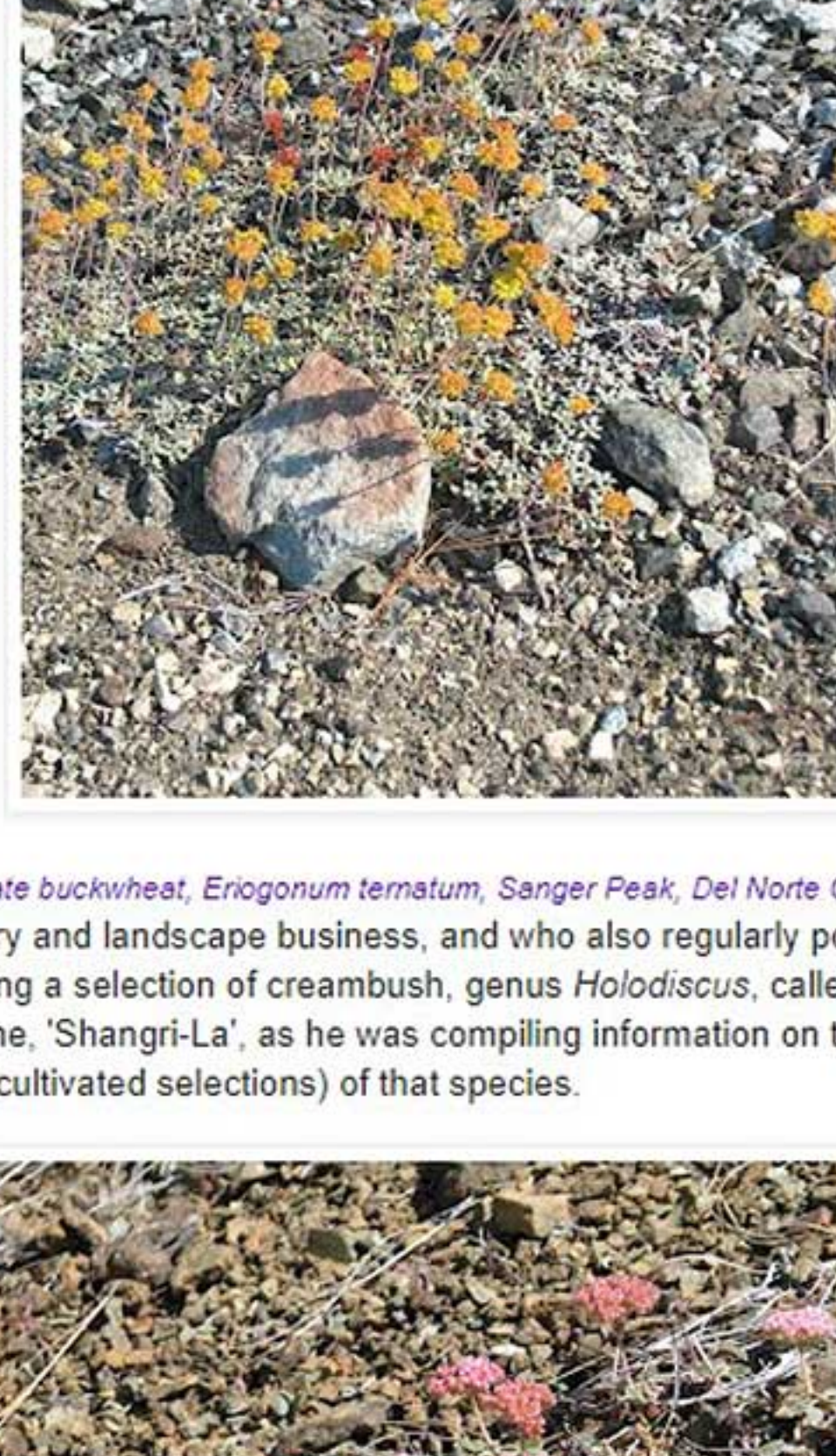


# Origin of a Species; the story of a new species for The Cedars, Sonoma Co.

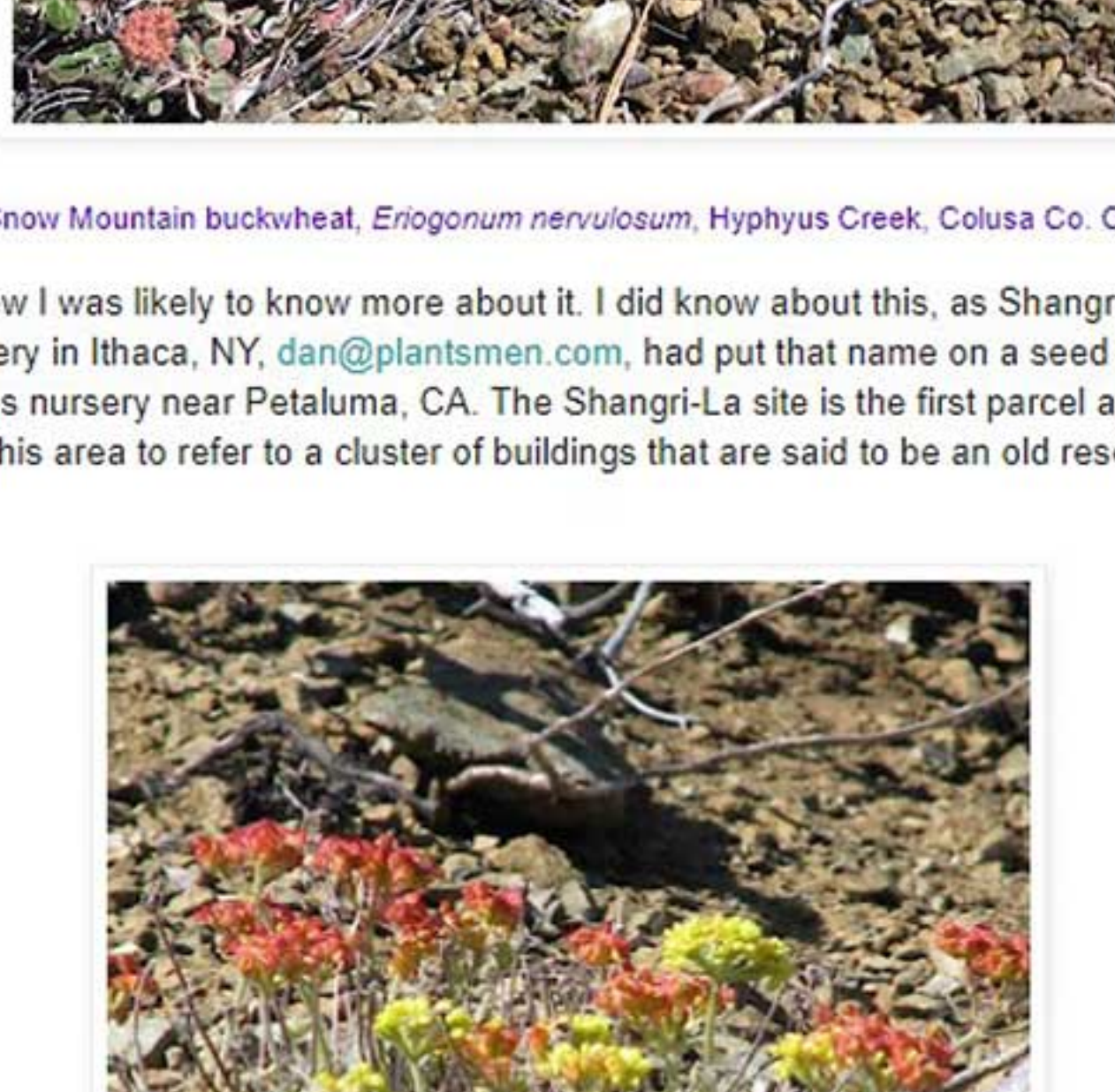


Looking down into extensive serpentine rock barrens at The Cedars, habitat for the new species of buckwheat (*Eriogonum*). It is always fascinating to look back and realize that something you initially thought was trivial has progressed into something quite important. The story of a new species to be named at The Cedars - that amazing serpentine canyon N of Cazadero in Sonoma Co., CA - began that way.



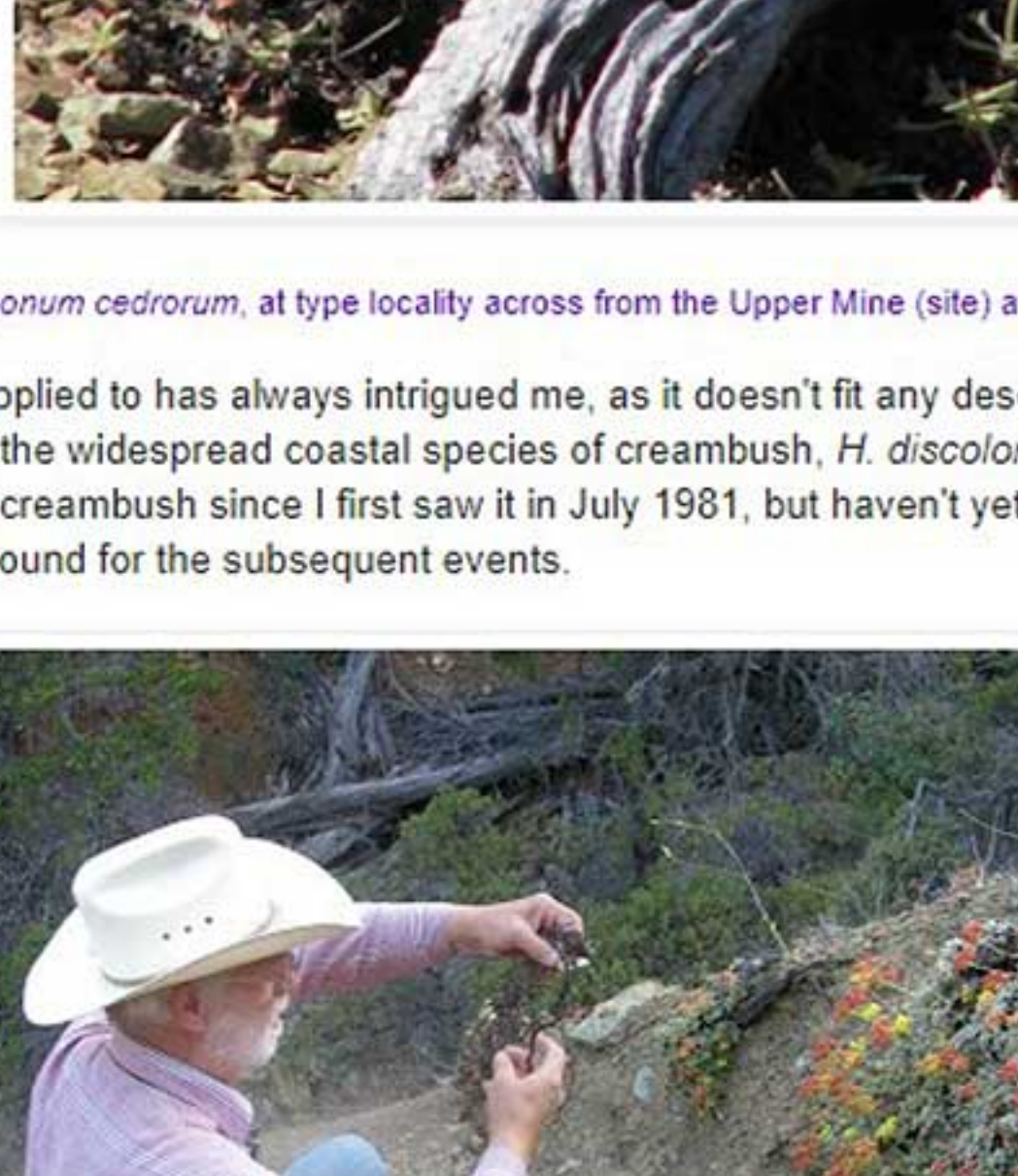
Ternate buckwheat, *Eriogonum ternatum*, Sanger Peak, Del Norte Co., CA

Pete Vielleux, a friend who runs a native plant nursery and landscape business, and who also regularly posts excellent photos of native plants and landscapes, [eastbaywilds@sbcbglobal.net](mailto:eastbaywilds@sbcbglobal.net), happened to be growing a selection of creambush, genus *Holodiscus*, called 'Shangri-La'. In July 2008, Peter Gonzales from the USDA contacted him about the status of this name, 'Shangri-La', as he was compiling information on the widespread Western species of creambush, *H. discolor* and wanted to trace all the official cultivars (cultivated selections) of that species.



Snow Mountain buckwheat, *Eriogonum nervulosum*, Hyphythus Creek, Colusa Co., CA.

Pete V. forwarded the query to me as he knew I was likely to know more about it. I did know about this, as Shangri-La is a local place name at The Cedars, and a friend, Dan Segal, now of Plantsman Nursery in Ithaca, NY, [dan@plantsmen.com](mailto:dan@plantsmen.com), had put that name on a seed batch of *Holodiscus* he collected and grew when he was working for North Coast Natives nursery near Petaluma, CA. The Shangri-La site is the first parcel as one enters the serpentine canyon at The Cedars, and has been used by residents of this area to refer to a cluster of buildings that are said to be an old resort set adjacent to a marvelous swimming hole.

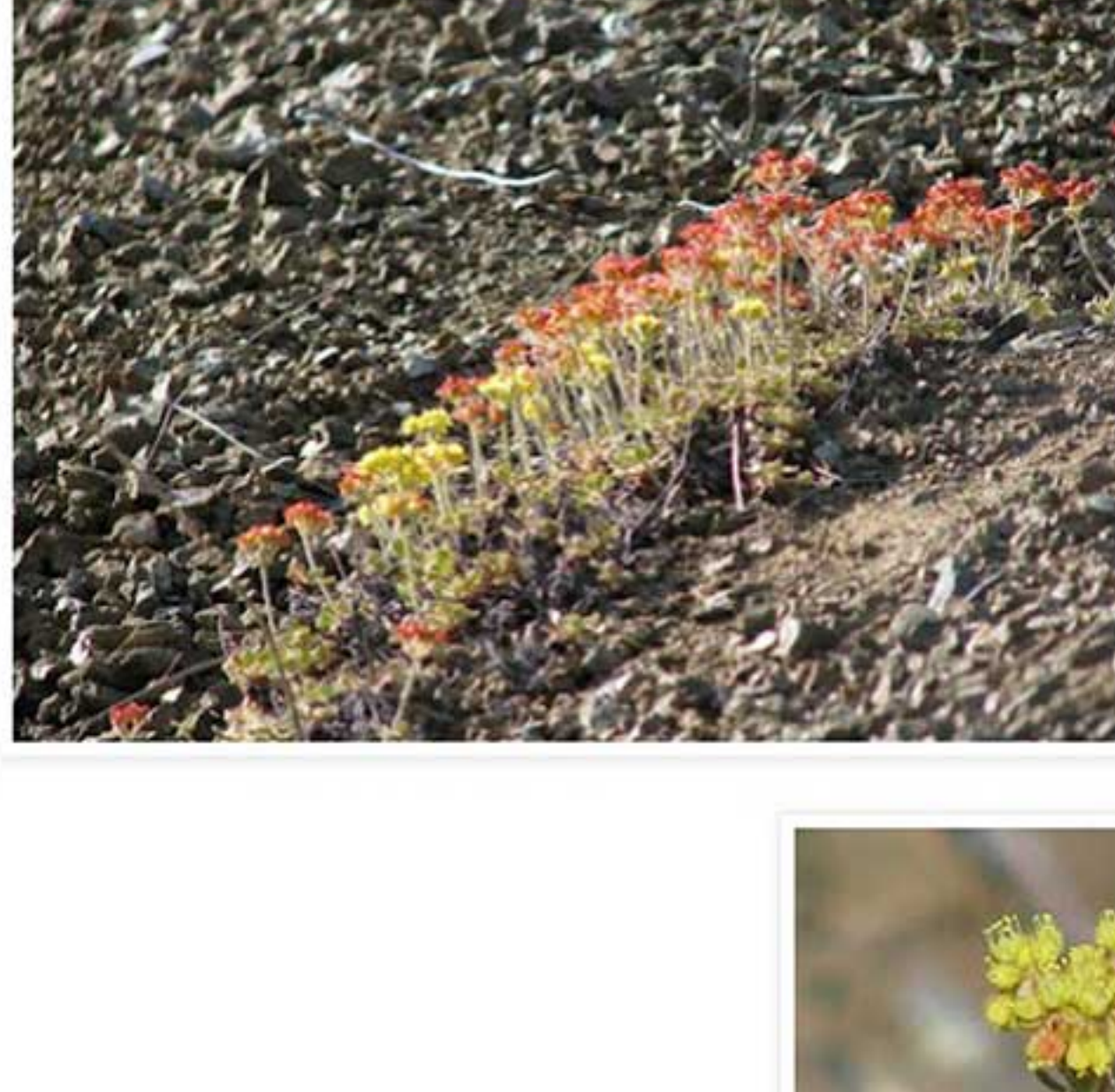


The Cedars buckwheat, *Eriogonum cedrorum*, at type locality across from the Upper Mine (site) at The Cedars, Sonoma Co., CA

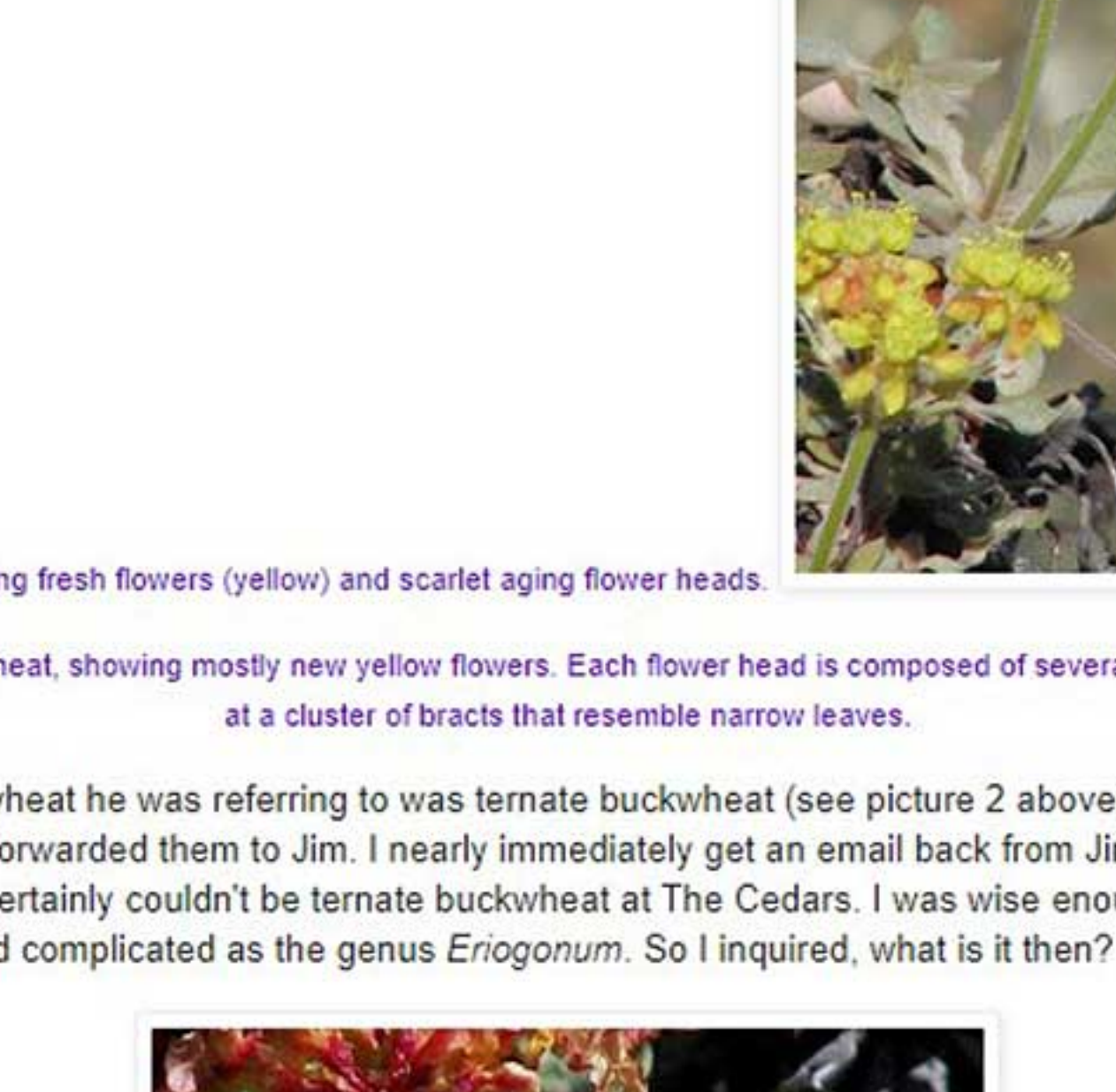
The *Holodiscus* that this name, Shangri-La, was applied to has always intrigued me, as it doesn't fit any described Californian species, nor for that matter, any species I know about. It is sometimes lumped into the widespread coastal species of creambush, *H. discolor*, but differs greatly in most features. I have wondered about what name to put on The Cedars creambush since I first saw it in July 1981, but haven't yet found an answer. However, The Cedars creambush is another story and merely the background for the subsequent events.



Dr. James L. Reveal, authority on the genus *Eriogonum*, collecting specimens of The Cedars buckwheat, July 28, 2009



Severe serpentine barrens of the type locality with several mats of The Cedars buckwheat visible below the rock outcrop. So I conveyed the essence of this story to Peter Gonzales, but mentioned that maybe Dan Segal could elaborate, and I cc'd my response to Dan. In one of those strange coincidences, Dan Segal was installing a garden in Ithaca NY for Rose Broome, the wife of the world's authority on the genus *Eriogonum*, Dr. James L. Reveal, of the Bailey Hortorium at Cornell. Dan had been telling Jim Reveal about The Cedars, and had mentioned that there was an unusual buckwheat there, which he remembered to be *Eriogonum nervulosum*, the Snow Mt. buckwheat (picture 3 above)

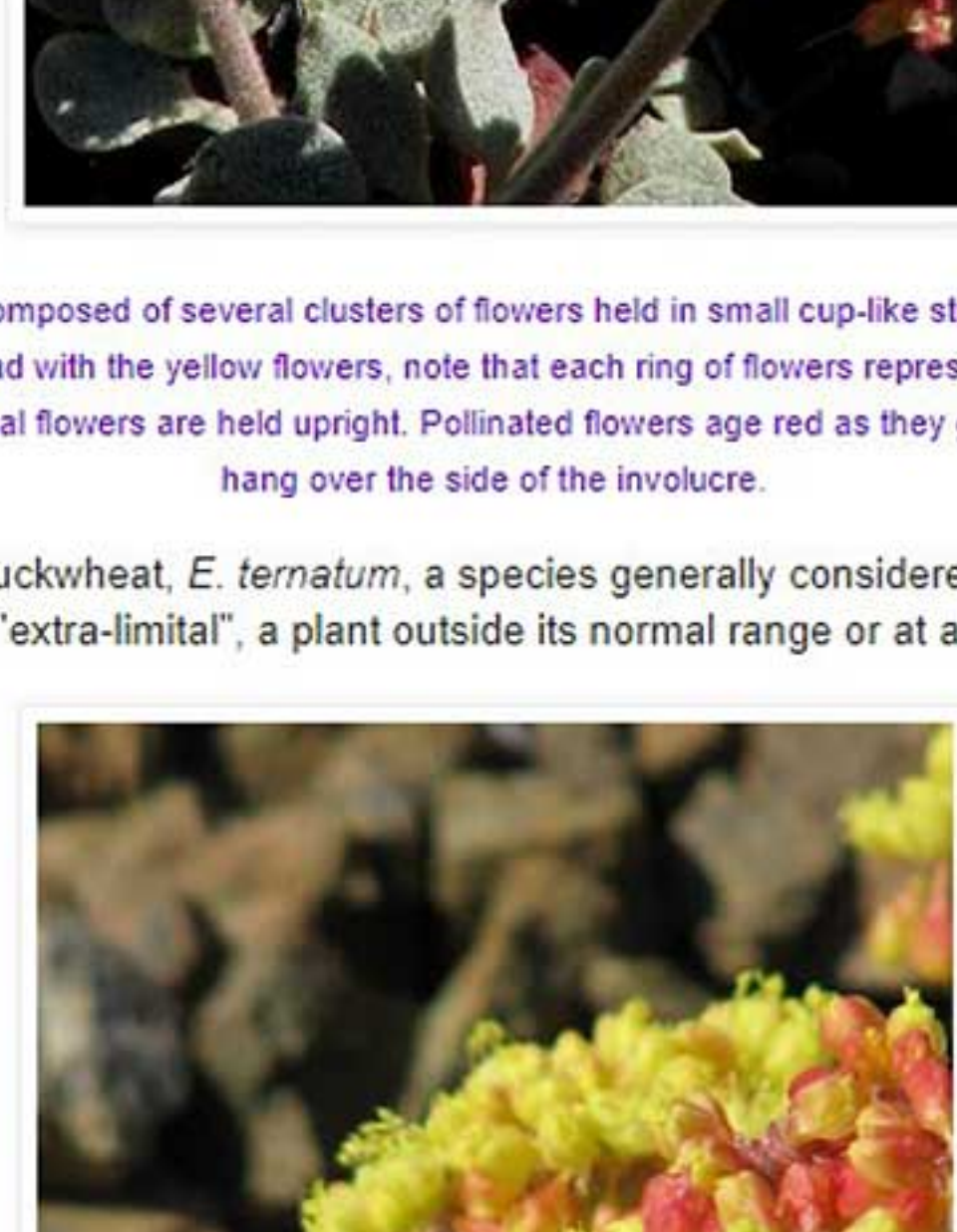


Mat of The Cedars buckwheat showing fresh flowers (yellow) and scarlet aging flower heads



Close ups of the flower heads of The Cedars buckwheat, showing mostly new yellow flowers. Each flower head is composed of several smaller clusters on separate branches that originate at a cluster of bracts that resemble narrow leaves.

In a reply to Dan, I mentioned that the buckwheat he was referring to was ternate buckwheat (see picture 2 above) and I sent a set of email pictures I had taken the week before at The Cedars to Dan who forwarded them to Jim. I nearly immediately get an email back from Jim Reveal politely telling me that my buckwheat name was wrong, that it almost certainly couldn't be ternate buckwheat at The Cedars. I was wise enough to know that one doesn't argue with an "authority", especially in a group as large and complicated as the genus *Eriogonum*. So I inquired, what is it then?



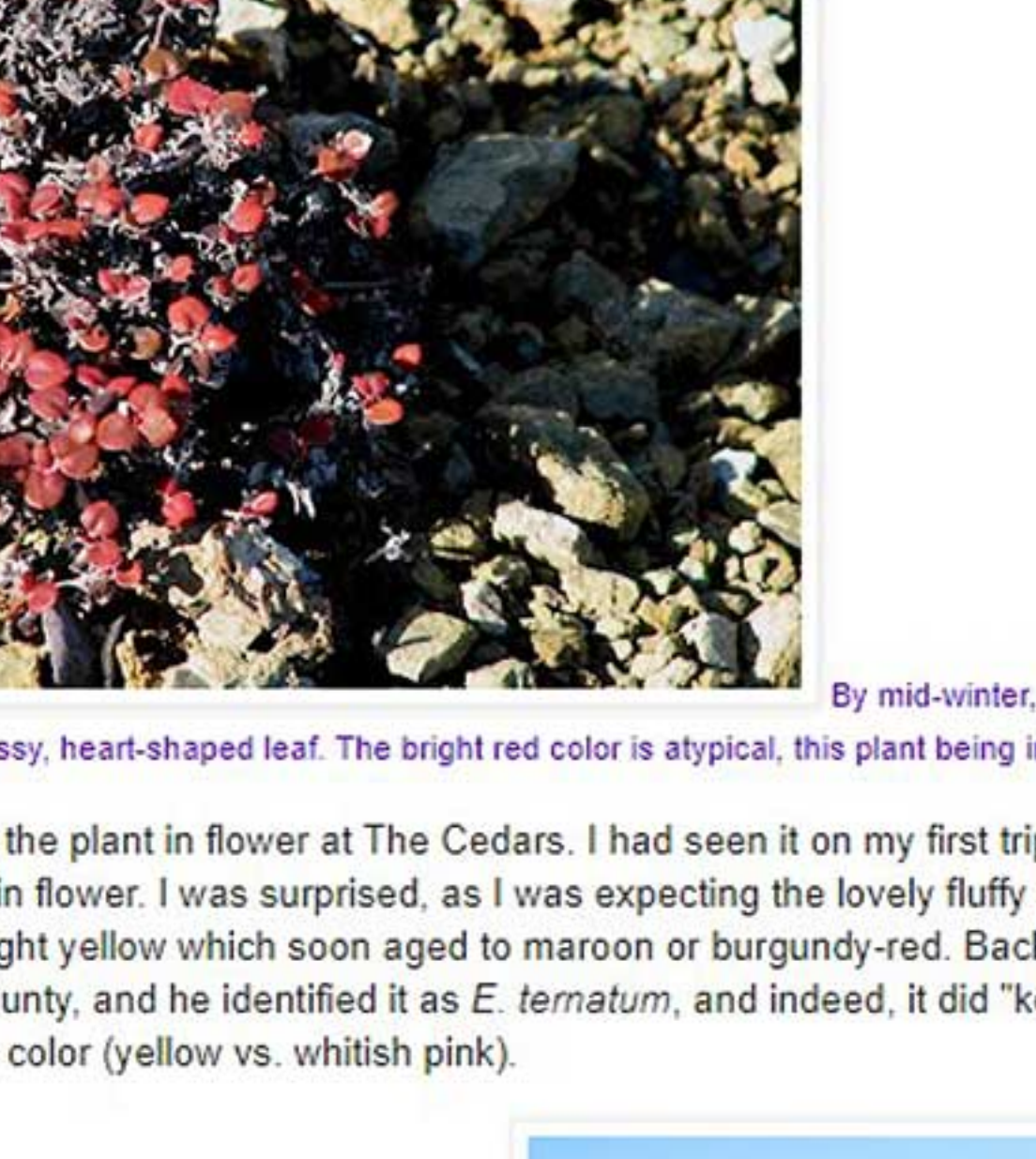
Close up of fresh and aging flower heads. Each "head" is composed of several clusters of flowers held in small cup-like structures called involucre. Each involucre cup contains many individual flowers that emerge for several weeks. In the head with the yellow flowers, note that each ring of flowers represents one involucre cup with more buds in the center. In peak flower (when the anthers and/or stigma are ripe), the individual flowers are held upright. Pollinated flowers age red as they get larger; their pedicels get longer, as they turn downward and hang over the side of the involucre.

I had long considered the buckwheat to be ternate buckwheat, *E. ternatum*, a species generally considered to be restricted to the Klamath region of NW CA. The population at The Cedars had been considered "extra-limital", a plant outside its normal range or an extreme.



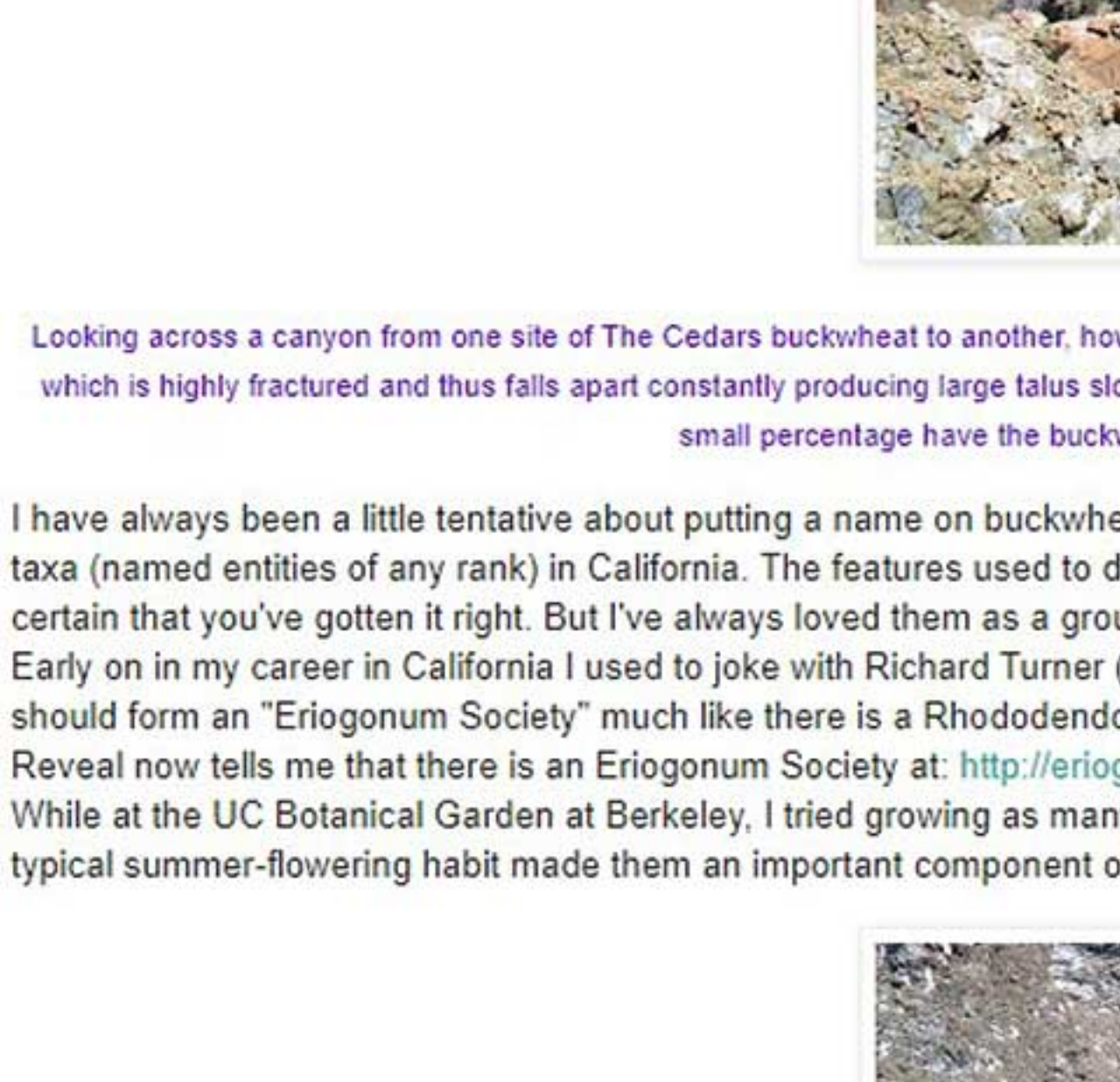
Another close up of the flowering heads. In the upper right you can see one involucre cup with 4 yellow flowers in the center surrounded by a ring of reddening aging flowers.

Thus began a correspondence, by sending pictures, making herbarium vouchers (dried specimens that I mailed to him, and trying to make observations in the field at The Cedars. Being uncertain about some of the complex features specific to this genus that I was trying to observe, I made some mistakes, but Jim very patiently kept me on track. He also requested a number of Herbaria to send him their herbarium sheets of the two entities in question, *E. ternatum* and *E. nervulosum*. Because he was very busy with other work relating to the genus, and because it was also getting quite late in the season for flowering plants, he said, "Let's plan to look at it next July (2009)".



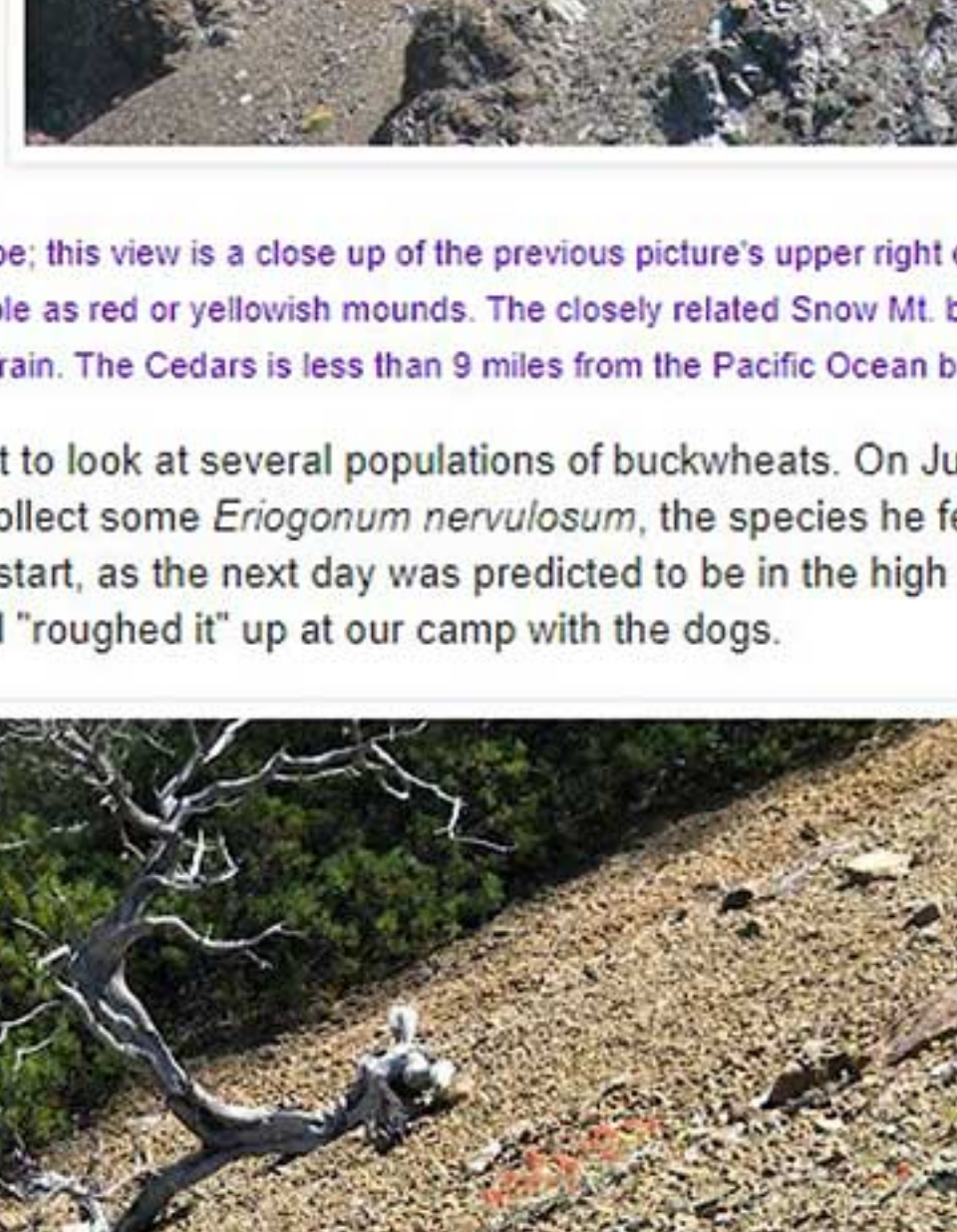
Two views of the full mat-forming plants with mostly finishing flowers or ripening seed. Note the foliage is covered with hairs giving a silvery or gray-green color to the plant. These hairs typically will often fall off the upper surface by winter.

The history of our awareness of this buckwheat at The Cedars goes back to 1947, when Freedom Hoffman - the first botanist to explore and document the plants of The Cedars thoroughly - collected a non-flowering mat of foliage as an herbarium specimen. The *Eriogonum* authority at that time, Susan Stokes, annotated it (i.e. identified it officially) as *E. nervulosum*, the Snow Mt. buckwheat. Snow Mt. buckwheat is a gorgeous but rare species from extreme eastern Sonoma Co. (The Geysers) and also various isolated serpentine barrens of the Inner North Coast Ranges where it is a low to mid elevation species - except at the eponymous Snow Mt. where it occurs at 5,000' to 6,000' elev.



By mid-winter, here in early February, most of the hairs on the upper leaf surface have fallen off leaving a glossy, heart-shaped leaf. The bright red color is atypical, this plant being in a very stressful site, or perhaps it is preparing for Valentine's Day.

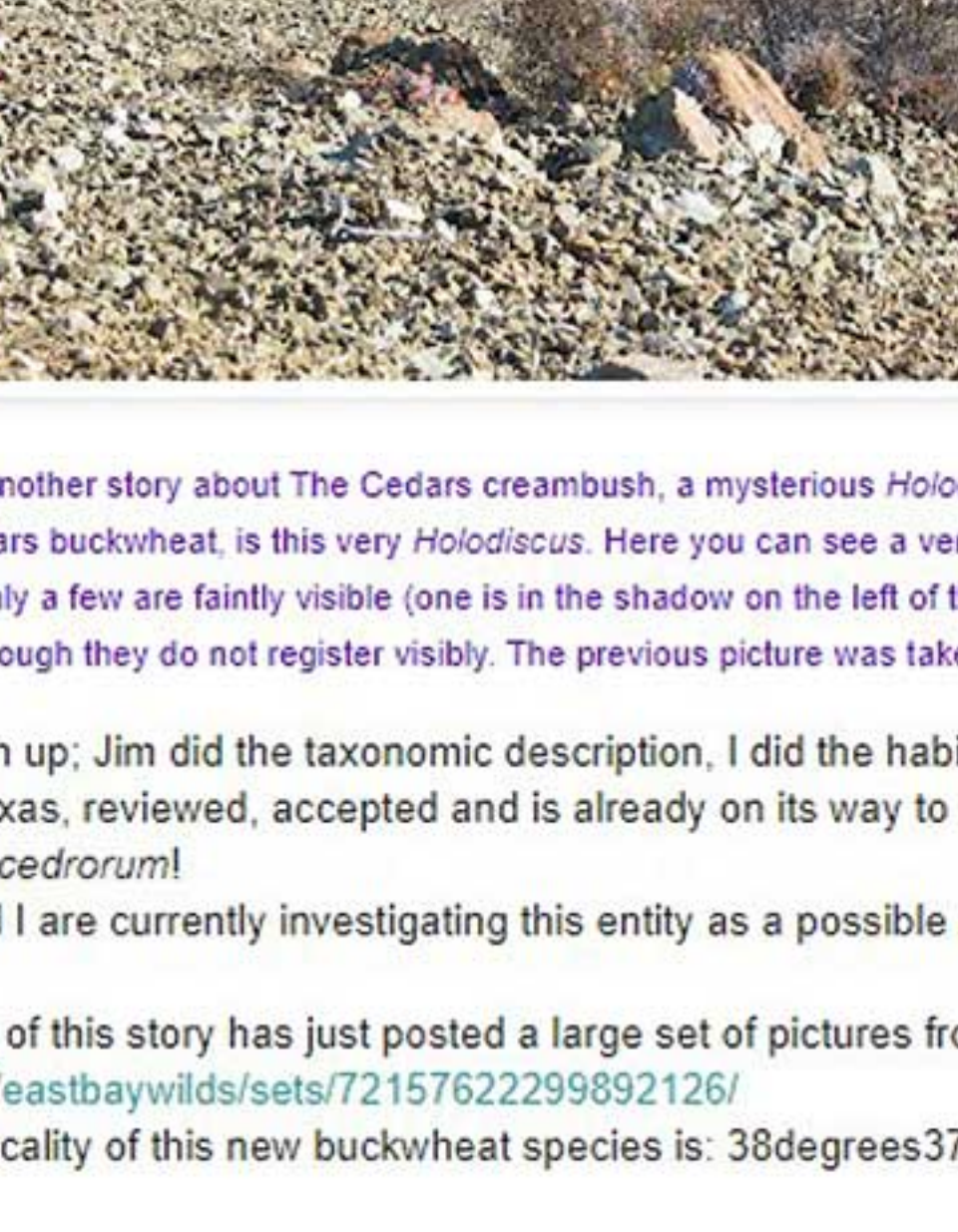
I was the first to collect the plant in flower at The Cedars. I had seen it on my first trip in 1981, but not in flower, and it wasn't until 1983 that I made a trip specifically to collect it in flower. I was surprised, as I was expecting the lovely fluffy pink flower heads of *E. nervulosum*, but instead the plants at The Cedars had fresh flowers of bright yellow which soon aged to maroon or burgundy-red. Back then, I sent herbarium specimens to the late Walter Knight, an authority on the flora of Sonoma County, and he identified it as *E. ternatum*, and indeed, it did "key out" to that as the primary distinction separating *E. ternatum* from *E. nervulosum* was flower color (yellow vs. whitish pink).



Looking across a canyon from one site of The Cedars buckwheat to another; however at this distance the plants are not visible. In The Cedars there is an enormous amount of bare rock which is highly fractured and thus falls apart constantly producing large talus slopes in the gullies and ravines. These talus slopes are the preferred habitat for the buckwheat, yet only a small percentage have the buckwheat. The reasons for its limited distribution is unknown.

I have always been a little tentative about putting a name on buckwheats simply because there are so many, nearly 260 species in all, and almost 200 named taxa (named entities of any rank) in California. The features used to distinguish one from another are often quite small and variable, making it hard to feel certain that you've gotten it right. But I've always loved them as a group, enormously variable from annuals to tiny mats to 4' shrubs; but almost always lovely. Early on in my career in California I used to joke with Richard Turner (now editor of *Pacific Horticulture* magazine, <http://www.pacifichorticulture.org/>) that we should form an "Eriogonum Society" much like there is a Rhododendron Society or Primrose Society, etc. to highlight the horticultural wonders of the group. Jim Reveal now tells me that there is an Eriogonum Society at: <http://eriongonum.org/>

While at the UC Botanical Garden at Berkeley, I tried growing as many as I could collect or get seed of. Some were quite successful, others less so, but their typical summer-flowering habit made them an important component of the summer garden.



Sleep to shallow serpentine talus slopes seem to be where The Cedars buckwheat is happiest, forming sizable mats. The mats, a collection of small foliage rosettes with horizontal connecting stems is well adapted to shifting talus as the rock particles can filter through the mat and essentially "layer" the outer rosettes without burying them. In this view (not great) there are probably at least two dozen or more mats, though only about 6 show well.

Early the next morning we met and hiked up to our Upper Mine site (one of two abandoned chromite mines on our parcel at The Cedars). Across from the mining scars is a 70 degree slope of bare rock and talus extending several hundred feet above the creekbed, the site this buckwheat calls home. We looked, photographed and collected some flowering specimens, but initially Jim realized that this was definitely not *E. nervulosum*, and in most features, quite similar to *E. ternatum*. It seemed, this was not going to be a new species; a little disappointing from my perspective, as field botanists always love to find that "new species". However I knew that the ultimate objective of taxonomic botany is to describe what is there, not what we want to be there. Dr. Reveal needed to fly back to Ithaca, so we left by late morning.

A week or so later, I received an email from Jim, saying that he studied both species (*E. ternatum* and *E. nervulosum*) and decided that The Cedars *Eriogonum* was indeed distinct. He asked if I would be a co-author of this new species. For me this was exciting and a great honor. It was exciting for The Cedars, as now it would have an 8th endemic taxon (endemic = restricted to; taxon = singular of described botanical entity of any rank, taxa = plural). It would also be quite rare, as the plant only occurs on a small fraction of what seems like suitable habitat within The Cedars.



Full circle. You may remember this story was prefaced by another story about The Cedars creambush, a mysterious *Holodiscus* species that initiated this sequence of events. The only woody shrub that occurs within the populations of The Cedars buckwheat, is this very *Holodiscus*. Here you can see a very old and largely dead shrub with dried flower heads growing amongst dozens of the *Eriogonum*, though in this picture only a few are faintly visible (one is in the shadow on the left of the creambush). Here we are looking down a large talus slope about 150' high where at least 200 buckwheats grow, though they do not register visibly. The previous picture was taken near the bottom of this slope but horizontal to this view.

In two weeks we had the botanical description written up. Jim did the taxonomic description, I did the habitat, ecological information and distribution map. It was submitted to the *Journal of Botanical Research* at Texas, reviewed, accepted and is already on its way to getting published. So now we can welcome to the botanical world, The Cedars buckwheat, *Eriogonum cedrorum*!

And what of the curious *Holodiscus*? Jim Reveal and I are currently investigating this entity as a possible new species, but more research needs to be done. Stay tuned!

Postscript: Pete Vielleux mentioned at the beginning of this story has just posted a large set of pictures from The Cedars for anyone wanting to see more of this terrain and its plants at: <http://www.flickr.com/photos/eastbaywilds/sets/7215762229892126/>

For anyone using a topographic program, the type locality of this new buckwheat species is: 38degrees37'16"N, 123degrees07'37"W (sorry, still can't find the degree symbol - or any symbol - in this program).