

The Cultivation of species that grow in natural rock gardens

~ work in progress



Iris macrosiphon

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Images of UCSC Arboretum Elvenia J. Slosson
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Submitted by Brett Hall, Director of Horticulture and
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The Primary goals of this project were to:

- 1) Develop ongoing studies on species that grow in outcrops in Central Western and Northern California
- 2) Inspire the public and garden enthusiasts about native plant rock gardening
- 3) Create the first of many native plant rockeries in the Arboretum

Our first goal to develop ongoing studies on species that grow in outcrops in Central Western and Northern California took us far and wide into the field observing and collecting cuttings and seed in natural outcrops. This provided Arboretum staff and students with authentic exposure to rock outcrops and helped us identify guidelines for developing rockeries in cultivation. We took full advantage as indicated in the proposal to collect widely from the regions we visited.

Initially we set out to develop specific plots in different ranges but soon we realized that we needed to conduct a broader approach to get a handle on the topic of natural outcrops and the species that grow among them before concentrating on individual plots and sampling. .

In support of this work we donated a Nikon D70 digital camera for use and developed a data base for our digital photos in Adobe Photoshop utilizing Adobe Bridge the newest version of photo shop. Dahnpe Hougard, of Daphne Hougard Photography, donated her services for training and ongoing consultation to help us establish our data base of images. Additionally two 250 GB hard drives were supplied by the Arboretum to store and safe guard the images.

Following is an annotated photographic survey of visits to natural rock gardens and their regions and our work inside the Arboretum. The narrative text appears with the images.

Santa Lucia Coast, Monterey County



The view above is to the north of a wind swept coastal bluff on granite above Soberanes Point along the northern Santa Lucia Coast, about 10 miles south of Carmel, Monterey County. The coastal bluff community here includes *Ceanothus thrysiflorus griseus*, *Artemisa californica*, *Ericameria ericoides*, *Corethrogyne filaginifolia* var. *californica*, *Calistegia macrostegia* ssp. *cyclostegia*, *Rhamnus californica*, *Ceanothus cuneatus rigidus* (limited occurrence but a fire would likely produce multitudes of seedlings), *Lupinus albifrons albifrons*, *Calochortus albus* (dwarf large-flowering coastal forms), *Triteleia ixioides*, *Agrostis diegoensis*, *Piperia* sp., *Polypodium californicum*, *Dudleya caespitosa*, *Lotus scoparius* —prostrate forms, etc..



Soberanes Point is a marvelous area to explore coastal rock gardens along the northern Big Sur Coast.



Many outcrops along the Big Sur Coast share the occurrences of *Piperia* on northern exposures. We still have not seen it in flower. *Dudleya*, *Corethrogyne*, and *Polypodium* are also in view in this photograph. Note the granite gravel which can be duplicated quite easily here in Santa Cruz with grit and gravel of a similar granite available from Felton Quarry. We have made extensive use in gardens with Felton quarried granite for scree mulches.



View of Granite Creek and Hurricane Point in the far distance showing steep north facing canyon cliffs right above the ocean where *Piperia* and a host of other interesting species cling fast to their granitic existence.



View of coastal scrub immediately above Garrapata Beach



Lepichinia calycina occurs very occasionally in coastal bluff and outcrops along the Big Sur coast. Recently, Tilden Regional Parks Botanical Garden named a *Lepichinia calycina* cultivar collected on Rocky Point. We are also growing a form from Rocky Point and it may actually be the same clone since there are very few on Rocky Point. We've been growing it since the early 90s. Picture of *Lepichinia calycina* from Rocky Point.

Berberis pinnata



Berberis pinnata occurs rarely in the coastal bluffs and canyons as a maritime chaparral component in Monterey County. Here it is shown on granite outcrops of Rocky Point where it grows with a beautiful association of species including dwarf *Calochortus albus*, *Triteleia ixiodies*, *Zigadenus fremontii*, *Ceanothus*, *Rhamnus* among others. The beautiful red new foliage is brilliant!



Cliff hanging view of the beach on the north side of Hurricane Point. Arboretum staff surveyed this area for the Los Padres Brazil Ranch property. The photo was taken from the site where we collected *Zauschneria cana* 'Hurricane Point' in 1977. Revisits to this steep location during the last 2 years have turned up only one individual of *Zauschneria cana* (syn. *Epilobium canum*). There are no safe trails to the beach but it is well worth the risk, eulogies notwithstanding!

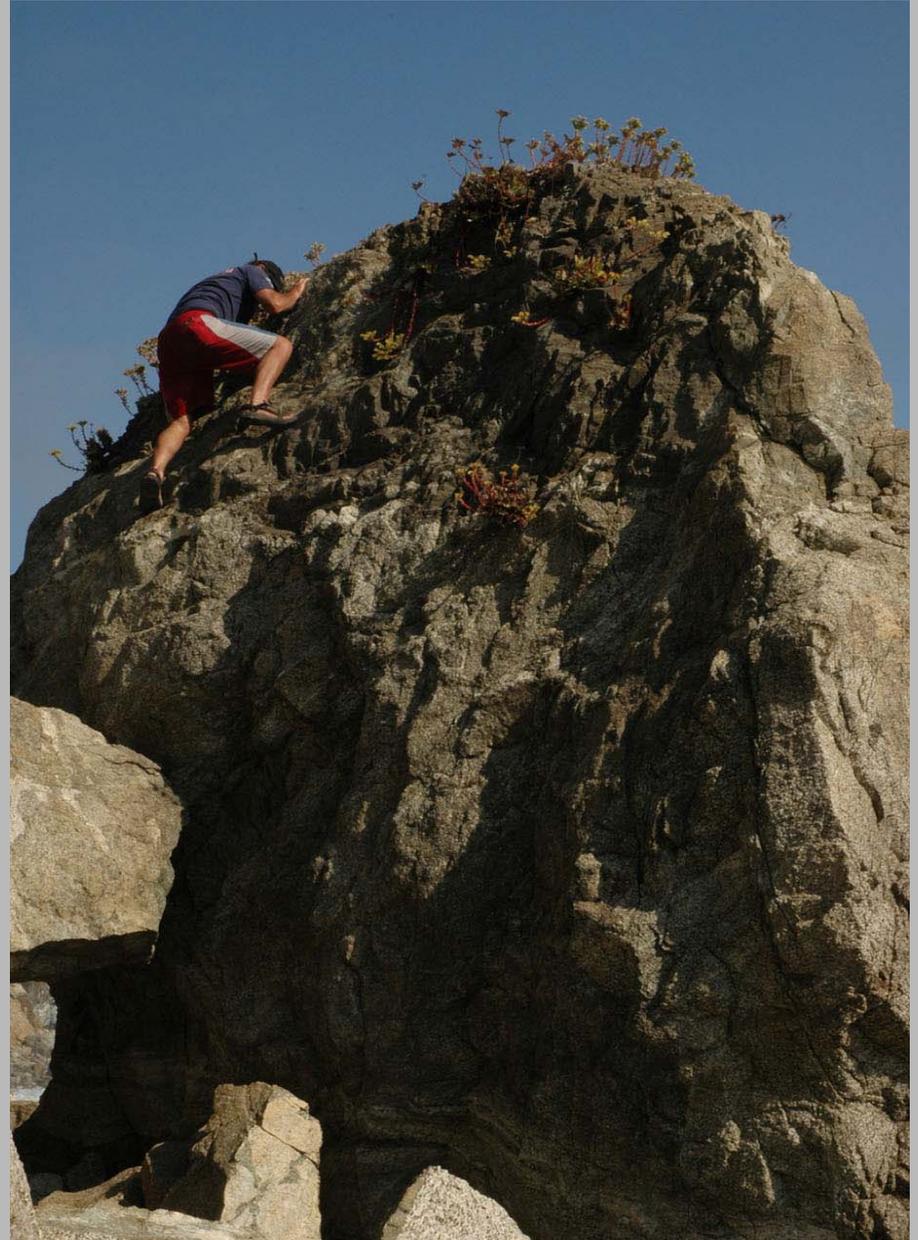
Calochortus albus



Calochortus albus occurs in outcrops along the Big Sur Coast almost to the inter tidal zone. We mapped several locations during the grant period and we'll continue to monitor the localities.. Frequently, dwarf clumping plants with larger than usual sized flowers and heavy blooming individuals occur in these coastal populations. We are growing many from seed.



Dudleya caespitosa and *D. formosa* are common and abundant on coastal outcroppings and on sea stacks along the northern Santa Lucia coastline. Myriads of beautiful forms demonstrating their amazing diversity in leaf color and habit make coastal dudleyas perfect for rock gardens.



Tracking dudleyas Grimes Pt., Santa Lucia coastline, about 7 miles south of Big Sur.





Dudleya cymosa ssp. *pumila* is fire engine red. It is a dazzling site when-flowering in outcrops along the coast and throughout the Santa Lucias in Monterey County. It reaches its northern most distribution just north of Big Sur Village. It requires excellent drainage and requires as near a wild habitat match as possible when brought into cultivation





View of Point Sur from
Sierra Ridge, Brazil
Ranch, Los Padres NF



Arboretum Staff member, Frances
Campell resting on limestone
outcrop in the Brazil Ranch, in
the hills above Bixby Creek and
Hurricane Point. The ridge here
is known as Sierra Ridge and
these outcrops host a small
population of the rare *Delphinium
hutchinsoniae*, shown next.
Several miles north in the
vicinity of Malpaso Canyon, is
the largest known population of
Delphinium hutchinsoniae.



Delphinium hutchinsoniae on limestone in Brazil Ranch



Triteleia ixiodes on limestone, Sierra Ridge, Brazil Ranch, Los Padres National Forest. This Brazil Ranch form seems very promising for introduction to horticulture and we intend to keep trialing and propagating.

Leymus condensatus. Big grass that is often on cliff facing coastal outcroppings.





Marine terrace, Hurricane Point



Limestone, above Hurricane Point



Along the rocky Big Sur Coast, just north of Pt Sur on old dunes is the endemic *Arctostaphylos edmundsii* and its associates shown in the next several images.



Viola adunca with *Frageria chiloensis* north of Pt Sur. Both species have been introduced from this locale into the Arboretum collections. See next slide for an image of this clone in cultivation. The *Frageria* is an especially tight form well suited to rock gardens



Viola adunca



Arctostaphylos edmundsii



Arctostaphylos edmundsii



Above, *Castilleja latifolia* is relatively rare on active and stabilized dunes along the central coast. Below, *Castilleja affinis* on limestone.





Astragalus nuttallii, although not widely grown in cultivation is a common associate on shale and sandstone outcrops along the Santa Lucia Coast. Its highly decorative pods make it an obvious choice for cultivation





Seed pods and
flowering branch of
Astragalus nuttallii



Grimes Point occurs along the coast about 7 miles south of Big Sur where the geology is especially diverse and interesting. Extensive uplift and warping and recombination of rock types all smashed together can be seen from Molera State Park to Pacific Valley and beyond. Grimes Point, shown here, is adjacent to one of the premier surf breaks in California. The coast



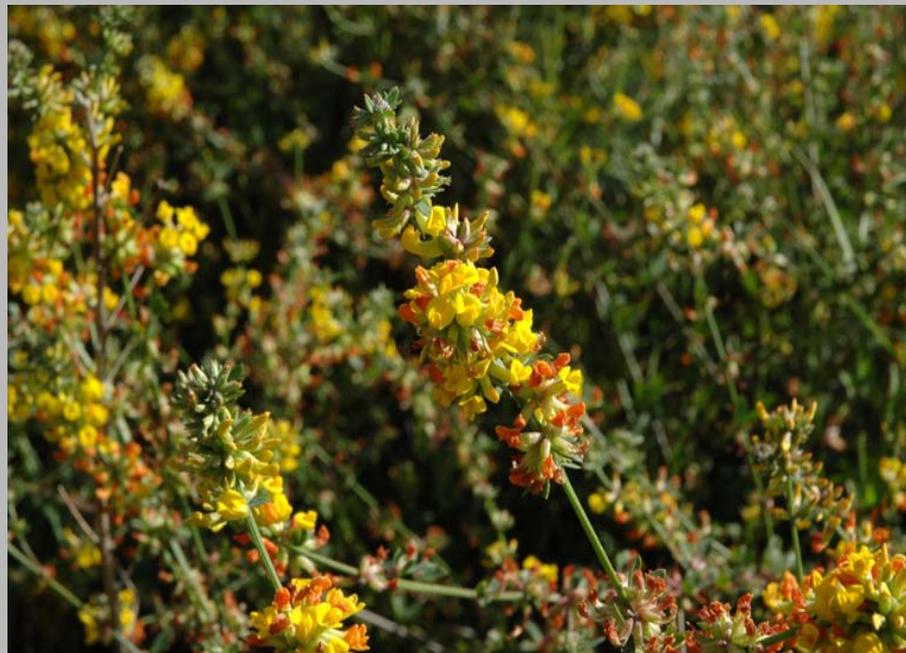
Diverse outcrops along Pfeiffer Beach







Flat growing forms of *Lotus scoparius* are marvelous for rock gardens and erosion control and for fixing nitrogen.





Calystegia cyclostegia
ssp. macrostegia is a
common clambering
vine over outcrops in
coastal scrub. Beautiful
pink forms abound
along the southern
Santa Lucia coastline.



Agrostis diegoensis with *Dudleya* and *Polypodium* on granite outcropping. This *Agrostis* is somewhat stoloniferous but not invasive. It makes lovely bearded clumps. In summer, as seen below, it fades to earth tone coloration but still provides enough zest to be used to nap or picnic.



Prostrate forms of Chamise, *Adenostema fasciculatum*, occur in windswept coastal outcrops near Pfeiffer Pt. Whether they remain prostrate in cultivation remains to be seen.



Eriogonum parviflorum, coast buckwheat is among the best choices for rockeries. Buckwheats in general make great rock garden plants. *E. parvifolium* is an important host plant for the Smith Butterfly and has a fairly wide range of flower color from cream to dark pink. It is easy to grow and fast to flower



Smith's blue butterfly, (*Euphilotes enoptes smithi*), was officially recognized in 1976 as an Endangered Species.

