the geographical factors have an important influence on the isolation of the taxa. Young (1996) suggested that all of the taxa within the series Californicae might be in one large species complex. Based on morphological data Wilson (1998, 2003, 2009) suggested that the *I. hartwegii* complex might not all be descended from one ancestor, meaning they are not all directly related.

My investigation includes a determination of morphological and molecular variation among subspecies in the *I. hartwegii* complex. Using a multidisciplinary approach I propose a phylogenetic hypothesis for the *hartwegii* complex to resolve subspecies relationships within the *hartwegii* complex, specifically:

- 1) Is the species complex monophyletic? Monophyletic - to have a common ancestor
- 2) Is each of the subspecies monophyletic?
- 3) Are morphological and molecular results congruent?
- 4) Are there biogeographic trends of diversity present?

## MATERIALS AND METHODS

**Selection of Taxa** Molecular and morphological data were collected from species comprising the *hartwegii* complex: subspecies *hartwegii*, *pinetorum*, *columbiana*, and *australis*. *Iris* taxa used as outgroups included three North American species (*Iris munzii*, *Iris tenax* subsp. *klamathensis*, and *Iris fernaldii*) and one western European species *I. xiphium*.

**Morphology** Measurements of 14 morphological characters were selected for analysis (Table 1). The Character of flower number, color, and simultaneous blooming were converted into a binary code for inclusion in analysis.



**Figure 3.** *Iris* taxa used as outgroups shown clockwise from top left: *Iris fernaldii* (Br. Alfred Brousseau, Saint Mary's College), *Iris tenax* subsp. *klamathensis*, *Iris xiphium*, *Iris 'munzii*

Table 1.

Morphological characters used in morphological (phenetic) analysis with in the *Iris hartwegii* complex

Leaf width	Stem length	Sepal length to width ratio
Petal length	Petal width	Floral tube length
Stigma length to width ratio	Style lobe width	Style lobe length
Filament length	Anther length	Flower number (0=2, 1=3)
Flower color (0=purple, 1=yellow)	Flowers simultaneous (0=no, 1=yes)	

**Molecular** I used plastid and low-copy nuclear genetic markers, some of which were developed based on plastid genome and RNA sequencing. Nuclear gene region nDNA 8750 and plastid gene regions cpDNA matK-trnK. petL-psbE and atpF were used in this investigation. Leaves were collected in the field; this leaf material was dried on silica gel for transport to the lab where it was ground in liquid nitrogen and frozen at -80°C. Extraction of whole genomic DNA utilized protocols modified from the CTAB method of Doyle and Doyle (1987). Investigation of molecular data included 42 individuals representing ten populations selected for analysis. Molecular studies were carried out at the Rancho Santa Ana Botanic Garden in collaboration with Dr. Carol A. Wilson.

### Data Analysis

Factor analysis was constructed on standardized morphological and molecular data sets using Principal Component Analysis (PCA). Scatter plots of morphological PCA revealed similarities among individuals. Maximum Likelihood (ML) evolutionary trees were generated by bioinformatics software platform Geneious version R7 <http://www.geneious.com> (Kearse et al., 2012).

## RESULTS

Trees resulting from ML analysis revealed *I. h.* subsp. *pinetorum* is supported as sister to *I. fernaldii* with a bootstrap value of 98.

*Iris hartwegii* subsp. *columbiana* and *I. h.* subsp. *hartwegii* individuals formed a single clade with a bootstrap value of 71.

*Iris hartwegii* subsp. *australis* is monophyletic (with common ancestor) and sister to *I. h.* subsp. *hartwegii* and subsp. *columbiana* with a support bootstrap value of 92 (Fig 4).

Morphological analysis shows consistent morphological differences among subspecies (only characters with highest loading on PCA axis given) (Table 2). Morphological data in the first three components of PCA analysis accounted for 68% of the cumulative variance. Stem branching/flower number was an important character on component one; petal width was an important character on component two; and floral tube length was an important character on component three (Fig. 5 & 6 on next pages). The clusters resulting from PCA were distinct for *I. h.* subsp. *australis*, and *I. h.* subsp. *pinetorum*. A less compact cluster was resolved that represents *I. h.* subsp. *hartwegii* (4 populations) and *I. h.* subsp. *columbiana* (2 populations).

### ML tree with bootstrap values

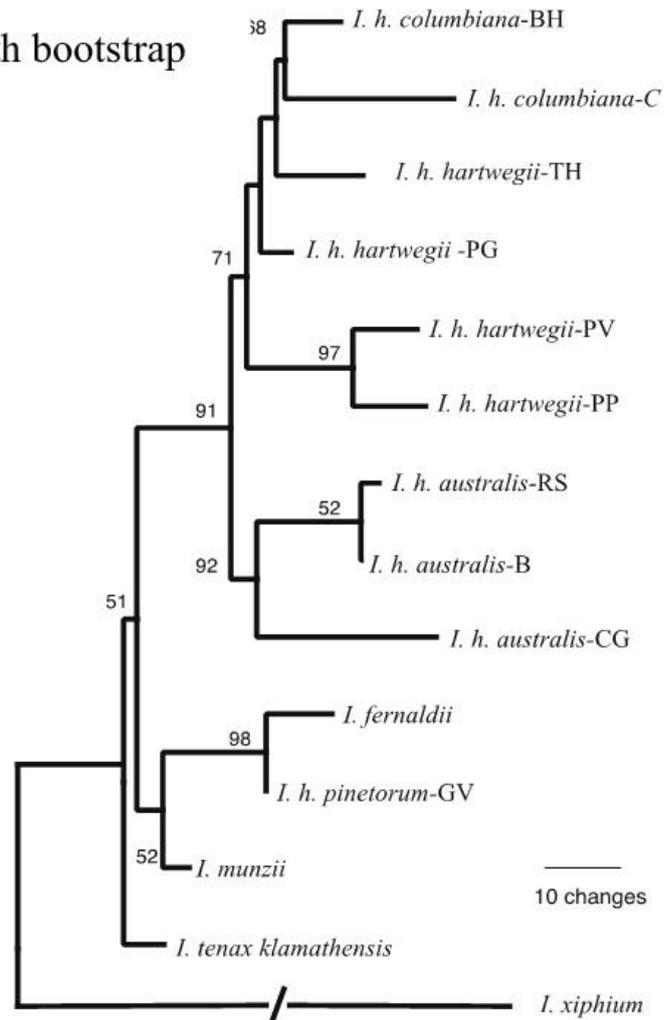


Figure 4. Combined nuclear and morphological Maximum Likelihood consensus tree

(Fig. 5 & 6 on next pages). The clusters resulting from PCA were distinct for *I. h.* subsp. *australis*, and *I. h.* subsp. *pinetorum*. A less compact cluster was resolved that represents *I. h.* subsp. *hartwegii* (4 populations) and *I. h.* subsp. *columbiana* (2 populations).

CHARACTER	<i>hartwegii</i> N=51 mm	<i>columbiana</i> N=22 mm	<i>pinetorum</i> N=12 mm	<i>australis</i> N=20 mm
Petal width	6.3±0.3	10.4±0.5	7.3±0.3	12.2±0.5
Floral tube length	10.5±0.2	10.3±0.2	13.3±0.2	8.7±0.2
Flower number	0±0.0	1±0.0	0±0.0	0±0.0

Table 2. Morphological characters with mean and standard error for 14 characters used in phenetic analysis of four infraspecific *Iris hartwegii* taxa, only 3 of 14 characters shown.

## DISCUSSION

This complex is not monophyletic. Both genetic and morphological analyses results show *I. h.* subsp. *pinetorum* as distant from other members of the *hartwegii* complex. Eastwood (1931) identified *I. pinetorum* as a new species. Foster (1937) agreed with Eastwood, although Lenz (1958) later placed *I. pinetorum* within the *I. hartwegii* complex as *Iris hartwegii* subsp. *pinetorum*. In agreement with Eastwood and Foster my data suggests that *I. h.* subsp. *pinetorum* is distinct enough from other members of the *I. hartwegii* complex for elevation to species status (Fig. 3). This complex as currently described is not monophyletic because *I. h.* subsp. *pinetorum* is descended from a different ancestor.

Both genetic and morphological analyses indicate that *I. h.* subsp. *australis* is monophyletic because all populations were resolved together; they have one common ancestor. Both genetic and morphological analyses of the one known population of *I. h.* subsp. *pinetorum* reveal it as distinct from all other populations of *hartwegii* included in this study. This indicates that this taxon is also monophyletic, but having its one common ancestor outside the *hartwegii* complex. Genetic and morphological analyses resolved that individuals of *I. h.* subsp. *columbiana* are included in the *hartwegii* complex but also nested within subsp. *columbiana* is a member of the *I. h.* subsp. *hartwegii* (Fig. 3). This indicates that these two subspecies have a single common ancestor. Although monophyly is indicated, additional studies of this group would better serve the taxonomy.

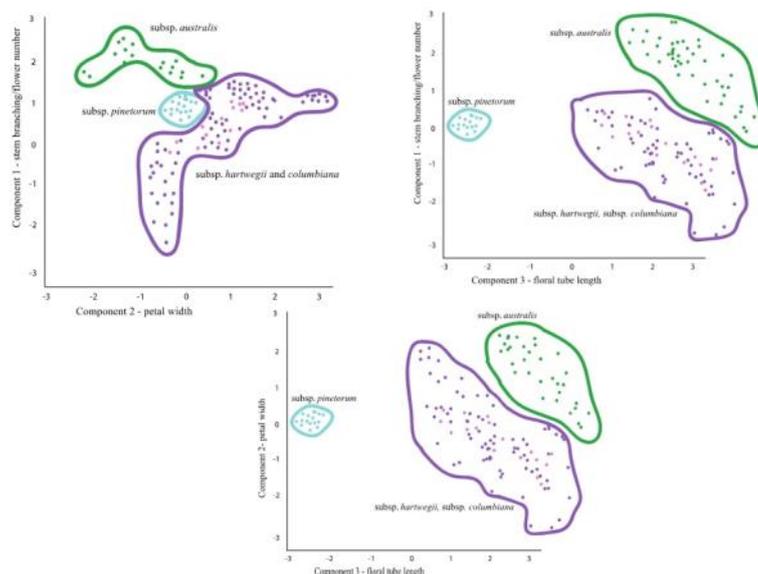
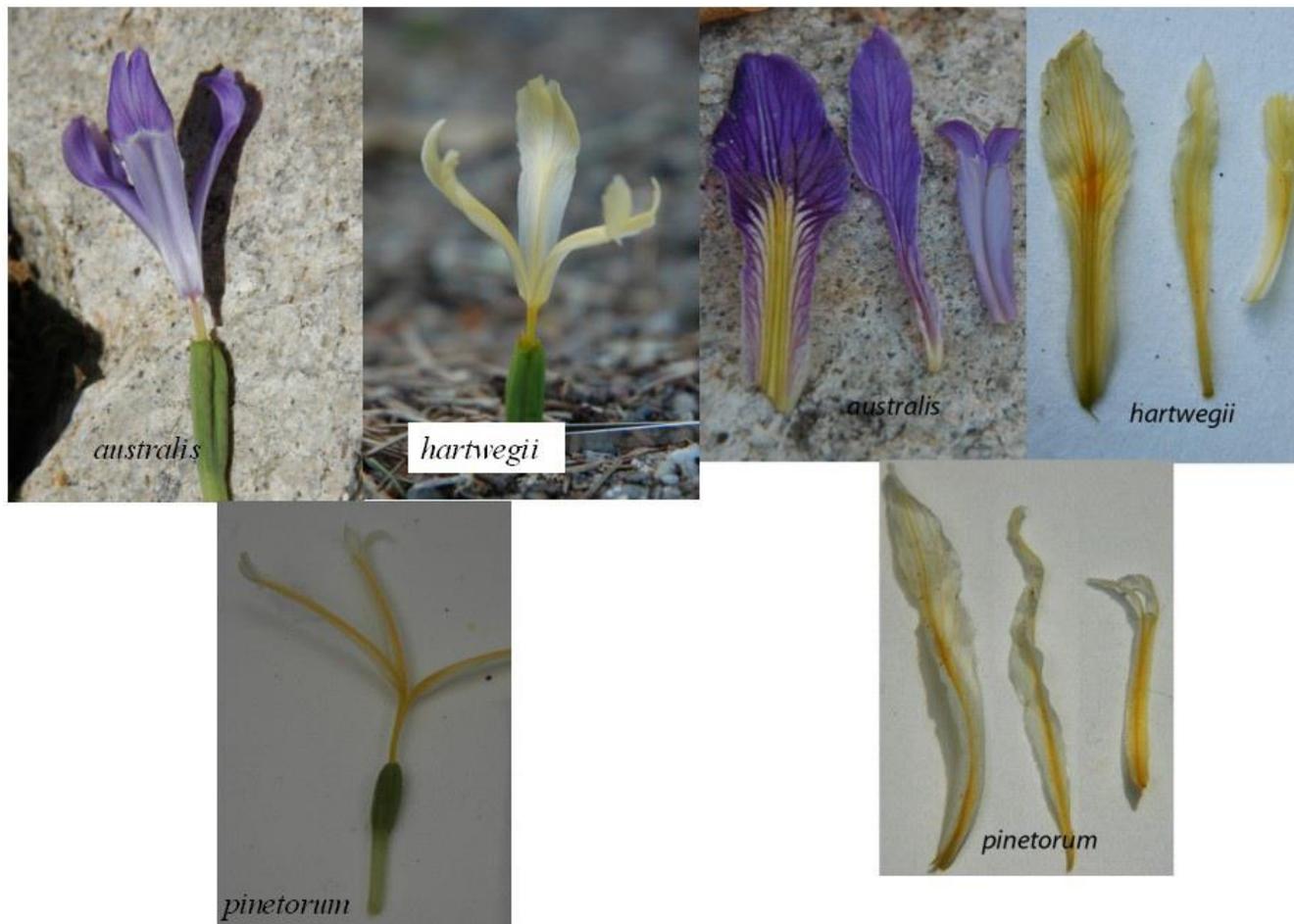


Figure 5. Principal Component Analysis of 105 individuals from 10 populations, based on morphology. Three characters with greatest loading shown on axis.

The morphological and molecular results of the above analyses show strong congruence although there are further considerations. Lenz (1959) suggested that *I. h.* subsp. *columbiana* is a hybrid of *I. munzii* and *I. hartwegii*. He also suggested that *I. munzii* although possibly imported by settlers, is no longer in the area near *I. h.* subsp. *columbiana* as a result of habitat disturbance from gold mining. However it seems unlikely that *I. munzii* alone would have been completely removed from the area where *I. h.* subsp. *columbiana* is still found. *Iris h.* subsp. *australis* as a disjunct population would be better served by further morphological and molecular study as well.



**Figure 6. Floral tube lengths and petal widths showing morphological distinctions (*columbiana* not shown).**

Results of this investigation support taxonomic revision within the *I. hartwegii* complex.

*Iris hartwegii* subsp. *pinetorum* should be elevated to species status. Although *Iris hartwegii* subsp. *hartwegii*, and *I. h.* subsp. *columbiana* genetically and morphologically group together I would suggest it premature to combine these into one species. More individuals from each group should be included in the next investigation. *Iris h.* subsp. *australis* should remain as a subspecies.

A taxonomic investigation not only clarifies relationships among taxa but also provides information for appropriate decision-making regarding conservation and management. Understanding boundaries and distribution of species strengthens conservation and management efforts.

For future work I plan to pursue resolution of species within the Series *Californicae*. This will include more populations within *hartwegii* complex to further resolve *I. h.* subsp. *hartwegii* and subsp. *columbiana*. I plan to expand the study to include all 18 taxa in series *Californicae* and combine biogeographical data with environmental parameters.

Thank you to the following: To The American Iris Society Foundation for funding this research; without their generous support this research would not have been possible. To Leach Botanical Garden, Portland OR, for research facilities and support. To Dr. Wilson and Rancho Santa Ana Botanic Garden for gene lab facilities and support.

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**The *Iris hartwegii* complex: from left: 1) *I. h. hartwegii* (Nevada County, Steve Ayala), 2) *I. h. columbiana* (Tuolumne County, Ron Parsons), 3) *I. h. pinetorum* (Plumas County, Steve Ayala), 4) *I. h. australis* (San Bernardino County, Richard Richards).**

**Ex SPCNI website**

# Chasing Wild Iris Again

Debby Cole and Garry Knipe

Ever hear of Point Reyes National Seashore, in California? It's about an hour's drive north of San Francisco, just on the Pacific Ocean side of the San Andreas Fault from the rest of Marin County. The 70,000+ acre area encompasses cliffs and headlands, streams, lagoons, bay and ocean beaches, a lighthouse, a recreated Indian village, Francis Drake's 1579 campsite, historic dairy farms, an elk preserve, and--- wait for it--- irises!



***Iris douglasiana* growing along side the coast at Point Reyes**

**Photo: Garry Knipe**

On a beautiful sunny April 13, Garry Knipe, Debby Cole and a mutual friend drove through San Francisco just after the morning rush hour, crossed the Golden Gate Bridge and headed northwest to Point Reyes. One of Garry's friends had been out there hiking a month before, and had reported sheets of wild iris starting to bloom along the hiking trail to Tomales Point in the northern part of the park. This determined our initial choice of direction within the park.

We'd been warned that it could be very cold and windy and often densely foggy, so we were prepared. Well, at least we missed the fog! The area is so huge that it would have been easy to wander aimlessly, but we came through Point Reyes Station and stopped at the Bear Valley Visitor's Center for a bit of education and a map. Then we retraced our last mile or so to pick up Sir Francis Drake Boulevard and head north along Tomales Bay, which sits in a long stretch of the San Andreas Fault. Where that road turned west toward the ocean beaches, we picked up Pierce Point Road and continued north. The air was somewhat damp and slightly salty, so we guessed the ocean was somewhere near even if we couldn't see it--- or the irises. Finally we spotted a small tuft of blue-purple iris a little off the road! And then another! Then several more!

Then we crossed the cattle guard (well, elk guard) and entered the Tule Elk Reserve, and suddenly there were lots of iris---big clumps and long stretches of them along the road, and then a broad swath of blue-purple flowing down the slope toward the bright blue strip of Tomales Bay. The car stopped, the bodies and cameras (and heavy jackets) came out, and we luxuriated in the sheer glory of Nature for a ridiculously long time.

We should probably say at this point that these iris are widely known as the Douglas iris, or *Iris douglasiana*. They are generally a dark blue-purple and most have a white signal area, although we saw some variation---some mid-purple flowers, some light blue signals. Stalks are maybe 10-12 inches long, and mostly unbranched with only two buds. Foliage is darkish green and softly arched. 'Clumps' were more truly just large areas where rhizomes had intergrown, rather than being point-sources of many stalks.

was happening. They had spotted some elk off the road in the distance! We could just make out the black shapes in our viewfinders. Our day was made.

We stopped again when we got up to the top, as the artists among us needed pictures of the orange California poppies growing with the blue-purple irises. Then, of course, we kept seeing new things as we looked around.



**Fields of Douglas iris, *Iris douglasiana*, generally of dark-blue purple, found at Point Reyes.  
Photo: Garry Knipe**

Somewhat sated at last, we drove on, finally spotting the ocean as we curled down to the site of the historic Pierce Point Ranch. No hiking or swimming for us, but we did also check out the nearby McClure's Beach parking lot. Well, the sign indicated restrooms...

As we drove back up to the bluffs, we noticed the passengers of a car parked alongside the road making excited gestures and stopped to see what

Suddenly there were elk silhouettes on the horizon, and as we moved in for the best pictures we saw more and more elk, until there were 13 or 14 big bodies and we could actually see some detail in the viewfinders. They were still a long way (about 200 meters?) away, but it was thrilling.

What could be better than all that??!

Well, lunch, maybe. So we drove south to the little town of Inverness and got some camera batteries, drinks, and sandwiches at the Inverness Store. We stopped at South Beach to eat lunch overlooking the surf, and took a short stroll on the sand down to the water's edge. Pretty nice.

Well, now that we were revitalized, a lighthouse might be nice, too. So we drove to the south end of this huge area and hiked out on the sheer-sided headland to the Point Reyes Lighthouse. The trees we walked by had been twisted into grotesque shapes by the constant wind and made a wonderful frame for pictures of the surf-pounded beach stretching away into the distance. Scattered clumps of iris clung stubbornly to the steep slopes. A few surefooted deer ignored both irises and dramatic scenery to nibble the shrubbery and watch the tourists.



**Two iconic Californian wildflowers growing alongside each other at Point Reyes—  
Douglas Iris and California Poppy.**

**Photo: Garry Knipe**

The lighthouse office, which housed the informative and historical exhibits, was not available, as it was undergoing renovation and expansion. The lighthouse itself was built into the rock much lower down the cliff so its light could be seen beneath the fog layers, but we resisted the urge to make the long steep climb in the stiff wind.

That was just as well. It left us time to make a brief trip to the Historic Point Reyes Lifeboat Station, out on the point where Chimney Rock is located, at the south end of Drake's Beach. The steep cliffs and generous sprinkling of irises continued—and something new. We heard it first, a strange noise, over and over with slight variations, then Garry said “Let's go this way, along this path.” Soon we saw (and smelled) the source of the sound: lots of seals, hauled out on the beach below! It's called Elephant Seal Beach, which is appropriate in the winter, but the crowd there in the summer seems to be harbor seals.



Sunset was getting close. We declared a victory and withdrew to home, spouses and dinners, replete with trophy photographs and memories. Only later, while sorting through the pictures, did the question arise: is there an influence here from *Iris macrosiphon*? It is found in the hills a little further inland. It too has a dark blue-purple form there, and has an even longer perianth tube with a more pronounced bowl shape where it joins the flower. It never occurred to us to take really detailed pictures of individual plant parts, but similarities seemed apparent in the photographs upon close examination.

Next time.

# Californian Dreaming

For those of us Pacific Coast Iris lovers living away from the western coast of the United States, the homeland of our irises seems like a distant nirvana. Jill and I have dreamed for years of getting to see our favourite plants growing in situ, so when our son accepted a position at Arizona State University, it occurred to me that we could combine a visit to see him and his wife, with a stopover in iris heaven.



**Desert Botanical Garden, Phoenix**

Last April we flew from New Zealand for a day or so, ending up in Phoenix, Arizona via Los Angeles. Early spring is a wonderful time to visit the city, as it is before the summer temperatures kick in, but we knew growing PCI in the desert is a very difficult task. We did not expect to see any during our time in Arizona, which included a trip to the Grand Canyon and an interesting visit to Sedona, where bearded irises were in flower. The only irises we saw during our time in Phoenix were some arillbreds, happily growing in a suburban garden.

When we left our family to head back home, we were hoping to see some PCI in California. Our stopover was planned for San Francisco, with iris flowers to see and iris friends to catch up with, but also with the secret desire to get a photograph of a PCI in flower with the Golden Gate in the background.

San Francisco felt like home almost as soon as we started walking around the city. In Phoenix all the planted material seemed alien – the cacti, ocotillo and palo verde were all very interesting horticulturally, but in the main unknown to us. San Francisco seemed to be decked out with a palette of plants that were very familiar to us from New Zealand gardens. On our very first foray into the city, the evening we arrived, we stumbled across a municipal garden bed that seemed to be filled with New Zealand native plants – hebes, New Zealand flaxes (Phormiums), and coprosmas.



**PCI in flower in a San Francisco garden**

Our first horticultural foray was a trip out to the San Francisco Botanical Garden, entering the gardens from the Fulton Street entrance, looking through the California Academy of Sciences on our way. I was excited to find large beds around the base of the Academy building, featuring long rows of the venerable 'Canyon Snow'.



**'Canyon Snow' at the Academy of Sciences**

This is, of course, a Mitchell Award winner, bred by Dara Emery and introduced by Santa Barbara Botanic Garden in 1975. As far as I know it has never been available in New Zealand, and as it is now very difficult to introduce new cultivars to our country, I never expected to see this iconic variety. I was excited to see it in the flesh. I was aware of it from articles in the Almanac, and from photographs I have seen on the SPCNI website, but it was even nicer than I thought it would be. It does have a slightly 'old school' form, but its glistening white flowers and the bright golden central signals mark it out as something special.

The Academy of Sciences is a wonderful natural history museum and we spent many entranced hours walking around the exhibits, and even taking advantage of the research library to look up some botanical specimens, including some dried samples of species PCI. The building's roof is covered in wilderness plantings including a number of clumps of PCI species which were in flower, but unfortunately they were not labelled.

The San Francisco Botanical Garden proved to be a slight disappointment. Much of the garden was relatively unkempt, with many borders almost completely overrun with grasses and other weeds. I did find a small collection of modern PCI hybrids in an out-of-way corner, but they were unlabelled, and very weed-bound. A couple of docents were at work in a near-by border, slashing away some of the tall grasses, so I assume they were on the way to cleaning the PCI bed up too. The plants were again unlabelled. However, there were plenty of PCI growing in the garden – a special wilderness area in the California natives section of the garden featured a great range of plants, but again they were unlabelled. They seemed to be mainly forms of *I. douglasiana*, but there were other species represented in smaller numbers, and plants that seemed to be to be inter-species crosses. The effect was interesting, but slightly frustrating, as the plants were once more unidentified.



**Unlabelled PCI at San Francisco Botanical Garden.**

The following day we ventured by rail down to Silicon Valley, to meet up with Cupertino resident Garry Knipe and Debby Cole, who was visiting Garry and his wife Ruth, for a day of iris viewing. We knew Garry from emails, and knew of his work on the turquoise blue factor in PCI, from articles carried in previous Pacific Iris. Debby will be familiar to most of you as our Immediate Past-President, and we had the pleasure of a visit from her and John some years ago when they were in the Southern Hemisphere. When Garry and Debby claimed us from the train we drove over to Garry's plot at the McClellan Ranch Park, a public park that is well known as a birding hotspot, but also has a selection of allotments for keen gardeners. It was here we first saw some of the results of Garry's work on teasing out the potential of the turquoise factor that is seen in flashes on many PCI species and cultivars. He has been working on the project for many years, and it is clear to see the progress he is making, with the neatly lined-out seedlings showing lots of colour.



### **One of Garry Knipe's turquoise seedlings**

We next journeyed along to Garry's house and looked through some more turquoise seedlings, including one with an incredible amount of turquoise infused in the falls. It is going to be interesting to see the further development that Garry achieves in the years ahead. There are many other cultivars in Garry's garden, and out onto the curbside garden he also tends, so we had a good look at these as well, with my camera getting a good work over.

After lunch with Ruth we were off again, this time heading to Jane Anne Walters' garden, a quirky place that reflects the exuberant nature of its owner. There were lots of irises through the garden, including a spectacular clump of Joe Ghio's 'Bay Street', the same patch that Garry had photographed for the cover of the issue of September 2013.

We left Jane Anne and made our way across country to the Diablo Iris Society show and sale, held in the Alden Lane Nursery, a large retail outlet featuring all sorts of interesting plants. The show was nearly over by the time we arrived, but there was still an interesting range of various bearded irises, as well as some well displayed cultivar and seedling PCI, including 'Drip Drop', 'Rancho Corralitos', 'Now Showing' and the delightfully playful near-pink 'Easter Egg Hunt'.



### **'Easter Egg Hunt' at the Mt Diablo Iris**

The interesting seedlings were displayed by Bob and Janet Canning, the cultivars mainly by our Recorder, Kenneth Walker, who was working in the show. It was great to meet Kenneth, as we have exchanged emails for a long time, so I was excited when it was decided we should take him home after the show, and have a look around his garden. It took a while, and the two Kiwis were thoroughly confused as to where we were, but we arrived at Kenneth's garden in Concord to be greeted by the wonderful range of plants he grows, including irises of all hues.

I was especially interested in the species irises he grew, including a clump of *Iris fernaldii* from the Santa Cruz mountains, grown from SPCNI seed.

We had a sparkling meal in a Concord hotel, with lots of iris talk, then Garry and Debby took a pair of weary Kiwis back to their hotel in San Francisco, tired but excited to have seen so many interesting irises and so many friendly irisarians.



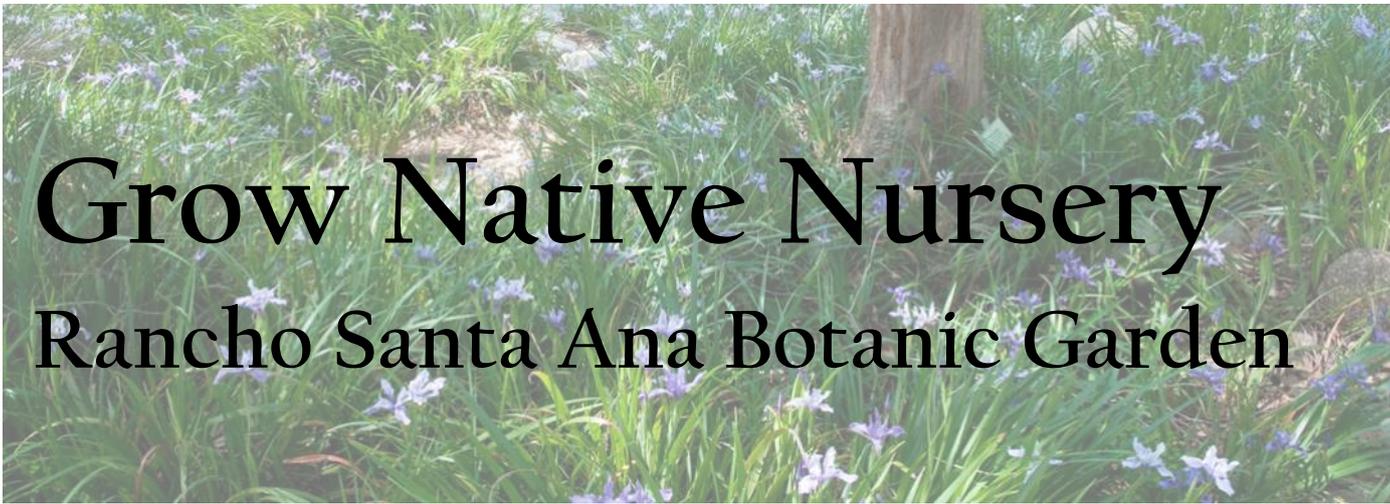
***Iris fernaldii* at Ken Walker's garden**

Garry and Debby had asked if we wanted to join them on a trip to Point Reyes on Monday, but we had already arranged to meet up with another friend from New Zealand late in the afternoon, so we had to decline. You can read an account of their trip elsewhere in this issue. Instead, we made our way out to the Palace of the Arts, then slowly walked around to the Golden Gate bridge. The Palace of the Arts is certainly an interesting faux Grecian building, with lots of PCI growing in the gardens. Again, they seemed to mainly be species or very old hybrids, and I was left wondering whether we are not doing enough to persuade municipal gardeners that there are interesting modern cultivars that will look great in their gardens.

We had a wonderful time walking around the shoreline towards the Golden Gate Bridge, looking at the native plants and birds, being interested to notice wild forms of plants that have been introduced into horticulture. As we got nearer to the bridge we started to notice PCI growing wild on the cliffs, along with other wildflowers, including Sisyrinchiums and Californian poppies. And yes, I managed to get one or two photographs of the PCI with the Golden Gate Bridge in the background.



We were due to fly out late on Wednesday, and had nothing planned for the day, but remembered that Kenneth Walker had said he had often visited the botanical garden at UC Berkeley, looking at the species iris in the beds, so we decided to check it out. And what a great decision that turned out to be! This is a gardeners' botanical garden, with a great range of plants from all around the world, but with an emphasis on the plants of California. That suited me to the ground, of course, and I was entranced by the number of species PCI I was able to see for the first time, all clearly labelled, with not just the species name, but also the original place of collection. There were a few cultivars in some of the newly-planted areas of the garden, but it was the species that held the most interest. If you ever are in the Bay area you have to visit this garden – it is wonderful. We flew out later that evening, our head filled with all the sights we had seen, from the deserts of Arizona to the awesome grandeur of the Grand Canyon; from free flight raptors in Tuscon to a ferry across San Francisco Bay; but especially, the lovely irises and welcoming gardeners we met. I cannot see it being very long before we come back.



# Grow Native Nursery

## Rancho Santa Ana Botanic Garden

Grow Native Nursery is located at 1500 N. College Avenue, Claremont, CA 91711. Its website: [www.rsabg.org](http://www.rsabg.org), [www.rsabg.org/grow-native-nursery](http://www.rsabg.org/grow-native-nursery). The website features: inventory list (updated weekly), native plant gardening tips, information & registration for free and paid botany, gardening, birding, and ethnobotany classes.

Retail sales: are on-site only. The nursery often holds a sale on “Green Friday” after Thanksgiving and sometime in March. Special orders may be accommodated.

### *How and when did this nursery start?*

The Garden’s first plant sale was held in 1979. It was originally only one weekend a year, and highly anticipated by gardeners who wanted rare, unique, or special California native plants for their gardens.

RSABG had always propagated plants for our own display gardens and for horticulture trials. As demand for native plants grew, Grow Native Nursery was established in 2009. (The next nearest native plant nurseries are over 40 miles away from Claremont.) Now we are open October through May but close for the summer, as it is too difficult to keep potted nursery plants healthy in summer heat here, and homeowners often do not have great success when planting in the summer.

### *What plants do you most like to grow yourself?*

Some of our favorite plants to grow are *Eriogonum* species (native buckwheat). They are very drought-tolerant, the flowers range from white to chartreuse to pink, and they provide great habitat for butterflies. We also like growing edible native plants like *Berberis* and *Salvia clevelandii*.



*What are growing conditions for plants like in your area? (soil type, pH, world hardiness zone, general climate, rainfall, etc)*

Soil around Claremont (and the greater Los Angeles area) is generally alluvial, with a lot of granite river cobble, sand, and clay. Claremont is located in Sunset Zone 19, and on the border between USDA zones 9a and 9b.

Our area of California has a Mediterranean climate, with hot, dry summers and generally cooler, rainy winters. Our average rainfall is 12-18" a year, although we haven't had that lately. This past year we had several summer rain storms.

*What PCI do you prefer to grow, and recommend to gardeners to try?*

Our favorite is *Iris douglasiana* 'Canyon Snow' for its reliable bright green leaves, pristine white flowers, and longer bloom period.

We also like other *Iris douglasiana* hybrids—they perform well in dappled shade here and look particularly great when massed along a path. We grow them along our "Basketry Trail" under *Sambucus*, *Alnus*, and various oaks. They don't bloom for a very long time, but they are a sure sign that spring is coming.

*What do you recommend to gardeners for PCI care?*

In Southern California, we definitely recommend planting in the winter, as they seem to hate summer water and moist warm soil. It's important to not overwater in the summer in warm climates like ours, as the bases may rot.



**'Canyon Snow' is always a favorite at Rancho Santa Ana Botanic Garden**

*What would you like to tell PI about your nursery that we haven't discussed or asked about? As your nursery is associated with public gardens, please tell us about the garden.*

Rancho Santa Ana Botanic Garden, founded in 1927, is one of the largest botanic gardens dedicated exclusively to California native plants, with 86 acres of native plants on display. The Mesa displays many cultivars and more formally -designed areas, while the Plant Communities display plants in groupings that may be seen in

nature.

A significant part of RSABG's mission is education and conservation, so the garden also has a thriving conservation program, seed bank, community education program, several research scientists on staff, and molecular and plant anatomy laboratories.

The RSA-POM Herbarium is among the top 10 largest in the United States, and we also host the botany program for the Claremont Graduate University.



# Iris species at UC Berkeley Botanic Garden



***Iris douglasiana*, SoulaJule Reservoir, Marin County**



***Iris douglasiana*, Arcata Airport, Del Norte County**



***Iris macrosiphon*, Camp Meeker, Sonoma County**



***Iris longipetala*, Bayshore Hills, San Francisco**



***Iris longipetala*, Chilino Valley, Marin County**

# PCI from San Francisco



**PCI cultivar 'Drip Drop' at Mount Diablo**



**Garry Knipe turquoise seedling**



**'Little Toby' at Mount Diablo Iris Show**



**Joe Ghio's 'Now Showing' at Mount Diablo**



**'Rancho Corralitos' at Mount Diablo.**