

**Addendum 1 to Traversing Swanton Road (22<sup>nd</sup> ed.)**

**Site data for rare, uncommon and undescribed native taxa in the Scott Creek watershed and environs,  
Volumes 1-7**

**by James A. West**

**Abstract**

This is an addendum to the essay Traversing Swanton Road (revised 02/22/2016) by James A. West, consisting of seven distinct sections. Note: the original documents do not have italicized binomial names.

**Volume 1***Clarkia aff. davyi*

\*\*Clarkia aff. davyi populations [erect mode of growth/bicolored flowers/seeds gray encrusted/some populations documented with herbarium pressings and the majority with seed collections housed at the UCSC Arboretum]. Both the C. aff. davyi and C. aff. prostrata populations found within the area circumscribed by the designation, Scott Creek Watershed/Environs, need to be studied carefully. Due to competition, mainly from non-native species (grazing has not affected the observed populations to any marked degree), the low growing C. aff. prostrata has shown the greatest decline while the erect growing C. aff. davyi, has continued to prosper (the area overlooking the Laguna de las Trancas, in particular). When evaluating the earliest of the seed collections and the data on the envelopes, in spite of labels written on said seed conveyances, the concolored versus bicolored flowers and dk brown versus gray encrusted seeds, quickly separate the two, yet to be taxonomically defined, species.

#1) 37.079987, -122.260784, elevation 383 feet/w-facing eolian sand impacted slope across Lasher Marsh drainage from Clarkia purpurea subsp. purpurea population and growing sympatrically with Horkelia cuneata var. sericea. The Horkelia was pressed and now resides at the Jepson Herbarium, U.C. Berkeley.

Herbarium data/JEPS82782, Roy E. Buck and James A. West, 322, 1983-6-5.

Seed collection data: 2002-317, Clarkia aff. davyi, 11/12/2002, Jim West. [This collection, from area between Lasher Marsh and Gulch 1, may be C. aff. prostrata. Conflicting data on spreadsheet entered envelope, makes reference to concolored flowers and dark seeds].

Seed collection data: 2016-161, Clarkia aff. davyi, 07/25/2016, Jim West.

#2) 37.082552, -122.263853, elevation 305 feet/n-end of Swanton Road, grass covered slope overlooking (in part), Washout Turn. Growing sympatrically with scattered tussocks of locally rare Festuca roemerii var. klamathensis (= Festuca idahoensis ?).

Seed collection data: 2007-182, Clarkia aff. davyi, 07/08/2007, Jim West.

Seed collection data: 2011-454, Clarkia aff. davyi, 07/30/2011, Jim West.

Seed collection data: 2016-162, Clarkia aff. davyi, 07/21/2016, Jim West.

Seed collection data: 2016-171, Clarkia aff. davyi, 08/30/2016, Jim West.

Seed collection data: 2017-176, Clarkia aff. davyi, 07/26/2016, Jim West.

#3) between 37.087874, -122.258380, elevation 598 feet and 37.088130, -122.258181, elevation 598 feet/e-edge, w-facing eolian sand derived slope, overlooking Laguna de las Trancas. This is the largest single population for Clarkia aff. davyi in the Scott Creek Watershed, averaging 50-60+ individuals seasonally.

Herbarium data/UCSC010581, James A. West, 2016-4-30, s.n.

Herbarium data/UCSC010582, James A. West, 2016-4-30, s.n.

Seed collection data: 2002-105, Clarkia pseudo-davyi, 09/24/2002, Jim West.

Seed collection data: 2009-54, Clarkia aff. davyi, 09/19/2009, Jim West.

Seed collection data: 2009-941, Clarkia aff. davyi, 07/08/2009, Jim West.

Seed collection data: 2009-952, Clarkia aff. davyi, 08/03/2009, Jim West.

Seed collection data: 2011-363, Clarkia aff. davyi, 09/03/2011, Jim West.

Seed collection data: 2011-452, *Clarkia* aff. *davyi*, 07/30/2011, Jim West.

Seed collection data: 2013-88, *Clarkia* aff. *davyi*, 06/30/2013, Jim West.

Seed collection data: 2015-70, *Clarkia* aff. *davyi*, 07/12/2015, Jim West.

Seed collection data: 2016-164, *Clarkia* aff. *davyi*, 07/07/2016, Jim West.

Seed collection data: 2016-165, *Clarkia* aff. *davyi*, 07/07/2016, Jim West.

Seed collection data: 2016-170, *Clarkia* aff. *davyi*, 09/07/2016, Jim West.

Seed collection data: 2016-173, *Clarkia* aff. *davyi*, 07/27/2016, Jim West.

Seed collection data: 2016-175, *Clarkia* aff. *davyi*, 08/12/2016, Jim West.

Seed collection data: 2016-249, *Clarkia* aff. *davyi*, 06/10/2016, Jim West.

Seed collection data: 2017-260, *Clarkia* aff. *davyi*, 07/07/2017, Jim West.

Seed collection data: 2017-263, *Clarkia* aff. *davyi*, 08/29/2017, Jim West.

Seed collection data: 2018-641, *Clarkia* aff. *davyi*, 08/31/2018, Jim West.

Seed collection data: 2018-674, *Clarkia* aff. *davyi*, 06/24/2018, Jim West.

Seed collection data: 2018-675, *Clarkia* aff. *davyi*, 07/11/2018, Jim West.

#4) 37.086771, -122.264054, elevation 472 feet/grass covered slope paralleling Las Trancas Arroyo and margined on the east and south by a mixed *Pinus radiata*/*Quercus agrifolia* woodland. Growing sympatrically with localized population of *Micropus californicus* aff. var. *subvestitus*.

Herbarium data/UCSC010579, James A. West, 2016-4-30, s.n.

Herbarium data/UCSC010580, James A. West, 2016-4-30, s.n.

Seed collection data: 2002-101, *Clarkia* pseudo-*davyi*, 10/25/2002, Jim West.

Seed collection data: 2002-331, *Clarkia* pseudo-*davyi*, 09/26/2002, Jim West.

Seed collection data: 2002-883, *Clarkia* pseudo-*davyi*, 10/25/2002, Jim West.

Seed collection data: 2003-312, *Clarkia* pseudo-*davyi*, 07/29/2003, Jim West.

Seed collection data: 2016-166, *Clarkia* aff. *davyi*, 07/11/2016, Jim West.

Seed collection data: 2016-172, *Clarkia* aff. *davyi*, 08/14/2016, Jim West.

#5) 37.085688, -122.265233, elevation 332 feet/remnant grass covered terrace face, overlooking n-end of Swanton Road before it enters Highway 1. Growing sympatrically with *Grindelia hirsutula* and scattered plants of *Stebbinsoseris decipiens*. Overarching this small and isolated *Clarkia* aff. *davyi* colony, are two robust examples of the *Pinus attenuata* x *Pinus radiata* hybrid syngameon.

Herbarium data/UCSC008889, Dylan M. Neubauer, 80, 2014-5-28.

Seed documentation data: 2007-180, *Clarkia* aff. *davyi*, 07/09/2007, Jim West.

Seed documentation data: 2007-2144, *Clarkia* aff. *davyi*, 11/06/2007, Jim West.

Seed documentation data: 2009-951, *Clarkia* aff. *davyi*, 07/08/2009, Jim West.

Seed documentation data: 2014-89, *Clarkia* aff. *davyi*, 02/04/2014, Jim West.

Seed documentation data: 2015-69, *Clarkia* aff. *davyi*, 07/12/2015, Jim West.

Seed documentation data: 2016-163, *Clarkia* aff. *davyi*, 07/11/2016, Jim West.

Seed documentation data: 2016-169, *Clarkia* aff. *davyi*, 09/11/2016, Jim West.

#6) 37.063888, -122.245833, elevation 395 feet/w-facing gulchlet draining into the central portion of Solar Panel Gate Gulch aka w-fork of Cowboy Shack Gulch. The substrate is principally eolian sand deposits mixed with siliceous mudstone fragments. Growing sympatrically with *Clarkia* aff. *davyi*, is a localized population of *Agrostis blasdalei* (also documented with mature inflorescences/fertile caryopses and deposited with the UCSC Arboretum).

Seed documentation data: 2002-58, *Clarkia* pseudo-*davyi*, 09/20/2002, Jim West.

Seed documentation data: 2002-108, *Clarkia* pseudo-*davyi*, 11/13/2002, Jim West.

Seed documentation data: 2007-179, *Clarkia* aff. *davyi*, 07/21/2007, Jim West.

Seed documentation data: 2009-942, *Clarkia* aff. *davyi*, 07/05/2009, Jim West.

Seed documentation data: 2011-453, *Clarkia* aff. *davyi*, 07/18/2011, Jim West.

Seed documentation data: 2013-90, *Clarkia* aff. *davyi*, 10/06/2013, Jim West.

Seed documentation data: 2013-199, *Clarkia* aff. *davyi*, 07/17/2013, Jim West.

Seed documentation data: 2015-68, *Clarkia* aff. *davyi*, 08/07/2015, Jim West.

Seed documentation data: 2015-67, *Clarkia* aff. *davyi*, 08/21/2015, Jim West.

Seed documentation data: 2016-168, *Clarkia* aff. *davyi*, 09/15/2016, Jim West.

Seed documentation data: 2016-177, *Clarkia* aff. *davyi*, 08/06/2016, Jim West.

Seed documentation data: 2016-178, *Clarkia* aff. *davyi*, 08/06/2016, Jim West.

#7) 37.072614, -122.254483, elevation 389 feet/eolian sand underpinned section of Western Terrace, between central portion of Big Willow Gulch ("Frog Pond") and e-edge of Pumpkin Field Marsh. Sympatric associate species include, *Heterotheca sessiliflora* subsp. *bolanderi* and *Wyethia angustifolia*. This population has not been seen in recent years but was documented via several seed collections and deposited with the UCSC Arboretum.

Seed documentation data: 2002-63, *Clarkia* aff. *davyi*, 10/19/2002, Jim West.

#### *Clarkia* aff. *prostrata*

\*\**Clarkia* aff. *prostrata* populations [prostrate/decumbent/spreading horizontal mode of growth/flowers concolored with base of petals pale yellow/seeds uniformly dk brown without encrustations/some populations documented with herbarium pressings and the majority by seed collections housed at the UCSC Arboretum].

#1) 37.072598, -122.257489, elevation 348 feet/w-edge of Pumpkin Field Marsh, growing on eolian sand deposits intermixed with siliceous mudstone which blankets the edge of the Western Terrace. *Cirsium quercetorum*, *Heterotheca sessiliflora* subsp. *bolanderi*, *Grindelia hirsutula* and *Sidacea malviflora* subsp. *malviflora* are some of the sympatric associate taxa.

Seed collection data: 2009-953, *Clarkia* aff. *prostrata*, 07/27/2009, Jim West.

Seed collection data: 2016-179, *Clarkia* aff. *prostrata*, 08/28/2016, Jim West.

Seed collection data: 2018-673, *Clarkia* aff. *prostrata*, 07/08/2018, Jim West.

#2) 37.076354, -122.260366, elevation 354 feet/w, sw-facing edge of coastal prairie, between Gulches #3 & #4.

Herbarium data/JEPS81509, Roy E. Buck and James A. West, 17, 1982-6-11.

Seed collection data: 2016-158, *Clarkia* aff. *prostrata*, 07/25/2016, Jim West.

#3) Between 37.070487, -122.255087, elevation 358 feet and 37.070694, -122.254572, elevation 360 feet/w-facing edge of Western Terrace overlooking lower Big Willow Gulch. A sampling of the native flora growing in association with *Clarkia* aff. *prostrata*, includes: *Acaena pinnatifida*, *Berberis pinnata* subsp. *pinnata*, *Heterotheca sessiliflora* subsp. *bolanderi* and *Hosackia gracilis*.

Herbarium data/UCSC010577, James A. West, 2016-5-1, s.n.

Herbarium data/UCSC010578, James A. West, 2016-5-1, s.n.

Note: ex situ population (2000-21) of *Clarkia* aff. *prostrata* raised in Harry Wain's garden, the original seed collected in situ, growing on eolian sand deposits, edge of Western Terrace overlooking Lower Big Willow Gulch. Plants prostrate, flowers concolored and seeds dark brown without encrustations. The below listed collection documented incorrectly on seed envelope as *Clarkia davyi*.

Seed collection data: 2000-21, ex situ raised, see above note, 08/11/2000, Jim West.

Seed collection data: 2007-183, *Clarkia* aff. *prostrata*, [misabeled as *C. davyi*], 06/30/2007, Jim West.

Seed collection data: 2007-185, *Clarkia* aff. *prostrata*, 07/28/2007, Jim West.

Seed collection data: 2009-6, *Clarkia* *prostrata*, 09/24/2009, Jim West.

Seed collection data: 2009-7, *Clarkia* *prostrata*, 09/24/2009, Jim West.

Seed collection data: 2009-243, *Clarkia* *prostrata*, 06/28/2009, Jim West.

Seed collection data: 2011-239, *Clarkia* aff. *prostrata*, 08/15/2011, Jim West.

Seed collection data: 2011-449, *Clarkia* aff. *prostrata*, 07/18/2011, Jim West.

Seed collection data: 2011-450, *Clarkia* aff. *prostrata*, 08/27/2011, Jim West.

Seed collection data: 2011-485, *Clarkia* aff. *prostrata*, 08/27/2011, Jim West

Seed collection data: 2012-431, *Clarkia* *prostrata*, 09/07/2012, Jim West.

Seed collection data: 2013-87, *Clarkia* aff. *prostrata*, 06/30/2013, Jim West.

Seed collection data: 2013-89, *Clarkia* aff. *prostrata*, 10/06/2013, Jim West.

Seed collection data: 2015-63, *Clarkia* aff. *prostrata*, 07/11/2015, Jim West.

Seed collection data: 2016-159, *Clarkia* aff. *prostrata*, 07/19/2016, Jim West.

Seed collection data: 2016-160, *Clarkia* aff. *prostrata*, 07/19/2016, Jim West.

Seed collection data: 2016-180, *Clarkia* aff. *prostrata*, 08/25/2016, Jim West.

Seed collection data: 2016-248, *Clarkia* aff. *prostrata*, 06/14/2016, Jim West.

*Clarkia purpurea* subsp. *purpurea*

\*\**Clarkia purpurea* subsp. *purpurea* populations/rare within Santa Cruz County, with the majority of populations concentrated within the Scott Creek Watershed/Environs.

Note: All of the *Clarkia purpurea* subsp. *purpurea* populations growing within the Scott Creek Watershed/Environs, need to be raised out and genotyped to see if they form one interrelated group or have separate lineages. Have they

evolved independently from the taxa called *C. purpurea* subsp. *purpurea* found elsewhere in California and what relationship do they have locally with *C. purpurea* subsp. *quadrivulnera*, as to past/present interspecific gene exchange? Do a seed morphology analysis, between local populations of *Clarkia purpurea* subsp. *quadrivulnera*, *C. purpurea* subsp. *purpurea*, *C. aff. davyi* and *C. aff. prostrata* and see if any taxonomically distinguishing features can be found linking this phylogenetically related group, coupled with a comparison between the ovary/capsule configurations.

Note: Several generations of this taxon were raised out in the late Harry Wain's garden, from seed collected nearby (isolated population, growing on eolian sand deposits, overlooking Lower Lasher Marsh drainage), the results being: that each self-sowing generation, produced inflorescences in terms of morphology, flower color and conformation, of greater complexity. Seed data documenting those ex situ populations, are listed below.

Seed collection data: 2000-298, *Clarkia purpurea* subsp. *purpurea*, 08/11/2000, Jim West.

Seed collection data: 2000-299, *Clarkia purpurea* subsp. *purpurea*, 08/02/2000, Jim West.

Seed collection data: 2000-300, *Clarkia purpurea* subsp. *purpurea*, 08/03/2000, Jim West.

#1) 37.082818, -122.250776, elevation 320 feet/"Bowl Area", overlooking central portion of "Old Road" (part of original North Coast Road, mid-19<sup>th</sup> century). Fragmented population, growing on grass covered slope (remnant terrace's bedding planes) with one satellite mini-population nearby, also occupying another exposed siliceous mudstone outcropping while the second mini-population growing embedded within a seasonally grazed grassland. Incidentally the 2<sup>nd</sup> mini-population growing proximal to the first population of *Trifolium buckwestiorum* discovered in the late 1970s. All three populations have declined over the years, mainly due to the competition from non-natives grasses (*Avena*, *Bromus*, and *Festuca* genera) but are documented via seed collections and curated at the UCSC Arboretum.

Seed collection data: 2000-280, *Clarkia purpurea* subsp. *purpurea*, 07/16/2000, Jim West.

Seed collection data: 2000-284, *Clarkia purpurea* subsp. *purpurea*, 10/12/2000, Jim West.

Seed collection data: 2000-301, *Clarkia purpurea* subsp. *purpurea*, 08/03/2000, Jim West.

Seed collection data: 2002-165, *Clarkia purpurea* subsp. *purpurea*, 09/23/2002, Jim West.

Seed collection data: 2002-543, *Clarkia purpurea* subsp. *purpurea*, 10/29/2002, Jim West.

Seed collection data: 2003-301, *Clarkia purpurea* subsp. *purpurea*, 07/14/2003, Jim West.

Seed collection data: 2003-302, *Clarkia purpurea* subsp. *purpurea*, 07/14/2003, Jim West.

Seed collection data: 2007-1419, *Clarkia purpurea* subsp. *purpurea*, 07/24/2007, Jim West.

Seed collection data: 2007-1425, *Clarkia purpurea* subsp. *purpurea*, 09/12/2007, Jim West.

Seed collection data: 2009-948, *Clarkia purpurea* subsp. *purpurea*, 08/02/2009, Jim West.

Seed collection data: 2013-86, *Clarkia purpurea* subsp. *purpurea*, 08/13/2013, Jim West.

#2) 37.080115, -122.261865, elevation 358 feet/Lasher Marsh Bluffs, scattered population growing on eolian sand deposits and first population discovered for the Scott Creek Watershed/Environs. Growing sympatrically with a morphologically variable population of *Horkelia cuneata*, displaying a complex mixture of var. *cuneata* and var. *sericea* genes. Both the *Clarkia* and *Horkelia* have been documented with several seed collections and the *Clarkia*'s presence has also been validated with two herbarium collections.

Herbarium data/JEPS81520, Roy E. Buck and James A. West, 9, 1982-6-11.

Herbarium data/JEPS82579, James A. West, 125, 1983-6-15.

Seed collection data: 2002-145, *Clarkia purpurea* subsp. *purpurea*, 11/01/2002, Jim West.

Seed collection data: 2007-1422, *Clarkia purpurea* subsp. *purpurea*, 07/16/2007, Jim West.

Seed collection data: 2007-1423, *Clarkia purpurea* subsp. *purpurea*, 07/16/2007, Jim West.

Seed collection data: 2007-1424, *Clarkia purpurea* subsp. *purpurea*, 08/12/2007, Jim West.

Seed collection data: 2008-1690, *Clarkia purpurea* subsp. *purpurea*, 08/01/2008, Jim West.

Seed collection data: 2009-945, *Clarkia purpurea* subsp. *purpurea*, 08/24/2009, Jim West.

Seed collection data: 2009-947, *Clarkia purpurea* subsp. *purpurea*, 08/24/2009, Jim West.

Seed collection data: 2009-949, *Clarkia purpurea* subsp. *purpurea*, 08/24/2009, Jim West.

Seed collection data: 2009-950, *Clarkia purpurea* subsp. *purpurea*, 08/24/2009, Jim West.

Seed collection data: 2011-256, *Clarkia purpurea* subsp. *purpurea*, 06/02/2011, Jim West.

Seed collection data: 2011-335, *Clarkia purpurea* subsp. *purpurea*, 09/23/2011, Jim West.

Seed collection data: 2016-246, *Clarkia purpurea* subsp. *purpurea*, 07/25/2016, Jim West.

#3) 37.043354, -122.212226, elevation 494 feet/Population of 150-200+ plants, growing on ancient eolian sand dune system, 4<sup>th</sup> terrace, overlooking the Queseria/Molino Divide. This is the largest population for this county wide rare taxon found to date. While extremely variable as to overall gross morphology and flower color/patterning, the most distinctive feature observed for this particular population, is how it continues (late in the season) to put out and maintain new leaves and flowers, long after this annual ceases to have any functional root system and the aerial stems/inflorescences become woody. The prolonged “life” for this annual may have to do with its capacity to absorb atmospheric moisture (fog and proximity to oceanic influences) via the possible hygroscopic nature of its stem structure and certainly warrants a research study along ecological as well as, physiological lines. Several comprehensive seed collections (residing at the UCSC Arboretum) have been made for this unique population and further in situ documentation needs to be done.

Seed collection data: 2011-293, *Clarkia purpurea* subsp. *purpurea*, 11/01/2011, Jim West.

Seed collection data: 2011-418, *Clarkia purpurea* subsp. *purpurea*, 10/11/2011, Jim West.

Seed collection data: 2012-417, *Clarkia purpurea* subsp. *purpurea*, 10/26/2012, Jim West.

Seed collection data: 2012-418, *Clarkia purpurea* subsp. *purpurea*, 10/26/2012, Jim West.

Seed collection data: 2012-419, *Clarkia purpurea* subsp. *purpurea*, 10/26/2012, Jim West.

Seed collection data: 2013-519, *Clarkia purpurea* subsp. *purpurea*, 07/07/2013, Jim West.

Seed collection data: 2013-520, *Clarkia purpurea* subsp. *purpurea*, 07/07/2013, Jim West.

Seed collection data: 2014-338, *Clarkia purpurea* subsp. *purpurea*, 06/26/2014, Jim West.

#4) 37.098758, -122.241162, elevation 733 feet/Scott Creek side of Seymore Hill, steep grass covered slope above cattle trail leading into Upper Calf Gulch. This is the furthest inland population for this locally rare taxon yet discovered in the Scott Creek Watershed/Environs. This rare species is growing sympatrically with another Santa Cruz County rarity, namely: *Micropus californicus* var. *subvestitus*. The *Micropus* species has been documented with herbarium specimens residing with the Jepson Herbarium/UC Berkeley and the *Clarkia purpurea* subsp. *purpurea* is represented by seed collections, housed at the UCSC Arboretum. Noteworthy, is the fact that this inland and higher in elevation population, is growing sympatrically with another *C. purpurea* subspecies, namely subsp. *quardivulnera*. Raising out several ex situ populations of the Seymore Hill *C. purpurea* subsp. *purpurea* may yield

important data, as to how a given “subspecies” can augment its gene pool through intraspecific genetic exchange and how does this amplification of newly acquired traits, aid in its survival via attracting pollinating vectors?

Seed collection data: 2002-111, *Clarkia purpurea* subsp. *purpurea*, 11/06/2002, Jim West.

Seed collection data: 2002-113, *Clarkia purpurea* subsp. *purpurea*, 11/06/2002, Jim West.

Seed collection data: 2002-146, *Clarkia purpurea* subsp. *purpurea*, 10/05/2002, Jim West.

Seed collection data: 2002-147, *Clarkia purpurea* subsp. *purpurea*, 10/03/2002, Jim West.

Seed collection data: 2002-148, *Clarkia purpurea* subsp. *purpurea*, 10/03/2002, Jim West.

Seed collection data: 2002-149, *Clarkia purpurea* subsp. *purpurea*, 10/05/2002, Jim West.

Seed collection data: 2002-150, *Clarkia purpurea* subsp. *purpurea*, 10/25/2002, Jim West.

Seed collection data: 2002-151, *Clarkia purpurea* subsp. *purpurea*, 10/16/2002, Jim West.

Seed collection data: 2002-154, *Clarkia purpurea* subsp. *purpurea*, 10/16/2002, Jim West.

Seed collection data: 2002-541, *Clarkia purpurea* subsp. *purpurea*, 10/02/2002, Jim West.

Seed collection data: 2002-542, *Clarkia purpurea* subsp. *purpurea*, 10/02/2002, Jim West.

Seed collection data: 2002-544, *Clarkia purpurea* subsp. *purpurea*, 11/06/2002, Jim West.

Seed collection data: 2007-1421, *Clarkia purpurea* subsp. *purpurea*, 07/25/2007, Jim West.

Seed collection data: 2007-1426, *Clarkia purpurea* subsp. *purpurea*, 10/30/2007, Jim West.

Seed collection data: 2009-946, *Clarkia purpurea* subsp. *purpurea*, 08/01/2009, Jim West.

Seed collection data: 2011-410, *Clarkia purpurea* subsp. *purpurea*, 10/27/2011, Jim West.

### *Carex gracilior*

\*\**Carex gracilior* is represented by three small populations in the Scott Creek Watershed/Environs and has been documented by both herbarium pressings (reposing in the Norris Natural History Museum) and mature inflorescences with viable perigynia (housed at the UCSC Arboretum). Since this is a rare taxon in Santa Cruz County, these three isolated micro-populations need to be raised out and carefully studied, from both a morphological and genetic basis, to determine their taxonomic relationship with the TYPE specimen, collected in Sonoma, California.

#1) 37.084883, -122.248907, elevation 129 feet/Scott Creek riparian corridor, along edge of horse trail that connects Purdy Road with Gianone Barn Gulch drainage.

Herbarium data/UCSC008861, *Carex gracilior*, Dylan M. Neubauer, 2014-5-10, 66a-1, Santa Cruz.

Herbarium data/UCSC008862, *Carex gracilior*, Dylan M. Nuebauer, 2014-5-10, 66b, Santa Cruz.

Herbarium data/UCSC008863, *Carex gracilior*, Dylan M. Neubauer, 2014-5-10, 66c, Santa Cruz.

Herbarium data/UCSC008930, *Carex gracilior*, Dylan M. Neubauer, 2014-5-10, 66a-2, Santa Cruz.

Perigynia collection data: 2015-123, *Carex* aff. *gracilior*, 06/23/2015, Jim West.

#2) 37.062472, -122.253118, elevation 139 feet/Santa Cruz Terrace, between *Agrostis* Rectangle and China Ladder Gulch. Growing in an area of botanical complexity, with *Carex x imperfecta*, *Carex gianonei* (*C. harfordii* analog), *Carex densa*, *Isolepis cernua* (densely tufted perennial form), *Dudleya caespitosa*, *Rumex occidentalis*, et al.

Documented with collections of inflorescences and mature perigynia, which are deposited at the UCSC Arboretum. This immediate coastal bluff form needs to be carefully studied and compared with the two inland populations.

Perigynia collection data: 2016-70, *Carex* aff. *gracilior*, 06/17/2016, Jim West.

Perigynia collection data: 2016-71, *Carex* aff. *gracilior*, 06/17/2016, Jim West.

Perigynia collection data: 2016-186, *Carex* aff. *gracilior*, 09/15/2016, Jim West.

Perigynia collection data: 2017-324, *Carex* aff. *gracilior*, 07/11/2017, Jim West.

#3) 37.095614, -122.248228, elevation 196 feet/edge of dirt road accessing the Seymore Hill, between Purdy Road and lower Calf Gulch. Mature inflos and perigynia collected and deposited at the UCSC Arboretum. Proximal to this scattered population, *Plagiobothrys* aff. *bracteatus*, *P. diffusus* and *Trifolium buckwestiorum* have been documented with mature inflorescences (for diagnostic purposes) plus nutlets/seed collections and also deposited at the UCSC Arboretum.

### *Sanicula hoffmannii*

\*\**Sanicula hoffmannii* populations/The Scott Creek populations of this rare local sanicle, were the first ones that were documented north of Monterey County, in the early 1980s. This Southern California taxon's range was further extended in the mid-1980s to include the neighboring San Mateo County. *Sanicula hoffmannii* was once considered a variety of *Sanicula bipinnatifida* and both of these taxa share an interesting trait.... when their petioles or stems are broken in half, the released sap turns milky-white upon being exposed to the air. *S. hoffmannii* and *S. laciniata*, both diploids, are considered the putative parents of tetraploid *S. crassicaulis*. Within the Scott Creek Watershed, there are numerous examples of *S. crassicaulis* showing leaves that mirror those of *S. hoffmannii*, but with the base of the central lobe still connected to the lateral lobes. Only on the Seymore Hill, have plants been found that reflect the putative *S. laciniata* contribution to the hybrid mix and this distinctive taxon has been given the working name of *S. "pseudo-laciniata"*. All schizocarp collections are housed with the UCSC Arboretum.

#1) 37.088823, -122.253473, elevation 392 feet/dirt road linking Marti's Park and West Spring Marshes.

Schizocarp collection data: 2015-106, *Sanicula hoffmannii*, 07/08/2015, Jim West.

Schizocarp collection data: 2018-494, *Sanicula hoffmannii*, 08/06/2018, Jim West.

#2) between 37.060485, -122.229175, elevation 184 feet and 37.063617, -122.229959, elevation 177 feet/along horse trail, between Emma's Shreve Oak and lower Mt. Cook Gulch drainage. Sharing habitat with solitary example of another rare taxon, this time an endemic conifer..... *Hesperocyparis abramsiana sensu lato*.

Note: the below listed schizocarp collections, include not only the scattered populations along the horse trail margins but the abandoned horse trail paralleling and overlooking Scott Creek and the lower Mt. Cook Gulch drainage.

Schizocarp collection data: 2011-315, *Sanicula hoffmannii*, 06/30/2011, Jim West.

Schizocarp collection data: 2011-466, *Sanicula hoffmannii*, 07/09/2011, Jim West.

Schizocarp collection data: 2012-181, *Sanicula hoffmannii*, 09/07/2012, Jim West.

Schizocarp collection data: 2012-199, *Sanicula hoffmannii*, 08/02/2012, Jim West.

Schizocarp collection data: 2012-458, *Sanicula hoffmannii*, 10/20/2012, Jim West.

Schizocarp collection data: 2012-459, *Sanicula hoffmannii*, 10/20/2012, Jim West.

Schizocarp collection data: 2013-280, *Sanicula hoffmannii*, 08/26/2013, Jim West.

Schizocarp collection data: 2015-247, *Sanicula hoffmannii*, 10/09/2015, Jim West.

Schizocarp collection data: 2016-188, *Sanicula hoffmannii*, 09/01/2016, Jim West.

Schizocarp collection data: 2018-494, *Sanicula hoffmannii*, 09/07/2018, Jim West.

#3) 37.094106, -122.257196, elevation 651 feet/brushy se-margin of lower Beaver Flat Marsh.

#4) 37.098165, -122.242759, elevation 567 feet/upper Calf Gulch, live oak woodland overlooking cattle trail that leads to seasonal spring. Several other *Sanicula* species are growing sympatrically with *S. hoffmannii*, including *S. arctopoides*, *S. crassicaulis*, *S. gianonei*, pro. sp. nov. and *S. "pseudo-laciniata"*.

Schizocarp collection data: 2007-160, *Sanicula hoffmannii*, 07/26/2007, Jim West.

Schizocarp collection data: 2009-262, *Sanicula hoffmannii*, 08/01/2009, Jim West.

Note: One schizocarp collection was made for *S. "pseudo-laciniata"*.

Schizocarp collection data: 2009-64, *Sanicula* sp. [*S. "pseudo-laciniata"*], 05/24/2009, Jim West.

#5) 37.089918, -122.262284, elevation 601 feet/localized colony of 20+ plants discovered in 2013, located within an oak grove perched above gulchlet, which drains into the east fork of the Las Trancas Arroyo."

#6) (a) between 37.099417, -122.266189, elevation 874 feet and 37.106599, -122.265388, elevation 928 feet, scattered populations growing along edge of Last Chance Road paralleling upper w-fork of Laird Gulch. (b) 37.111143, -122.261861, elevation 1064 feet, along edge of horse trail, connecting Last Chance Road with Scott Creek and (c) 37.100488, -122.253278, elevation 198 feet, riparian corridor where horse trail connects with Purdy Road.

Note: most of these populations (circumscribed within #6) are documented with one or more collections of mature schizocarps and deposited with the UCSC Arboretum. Areas denoted as (a) and (b), are part of a contiguous series of habitats and the below listed schizocarp collections fall within that ecological continuum.

Herbarium data for (a) population/JEPS83059, Roy E. Buck and James A, West, 455, 1983-7-24.

Herbarium data for (a) population/UC1595971, Roy E. Buck and R. Doug Stone, 1982-7-4.

Herbarium data for (c) population/OBI80732, R. Morgan, 1982-3-23A.

Herbarium data for (c) population/UCSC006024, Randall Morgan, 1982-3-23, s.n.

Herbarium data for (c) population/UCSC006174, Randall Morgan, 1982-3-23, s.n.

Herbarium data for (c) population/UCSC006175, Randall Morgan, 1982-3-23, s.n.

Schizocarp collection data: 2009-28, *Sanicula hoffmannii*, 09/18/2009, Jim West.

Schizocarp collection data: 2009-264, *Sanicula hoffmannii*, 08/03/2009, Jim West.

Schizocarp collection data: 2009-605, *Sanicula hoffmannii*, 07/08/2009, Jim West.

Schizocarp collection data: 2009-263, *Sanicula hoffmannii*, 06/15/2009, Jim West.

Schizocarp collection data: 2011-416, *Sanicula hoffmannii*, 10/15/2011, Jim West.

### *Agrostis blasdalei*

\*\**Agrostis blasdalei* populations/this rare, 1B.2/Sen, California endemic grass, was not known to occur south of Marin County, until a population numbering in the 800-900 range, was discovered in the late 1970s, growing on the Santa Cruz Terrace, proximal to China Ladder Gulch. Subsequent to that initial range expansion discovery, this rare grass has now been documented as far south (in Santa Cruz County) as Laguna Beach and in the opposite direction, coastal bluffs proximal to Pescadero Marsh. What distinguishes the populations found within the

circumscription of the Scott Creek Watershed/Environs, is not only the extreme variability of this taxon relative to its TYPE description but the documented evidence, showing introgressive hybridization with two sympatric relatives, namely: *Agrostis densiflora* (itself restricted to the North Coast part of Santa Cruz County) and *Agrostis exarata* (var. *pacifica*). The extensive documentation for the Scott Creek Watershed/Environs populations, both via herbarium pressings and mature caryopsis collections (deposited with the UCSC Arboretum), afford botanists interested in biogeography, species formation thru isolation and introgressive gene flow with sympatric relatives but also a specific research topic..... are the populations south of San Francisco Bay, genetically identical with those occupying the Marin, Mendocino and Sonoma coasts, and if not, do they warrant a new nomenclatural status such as variety? All of the below listed populations have been documented with viable caryopsis collections and the extensive herbarium documentation has also taken place but no genetic workups for any of these “south of San Francisco Bay” populations has taken place!!!

#1) between 37.061469, -122.252435, elevation 155 feet and 37.061613, -122.252201, elevation 167 feet”*Agrostis Rectangle*”, largest concentrated population of *A. blasdalei* discovered to date, south of San Francisco Bay, currently containing at least 400 individuals (since original discovery in the late 1970s, erosion and vehicular access has reduced population size considerably). This population, due to sympatry with its uncommon sister species, *Agrostis densiflora*, displayed morphological variability to such a degree, that several dozen herbarium pressings have been made and numerous caryopsis collections (housed at the UCSC Arboretum). Much more work needs to be done, not only with this population but relative to the interior ones residing inland of Highway 1 (both sides of the Santa Cruz Syncline), with regards to morphological plasticity, isolation, introgressive hybridization with *A. exarata* (var. *pacifica*), response to herbivory and susceptibility to the ergot fungus.

Herbarium data/JEPS81559, Roy E. Buck and James A. West, 102, 1982-7-25.

Herbarium data/JEPS82919, Roy E. Buck and James A. West, 369, 1983-6-23.

Herbarium data/JEPS82920, Roy E. Buck and James A. West, 368, 1983-6-23.

Herbarium data/JEPS83603, Roy E. Buck and James A. West, 370, 1983-6-23.

Herbarium data/JEPS82929, James A. West, 271, 1984-9-28.

Herbarium data/JEPS82930, James A. West, 270, 1984-9-28.

Herbarium data/JEPS82933, James A. West, 266, 1984-9-17.

Herbarium data/JEPS82935, James A. West, 266, 1984-9-10.

Herbarium data/JEPS82936, James A. West, 264, 1984-9-10.

Herbarium data/JEPS82938, James A. West, 262, 1982-9-9.

Herbarium data/OBI83792, Monika Richardson, Jim West, 90, 2017-7-13.

Caryopsis collection data: 2009-36, *Agrostis blasdalei*, 09/16/2009, Jim West.

Caryopsis collection data: 2009-38, *Agrostis blasdalei*, 09/24/2009, Jim West.

Caryopsis collection data: 2011-307, *Agrostis blasdalei*, 07/18/2011, Jim West.

Caryopsis collection data: 2011-308, *Agrostis blasdalei*, 07/18/2011, Jim West.

Caryopsis collection data: 2011-309, *Agrostis blasdalei*, 07/18/2011, Jim West.

Caryopsis collection data: 2012-115, *Agrostis blasdalei*, 10/04/2012, Jim West.

Caryopsis collection data: 2012-275, *Agrostis blasdalei*, 09/24/2012, Jim West.

Caryopsis collection data: 2012-463, *Agrostis blasdalei*, 08/20/2012, Jim West.

Caryopsis collection data: 2012-464, *Agrostis blasdalei*, 08/20/2012, Jim West.  
 Caryopsis collection data: 2013-169, *Agrostis blasdalei*, 08/29/2013, Jim West.  
 Caryopsis collection data: 2013-202, *Agrostis blasdalei*, 08/29/2013, Jim West.  
 Caryopsis collection data: 2013-234, *Agrostis blasdalei*, 07/29/2013, Jim West.  
 Caryopsis collection data: 2013-235, *Agrostis blasdalei*, 07/29/2013, Jim West.  
 Caryopsis collection data: 2013-236, *Agrostis blasdalei*, 07/29/2013, Jim West.  
 Caryopsis collection data: 2013-239, *Agrostis blasdalei*, 08/29/2013, Jim West.  
 Caryopsis collection data: 2013-240, *Agrostis blasdalei*, 08/28/2013, Jim West.  
 Caryopsis collection data: 2015-194, *Agrostis blasdalei*, 08/11/2015, Jim West.  
 Caryopsis collection data: 2015-195, *Agrostis blasdalei*, 07/01/2015, Jim West.  
 Caryopsis collection data: 2015-196, *Agrostis blasdalei*, 08/18/2015, Jim West.  
 Caryopsis collection data: 2015-197, *Agrostis blasdalei*, 09/10/2015, Jim West.  
 Caryopsis collection data: 2015-198, *Agrostis blasdalei*, 09/10/2015, Jim West.  
 Caryopsis collection data: 2015-202, *Agrostis blasdalei*, 07/01/2015, Jim West.  
 Caryopsis collection data: 2013-242, *Agrostis blasdalei*, 08/28/2013, Jim West.  
 Caryopsis collection data: 2011-475, *Agrostis blasdalei*, 07/30/2011, Jim West.  
 Caryopsis collection data: 2011-476, *Agrostis blasdalei*, 07/25/2011, Jim West.  
 Caryopsis collection data: 2014-106, *Agrostis blasdalei*, 07/29/2014, Jim West.  
 Caryopsis collection data: 2014-108, *Agrostis blasdalei*, 07/29/2014, Jim West.  
 Caryopsis collection data: 2014-111, *Agrostis blasdalei*, 07/29/2014, Jim West.  
 Caryopsis collection data: 2017-287, *Agrostis blasdalei*, 07/11/2017, Jim West.

Note: The below four accessions, reflect a subset within the overall above documentation, namely putative hybridization between *A. blasdalei* and sympatric *A. densiflora*.

Caryopsis collection data: 2009-42, *Agrostis blasdalei* x *Agrostis densiflora*, 09/16/2009, Jim West.  
 Caryopsis collection data: 2013-66, *Agrostis blasdalei* x *Agrostis densiflora*, 07/29/2013, Jim West.  
 Caryopsis collection data: 2013-448, *Agrostis blasdalei* x *Agrostis densiflora*, 07/29/2013, Jim West.  
 Caryopsis collection data: 2016-226, *Agrostis blasdalei* x *Agrostis densiflora*, 09/15/2016, Jim West.

#2) 37.075703, -122.252694, elevation 465 feet/Upper end of Buckeye Grove Ridge [note: one of two populations that are the innermost respective to the immediate coastal bluffs populations]. Growing prostrate when unsupported with adjacent vegetation but vertical when growing up through *Baccharis pilularis* aff. subsp. *pilularis* mounds. Sympatric taxa of interest, include a reduced form of *Elymus glaucus*, *Deschampsia cespitosa* subsp. *holciformis* and *Spiranthes romanzoffiana*. More than half of this localized *Agrostis blasdalei* population becomes infected with the Ergot fungus as the inflorescences develop, while adjacent plants are not parasitized. A subject worthy of intensive investigation.

Caryopsis collection data: 2011-304, *Agrostis blasdalei*, 07/17/2011, Jim West.

Caryopsis collection data: 2012-114, *Agrostis blasdalei*, 10/10/2012, Jim West.

Caryopsis collection data: 2012-241, *Agrostis blasdalei*, 07/22/2012, Jim West.

Caryopsis collection data: 2012-242, *Agrostis blasdalei*, 07/22/2012, Jim West.

Caryopsis collection data: 2012-414, *Agrostis blasdalei*, 06/30/2012, Jim West.

Caryopsis collection data: 2013-255, *Agrostis blasdalei*, 07/07/2013, Jim West.

Caryopsis collection data: 2014-109, *Agrostis blasdalei*, 06/25/2014, Jim West.

Caryopsis collection data: 2015-211, *Agrostis blasdalei*, 08/07/2015, Jim West.

Caryopsis collection data: 2016-218, *Agrostis blasdalei*, 08/28/2016, Jim West.

#3) 37.059977, -122.247167, elevation 299 feet/sw-facing seasonally wet edge of Western Terrace, overlooking lower Cowboy Shack Gulch, where it drains under Highway 1. This habitat is basically a micro-refugium, supporting both rare and common native taxa, including: *Trifolium wormskioldii*, *Plantago subnuda* and *Isolepis cernua* (densely caespitose perennial form).

Caryopsis collection data: 2009-37, *Agrostis blasdalei*, 09/16/2009, Jim West.

Caryopsis collection data: 2012-462, *Agrostis blasdalei*, 08/20/2012, Jim West.

Caryopsis collection data: 2013-237, *Agrostis blasdalei*, 07/29/2013, Jim West.

Caryopsis collection data: 2014-107, *Agrostis blasdalei*, 07/30/2014, Jim West.

Caryopsis collection data: 2015-199, *Agrostis blasdalei*, 08/19/2015, Jim West.

#4) 37.063956, -122.245987, elevation 385 feet/w-facing gulchlet draining into central portion of Solar Panel Gate Gulch aka w-fork of Cowboy Shack Gulch. Growing sympatrically with *Clarkia* aff. *davyi* (erect mode of growth/bicolored flowers/gray encrusted seeds) and *Horkelia cunata* var. *cuneata*. Several seed collections made for the *Clarkia* species and whole inflorescences with mature caryopsis for the *Agrostis blasdalei*, which reside with the UCSC Arboretum. Herbarium pressing of the *Clarkia* aff. *davyi*, was done by CalPoly Frost Botanical Summer Intern, Monika Richardson, which was deposited with the Hoover Herbarium.

Caryopsis collection data: 2009-3, *Agrostis blasdalei*, 09/16/2009, Jim West.

Caryopsis collection data: 2011-474, *Agrostis blasdalei*, 07/18/2011, Jim West.

Caryopsis collection data: 2012-389, *Agrostis blasdalei*, 07/15/2012, Jim West.

Caryopsis collection data: 2013-232, *Agrostis blasdalei*, 07/17/2013, Jim West.

Caryopsis collection data: 2014-110, *Agrostis blasdalei*, 01/23/2014, Jim West.

Caryopsis collection data: 2015-200, *Agrostis blasdalei*, 07/05/2015, Jim West.

Caryopsis collection data: 2015-210, *Agrostis blasdalei*, 08/07/2015, Jim West.

Caryopsis collection data: 2016-219, *Agrostis blasdalei*, 08/06/2016, Jim West.

#5) 37.080204, -122.267214, elevation 96 feet/edge of Santa Cruz Terrace, overlooking w-half of Greyhound Rock Beach. Isolated population, growing sympatrically with *Agrostis densiflora*, *Elymus glaucus* aff. subsp. *virescens* (distinctive, possibly undescribed, taxon/morphologically stable, greatly reduced in stature, densely caespitose in

growth habit and lemmas virtually awnless), *Phalaris californica* and *Trisetum* aff. *canescens*. Mature inflorescences with viable caryopsis were collected for all of the above native Poaceae and are housed with the UCSC Arboretum.

Caryopsis collection data: 2007-1076, *Agrostis blasdalei*, 07/20/2007, Jim West.

Caryopsis collection data: 2015-201, *Agrostis* aff. *blasdalei*, 06/21/2015, Jim West.

#6) 37.074046, -122.252903, elevation 462 feet/"Sandy-bottom Reservoir", former H-H Ranch (now part of Swanton Pacific Ranch's Scott Creek Watershed holdings). Both *Agrostis blasdalei* and *Agrostis exarata* var. *pacifica* exist within this artificially sculpted, dirt lined (mixed siliceous mudstone fragments and eolian sand deposits) abandoned water storage site and also a complex series of hybrid taxa combining the morphological characters of both *Agrostis* species. These putative hybrids were documented with both herbarium pressings and mature inflorescences containing viable caryopsis in the early 1980s, and were given the working name of *Agrostis "pseudo-densiflora"*. Other species of native taxa growing sympatrically at the time these pressings were made, are as follows: *Cicendia quadrangularis*, *Pogogyne serpylloides*, *Crassula aquatica*, *Zeltnera davyi*, *Carex x nitidicarpa* (fertile product of *C. densa* x *C. subbracteata*), *Danthonia californica*, *Juncus bufonius*, *Juncus phaeocephalus* and two, long established interspecific *Juncus* hybrids (between *J. hesperius* and *J. patens*). The caryopsis collections for this previously undocumented interspecific hybrid, residing at the UCSC Arboretum, need to be raised out and have a genetic profile done. These rarely reported, broaching of reproductive isolation barriers between two related taxa, one rare and the other widespread, can shed some light on species formation and established species variability through the inadvertent acquisition of genetic material, possibly due to some disruptive ecological event.

Herbarium data/JEPS81525, Roy E. Buck, James A. West and Tom Hawke, 4, 1982-5-24.

Herbarium data/JEPS82926, Roy E. Buck and James A. West, 182, 1983-7-29.

Herbarium data/JEPS82922, James A. West, 192, 1983-8-17.

Herbarium data/JEPS82923, Roy E. Buck and James A. West, 184, 1983-8-7.

Caryopsis collection data: 2012-243, *Agrostis blasdalei* x *Agrostis exarata*, 07/22/2012, Jim West.

Caryopsis collection data: 2012-244, *Agrostis blasdalei* x *Agrostis exarata*, 07/22/2012, Jim West.

Caryopsis collection data: 2012-245, *Agrostis blasdalei* x *Agrostis exarata*, 07/22/2012, Jim West.

Caryopsis collection data: 2012-246, *Agrostis blasdalei* x *Agrostis exarata*, 07/22/2012, Jim West.

Caryopsis collection data: 2012-247, *Agrostis blasdalei* x *Agrostis exarata*, 07/22/2012, Jim West.

Caryopsis collection data: 2012-248, *Agrostis blasdalei* x *Agrostis exarata*, 07/22/2012, Jim West.

Caryopsis collection data: 2012-410, *Agrostis blasdalei* x *Agrostis exarata*, 06/30/2012, Jim West.

Caryopsis collection data: 2012-411, *Agrostis blasdalei* x *Agrostis exarata*, 07/01/2012, Jim West.

Caryopsis collection data: 2012-412, *Agrostis blasdalei* x *Agrostis exarata*, 07/01/2012, Jim West.

Caryopsis collection data: 2012-413, *Agrostis blasdalei* x *Agrostis exarata*, 07/01/2012, Jim West.

#7) 37.068741, -122.245334, elevation 471 feet/seasonally wet depression, between w and e-forks of Cookhouse Gulch. This population reflects hybridization with sympatric *Agrostis exarata* (var. *pacifica*). Envelopes containing inflorescences with mature caryopsis deposited with UCSC Arboretum. The Sandy-bottom Reservoir *A. blasdalei* x *A. exarata* (var. *pacifica*) hybrids, along with this population, need to be raised out and document the morphological variation displayed within each population and then do a comparative analysis of the similarities and differences between these two populations.

Caryopsis collection data: 2009-266, *Agrostis blasdalei*, 08/05/2009, Jim West.

Caryopsis collection data: 2012-240, *Agrostis blasdalei*, 08/01/2012, Jim West.

Caryopsis collection data: 2014-112, *Agrostis blasdalei*, 08/21/2014, Jim West.

#8) 37.077284, -122.260081, elevation 372 feet/Gulch #2/Allium Marsh drainage, edge of Western Terrace before this drainage drops off into gulch proper.

Herbarium data/JEPS82932, James A. West, 268, 1984-9-18.

Herbarium data/JEPS82931, James A. West, 269, 1984-9-19.

#9) 37.074909, -122.258890, elevation 371 feet/edge of Western Terrace surrounding Gulch #4.

Herbarium data/RSA376056, James West, 210.3, 1984-4-16.

Herbarium data/RSA376057, James West, 259.1, 1984-9-5.

#10) 37.071369, -122.246028, elevation 447 feet/seasonally wet drainage system that ultimately enters the e-fork of Cookhouse Gulch. This localized population, documented with mature inflorescences and viable caryopsis, is one two that are the furthest inland from the coastal bluffs populations. A small population of *Spiranthes romanzoffiana*, documented with one herbarium pressing (held by the Norris Natural History Museum at UCSC), occurs sympatrically.

Caryopsis collection data: 2009-266, *Agrostis blasdalei*, 08/05/2009, Jim West.

#11) 37.062891, -122.251385, elevation 237 feet/grass covered slopes, inland side of Highway 1, overlooking *Agrostis Rectangle*. Scattered population of *Agrostis blasdalei*, documented with several collections of mature inflorescences and viable caryopsis and deposited with the UCSC Arboretum.

Caryopsis collection data: 2009-37, *Agrostis blasdalei*, 09/16/2009, Jim West.

Caryopsis collection data: 2011-473, *Agrostis blasdalei*, 07/25/2011, Jim West.

Caryopsis collection data: 2012-461, *Agrostis blasdalei*, 08/07/2012, Jim West.

### *Microseris paludosa*

\*\**Microseris paludosa*/this listed (1B.2) and locally very rare native member of the Asteraceae (Cichorieae), has made infrequent appearances within the Scott Creek Watershed/Environs and other populations may exist, remaining to be discovered. All of the currently acknowledged populations have been documented, either by herbarium pressings, cypselae collections or both. The cypselae collections reside with the UCSC Arboretum.

#1) 37.086679, -122.265932, elevation 292 feet/scattered population, occupying a conifer/oak woodland, margining lower/central portion of Las Trancas Arroyo. Growing sympatrically with *Stebbinsoseris decipiens*, *Monardella villosa* subsp. *franciscana*, *Leptosiphon androsaceus*, *Agoseris grandiflora*, *Delphinium decorum* subsp. *decorum*, etc.

Herbarium data/UCSC010583, James A. West, 2016-4-30, s.n.

Herbarium data/UCSC010584, James A. West, 2016-4-30, s.n.

Cypselae collection data: 2009-819, *Microseris paludosa*, 05/21/2009, Jim West.

Cypselae collection data: 2009-820, *Microseris paludosa*, 06/05/2009, Jim West.

Cypselae collection data: 2009-821, *Microseris paludosa*, 06/05/2009, Jim West.

Cypselae collection data: 2014-116, *Microseris paludosa*, 08/21/2014, Jim West.

Cypselae collection data: 2015-223, *Microseris paludosa*, 07/12/2015, Jim West.

Cypselae collection data: 2016-88, *Microseris paludosa*, 06/09/2016, Jim West.

Cypselae collection data: 2017-110, *Microseris paludosa*, 06/12/2017, Jim West.

#2) 37.095256, -122.259899, elevation 837 feet/grass covered, ne-facing ridge, which via a narrow dirt road, connects Last Chance Road with upper portion of Beaver Flat Marsh.

Herbarium data/JEPS82559, James A. West, 92.1, 1983-5-19.

Herbarium data/JEPS82560, James A. West, 92.1, 1983-5-19.

#3) 37.069831, -122.255821, elevation 296 feet/edge of Western Terrace, overlooking transverse gulch connecting the lower portions of Morehus Arroyo and Big Willow Gulch. Growing sympatrically with *Perideridia gairdneri* subsp. *gairdneri*, *Wyethia angustifolia*, *Grindelia hirsutula* and *Heterotheca sessiliflora* subsp. *bolanderi*. This population has not been seen for several years.

#4) 37.083236, -122.256215, elevation 512 feet/nw-facing slope near top of ridge, between upper Old Road and Magic Triangle Gulch. Access to this population is not currently possible, so present status is unknown.

Herbarium data/JEPS82401, Roy E. Buck and James A. West, 269, 1983-5-13.

#### *Stebbinsoseris decipiens*

\*\**Stebbinsoseris decipiens*/This 1B.2 listed taxon, has its TYPE location in the uppermost reaches of the Scott Creek Watershed, between Scott and Mill Creeks. When first described, it was named *Microseris decipiens* and is a allotetraploid, derived from *Microseris bigelovii* and *Uropappus lindleyi*. At least 20 separate populations for this rare native exist within the region defined as the Scott Creek Watershed/Environs. Due to this taxon's overall rarity, comprehensive cypselae collections have been made for most but not all of the Scott Creek Watershed/Environs populations, and these, comprising more than three decades of in depth documentation, are in the custodial care of the UCSC Arboretum. What still needs to be accomplished, are comprehensive herbarium pressings made for these already referenced sites. Dr. Susan Lambrecht, of San Jose State University, is doing the first research on this taxon in a very long time, concerning the effects of prolonged drought on the resilience of this taxon and several ancillary research projects may develop, giving grad students a chance to further explore this allotetraploid, with forensic tools not available to Kenton Chambers, when he created the new genus of *Stebbinsoseris*, to accommodate the former *Microseris decipiens* and *Microseris heterocarpa*.

#1) 37.070478, -122.255940, elevation 295 feet/w-facing slope overlooking lower Big Willow Gulch. Scattered population growing sympatrically with *Microseris bigelovii*, *Lasthenia gracilis*, *Micropus amphibolus*, *Trifolium* aff. *mini-macraei*, *Festuca californica*, etc.

Cypselae documentation data: 2007-1166, *Stebbinsoseris decipiens*, 05/27/2007, Jim West.

Cypselae documentation data: 2008-970, *Stebbinsoseris decipiens*, 05/12/2008, Jim West.

Cypselae documentation data: 2008-1630, *Stebbinsoseris decipiens*, 05/14/2008, Jim West.

Cypselae documentation data: 2009-829, *Stebbinsoseris decipiens*, 06/06/2009, Jim West.

Cypselae documentation data: 2016-81, *Stebbinsoseris decipiens*, 06/13/2016, Jim West.

Cypselae documentation data: 2017-115, *Stebbinsoseris decipiens*, 05/24/2017, Jim West.

#2) 37.058008, -122.235816, elevation 630 feet/w-facing near vertical slope overlooking Prairie Overlook Gulch. Some associate species, include *Amsinckia lunaris*, *Delphinium decorum* subsp. *decorum*, *Thysanocarpus laciniatus*, *Trifolium macraei*, *Galium californicum* subsp. *californicum*, *Solidago velutina* subsp. *californica*, etc.

Cypselae documentation data: 2016-82, *Stebbinsoseris decipiens*, 06/03/2016, Jim West.

#3) 37.086725, -122.265709, elevation 318 feet/w-facing grass covered slope paralleling Las Trancas Arroyo and flanked on the east by a mixed conifer/oak woodland. Growing with *S. decipiens*, are *Monardella villosa* subsp. *franciscana*, *Leptosiphon androsaceus*, *Microseris paludosa*, etc.

Cypselae documentation data: 2009-835, *Stebbinsoseris decipiens*, 05/10/2009, Jim West.

Cypselae documentation data: 2009-837, *Stebbinsoseris decipiens*, 05/21/2009, Jim West.

Cypselae documentation data: 2017-113, *Stebbinsoseris decipiens*, 06/12/2017, Jim West.

#4) 37.085693, -122.265226, elevation 334 feet/w-facing grassy slope overlooking n-interface of Swanton Road with Highway 1. Growing with *Clarkia* aff. *davyi*, *Grindelia hirsutula*, *Micropus californicus* aff. var. *subvestitus* and proximal to an overarching example of the *Pinus attenuata* x *Pinus radiata* syngameon.

Cypselae documentation data: 2009-834, *Stebbinsoseris decipiens*, 05/09/2009, Jim West.

Cypselae documentation data: 2014-344, *Stebbinsoseris decipiens*, 05/28/2014, Jim West.

Cypselae documentation data: 2015-298, *Stebbinsoseris decipiens*, 05/03/2015, Jim West.

#5) 37.085688, -122.246827, elevation 251 feet/w-facing steep hillside (Scott Creek side of Schoolhouse Ridge), overlooking Purdy Road/Squirrel Flat. This near vertical grassland, hosts a complex assemblage of native taxa, several rare or uncommon and one of the largest populations in the watershed of *Stebbinsoseris decipiens*, numbering in the 500-600 range. Some of the associate natives include, *Malacothrix floccifera*, *Trifolium ciliolatum*, *Toxicoscordion fremontii*, *Dudleya caespitosa*, *Antirrhinum kelloggii*, *Piperia elongata*, *Piperia transversa*, *Phacelia distans*, *Scutellaria tuberosa*, *Eriogonum nudum*, sensu lato (a population with inflated stems), *Arctostaphylos crustacea* subsp. *crinita*, etc.

Cypselae documentation data: 2007-1299, *Stebbinsoseris decipiens*, 05/18/2007, Jim West.

Cypselae documentation data: 2009-828, *Stebbinsoseris decipiens*, 06/10/2009, Jim West.

Cypselae documentation data: 2009-830, *Stebbinsoseris decipiens*, 06/10/2009, Jim West.

Cypselae documentation data: 2014-147, *Stebbinsoseris decipiens*, 05/05/2014, Jim West.

Cypselae documentation data: 2015-293, *Stebbinsoseris decipiens*, 06/02/2015, Jim West

#6) 37.082603, -122.244098, elevation 355 feet/grass covered corridor between Upper and Lower Pozzi Meadows. A concentrated population of *Stebbinsoseris decipiens* growing intermingled with co-parent, *Microseris bigelovii*. Associate native taxa include *Castilleja densiflora* subsp. *densiflora*, *Lomatium caruifolium* var. *caruifolium*, *Melica californica*, *Danthonia californica*, *Plectritis congesta* subsp. *brachystemon* and nearby, the seasonally wet depression where the TYPE specimen for the listed (1B.1/Sen) *Trifolium buckwestiorum* aka Santa Cruz clover, was collected. The 2009 Lockheed Fire turned this grassland habitat into a blackened carpet but ironically, all of the aforementioned natives save the *Trifolium buckwestiorum*, survived.

Cypselae documentation data: 2007-1302, *Stebbinsoseris decipiens*, 05/17/2007, Jim West.

Cypselae documentation data: 2008-1008, *Stebbinsoseris decipiens*, 05/08/2008, Jim West.

Cypselae documentation data: 2012-519, *Stebbinsoseris decipiens*, 06/05/2012, Jim West.

Cypselae documentation data: 2013-57, *Stebbinsoseris decipiens*, 05/01/2013, Jim West.

Cypselae documentation data: 2015-299, *Stebbinsoseris decipiens*, 05/08/2015, Jim West.

Cypselae documentation data: 2016-38, *Stebbinsoseris decipiens*, 04/28/2016, Jim West.

Cypselae documentation data: 2017-117, *Stebbinsoseris decipiens*, 05/23/2017, Jim West.

#7) 37.083070, -122.243040, elevation 374 feet/upper section of gulchlet, which drains Upper Pozzi Meadow down into Mill Creek. The steep grass cloaked slopes, which mirror the upper part of this relatively short but topographically complex drainage system, host 400+ *Stebbinsoseris decipiens* specimens. One of the two largest concentrated populations for this taxon in the Scott Creek Watershed proper. Some of the associate native taxa, including several relatives within the Cichorieae, are as follows: *Agoseris grandiflora*, *Agoseris heterophylla* sensu lato, *Melica californica*, *Poa secunda* subsp. *secunda*, *Stipa pulchra*, *Sanicula arctopoides*, *Sanicula bipinnatifida*, and *Primula clevelandii* var. *gracilis*.

Cypselae documentation data: 2007-1303, *Stebbinsoseris decipiens*, 05/17/2007, Jim West.

Cypselae documentation data: 2008-1009, *Stebbinsoseris decipiens*, 05/08/2008, Jim West.

Cypselae documentation data: 2009-827, *Stebbinsoseris decipiens*, 06/24/2009, Jim West.

Cypselae documentation data: 2009-832, *Stebbinsoseris decipiens*, 04/28/2009, Jim West.

Cypselae documentation data: 2009-836, *Stebbinsoseris decipiens*, 05/11/2009, Jim West.

Cypselae documentation data: 2012-520, *Stebbinsoseris decipiens*, 06/05/2012, Jim West.

Cypselae documentation data: 2013-54, *Stebbinsoseris decipiens*, 05/12/2013, Jim West.

Cypselae documentation data: 2013-76, *Stebbinsoseris decipiens*, 05/12/2013, Jim West.

Cypselae documentation data: 2014-345, *Stebbinsoseris decipiens*, 05/25/2014, Jim West.

Cypselae documentation data: 2015-294, *Stebbinsoseris decipiens*, 04/10/2015, Jim West.

Cypselae documentation data: 2015-295, *Stebbinsoseris decipiens*, 06/24/2015, Jim West.

Cypselae documentation data: 2015-296, *Stebbinsoseris decipiens*, 04/10/2015, Jim West.

Cypselae documentation data: 2016-35, *Stebbinsoseris decipiens*, 04/28/2016, Jim West.

Cypselae documentation data: 2016-46, *Stebbinsoseris decipiens*, 05/02/2016, Jim West.

Cypselae documentation data: 2017-116, *Stebbinsoseris decipiens*, 05/23/2017, Jim West.

Cypselae documentation data: 2018-650, *Stebbinsoseris decipiens*, 06/03/2018, Jim West.

#8) 37.081347, -122.242210, elevation 217 feet/isolated, steep grass covered slope that overlooks the drainage into Mill Creek section of the gulchlet originating at the Upper Pozzi Meadow. This small and scattered population is threatened by the post-2009 Lockheed Fire's *Ceanothus thyrsiflorus* var. *thyrsiflorus* population expansion.

Cypselae documentation data: 2009-826, *Stebbinsoseris decipiens*, 07/01/2009, Jim West.

Cypselae documentation data: 2015-301, *Stebbinsoseris decipiens*, 05/08/2015, Jim West.

Cypselae documentation data: 2016-278, *Stebbinsoseris decipiens*, 05/12/2016, Jim West.

#9) 37.080511, -122.257781, elevation 540 feet/nw-facing visible break in the synform (above ground manifestation of Santa Cruz Syncline) known ecologically as the "Magic Triangle". From a botanical perspective, this deltoid shaped zone of biodiversity hosts *Stebbinsoseris decipiens* flanked by both of its diploid parents, *Microseris bigelovii* and *Uropappus lindleyi*. Some 120 species of native taxa have been documented for this "pinprick" on the Scott Creek Watershed/Environs 30 sq miles map!!!

Cypselae documentation data: 2013-56, *Stebbinsoseris decipiens*, 05/01/2013, Jim West.

#10) 37.074594, -122.254205, elevation 443 feet (micro-population "a") and 37.074573, -122.254422, elevation 422 feet (micro-population "b")/s, sw-facing edge of synform (above ground manifestation of Santa Cruz Syncline)

overlooking Pumpkin Field Marsh .The *Stebbinsoseris decipiens* plants behave differently within each of these two proximal but separate populations..... in population, designated as “a”, the *S. decipiens* plants are reduced in stature and are surrounded by an extensive *M. bigelovii* contingent, the majority of which are no more than 2.5-3cm in height. The *S. decipiens* gathering defined as population “b”, growing at the base of the synform, on a mini-slope comprised of large chunks of exfoliated/fractured siliceous mudstone, is unique in that its quasi- succulent foliage allowed it to sustain its annual growth cycle far longer into the Spring/Summer than the other documented *S. decipiens* populations found within the Scott Creek Watershed/Environs. The “b” *S. decipiens* population also displayed an inherited trait from its *Uropappus lindleyi* parent, in that the base of the mature plant was elevated above the ground level, giving the impression that it was about to” take off running”. Population “b” unlike population “a” situated no more than 15 feet above it, did not share its growing space with either diploid parent and in terms of gross morphology, behaved as if it was a totally separate species. Needless to say, all of the related taxa in this partially shared microcosm, were documented with cypselae collections and deposited with the UCSC Arboretum.

Cypselae collection data: 2007-1301, *Stebbinsoseris decipiens*, 05/20/2007, Jim West.

Cypselae collection data: 2008-1728, *Stebbinsoseris decipiens*, 05/10/2008, Jim West.

Cypselae collection data: 2011-481, *Stebbinsoseris decipiens*, 07/17/2011, Jim West.

Cypselae collection data: 2015-297, *Stebbinsoseris decipiens*, 04/13/2015, Jim West.

Cypselae collection data: 2016-43, *Stebbinsoseris decipiens*, 05/11/2016, Jim West.

#11) 37.082643, -122.263918, elevation 286 feet/n-end of Swanton Road, outer edge of road above Washout Turn.

Herbarium data for population #11/JEPS82652, Roy. E. Buck, James A. West and Tom Hawke, 235, 1983-5-2

Herbarium data for population #11/JEPS85645, Roy E. Buck, James A. West and Tom Hawke, 235, 1983-5-2.

Cypselae collection data: 2009-833, *Stebbinsoseris decipiens*, 04/28/2009, Jim West.

Cypselae collection data: 2012-673, *Stebbinsoseris decipiens*, 04/29/2012, Jim West.

Cypselae collection data: 2013-49, *Stebbinsoseris decipiens*, 05/04/2013, Jim West.

#12) 37.082011, -122.245617, elevation 228 feet/”Beehive Hill”, a w-facing near vertical grassland, overlooking Purdy Road, between Swanton Road entrance and Schoolhouse Gulch bridge. This small but species rich slope, hosts such diverse native taxa, as *Gilia clivorum*, *Clarkia purpurea* subsp. *quadrivulnera*, *Dudleya caespitosa*, and in spite of being torched by the 2009 Lockheed Fire, has managed to maintain its species diversity. Post-fire encroachment by *Ceanothus thyrsiflorus* var. *thyrsiflorus* has shrunk this “vertical grassland” a tad and how much of the species rich grassland will remain over the next decade, is a worthwhile study in grassland ecology that could form thesis material for a CalPoly grad student.

Cypselae documentation data: 2008-1010, *Stebbinsoseris decipiens*, 05/08/2008, Jim West.

Cypselae documentation data: 2015-300, *Stebbinsoseris decipiens*, 05/08/2015, Jim West.

Cypselae documentation data: 2016-279, *Stebbinsoseris decipiens*, 05/12/2016, Jim West.

#13) 37.096680, -122.236341, elevation 679 feet/e-facing hillside, overlooking Upper Seymore Field, above access trail beginning on Upper Schoolhouse Ridge/Seymore Hill and terminating at the w-edge of the Upper Seymore Field. Scattered population of *S. decipiens*, growing in association with: *Cirsium occidentale* var. *venustum*, *Lupinus latifolius* var. *latifolius*, *Eriophyllum confertiflorum* var. *confertiflorum*, *Pinus attenuate*, *Quercus agrifolia* var. *agrifolia*, *Clarkia rubicunda*, *Baccharis pilularis* subsp. *consanguinea*, *Monardella villosa* aff. subsp. *franciscana* (lvs

thick and pubescent, with truncate bases), *Frangula californica* subsp. *californica*, *Eriogonum nudum*, *Ceanothus thyrsoiflorus* var. *thyrsoiflorus*, ect. Neither diploid parent (*Microseris bigelovii* and *Uropappus lindleyi*) present.

Cypselae collection data: 2017-114, *Stebbinsoseris decipiens*, 05/26/2017, Jim West.

#14) 37.088984, -122.247476, elevation 343 feet/isolated “vertical grassland”, circa 60 meters above Purdy Road cattle guard/slide area. Two rare/uncommon “natives” for the Scott Creek Watershed, share this sequestered refugium..... *Athysanus pusillus*\* and *Layia gaillardoides*\* (flowers an intense yellow without white tips, with a 1-2% of the population, presenting inflorescences colored a paler yellow).

Cypselae collection data: 2008-1631, *Stebbinsoseris decipiens*, 06/04/2008, Jim West.

\*Cypselae collection data: 2009-609, *Layia gaillardoides*, 06/10/2009, Jim West.

\*Cypselae collection data: 2011-459, *Layia gaillardoides*, 07/17/2011, Jim West.

\*Herbarium data/JEPS82763, *Athysanus pusillus*, James A. West, 54.2, 1983-4-19.

\*Herbarium data/JEPS82961, *Athysanus pusillus*, James A. West, 54.1, 1983-4-19.

\*Silicle collection data: 2007-1164, *Athysanus pusillus*, 05/28/2007, Jim West.

#15) 37.066307, -122.244544, elevation 600 feet/Solar Panel Gate Refugium..... this break in the synform (above ground manifestation of the Santa Cruz Syncline), parallels its further west analog, the “Magic Triangle”, by hosting circa 120 documented native species, several found only in the Swanton area or are rare, county wide. A cursory selection for the Solar Panel Gate Refugium, is as follows: *Erigeron foliosus* var. *franciscensis*, *Ligusticum apiifolium*, *Claytonia exigua* subsp. *exigua*, *Microseris bigelovii*, *Festuca roemeri* var. *klamathensis* (= *F. idahoensis*?) and *Primula hendersonii*.

Cypselae collection data: 2007-1168, *Stebbinsoseris decipiens*, 05/26/2007, Jim West.

Cypselae collection data: 2012-572, *Stebbinsoseris decipiens*, 06/19/2012, Jim West.

Cypselae collection data: 2016-83, *Stebbinsoseris decipiens*, 06/03/2016, Jim West.

#16) 37.079517, -122.248622, elevation 149 feet/narrow ridge, paralleling gulch between the Bulb Field and Buckeye Grove Ridge, containing a micro-meadow, circa midway along its downward decent towards the Scott Creek Bridge. A very localized/isolated population of *Stebbinsoseris decipiens* has existed there for several decades and a DNA workup/comparison with other *S. decipiens* populations in the Scott Creek Watershed, might have research value.

Cypselae collection data: 2007-1300, *Stebbinsoseris decipiens*, 05/20/2007, Jim West.

Cypselae collection data: 2008-969, *Stebbinsoseris decipiens*, 05/12/2008, Jim West.

Cypselae collection data: 2009-614, *Stebbinsoseris decipiens*, 05/29/2009, Jim West.

Cypselae collection data: 2009-839, *Stebbinsoseris decipiens*, 05/23/2009, Jim West.

Cypselae collection data: 2011-406, *Stebbinsoseris decipiens*, 06/14/2011, Jim West.

Supplemental Herbarium data for pressings done within the Scott Creek Watershed/Environs but data on sheets not specific enough, as to which of the above 11 (or new) populations the specimens were obtained.

Herbarium data accessioned as *Microseris decipiens*/CAS-BOT\_BC7483, John Hunter Thomas, 4094A, 1954-5-7.

Herbarium data accessioned as *Microseris decipiens*/RSA502386, D.W. Taylor, 9656, 1988-5-22.

Herbarium data accessioned as *Stebbinsoseris decipiens*/CAS-BOT-BC339984, K.L. Chambers, 670, 1955-5-11.

Herbarium data accessioned as *Stebbinsoseris decipiens*/CAS-BOT-BC339985, K.L. Chambers, 670, 1955-5-11.

Herbarium data accessioned as *Stebbinsoseris decipiens*/JEPS13995, K.L. Chambers, 670, 1955-5-11.

Herbarium data accessioned as *Stebbinsoseris decipiens*/JEPS81532, R. Doug Stone, Roy E. Buck and James A. West, 460, 1982-5-13.

Herbarium data accessioned as *Stebbinsoseris decipiens*/JEPS82648, Roy E. Buck, James A. West, 211, 1983-4-22.

*Trifolium buckwestiorum*

\*\**Trifolium buckwestiorum*/discovered in the Scott Creek Watershed in 1957 and given the working name of *Trifolium gianonei*, pro.sp.nov., then misidentified by a Canadian botanist and was subsumed under a Chilean species, *T. triaristatum* Bert. ex Colla, then finally Duane Isely determined that it was indeed a valid new species and published it as *T. buckwestiorum* in Madrono 39(2):90-92, f.2. 1992. There may be other populations, still undiscovered within the Scott Creek Watershed, and a detailed genetic profiling for all of the documented populations, has never been undertaken. Seed collections have been made for the majority of the already pressed populations and these reside at the UCSC Arboretum.

#1) 37.083250, -122.243531, elevation 378 feet/TYPE population, Schoolhouse Ridge, Upper Pozzi Meadow. This population has not been seen since the 2009 Lockheed Fire scorched the TYPE area and much of the grassland surrounding it. Growing sympatrically with *Stebbinsoseris decipiens*, *Lomatium caruifolium* var. *caruifolium*, *Plectritis congesta* subsp. *brachystemon*, *Stipa pulchra* and *Danthonia californica*, all of which rebounded after the 2009 Lockheed Fire.

Herbarium data/JEPS81528, Roy E. Buck, James A. West, Tom Hawke and Connie Vigno, 1, 1982-5-20.

#2) 37.101606, -122.245535, elevation 558 feet/Scott Creek side of Seymore Hill, growing on dirt road descending into Bettencourt Gulch.

Herbarium data/JEPS83454, R.A. Morgan and J.A. West, 3, 1986-5-3.

Herbarium data/JEPS118496, James A. West, 107, 1983-6-1 (holotype).

Herbarium data/JEPS82767, James A. West, 73, 1983-6-6.

#3) 37.100845, -122.241180, elevation 679 feet/Scott Creek side of Seymore Hill, upper end of "Bowl Area".

Herbarium data/JEPS82502, James A. West, 110, 1983-6-7.

#4) 37.081622, -122.249782, elevation 296 feet/original population discovered in 1957 and still growing proximal to the original Old Coast Road, on a moss/humus substrate overlaying the siliceous mudstone bedrock.

Herbarium data/UCSC008870, Dylan M. Neubauer, 72b, 2014-5-21.

Herbarium data/UCSC008871, Dylan M. Neubauer, 72c, 2014-5-21.

Herbarium data/UCSC008872, Dylan M. Neubauer, 72d, 2014-5-21.

Seed collection data: 2015-313, *Trifolium buckwestiorum*, 07/31/2015, Jim West.

Seed collection data: 2015-314, *Trifolium buckwestiorum*, 06/05/2015, Jim West.

Seed collection data: 2015-315, *Trifolium buckwestiorum*, 08/01/2015, Jim West.

Seed collection data: 2018-663, *Trifolium buckwestiorum*, 06/24/2018, Jim West.

#5) 37.078241, -122.250742, elevation 328 feet/in the mid-1980s, a small population of *T. buckwestiorum* was discovered, growing in the grassland margining the Dump Gulch/Buckeye Grove Ridge. This area is no longer accessible and the status of the Santa Cruz clover is unknown.

#6) 37.063043, -122.214104, elevation 820 feet/a few years after the 2009 Lockheed Fire, a grass cover slope surrounded by a mixed conifer/oak woodland, yielded a rich and varied selection of native taxa, amongst this bounty, was a small colony of *T. buckwestiorum*. This area needs to be revisited and thoroughly botanized.

#7) 37.096167, -122.249035, elevation 278 feet/concentrated population growing along edge of dirt road, which connects Purdy Road with the Scott Creek side of the Seymore Hill. The area in question, drains down into the lower portion of Calf Gulch and while periodically grazed by cattle, this rare clover seems to be able to co-exist with periodic herbivory. Across the dirt road, two other native species of interest have taken up residence, namely *Plagiobothrys* aff. *bracteatus* and *Plagiobothrys* *diffusus*. Both of these taxa have been documented via inflorescences containing mature nutlets and are in the custodial care of the UCSC Arboretum.

Seed collection data: 2009-643, *Trifolium buckwestiorum*, 05/14/2009, Jim West.

Seed collection data: 2012-62, *Trifolium buckwestiorum*, 05/23/2012, Jim West.

### *Collinsia multicolor*

\*\**Collinsia multicolor*/The Scott Creek Watershed populations of this 1B.2 listed rarity (non-serpentine geology), have been shown by Bruce Baldwin's molecular workup (UC Berkeley) to differ from the *C. multicolor* populations found on both sides of Highway 280 (serpentine geology) and warrants special consideration as to its documentation within the Scott Creek Watershed/Environs. Comprehensive seed collections, deposited with the UCSC Arboretum, have been done for the majority of the local populations but few herbarium pressings and that is an important gap in the documentation for this rare native that needs to be rectified.

#1) 37.041830, -122.222813, elevation 78 feet/s-end of Swanton Road, w-facing fractured siliceous mudstone roadbank overlooking the Scott Creek Marsh. This population differs from the more interior Swanton populations, by having more intensely colored, heavily textured, larger in overall dimensions, flowers. The foliage is often more pigmented with anthocyanins and thicker in texture.

Seed collection data: 2013-84, *Collinsia multicolor*, 05/30/2013, Jim West.

Seed collection data: 2014-29, *Collinsia multicolor*, 06/26/2014, Jim West.

Seed collection data: 2016-59, *Collinsia multicolor*, 06/10/2016, Jim West.

Seed collection data: 2017-65, *Collinsia multicolor*, 06/09/2017, Jim West.

#2) between 37.082071, -122.248793, elevation 223 feet and 37.085670, -122.253572, elevation 399 feet/ This interior population, growing on periodically exfoliating e-facing roadbanks, grows sympatrically with *Collinsia heterophylla* (pale flowered form) but shows no sign of genetic exchange. The flowers of this fragmented population, are smaller in overall dimensions and generally less intense in coloration (compared with the s-end of Swanton Road populations) but have produced over the past two decades, two albas (clear cell sap) and one intensely vibrant concolored purple.

Seed collection data: 2009-965, *Collinsia multicolor*, 06/17/2009, Jim West.

Seed collection data: 2013-85, *Collinsia multicolor*, 06/23/2013, Jim West.

Seed collection data: 2014-30, *Collinsia multicolor*, 06/22/2014, Jim West.

Seed collection data: 2016-60, *Collinsia multicolor*, 06/08/2016, Jim West.

Seed collection data: 2016-61, *Collinsia multicolor*, 06/08/2016, Jim West.

Seed collection data: 2017-74, *Collinsia multicolor*, 06/05/2017, Jim West.

Seed collection data: 2018-477, *Collinsia multicolor*, 06/12/2018, Jim West.

#3) between 37.083685, -122.246940, elevation 119 feet and 37.087421, -122.248687, elevation 140 feet/fragmented population growing along Purdy Road across from Squirrel Flat and up to the “Slide Area”. Growing sympatrically with *Luzula comosa* var. *laxa*, *Heuchera micrantha*, *Claytonia perfoliata* subsp. *perfoliata*, *Berberis pinnata* subsp. *pinnata* and *Trifolium* aff. *oliganthum* (which may prove to be an undescribed species more closely related to *T. willdenovii*).

#4) 37.081051, -122.245803, elevation 125 feet/hillside defined by between Purdy Road and dirt road which gives access to the Schoolhouse Ridge. This one concentrated population was scorched during the 2009 Lockheed Fire, but still persists, albeit, in a scattered format.

Seed collection data: 2013-82, *Collinsia multicolor*, 06/30/2013, Jim West.

#5) 37.080495, -122.257859, elevation 547 feet/ A fragmented population has persisted along several parts of the “Magic Triangle” for many decades and was observed still persisting a few years ago.

Herbarium data/JEPS81542, R. Doug Stone and James A. West, 467, 1982-5-13.

#6) 37.077365, -122.255554, elevation 503 feet/Back Ranch Road, brush covered slope overlooking Upper Dump Gulch. Area no longer accessible, and like the previous (#5) “Magic Triangle” site, the current status of *C. multicolor*, is unknown.

#7) 37.058008, -122.235816, elevation 630 feet/w-facing, near vertical hillside overlooking Prairie Overlook Gulch. Scattered population growing with *Amsinckia lunaris*, *Thysanocarpus laciniatus*, *Galium californicum* subsp. *californicum*, *Delphinium decorum* subsp. *decorum*, *Trifolium macraei*, etc.

Seed collection data: 2009-964, *Collinsia multicolor*, 06/21/2009, Jim West.

Note: Three herbarium pressings made within the areas defined by the Scott Creek Watershed/Environs but being vague as to their precise location, are as follows.....

Herbarium data/SBBG95535, D. Keil with V.L. Holland and L. Kelly, 20619, 1988-5-7.

Herbarium data/UC1583678, D. Keil with V.L. Holland and Larry Kelly, 20619, 1988-5-7.

Herbarium data/SJSU9542, R.M. Myatt, s.n., 1981-5-2.

Note: UCSC graduate, Samantha Spurlin, is now doing her Masters under Dr. Susan Lambrecht of San Jose State University, and will be exploring various aspects of *Collinsia multicolor*'s profile, in part, studying the differences/similarities between the north and south end of Swanton Road populations.

*Poa unilateralis* subsp. *unilateralis*

\*\**Poa unilateralis* subsp. *unilateralis*/this locally uncommon native grass, is primarily restricted to the edge of coastal bluffs and headlands. Forming low growing tussocks with densely compacted culms, this visually attractive member of the Poaceae persists in often very inhospitable surroundings and seems to be resistant to the deleterious effects of salt spray via wind and fog and the desiccating conditions that existing on the fractured siliceous mudstone exposed to seasonal winds, incurs. Populations designated as #1-#3, have been documented with mature inflorescences containing viable caryopses.

#1) 37.074319, -122.262354, elevation 111 feet/Dylan's Garden, a microcosm of rare and typical coastal headland/bluffs native flora, overlooking the se-end of Greyhound Rock Beach and Pelican Rock. Some of the associate flora include: *Erysimum franciscanum* (var. *crassifolium*), *Heterotheca sessiliflora* subsp. *bolanderi*, *Horkelia cuneata* var. *cuneata*, *Pinus radiata* (showing introgression from *P. attenuata* in cone morphology), *Artemisia pycnocephala*, *Agrostis densiflora*, *Agoseris apargioides* var. *apargioides* etc.

Caryopsis collection data: 2013-445, *Poa unilateralis*, 12/01/2013, Jim West.

Caryopsis collection data: 2015-227, *Poa unilateralis* subsp. *unilateralis*, 06/21/2015, Jim West.

Caryopsis collection data: 2015-228, *Poa unilateralis* subsp. *unilateralis*, 08/10/2015, Jim West.

Caryopsis collection data: 2018-687, *Poa unilateralis*, 07/09/2018, Jim West.

#2) 37.074937, -122.253859, elevation 475 feet/exposed edge of synform overlooking Pumpkin Field Marsh. Growing with *Stebbinsoseris decipiens*, *Microseris bigelovii*, *Silene verecunda*, *Gilia clivorum*, *Platystemon californicus*, *Trifolium macraei*, *Layia platyglossa*, *Dudleya caespitosa*, *Lomatium caruifolium* var. *caruifolium*, etc.

Caryopsis collection data: 2015-178, *Poa unilateralis*, 04/13/2015, Jim West.

#3) 37.070303, -122.256502, elevation 262 feet/w-facing ridge, overlooking transverse gulchlet between lower Morehus Arroyo and lower Big Willow Gulch. Growing sympatrically with *Silene verecunda*, *Trifolium* aff. "mini-macraei", *Stebbinsoseris decipiens*, *Festuca californica*, etc.

Caryopsis collection data: 2016-54, *Poa unilateralis* subsp. *unilateralis*, 06/11/2016, Jim West.

#4) 37.078469, -122.261663, elevation 277 feet/near vertical slope of Gulch #1.

Herbarium data/JEPS82617, Roy E. Buck and James A. West, 249, 1983-5-4.

#### *Astragalus gambelianus*

\*\**Astragalus gambelianus*/This diminutive annual locoweed aka Gambel's milkvetch, is easily overlooked growing in amongst the fractured siliceous mudstone fragments. Unlike many of its larger flowered relatives, it is best appreciated being viewed under the magnification of a good hand lens.

#1) 37.076384, -122.260751, elevation 303 feet/lower portion of Gulch #4.

Herbarium data/JEPS82614, Roy E. Buck and James A. West, 252, 1983-5-4.

#2) 37.072355, -122.252547, elevation 440 feet/se-edge of synform overlooking central portion of Big Willow Gulch. Growing sympatrically on this exposed and arid component of the synform, is *Epilobium canum* subsp. *canum*, whose attention getting vibrancy of floral color, is in marked contrast with that of its well camouflaged neighbor. Unless looked at carefully, *Astragalus gambelianus* blends in so well with the lichen covered bedding planes that provides its home, one is apt to pass by without registering its existence.

Herbarium data/UCSC011074, Jim West, s.n., 2016-5-1.

Herbarium data/UCSC011075, Jim West, s.n., 2016-5-1.

Note: seed collections for this herbarium documented taxon have been made and deposited with the UCSC Arboretum.

Seed collection data: 2007-1155, *Astragalus gambelianus*, 05/26/2007, Jim West.

Seed collection data: 2016-102, *Astragalus gambelianus*, 06/01/2016, Jim West.

Seed collection data: 2016-103, *Astragalus gambelianus*, 06/01/2016, Jim West.

Seed collection data: 2017-95, *Astragalus gambelianus*, 06/10/2017, Jim West.

#### *Salvia columbariae*

\*\**Salvia columbariae*/To date, this native member of a morphologically diverse and widespread genus, has been documented three times locally, growing on steep coastal sage scrub covered slopes, each of which overlooks Highway 1.

#1) 37.071851, -122.257035, elevation 329 feet/isolated population, on steep coastal sage covered slope, overlooking confluence of left and right forks of Big Willow Gulch. This population has been documented with seed collections deposited with the UCSC Arboretum.

Seed documentation data: 2000-40, *Salvia columbariae*, 06/19/2000, Jim West.

Seed documentation data: 2007-1383, *Salvia columbariae*, 06/01/2007, Jim West.

#2) 37.078460, -122.261826, elevation 262 feet/Gulch #1.

Herbarium data/JEPS81989, Roy E. Buck and James A. West, 180, 1983-4-3.

#3) 37.076384, -122.260751, elevation 304 feet/ Gulch # 4.

Herbarium data/JEPS83124, Roy E. Buck and James A. West, 357, 1983-6-11.

*Spiranthes romanzoffiana*

\*\**Spiranthes romanzoffiana*/this uncommon native member of the Orchidaceae, has been observed and documented, as reoccurring in two specific sites over the course of several years. Both of these sites have been validated with herbarium pressings. A third site was discovered a few years past and due to the fact that only one specimen was found, is documented only with site data.

#1) 37.071629, -122.246041, elevation 444 feet/grassland between west and east forks of the Cookhouse Gulch complex. Within the area documented, at least 20 individual plants have been observed, at the time of the collection/pressing made.

Herbarium data/UCSC008925, Dylan M. Neubauer, s.n., 2014-1.

#2) 37.075490, -122.252738, elevation 467 feet/upper reaches of the Buckeye Grove Ridge.

Herbarium data/JEPS81566, Roy E. Buck and James A. West, 75, 1982-7-11.

#3) 37.072471, -122.257478, elevation 349 feet/sw-edge of Pumpkin Field Marsh, growing under small *Pinus radiata* grove.

Note: The solitary specimen at the above location, was visually distinct from populations #1 & #2, by having mature flowers pale yellow rather than white.

*Silene verecunda*

\*\**Silene verecunda*/The local constituents (subsp. *verecunda*?) of this yet to be fully delineated taxon, are sporadically distributed along the immediate coastal section of the Scott Creek Watershed/Environs and are predictably found growing out of the fractured siliceous mudstone road banks and exposed bedding planes. The below listed sites with their Google Earth coordinates have all been documented via seed collections, which are deposited with the UCSC Arboretum. The herbarium and seed collection data, which follow site #4), due to the broadly drawn site descriptions or lack of site specific Google Earth coordinates at the time in which the in situ collections were made, reflect/represent the same general locations of the aforementioned listing but underscore the need to revisit, press, geolocate and capture the individual population digitally for the CalPoly Swanton Pacific Ranch's virtual herbarium.

#1) 37.082317, -122.263811, elevation 296 feet/n-end of Swanton Road, growing out of fractured siliceous mudstone roadbank margining tarmac and facing across road on its outer edge, a scattered population of *Stebbinsoseris decipiens*. The case of the dueling listed taxa, both having CRPR (California Rare Plant Rank) 1B.2 status.

Seed collection data: 2008-1599, *Silene verecunda* subsp. *verecunda*, 07/03/2008, Jim West.

Seed collection data: 2012-662, *Silene verecunda* subsp. *verecunda*, 04/29/2012, Jim West.

Seed collection data: 2013-284, *Silene verecunda* subsp. *verecunda*, 08/26/2013, Jim West.

#2) 37.083525, -122.264701, elevation 299 feet/localized population growing at base of exposed siliceous mudstone bedding planes, which overlook original Old Coast Road (pre-1900).

Seed collection data: 2007-1266, *Silene verecunda* subsp. *verecunda*, 06/20/2007, Jim West.

Seed collection data: 2008-1598, *Silene verecunda* subsp. *verecunda*, 05/17/2008, Jim West.

Seed collection data: 2016-104, *Silene verecunda* subsp. *verecunda*, 05/25/2016, Jim West.

Seed collection data: 2018-493, *Silene verecunda*, 06/09/2018, Jim West.

#3) 37.074788, -122.253985, elevation 469 feet/scattered plants growing on sw-facing edge of synform (above ground manifestation of Santa Cruz Syncline) overlooking Pumpkin Field Marsh. This small population possesses the darkest pigmented flowers seen to date. Associated native taxa include: *Poa unilateralis*, *Stebbinsoseris decipiens*, *Microseris bigelovii*, *Trifolium macraei*, *Gilia clivorum*, *Dudleya caespitosa*, *Layia platyglossa*, *Lupinus arboreus* x *Lupinus variicolor* hybrid, *Platystemon californicus*, etc.

Seed collection data: 2011-482, *Silene verecunda* subsp. *verecunda*, 07/17/2011, Jim West.

Seed collection data: 2016-53, *Silene verecunda* subsp. *verecunda*, 06/01/2016, Jim West.

Seed collection data: 2017-200, *Silene verecunda*, 07/17/2017, Jim West.

#4) 37.070325, -122.256542, elevation 256 feet/small population overlooking transverse gulchlet, connecting lower Morehus Arroyo with lower Big Willow Gulch. As with the previous three *S. verecunda* populations, this one is also growing on/out of weathered fractured siliceous mudstone.

Note: Below listed pressings lack the most precise location data (current Google Earth co-ordinates) but fall within the documented sites, circumscribed by Scott Creek Watershed/Environs designation.

Herbarium data/CAS-BOT-BC175282, Dean Wm. Taylor, 9617, 1988-4-29.

Herbarium data/RSA0086974, D.W. Taylor, 9617, 1988-4-29.

Herbarium data/JEPS90792, Dean W. Taylor, 9617, 1988-4-29.

Herbarium data/JEPS81534, R. Doug Stone, Roy E. Buck and James A. West, 462, 1982-5-13.

Herbarium data/JEPS82615, Roy E. Buck and James A. West, 251, 1983-5-4.

Herbarium data/JEPS82662, Roy E. Buck and James A. West, 262, 1983-5-13.

Herbarium data/JEPS82663, Roy E. Buck and James A. West, 262, 1983-5-13.

Herbarium data/JEPS82771, James A. West, 43, 1983-4-11.

Herbarium data/JEPS82967, James A. West, 80, 1983-5-11.

Herbarium data/JEPS97527, R.D. Stone, 678, 1985-6-6.

### *Hippuris vulgaris*

\*\**Hippuris vulgaris*/The Laguna de las Trancas, positioned to the east of lower Last Chance Road, is the home for this rare county wide, newly acquired (taxonomically) member of the Plantaginaceae. This population of *Hippuris vulgaris* has been documented with several seed collections which are housed at the UCSC Arboretum.

#1) 37.088563, -122.258600, elevation 586 feet/Laguna de las Trancas, the population forming an arcuate shaped continuum occupying the n-half of the Laguna (technically a palustrine wetland, formed behind a rotational pull apart zone and dated via tephra found near the base of an 8 meter core, at 55,000+ years old). Associate native taxa include: *Schoenoplectus acutus* var. *occidentalis*, *Sparganium eurycarpum* sensu lato, *Hydrocotyle ranunculoides*,

*Hydrocotyle verticillata* [these two members of the Araliaceae, can be found growing above each other, *H. ranunculoides* immersed in the standing water and *H. verticillata*, sequestered on the elevated bank overlooking the aqueous environment below], *Ranunculus aquatilis* var. *diffusus*, *Azolla filiculoides*, *Ricciocarpus natans* (rare liverwort for Santa Cruz County), *Triglochin scilloides* and *Carex exsiccata* (last observed in the early 1980s).

Seed collection data: 2007-1678, *Hippuris vulgaris*, 08/29/2007, Jim West.

Seed collection data: 2008-1015, *Hippuris vulgaris*, 09/17/2008, Jim West.

Seed collection data: 2013-297, *Hippuris vulgaris*, 09/01/2013, Jim West.

Seed collection data: 2014-163, *Hippuris vulgaris*, 07/07/2014, Jim West.

*Epilobium hallianum*

\*\**Epilobium hallianum*/this rare for Santa Cruz County, *Epilobium* species, has been found growing in a series of ancient marshes, all within the north coast area defined as the Scott Creek Watershed/Environs. Documentation has been done with a comprehensive series of herbarium pressings (showing the diagnostic turions, rootstocks bearing winter-buds with fleshy overlapping scales that persist at base of the next season's stem) and seed collections.

#1) 37.094403, -122.256651, elevation 597 feet/scattered population growing in the lower half of Beaver Flat Marsh, sympatrically with *Epilobium ciliatum* subsp. *ciliatum* and several years back, *Epilobium densiflorum* [*Boisduvalia densiflora*]\*.

Herbarium data/JEPS81527, Roy E. Buck, James A. West, Tom Hawke and Connie Vigno, 2, 1982-5-20.

Herbarium data/OBI80929, Jim West, s.n., 2015-3-21.

Herbarium data/OBI80938, Jim West, s.n., 2015-3-21.

Herbarium data/UCSC011009, Jim West, s.n., 2015-3-21.

Herbarium data/JEPS82591, James A. West, 100, 1983-5-26.

Herbarium data/JEPS82592, James A. West, 100.1, 1983-5-26.

\*Seed collection data: 1979-255, *Epilobium densiflorum*, 01/01/1979, Jim West.

Seed collection data: 2009-650, *Epilobium hallianum*, 06/14/2009, Jim West.

Seed collection data: 2009-782, *Epilobium hallianum*, 06/03/2009, Jim West.

Seed collection data: 2014-336, *Epilobium hallianum*, 06/11/2014, Jim West.

Seed collection data: 2015-76, *Epilobium hallianum*, 06/02/2015, Jim West.

Seed collection data: 2015-184, *Epilobium hallianum*, 04/27/2015, Jim West.

Seed collection data: 2016-73, *Epilobium hallianum*, 05/25/2016, Jim West.

Seed collection data: 2017-92, *Epilobium hallianum*, 05/29/2017, Jim West.

Seed collection data: 2018-637, *Epilobium hallianum*, 04/14/2018, Jim West.

#2) 37.077657, -122.260142, elevation 368 feet/Gulch #2, which drains Allium Marsh.

Herbarium data/JEPS83116, Roy E. Buck and James A. West, 341, 1983-6-9.

#3) 37.090144, -122.255779, elevation 489 feet/*Quercus agrifolia* woodland adjacent to the West Spring Marsh and site of the first (mid-1970s) *Epilobium hallianum* documentation, for the Scott Creek Watershed.

Seed collection data: 2011-324, *Epilobium hallianum*, 06/30/2011, Jim West.

#4) 37.087810, -122.253729, elevation 361 feet/lower portion of Marti's Park Marsh.

Seed collection data: 2011-323, *Epilobium hallianum*, 06/30/2011, Jim West.

#5) 37.091234, -122.257760, elevation 589 feet/Rosetta Stone Pine Marsh.

Seed collection data: 2015-185, *Epilobium hallianum*, 04/27/2015, Jim West.

*Micropus californicus* var. *subvestitus*

\*\**Micropus californicus* var. *subvestitus*/this rare county wide taxon, has been documented via herbarium pressing and mature cypselae collections for one population and cypselae collections for three populations that hew closer (in part) to the circumscription for var. *subvestitus* than var. *californicus*.

#1) 37.098769, -122.241078, elevation 741 feet/Scott Creek side of Seymore Hill, w-facing slope overlooking "Bowl Area" and former Purdy Aluminum Barn. Growing sympatrically with *Clarkia purpurea* subsp. *purpurea* and *Sanicula* "pseudo-laciniata". This isolated population is morphologically uniform [wool of pistillate flower's palea wholly appressed] and shows none of the attributes that defines var. *californicus* [e.g., wool of pistillate flower's bracts loose-woolly]. *M. californicus* var. *californicus*, which forms an extensive population some 130 feet in elevation below this population, and is also uniform in all the defining traits that separate it from var. *subvestitus*.

Herbarium data for var. *subvestitus*/JEPS82588, James A. West, 96, 1983-5-24.

Herbarium data for var. *californicus*/JEPS82586, James A. West, 95, 1983-5-24.

Cypselae documentation data: 2008-997, *Micropus californicus* var. *subvestitus*, 05/09/2008, Jim West.

Cypselae documentation data: 2009-612, *Micropus californicus* var. *subvestitus*, 05/14/2009, Jim West.

Cypselae documentation data: 2009-735, *Micropus californicus* var. *subvestitus*, 10/03/2009, Jim West.

Cypselae documentation data: 2011-257, *Micropus californicus* var. *subvestitus*, 06/02/2011, Jim West.

Cypselae documentation data: 2014-342, *Micropus californicus* var. *subvestitus*, 05/25/2014, Jim West.

#2) 37.086771, -122.264054, elevation 526 feet/isolated sloped grassland, surrounded by mixed conifer/oak woodland and paralleling lower Las Trancas Arroyo. Growing with *Clarkia* aff. *davyi*.

Cypselae documentation data: 2009-724, *Micropus californicus* var. *subvestitus* (in part), 05/10/2009, Jim West. This population and the #3 population, appear to be intermediate to either variety.

Cypselae documentation data: 2009-726, *Micropus californicus* var. *subvestitus* (in part), 05/27/2009, Jim West. This population and the #3 population, appear to be intermediate to either variety.

Cypselae documentation data: 2009-734, *Micropus californicus* var. *subvestitus* (in part), 05/10/2009, Jim West. This population and the #3 population, appear to be intermediate to either variety.

#3) 37.085690, -122.265251, elevation 329 feet/grass covered eroded terrace face, with two large examples of the *Pinus attenuate* x *Pinus radiate* syngameon, *Grindelia hirsutula*, *Stebbinsoseris decipiens*, *Clarkia* aff. *davyi*, etc.

Cypselae documentation data: 2009-723, *Micropus californicus* var. *subvestitus* (in part), 05/09/2009, Jim West. This population and the #2 population, appear to be intermediate to either variety.

Cypselae documentation data: 2016-91, *Micropus californicus* var. *subvestitus* (in part), 06/10/2016, Jim West. This population and the #2 population, appear to be intermediate to either variety.

#4) 37.064368, -122.211785, elevation 942 feet/upper grass covered ridge system, between Little Creek and Archibald sub-watersheds. Proximal to and above gauging station and dirt road that descends into the Little Creek

drainage. A scattered population was discovered during the spring of 2010, following the grassland incineration due to the 2009 Lockheed Fire. Current status of this rare taxon is unknown.

Cypselae documentation data: 2010-20, *Micropus californicus* var. *subvestitus*, 07/15/2010, Jim West.

Cypselae documentation data: 2011-403, *Micropus californicus* var. *subvestitus*, 06/20/2011, Jim West.

*Cryptantha flaccida*

\*\**Cryptantha flaccida*, *Delphinium hesperium* subsp. *hesperium* and *Plagiobothrys nothofulvus*/this trio of locally uncommon natives, was over the span of one month, collected and pressed from one locale..... a near vertical ribbon of grassland, margined above by an oak woodland and basally buffered by north coast scrub, overlooking the Upper Seymore Field. At least one of the aforementioned taxa survived the 2009 Lockheed Fire, *Delphinium hesperium* subsp. *hesperium*, but due to the subsequent encroachment of fire follower, *Ceanothus thyrsiflorus* var. *thyrsiflorus*, accessing this perched habitat is difficult and the status of these locally uncommon species is unknown. The Google Earth coordinates for the near vertical ribbon of grassland is as follows: between 37.096254, -122.237417, elevation 866 feet and 37.098423, -122.236768, elevation 876 feet.

Herbarium data/*Cryptantha flaccida*, JEPS82587, James A. West, 97, 1983-5-24

Herbarium data/*Delphinium hesperium* subsp. *hesperium*, JEPS82604, James A. West, 98, 1983-5-24

Herbarium data/*Plagiobothrys nothofulvus*, JEPS82764, James A. West, 62, 1983-4-26

*Sagina maxima* subsp. *crassicaulis*

\*\**Sagina maxima* subsp. *crassicaulis*/This rare native member of the Caryophyllaceae, presently exists on seasonally exfoliating vertical seeps, overlooking the north and south ends of Scott Creek Beach. Any given winter storm, could potentially eliminated all of the localized populations, along with their associate species, which include..... *Erigeron glaucus*, *Pseudognaphalium stramineum*, *Spergularia macrotheca* var. *macrotheca*, *Erythranthe grandis*, *Isolepis cernua* (densely caespitose perennial form) and *Agrostis densiflorus* ("Big Blue" ecotype).

#1) 37.042520, -122.232416, elevation 47 feet/moist, near vertical siliceous mudstone cliff faces, overlooking the n-half of Scott Creek Beach.

Seed collection data: 2015-286, *Sagina maxima* subsp. *crassicaulis*, 08/26/2015, Jim West.

Seed collection data: 2015-287, *Sagina maxima* subsp. *crassicaulis*, 08/26/2015. Jim West.

#2) 37.034589, -122.227401, elevation 28 feet/moist, near vertical siliceous mudstone cliff faces, overlooking the s-half of Scott Creek Beach.

Herbarium data/OBI80932, *Sagina maxima*, Jim West, s.n., 2015-4-22.

Seed collection data: 2009-641, *Sagina maxima* subsp. *crassicaulis*, 07/14/2008, Jim West.

Seed collection data: 2014-142, *Sagina maxima* subsp. *crassicaulis*, 09/17/2014, Jim West.,

*Hesperocyparis abramsiana* aff. var. *abramsiana*

\*\**Hesperocyparis abramsiana* aff. var. *abramsiana*/Between 37.060485, -122.229175, elevation 184 feet and 37.063617, -122.229959, elevation 177 feet. One old, at least 20 meters in height tree, growing along horse trail, between Emma's record holding Shreve Oak and lower Mt. Cook Gulch (CalPoly/Swanton Pacific Ranch). Surrounded, up and down slope, by at least 100 (all age category) *Torreya californica* specimens. A genetic workup needs to be done, to determine if this lone example of a Santa Cruz County endemic conifer, is more closely related to the Eagle Rock var. *abramsiana* population or the var. *butanoensis*, residing next door in San Mateo County.

Seed collection data: 2016-133, *Hesperocyparis abramsiana* aff. var. *abramsiana*, 09/01/2016, Jim West.

Seed collection data: 2016-134, *Hesperocyparis abramsiana* aff. var. *abramsiana*, 09/01/2016, Jim West.

Seed collection data: 2016-281, *Hesperocyparis abramsiana*, 05/14/2016, Jim West.

Seed collection data: 2017-428, *Hesperocyparis abramsiana*, 06/01/2017, Jim West.

*Delphinium decorum* subsp. *decorum*

\*\**Delphinium decorum* subsp. *decorum*/The Scott Creek Watershed hosts five species of *Delphinium*, namely: *D. californicum* subsp. *californicum*, *D. decorum* subsp. *decorum*, *D. hesperium* subsp. *hesperium*, *D. nudicaule*, and *D. patens*. Of the five listed, *D. decorum* subsp. *decorum* is possibly the rarest, with many herbarium collections, both within and outside of Santa Cruz County, made several decades ago. *D. hesperium* subsp. *hesperium*, while wide spread elsewhere, occurs only in one small area.... the e-facing crest of the Seymore Hill, overlooking the Upper Seymore Field/Mill Creek sub-watershed. The localized habitat for *D. hesperium* subsp. *hesperium* was incinerated during the 2009 Lockheed Fire but a small patch survived, discovered when the area was revisited the following spring. When *D. hesperium* subsp. *hesperium* was first observed in the early 1980s, it was growing sympatrically with the relatively common *D. patens* but this small colony was distinctive, in having its stems and inflorescence hairy not glabrous/covered with a glaucous bloom. There appears to be hybridization, to some extent within the Scott Creek Watershed, between *D. decorum* subsp. *decorum* and *D. patens*, the hirsute nature of the Seymore Hill *D. patens* possibly derived from *D. decorum* subsp. *decorum*. Some of the coastal plants of *D. decorum* subsp. *decorum* appear to evidence the reciprocal effect. *D. nudicaule* has only been found locally, growing on both consolidated and decomposed granite (quartz diorite) in the Big Creek sub-watershed, although widespread elsewhere. This leaves the locally uncommon “giant” of the five *Delphinium* species, *D. californicum* subsp. *californicum*, some plants reaching 2m+ in height and often growing out of reach, in *Toxicodendron diversilobum* colonies.

#1) 37.078096, -122.262206, elevation 240 feet/nw-facing slope, near s-fork waterfall of Gulch # 1 (old H-H Ranch).

Herbarium data/JEPS81984, Roy E. Buck and James A. West, 185, 1983-4-3.

Herbarium data/JEPS81983, Roy E. Buck and James A. West, 186, 1983-4-3.

#2) 37.078200, -122.248675, elevation 263 feet/nw-facing slope, overlooking central Buckeye Grove Gulch. This population reflected past hybridization with *Delphinium patens*.

Herbarium data/JEPS81921, Roy E. Buck, James A. West and R. Doug Stone, 193, 1983-4-10.

#3) 37.058005, -122.236763, elevation 514 feet/w-facing, near vertical slope, overlooking the Prairie Overlook Gulch. Sympatric native species include: *Amsinckia lunaris*, *Thysanocarpus laciniatus*, *Galium californicum* subsp. *californicum*, *Clarkia rubicunda*, ect.

Herbarium data/UCSC010498, *Delphinium decorum* subsp. *decorum*, Dylan M. Neubauer, Tim Forsell, James A. West and Christian Schwarz, 616, 2016-4-5.

Herbarium data/UCSC010499, *Delphinium decorum* subsp. *decorum*, Dylan M. Neubauer, Tim Forsell, James A. West and Christian Schwarz, 616, 2016-4-5.

Herbarium data/UCSC010500, *Delphinium decorum* subsp. *decorum*, Dylan M. Neubauer, Tim Forsell, James A. West and Christian Schwarz, 616, 2016-4-5.

#4) 37.083127, -122.263705, elevation 274 feet/w-facing slope overlooking the n-end of Swanton Road, just above Washout Turn.

Seed collection data: 2014-70, *Delphinium decorum* subsp. *decorum*, 05/21/2014, Jim West.

*Carex x imperfecta*

\*\**Carex x imperfecta*/intersectional hybrid between *C. densa* (sect. *Multiflorae*) and *C. subbracteata* (sect. *Ovales*), that is pistillately sterile and possesses functioning stamens. This hybrid taxon, not previously documented until discovered within the Scott Creek Watershed (in the 1960s), is integral to the understanding of two taxa whose taxonomic status has yet to be resolved..... namely, *Carex* “*gianonei*” and *Carex* “*nitidicarpa*”. There are more than 200 examples of *Carex x imperfecta* occurring within the Scott Creek Watershed/Environs and all of them share the same *modus vivendi*, with inflorescences displaying functioning stamens (when mature, shedding pollen) but the pistillate components sterile and/or abortive). The gross morphology of this putative intersectional hybrid, ranges from aspects of its *C. subbracteata* parent to that blatantly reflecting its sect. *Multiflorae* parent (*C. densa*), with scabrid margined triquetrous culms terminating in inflorescences that markedly display reduced panicle branches (compound-congested). Since these hybrids are notoriously long lived, many of them have been observed behaving seasonally, over periods of several decades, in the same way as to inflorescence morphology. In the “Research material relative to *Carex x imperfecta* study” pdf, the theorized origin, basic structural mechanics, relationships to both *C. “gianonei*” and *C. “nitidicarpa*” and proposed research solutions to resolving this taxonomic quagmire, are put forth. The below listed inflorescence collections, representing the vast majority of *C. x imperfecta* plants studied (200+), are meant to be a taxonomic/morphological overview of this yet to be formally described taxon and should ultimately be affixed to herbarium sheets, for DNA extraction and a baseline frame of reference, for further study. Each of the many inflorescence collections, offer an diagnostic window into how new species can possibly form, when reproductive isolating barriers are broached and fertility may be restored through outcrossing back on to one or both putative parents and a complex poly-genomic syngameon is created.

Note: It is of paramount importance, that all of the below listed *Carex x imperfecta* collections, be properly mounted and herbarium stored, for they provide the critical material, to not only study the broaching of reproductive isolating barriers through ecological disruption events but how fertility can be restored, through unidirectional backcrossing/outcrossing with sympatric relatives.

#1) 37.073300, -122.254128, elevation 410 feet/Pumpkin Field Marsh, Western Terrace, area contains 100+ examples of *Carex x imperfecta* growing sympatrically with both parents, *C. densa* and *C. subbracteata*, as well as, both *C. “gianonei*” (*C. harfordii* matrix) and *C. “nitidicarpa*”.

Note: The below listed collections should engage, even the most diehard naysayers, as to the validity of *Carex x imperfecta*, not as a sterile endgame but a significant key to species formation and existing species enrichment, with the underlying evolutionary mechanism, being various types of ecological disturbances, natural and anthropogenic, creating opportunities for the exchange of genetic material.

Inflorescence collection data: 2011-243, *Carex x imperfecta*, 08/17/2011, Jim West.

Inflorescence collection data: 2011-244, *Carex x imperfecta*, 08/17/2011, Jim West.

Inflorescence collection data: 2011-268, *Carex x imperfecta*, 08/06/2011, Jim West.

Inflorescence collection data: 2011-269, *Carex x imperfecta*, 08/06/2011, Jim West.

Inflorescence collection data: 2011-337, *Carex x imperfecta*, 09/24/2011, Jim West.

Inflorescence collection data: 2011-440, *Carex x imperfecta*, 06/30/2011, Jim West.

Inflorescence collection data: 2012-32, *Carex x imperfecta*, 04/07/2012, Jim West.

Inflorescence collection data: 2012-33, *Carex x imperfecta*, 04/07/2012, Jim West.

Inflorescence collection data: 2012-34, *Carex x imperfecta*, 04/07/2012, Jim West.

Inflorescence collection data: 2012-94, *Carex x imperfecta*, 05/26/2012, Jim West.

Inflorescence collection data: 2012-154, *Carex x imperfecta*, 02/21/2012, Jim West.

Inflorescence collection data: 2012-541, *Carex x imperfecta*, 06/08/2012, Jim West.

Inflorescence collection data: 2012-542, *Carex x imperfecta*, 06/08/2012, Jim West.

Inflorescence collection data: 2012-543, *Carex x imperfecta*, 06/08/2012, Jim West.

Inflorescence collection data: 2012-544, *Carex x imperfecta*, 06/08/2012, Jim West.

Inflorescence collection data: 2012-559, *Carex x imperfecta*, 02/24/2012, Jim West.

Inflorescence collection data: 2012-601, *Carex x imperfecta*, 06/16/2012, Jim West.

Inflorescence collection data: 2012-602, *Carex x imperfecta*, 06/16/2012, Jim West.

Inflorescence collection data: 2012-603, *Carex x imperfecta*, 06/16/2012, Jim West.

Inflorescence collection data: 2012-604, *Carex x imperfecta*, 06/16/2012, Jim West.

Inflorescence collection data: 2012-605, *Carex x imperfecta*, 06/16/2012, Jim West.

Inflorescence collection data: 2012-606, *Carex x imperfecta*, 06/14/2012, Jim West.

Inflorescence collection data: 2012-607, *Carex x imperfecta*, 06/14/2012, Jim West.

Inflorescence collection data: 2012-608, *Carex x imperfecta*, 06/14/2012, Jim West.

Inflorescence collection data: 2013-410, *Carex x imperfecta*, 03/19/2013, Jim West.

Inflorescence collection data: 2013-411, *Carex x imperfecta*, 03/19/2013, Jim West.

Inflorescence collection data: 2013-412, *Carex x imperfecta*, 03/19/2013, Jim West.

Inflorescence collection data: 2014-286, *Carex x imperfecta*, 06/29/2014, Jim West.

Inflorescence collection data: 2014-287, *Carex x imperfecta*, 06/29/2014, Jim West.

Inflorescence collection data: 2014-328, *Carex x imperfecta*, 06/22/2014, Jim West.

Inflorescence collection data: 2014-329, *Carex x imperfecta*, 06/22/2014, Jim West.

Inflorescence collection data: 2014-330, *Carex x imperfecta*, 06/22/2014, Jim West.

Inflorescence collection data: 2014-331, *Carex x imperfecta*, 06/22/2014, Jim West.

Inflorescence collection data: 2015-124, *Carex x imperfecta*, 05/02/2015, Jim West.

Inflorescence collection data: 2015-125, *Carex x imperfecta*, 05/02/2015, Jim West.

Inflorescence collection data: 2015-126, *Carex x imperfecta*, 05/02/2015, Jim West.

Inflorescence collection data: 2015-128, *Carex x imperfecta*, 05/02/2015, Jim West.

Inflorescence collection data: 2015-129, *Carex x imperfecta*, 05/02/2015, Jim West.

Inflorescence collection data: 2016-135, *Carex x imperfecta*, 07/02/2016, Jim West.

#2) 37.087823, -122.253680, elevation 359 feet/Marti's Park Marsh. One of a series of landslide derived benched marshes, sympatric to the 55,000+ years old Laguna de las Trancas. Besides containing at least 20 large *Carex x imperfecta* tussocks, *Carex densa*, *Carex subbracteata*, *Carex "gianonei"* and *Carex obnupta* also occur.

Inflorescence collection data: 2011-437, *Carex x imperfecta*, 06/30/2011, Jim West.

Inflorescence collection data: 2011-444, *Carex x imperfecta*, 06/30/2011, Jim West.

Inflorescence collection data: 2012-27, *Carex x imperfecta*, 04/01/2012, Jim West.  
Inflorescence collection data: 2012-28, *Carex x imperfecta*, 04/01/2012, Jim West.  
Inflorescence collection data: 2012-29, *Carex x imperfecta*, 04/01/2012, Jim West.  
Inflorescence collection data: 2012-300, *Carex x imperfecta*, 05/16/2012, Jim West.  
Inflorescence collection data: 2012-301, *Carex x imperfecta*, 05/16/2012, Jim West.  
Inflorescence collection data: 2012-405, *Carex x imperfecta*, 06/28/2012, Jim West.  
Inflorescence collection data: 2012-407, *Carex x imperfecta*, 06/28/2012, Jim West.  
Inflorescence collection data: 2012-408, *Carex x imperfecta*, 06/28/2012, Jim West.  
Inflorescence collection data: 2012-409, *Carex x imperfecta*, 06/28/2012, Jim West.  
Inflorescence collection data: 2013-154, *Carex x imperfecta*, 06/16/2013, Jim West.  
Inflorescence collection data: 2013-203, *Carex x imperfecta*, 06/16/2013, Jim West.  
Inflorescence collection data: 2013-204, *Carex x imperfecta*, 06/16/2013, Jim West.  
Inflorescence collection data: 2013-206, *Carex x imperfecta*, 06/16/2013, Jim West.  
Inflorescence collection data: 2013-401, *Carex x imperfecta*, 03/26/2013, Jim West.  
Inflorescence collection data: 2013-402, *Carex x imperfecta*, 03/26/2013, Jim West.  
Inflorescence collection data: 2013-403, *Carex x imperfecta*, 03/26/2013, Jim West.  
Inflorescence collection data: 2013-404, *Carex x imperfecta*, 03/26/2013, Jim West.  
Inflorescence collection data: 2014-332, *Carex x imperfecta*, 06/22/2014, Jim West.  
Inflorescence collection data: 2014-333, *Carex x imperfecta*, 06/22/2014, Jim West.  
Inflorescence collection data: 2014-334, *Carex x imperfecta*, 07/04/2014, Jim West.  
Inflorescence collection data: 2015-133, *Carex x imperfecta*, 06/05/2015, Jim West.  
Inflorescence collection data: 2015-134, *Carex x imperfecta*, 06/05/2015, Jim West.  
Inflorescence collection data: 2015-135, *Carex x imperfecta*, 06/05/2015, Jim West.  
Inflorescence collection data: 2015-136, *Carex x imperfecta*, 06/05/2015, Jim West.  
Inflorescence collection data: 2015-137, *Carex x imperfecta*, 06/05/2015, Jim West.  
Inflorescence collection data: 2015-138, *Carex x imperfecta*, 06/05/2015, Jim West.  
Inflorescence collection data: 2015-139, *Carex x imperfecta*, 06/05/2015, Jim West.

#3) 37.091234, -122.257760, elevation 589 feet/Rosetta Stone Pine Marsh, more or less midway between the Laguna de las Trancas and Beaver Flat Marsh and draining down slope(in part) into West Spring Marsh. This seasonally wet marsh also hosts an extensive population of *Plagiobothrys chorisianus* subsp. *chorisianus*.

Inflorescence collection data: 2013-207, *Carex x imperfecta*, 06/16/2013, Jim West.  
Inflorescence collection data: 2013-400, *Carex x imperfecta*, 03/27/2013, Jim West.

Inflorescence collection data: 2014-74, *Carex x imperfecta*, 07/05/2014, Jim West.

#4) 37.094403, -122.256651, elevation 596 feet/Beaver Flat Marsh. One of a series of descending (with Beaver Flat Marsh at the top and Marti's Park Marsh at the bottom) landslide derived marshes, proximal to the 55,000+ years old Laguna de las Trancas. Numerous rare and uncommon "natives" exist within and peripheral to this ancient refugium, including: *Plagiobothrys chorisianus* var. *chorisianus*, *Epilobium hallianum*, *Sanicula hoffmannii*, *Triteleia hyacinthina*, *Galium trifidum* subsp. *columbianum*, *Solidago elongate*, *Rumex occidentalis*, etc.

Inflorescence collection data: 2012-25, *Carex x imperfecta*, 04/04/2012, Jim West.

Inflorescence collection data: 2013-399, *Carex x imperfecta*, 03/27/2013, Jim West.

Inflorescence collection data: 2014-318, *Carex x imperfecta*, 06/22/2014, Jim West.

#5) 37.073970, -122.252281, elevation 476 feet/"micro-marsh" upslope from Sandy-bottom Reservoir, which contains 10+ old *C. x imperfecta* plants (these having been observed, seasonally, over the course of 30+ years), clusters of both *Carex densa* and *Carex subbracteata* and scattered examples of *Carex "gianonei"* (*C. harfordii* matrix). The uniformity/consistency of the *C. x imperfecta* seasonal flowering over the time span of several decades, removes from consideration, the idea that the underlying cause for these "inflos" with non-functioning pistils, is imperfect pollination.

Inflorescence collection data: 2011-271, *Carex x imperfecta*, 08/06/2011, Jim West.

Inflorescence collection data: 2011-441, *Carex x imperfecta*, 06/30/2011, Jim West.

Inflorescence collection data: 2011-442, *Carex x imperfecta*, 06/30/2011, Jim West.

Inflorescence collection data: 2012-94, *Carex x imperfecta*, 05/26/2012, Jim West.

Inflorescence collection data: 2012-299, *Carex x imperfecta*, 05/11/2012, Jim West.

Inflorescence collection data: 2012-302, *Carex x imperfecta*, 05/11/2012, Jim West.

Inflorescence collection data: 2014-320, *Carex x imperfecta*, 06/22/2014, Jim West.

Inflorescence collection data: 2014-321, *Carex x imperfecta*, 06/22/2014, Jim West.

Inflorescence collection data: 2014-322, *Carex x imperfecta*, 06/22/2014, Jim West.

Inflorescence collection data: 2016-136, *Carex x imperfecta*, 07/02/2016, Jim West.

#6) between 37.069661, -122.251022, elevation 452 feet and 37.070132, -122.253244, elevation 377 feet/slope draining into and coastal prairie, between Morehus Arroyo and China Ladder Marsh. This area contains 100+ examples of *Carex x imperfecta* growing sympatrically with *Carex densa*, *Carex subbracteata*, *Carex "nitidicarpa"*, *Carex "gianonei"* (*C. harfordii* matrix), *Carex obnupta* and *Carex tumulicola*.

Inflorescence collection data: 2011-267, *Carex x imperfecta*, 08/08/2011, Jim West.

Inflorescence collection data: 2011-302, *Carex x imperfecta*, 07/20/2011, Jim West.

Inflorescence collection data: 2012-26, *Carex x imperfecta*, 04/04/2012, Jim West.

Inflorescence collection data: 2012-30, *Carex x imperfecta*, 04/07/2012, Jim West.

Inflorescence collection data: 2012-31, *Carex x imperfecta*, 04/07/2012, Jim West.

Inflorescence collection data: 2012-155, *Carex x imperfecta*, 02/20/2012, Jim West.

Inflorescence collection data: 2013-405, *Carex x imperfecta*, 03/21/2013, Jim West.

Inflorescence collection data: 2013-406, *Carex x imperfecta*, 03/21/2013, Jim West.

Inflorescence collection data: 2013-407, *Carex x imperfecta*, 03/21/2013, Jim West.

Inflorescence collection data: 2013-408, *Carex x imperfecta*, 03/21/2013, Jim West.

Inflorescence collection data: 2013-409, *Carex x imperfecta*, 03/21/2013, Jim West.

Inflorescence collection data: 2014-75, *Carex x imperfecta*, 07/02/2014, Jim West.

Inflorescence collection data: 2014-76, *Carex x imperfecta*, 07/02/2014, Jim West.

Inflorescence collection data: 2014-77, *Carex x imperfecta*, 07/02/2014, Jim West.

Inflorescence collection data: 2014-78, *Carex x imperfecta*, 07/02/2014, Jim West.

Inflorescence collection data: 2014-79, *Carex x imperfecta*, 07/02/2014, Jim West.

Inflorescence collection data: 2015-132, *Carex x imperfecta*, 05/20/2015, Jim West.

#7) 37.089377, -122.255552, elevation 471 feet/West Spring Marsh, the second in a series of three ancient landslide derived marshes, that constitute a descending alignment, with the Beaver Flat Marsh at the highest point of elevation and the Marti's Park Marsh, at the bottom. *Carex x imperfecta* and both of its putative parents (*C. densa* and *C. subbracteata*), are found, either within or margining these contained wetlands, that have some water present year round (if only subsurface). Rare and/or uncommon native species shared by this trio of botanical refugia, include: *Epilobium hallianum*, *Calamagrostis nutkaensis*, *Rumex occidentalis*, *Plagiobothrys chorisianus* var. *chorisianus* and another Santa Cruz County rarity, *Galium trifidum* subsp. *columbianum* (to date, found in two of the three marshes, Beaver Flat and Marti's Park but found upslope, in the Laguna de las Trancas).

Inflorescence collection data: 2011-303, *Carex x imperfecta*, 07/30/2011, Jim West.

Inflorescence collection data: 2013-398, *Carex x imperfecta*, 03/27/2013, Jim West.

Inflorescence collection data: 2014-73, *Carex x imperfecta*, 07/06/2014, Jim West.

*Arctostaphylos crustacea* aff. subsp. *subcordata*

\*\**Arctostaphylos crustacea* aff. subsp. *subcordata*/37.088142, -122.240450, elevation 616 feet, upper Schoolhouse Ridge, Mill Creek side. A morphologically uniform population of 12+ individuals, surrounded by a complex polymorphic population of *Arctostaphylos crustacea* subsp. *crinita*. *A. crustacea* subsp. *subcordata*, as defined by this local, disjunct population, is a burl former, with tannish-brown smooth bark, twigs densely glandular-hairy, leaves bifacial with abaxial surface glandular-hairy and adaxial surface conspicuously scabrous, flowers white with pedicels glandular-hairy and ovary white-tomentose and glandular-hairy.

Herbarium data/JEPS81977, Roy E. Buck and James A. West, 155, 1983-3-13

Nutlet collection data: 2007-584, *Arctostaphylos crustacea* subsp. *subcordata*, 09/02/2007, Jim West.

Nutlet collection data: 2013-228, *Arctostaphylos crustacea* subsp. *subcordata*, 10/22/2013, Jim West.

Nutlet collection data: 2013-229, *Arctostaphylos crustacea* subsp. *subcordata*, 10/22/2013, Jim West.

Nutlet collection data: 2013-230, *Arctostaphylos crustacea* subsp. *subcordata*, 10/22/2013, Jim West.

Nutlet collection data: 2014-93, *Arctostaphylos crustacea* subsp. *subcordata*, 10/14/2014, Jim West.

*Arctostaphylos glutinosa*

\*\**Arctostaphylos glutinosa*/One of two endemic manzanitas occurring within the Scott Creek Watershed/Environs, the other being *A. ohloneana*, restricted to the siliceous mudstone ("chalks"), between the upper Big Creek sub-

Watershed and the head of Bannister Gulch (Scott Creek Watershed). While *A. ohloneana* does not descend physically down to the Swanton Pacific Ranch's property, *A. glutinosa* does..... and in both of its distinctive manifestations, these being the forma typical with leaves clothed in a cinerous indument (reflecting the *A. canescence* parentage) and the glaucous-green, sub-glabrous and thin in texture foliage (reflecting *A. andersonii* genetic input). A satellite population of *A. glutinosa* was discovered circa three decades ago, growing across Scott Creek, on the upper portion of Lair Gulch (Last Chance Ridge), which was fortunate to have escaped the horrendous impact the 2009 Lockheed Fire wrought on the Schoolhouse Ridge/Lockheed "chalks" populations. While the Last Chance Ridge population has yet to be documented, either by nutlet collections or herbarium pressings, the Swanton Pacific Ranch has a file (stored in the "cloud"), with circa 50 digital in situ images for this rare by any standards, native.

#1) 37.086717, -122.240191, elevation 577 feet/lower Schoolhouse Ridge, containing both of *A. glutinosa*'s morphs (canescent and the "green glut" forms), with this satellite population (the lowest down in elevation from the principal one occupying the Lockheed "chalks") losing all of its adult plants (not surprising, since *A. glutinosa* is an obligate seeder, lacking a basal burl). One can only hope, that amongst the resprouting *A. crustacea* subsp. *crinita* population surrounding the incinerated *A. glutinosas*, that a seedling recruitment population may soon emerge, if not overwhelmed by the ever encroaching, *Ceanothus thyriflorus* var. *thyriflorus* population.

Herbarium data/CAS-BOT-BC24564, *Arctostaphylos glutinosa*, James West, s.n., 1976-1-16.

Herbarium data/JEPS81979, *Arctostaphylos glutinosa*, Roy E. Buck and James A. West, 153, 1983-3-13, (lvs. green).

Herbarium data/JEPS81980, *Arctostaphylos glutinosa*, Roy E. Buck and James A. West, 152, 1983-3-13, (lvs. gray-canescence).

Nutlet collection data: 2007-578, *Arctostaphylos glutinosa* (green lvd form), 09/02/2007, Jim West.

Nutlet collection data: 2007-583, *Arctostaphylos glutinosa* (gray lvd form), 09/02/2007, Jim West.

#2) 37.101236, -122.231946, elevation 1087 feet/north-south aligned ridge (lower "chalks"), between the upper Seymore Field and the Mill Creek sub-Watershed. This xeric, exposed to the elements ecosystem, was severely ravaged by the 2009 Lockheed Fire but some adult plants survived and seedling recruitment, has taken place.

Nutlet collection data: 2007-581, *Arctostaphylos glutinosa*, 10/17/2007, Jim West.

Nutlet collection data: 2007-585, *Arctostaphylos glutinosa*, 10/17/2007, Jim West.

#3) 37.113180, -122.259834, elevation 1133 feet/ isolated colony, on e-side of the Last Chance Ridge overlooking the Scott Creek Watershed, proximal to the upper reach of the Lair Gulch system. Presently documented, only by an extensive series of digital images, housed in a special file residing in the Swanton Pacific Ranch's cloud storage.

**Volume 2***Dichondra donelliana*

\*\**Dichondra donelliana*/37.094092, -122.235042, elevation 542 feet. One localized but scattered population, growing along se-edge of the Upper Seymore Field and shaded by a coast redwood/coast live oak woodland. This area, including the margining *Quercus agrifolia* var. *agrifolia* population, was severely impacted by the 2009 Lockheed Fire. ....the post fire effect on this area (documented by several days of digital imagery), was a scene in which the foliage of the oak woodland turned uniformly golden while the ground below was charred and blackened. The continually shed leaves, bleached and robbed of their life giving chlorophyll by the heat of the fast moving fire, littered the darkened understory like drops of molten gold. Such a scene, if only recounted by words, could never replace first impressions, the digital captures have continually made, on those individuals who heard about but never witnessed the aftermath of this holocaust. Ironically, one decade later, if such a story was retold, absent of being a first-hand witness, it would be well-nigh impossible to convince anyone, for the oak woodland has replaced its foliage in toto and the grass and understory vegetation, has return to a pre-fire state of normalcy. Even the *Dichondra donelliana* population is back on track.

Herbarium data/UCSC008931, *Dichondra donelliana*, Dylan M. Neubauer, 89, 2014-6-8.

Seed collection data: 2009-267, *Dichondra donelliana*, 08/30/2009, Jim West.

Seed collection data: 2013-209, *Dichondra donelliana*, 06/21/2013, Jim West.

Seed collection data: 2013-217, *Dichondra donelliana*, 08/31/2013, Jim West.

Seed collection data: 2014-325, *Dichondra donelliana*, 07/04/2014, Jim West.

*Cryptantha torreyana* aff. var. *pumila*

\*\**Cryptantha torreyana* aff. var. *pumila*/This locally rare native borage, has been documented for the Scott Creek Watershed/Environs four times since the late 1970s, three of which (via nutlets) are listed below. The earliest observation, was along the n-end of Swanton Road, between the Scott Creek Bridge and Mountain Lion Gulch, on an e-facing slope, which during heavy rainfall in the early 1980s, broke loose and covered the tarmac and taking the small *Cryptantha* population with it.

#1) 37.095511, -122.233958, elevation 485 feet/n-s aligned ridge, separating the Upper Seymore Field from the Mill Creek sub-Watershed. Ironically, three other *Cryptantha* species have been documented for this general area, *C. clevelandii* var. *florosa*, *C. flaccida* and *C. micromeres*.

Nutlet collection data: 2007-1215, *Cryptantha torreyana*, 05/28/2007, Jim West.

Nutlet collection data: 2010-30, *Cryptantha torreyana*, 07/15/2010, Jim West.

#2) 37.078686, -122.201274, elevation 967 feet/s-facing, fractured siliceous mudstone hillside, overlooking the Little Creek riparian corridor and situated below the General Smith Redwood grove. This localized population, was situated directly above and below a horse trail, which was created as an alternate switchback loop, to the main access trail.

Nutlet collection data: 2009-633, *Cryptantha torreyana*, 08/05/2009, Jim West.

#3) 37.063659, -122.234308, elevation 616 feet/s-facing remnant/displaced chaparral, overlooking the central portion of Mt. Cook Gulch. This chaparral isolate, forms a mirror image to the main chaparral ecosystem directly across the Scott Creek riparian corridor. Even its native species constituents form a parallel botanical matrix..... e.g., *Arctostaphylos crustacea* subsp. *crinita*, *Eriodictyon californicum*, *Dendromecon rigida*, *Pinus x attenuradiata* hybrid swarm (syngameon), *Lepechinia calycina*, etc.

Nutlet collection data: 2008-1541, *Cryptantha torreyana*, 07/11/2008, Jim West.

*Plagiobothrys diffusus*

\*\**Plagiobothrys diffusus*/this ground hugging, easily overlooked member of the Boraginaceae, was thought to be extinct until it was rediscovered in Swanton, in the 1960s. Several of the Scott Creek Watershed/Environs populations have been documented via herbarium pressings and/or nutlet collections, which are housed with the UCSC Arboretum. Since some of the early documented populations no longer exist or are due to property ownership, not accessible, some of the nutlet collections, held by the UCSC Arboretum, should be raised out.... to both augment the existing nutlet collection and to make a series of additional herbarium pressings, that can be shared with other educational institutions.

#1) 37.099975, -122.244124, elevation 608 feet/Scott Creek side of Seymore Hill, growing on seasonally wet dirt road, connecting Purdy Road to top of Seymore Hill, where road forks and the left branch enters Bettencourt Gulch.

Nutlet collection data: 2009-638, *Plagiobothrys* aff. *diffusus*, 05/16/2009, Jim West.

Nutlet collection data: 2011-206, *Plagiobothrys* aff. *diffusus*, 06/30/2011, Jim West.

#2) 37.096233, -122.249108, elevation 278 feet/Along margin of dirt road paralleling lower Calf Gulch, which connects Purdy Road with the crest of the Seymore Hill. Two native taxa of interest, due to their rarity or uncommon occurrence locally and growing sympatrically with *P. diffusus*, are *Plagiobothrys* aff. *bracteatus* and *Trifolium buckwestiorum*.

Nutlet collection data: 2011-260, *Plagiobothrys* *diffusus*, 06/06/2011, Jim West.

#3) 37.078629, -122.255716, elevation 491 feet/e-facing slope between the forks of Bifurcate Gulch.

Herbarium data: JEPS83121, *Plagiobothrys* *diffusus*, Roy E. Buck and James A. West, 317, 1983-6-4.

*Carex* “*nitidicarpa*”

\*\**Carex* “*nitidicarpa*”/Along with *Carex* “*imperfecta*”, this putative, fertile, inter-sectional hybrid (Multiflorae x Ouales), constitutes the other component of the *Carex* “*gianonei*” complex. Where *C. “imperfecta*” functions as a potential uni-directional contributor of inter-sectional hybrid genes, with stamens producing pollen but pistils non-functioning, the *C. “nitidicarpa*” offspring appear to be fully fertile even though morphologically, this taxon combines in situ observable characteristics, that could only be derived from *C. subbracteata* and *C. densa*, both which are growing sympatrically. This poses a question.... does the direction of pollen transfer between these two species, deliverer versus receiver, affect the fertility outcome of this inter-sectional cross? Comprehensive collections have been made, of both mature inflorescences and their perigynia, that should be studied carefully and compared as to morphology, with both *C. densa* and *C. subbracteata*. Also, populations need to be raised out, to see the spectrum of parental influences and then have genetic workups done.

#1) 37.089718, -122.262039, elevation 607 feet/Seasonally wet slope, which drains into e-fork of the Las Trancas Arroyo, and contains *Carex nitidicarpa* and both of its putative parents, *C. densa* and *C. subbracteata*.

Perigynia collection data: 2008-1741, *Carex* “*nitidicarpa*”, 08/19/2008, Jim West.

Perigynia collection data: 2008-1742, *Carex* “*nitidicarpa*”, 08/19/2008, Jim West.

Perigynia collection data: 2008-1743, *Carex* “*nitidicarpa*”, 08/19/2008, Jim West.

Perigynia collection data: 2008-1744, *Carex* “*nitidicarpa*”, 08/19/2008, Jim West.

Perigynia collection data: 2008-1745, *Carex* “*nitidicarpa*”, 08/19/2008, Jim West.

Perigynia collection data: 2008-1746, *Carex* “*nitidicarpa*”, 08/19/2008, Jim West.

Perigynia collection data: 2008-1748, *Carex* “*nitidicarpa*”, 08/15/2008, Jim West.

Perigynia collection data: 2013-357, *Carex* “*nitidicarpa*”, 03/28/2013, Jim West.

#2) between 37.084877, -122.264011, elevation 386 feet and 37.084160, -122.263177, elevation 397 feet/s-facing slope, paralleling Swanton Road and becoming saturated during the Winter/Spring rains, behaving like a seasonal marsh. This area is dominated by two *Carex* species, *C. densa* and *C. subbracteata*, with scattered examples of the fertile inter-specific hybrid, *C. "nitidicarpa"*.

Perigynia collection data: 2008-729, *Carex "nitidicarpa"*, 07/31/2008, Jim West.

Perigynia collection data: 2008-1747, *Carex "nitidicarpa"*, 09/07/2008, Jim West.

Perigynia collection data: 2013-439, *Carex "nitidicarpa"*, 10/09/2013, Jim West.

Perigynia collection data: 2013-507, *Carex "nitidicarpa"*, 10/09/2013, Jim West.

Perigynia collection data: 2013-508, *Carex "nitidicarpa"*, 10/09/2013, Jim West.

Perigynia collection data: 2013-509, *Carex "nitidicarpa"*, 10/09/2013, Jim West.

Perigynia collection data: 2013-510, *Carex "nitidicarpa"*, 10/22/2013, Jim West.

Perigynia collection data: 2014-282, *Carex "nitidicarpa"*. 07/14/2014, Jim West.

Perigynia collection data: 2014-310, *Carex "nitidicarpa"*, 06/21/2014, Jim West.

Perigynia collection data: 2014-311, *Carex "nitidicarpa"*, 06/21/2014, Jim West.

#3) 37.075223, -122.247229, elevation 377 feet/"Bulb Field", an area which has been subject to several types of agricultural usages and within its +/- rectilinear center, following heavy rainfall, becomes a seasonal bog. In spite of the multiple ecological disruptions, the populations of carices have persisted and include..... *C. densa*, *C. subbracteata*, and the three putative derivatives from those two parents, *C. "gianonei"* (*C. harfordii* matrix), *C. "imperfecta"* and *C. "nitidicarpa"*.

Perigynia collection data: 2007-1431, *Carex "nitidicarpa"*, 05/28/2007, Jim West.

#4) 37.069804, -122.250952, elevation 458 feet/s-facing slope, below Grey Hayes test plot, overlooking and transitioning in coastal prairie (Western Terrace), between Morheus Arroyo and China Ladder Marsh. This area hosts a complex array of *Carex*, with *C. densa*, *C. subbracteata* and *C. obnupta* representing the species and *C. "gianonei"*, *C. "imperfecta"* and *C. "nitidicarpa"*, the taxonomic mélange in need of serious study.

Perigynia collection data: 2011-297, *Carex "nitidicarpa"*, 07/20/2011, Jim West.

Perigynia collection data: 2011-298, *Carex "nitidicarpa"*, 07/20/2011, Jim West.

#5) 37.070209, -122.253299, elevation 299 feet/marshy micro-habitat occupying the central portion of Western Terrace, between Big Willow Gulch and Morehus Arroyo.

Perigynia collection data: 2011-325, *Carex "nitidicarpa"*, 07/30/2012, Jim West.

#6) 37.087108, -122.259387, elevation 583 feet/Outflow from Laguna de las Trancas, which drains into the Gianone Barn Gulch. This seasonally wet habitat, contains extensive populations of *C. densa* and *C. subbracteata*, along with *Trifolium grayi* (showy, lg capitula with concolored flowers) and several examples of the *Juncus hesperius* x *Juncus patens* hybrid.

Perigynia collection data: 2011-295, *Carex "nitidicarpa"*, 07/30/2012, Jim West.

#### *Carex "gianonei"*

\*\**Carex "gianonei"*/This widespread coastal prairie taxon, masquerading as and confused with *Carex harfordii*, is readily separated from that taxon, by having inflorescences with the lower 1-5+ spikelets usually compound-congested (reduced panicle branches derived from *C. densa*) which can be gynaeandrous, androgynous and/or

mixed. Occasionally, spikelets on elongate, filiform stalks arising from near the sheathed base of the flowering culm occur, representing a possible derivation from a third section of the *Carex* genus, this being the *Montanae*, and the possible genetic conveyer being *C. brevicaulis*, often found growing sympatrically on the coastal prairie. All of the previously defined traits of *C. "gianonei"*, appear seasonally on plants which have been observed in situ for more than three decades and ex situ offspring, raised from the achenes collected from the in situ parents, behave in the self-same way. All of the below listed perigynia collections, represent the designated TYPE POPULATION. For a far more comprehensive listing of *C. "gianonei"* populations and perigynia collections, consult the UCSC Arboretum seed data base, documenting the Scott Creek Watershed/Environs collections in their possession.

TYPE POPULATION SITE, as designated for *Carex "gianonei"*, between 37.082270, -122.263096, elevation 349 feet and 37.081557, -122.262737, elevation 336 feet/seasonally wet to moist year round drainage ditch, paralleling the n-end of Swanton Road and draining into the Harry Wain Arroyo.

Perigynia collection data: 2012-404, *Carex x gianonei*, pro.sp.nov., 07/15/2012, Jim West.

Perigynia collection data: 2012-554, *Carex x gianonei*, pro.sp.nov., 11/18/2012, Jim West.

Perigynia collection data: 2013-390, *Carex x gianonei*, pro.sp.nov., 03/04/2013, Jim West.

Perigynia collection data: 2013-391, *Carex x gianonei*, pro.sp.nov., 03/04/2013, Jim West.

Perigynia collection data: 2013-392, *Carex x gianonei*, pro.sp.nov., 03/04/2013, Jim West.

Perigynia collection data: 2013-393, *Carex x gianonei*, pro.sp.nov., 03/04/2013, Jim West.

Perigynia collection data: 2013-394, *Carex x gianonei*, pro.sp.nov., 03/04/2013, Jim West.

Perigynia collection data: 2014-313, *Carex x gianonei*, pro.sp.nov., 06/01/2014, Jim West.

Perigynia collection data: 2014-314, *Carex x gianonei*, pro.sp.nov., 06/01/2014, Jim West.

Perigynia collection data: 2016-184, *Carex x gianonei*, pro.sp.nov., 07/04/2016, Jim West.

#### *Amsinckia lunaris*

\*\**Amsinckia lunaris*/This rare and listed (1B.2/S) member of the Boraginaceae, has been documented locally with both herbarium pressings and nutlet collections. At least one of the documented populations no longer exists, due to a series of landslides (Purdy Road, near cattle guard) which wiped out the entire population. *Amsinckia lunaris* is unique within the genus by having the lowest chromosome number,  $2n=8$ , but also having flowers that are bilaterally symmetrical rather than laterally arranged.

#1) 37.058008, -122.235826, elevation 628 feet/w-facing, near vertical hillside overlooking Prairie Overlook Gulch. This "vertical grassland" host several locally rare and in some cases, listed, native species and may be one of the last refuges for *A. lunaris* in the Scott Creek Watershed/Environs area. Some of the species sharing this precipitous aerie are..... *Collinsia multicolor*, *Thysanocarpus laciniatus*, *Delphinium decorum* subsp. *decorum*, *Stebbinsoseris decipiens*, *Platystemon californicus*, *Galium californicum* subsp. *californicum*, *Trifolium macraei*, etc.

Herbarium data: UCSC010494, *Amsinckia lunaris*, Dylan M. Neubauer, Tim Forsell, James A. West and Christian Schwarz, 614, 2016-4-5.

Herbarium data: UCSC010495, *Amsinckia lunaris*, Dylan M. Neubauer, Tim Forsell, James A. West and Christian Schwarz, 614, 2016-4-5.

Nutlet collection data: 2002-503, *Amsinckia lunaris*, 11/16/2002, Jim West.

Nutlet collection data: 2007-1214, *Amsinckia lunaris*, 07/15/2007, Jim West.

Nutlet collection data: 2016-92, *Amsinckia lunaris*, 06/03/2016, Jim West.

#2) 37.078646, -122.250128, elevation 329 feet/The west and east flanks of Buckeye Grove Ridge, hosted scattered populations of *Amsinckia lunaris*, these often trailing down the brush cloaked slopes or concentrated in grass favoring openings, just below the ridge's edge. Since the property on which these populations is no longer accessible, their status is currently unknown.

Herbarium data: JEPS81909, *Amsinckia lunaris*, Roy E. Buck, James A. West and R. Doug Stone, 194, 1983-4-10.

#3) 37.087448, -122.248590, elevation 158 feet/"Slide area", which overlooks Purdy Road, down from cattle guard. During the 1970s, *Amsinckia lunaris* grew on this unstable road bank, along with *Delphinium patens* subsp. *patens*, *Claytonia perfoliata* subsp. *perfoliata* (a robust form with extremely succulent leaves and perfoliate discs), *Trifolium willdenovii* (dk seed, robust interior form), *Collinsia heterophylla* (pale flowered race), *Plectritis congesta* subsp. *brachystemon*, *Clarkia rubicunda* (a robust form, with some plants exceeding 1m in height), *Thysanocarpus curvipes/laciniatus* intergrades, *Yabea microcarpa*, ect. During the early 1980s, severe winter storms destabilized the landslide mass and buried the previous seasons *A. lunaris* nutlets, and this rare native has not been seen on or near the "mass wasting" site, since. Ironically, all of the above listed associate species have continued to flourish in spite of subsequent disruptions. This is probably due to the fact, that from a recruitment perspective, the other natives existed upslope beyond the reach of the landslides and were capable of reseeding the raw mineral soil downslope, while the *A. lunaris* population, occupied a zone that margined both sides of Purdy Road.

Note: Below listed, are two herbarium pressings for the Scott Creek Watershed, relative to the area between the Scott Creek and Mill Creek Bridges, that the actual location data is ambiguous.

Herbarium data: OBI45771, *Amsinckia lunaris*, David J. Keil, V.L. Holland and Larry Kelly, 20648, 1988-3-7.

Herbarium data: UC1561077, *Amsinckia lunaris*, Dean Wm. Taylor with Roy Buck, Jim West and Glenn Clifton, 9659, 1988-5-22.

### *Agrostis densiflora*

\*\**Agrostis densiflora*/This endemic grass, principally distributed along the immediate coastline of central and northern California, presents some fascinating research possibilities within the Scott Creek Watershed/Environs. The local populations sort themselves out into three categories: (a) the reduced in stature, prostrate to ascending form, that resides on the Santa Cruz Terrace/coastal bluffs, usually in soil high in eolian sand deposits overlying the siliceous mudstone bedding planes, (b) putative hybrids between the (a) populations with sympatric and listed endemic (1B.2/Sen) *Agrostis blasdalei* and (c), the morphologically robust (in all aspects) form growing on permanently moist vertical sea cliff faces, at the upper and lower ends of Scott Creek Beach, designated as "Big Blue". While the UCSC Arboretum caretakes a large collection of *A. densiflora* mature inflorescences/caryopses, which have been accessioned and are displayed on a comprehensive spreadsheet, the below listings focus on two differing forms of the locally rare species: (1) the complex population, numbering in the hundreds, growing sympatrically with *A. blasdalei*, on the Santa Cruz Terrace, in an area called the *Agrostis* Rectangle and (2) the gigas form, growing on moist, vertical cliff faces, with direct exposure to the vagaries of the ocean. Are there differences on a molecular level between these two populations and if so, do they translate out on either a forma or varietal level? What role does the continual presence of moisture play in the "Big Blue" outsized growth gestalt as opposed to the seasonally wet/dry, horizontal alignment of the *Agrostis* Rectangle populations? The vertical habitat of the s-end of Scott Creek Beach "Big Blue" population is in continual flux, due to the constant exfoliation of the fractured siliceous mudstone, coupled with close proximity to the seasonal action of the ocean waves and prevailing winds.... making the long time survival for this unique population uncertain.

#1) Between 37.035877, -122.227911, elevation 20 feet and 37.033804, -122.227131, elevation 47 feet/ s-end of Scott Creek Beach, vertical cliff faces supporting "hanging gardens", which have continual moisture and besides providing habitat for the *A. densiflora* "Big Blue" also host populations of *Plantago maritima*, *Erythranthe grandis*, *Erigeron glaucus*, *Fragaria chiloensis*, *Isolepis cernua* (perennial form), etc. This habitat, being unstable, needs to have ex situ populations raised and some plants providing material for herbarium sheets, select specimens established in botanical gardens and caryopses stored away for future in situ restoration.

Caryopsis collection data: 2002-886, *Agrostis densiflora*, 11/06/2002, Jim West ["Big Blue" form].

Caryopsis collection data: 2014-99, *Agrostis densiflora*, 09/17/2014, Jim West ["Big Blue" form].

Caryopsis collection data: 2015-212, *Agrostis densiflora*, 08/13/2015, Jim West ["Big Blue" form].

Caryopsis collection data: 2015-213, *Agrostis densiflora*, 08/13/2015, Jim West ["Big Blue" form].

Note: There is an excellent photo, taken in situ by Dylan Neubauer, of the "Big Blue" form of *Agrostis densiflora* at the s-end of Scott Creek Beach. The photo is on the CalPhoto website and the specific data for the image is as follows:

<https://calphotos.berkeley.edu/> *Agrostis densiflora*, California Bent Grass, ID: 0000 0000 0211 2747. @ 2011 Dylan Neubauer

#2) 37.061532, -122.252426, elevation 160 feet/*Agrostis* Rectangle, an erosion prone, eolian sand/fragmented siliceous mudstone capped portion of the Santa Cruz Terrace, due east of China Ladder Gulch. This unique area, contained several hundred *Agrostis blasdalei* plants when explored in the late 1970s (this was the first documentation for this rare taxon, south of Marin County) and several dozen herbarium pressings were made and deposited with the Jepson Herbarium at UC Berkeley. Sharing this exposed and wind abraded habitat was another rare and related grass, *Agrostis densiflora*. The *A. densiflora* population growing at this site, differs in several magnitudes of reduction when compared to the "Big Blue" populations growing at the s-end of Scott Creek Beach. The extreme variability of the *A. blasdalei* population was, in part, due to the introgression of genetic material from the sympatric and often intermixed *A. densiflora* population (an occurrence not previously reported for the populations of *A. blasdalei* north of San Francisco Bay).

Herbarium data: JEPS82899, *Agrostis densiflora*, Roy E. Buck and James A. West, 371, 1983-6-23.

Caryopsis collection data: 2011-241, *Agrostis densiflora*, 07/30/2011, Jim West.

Caryopsis collection data: 2011-468, *Agrostis densiflora*, 07/18/2011, Jim West.

Caryopsis collection data: 2011-469, *Agrostis densiflora*, 07/18/2011, Jim West.

Caryopsis collection data; 2012-117, *Agrostis densiflora*, 11/09/2012, Jim West.

Caryopsis collection data: 2012-118, *Agrostis densiflora*, 11/09/2012, Jim West.

Caryopsis collection data: 2013-180, *Agrostis densiflora*, 08/29/2013, Jim West.

Caryopsis collection data: 2013-181, *Agrostis densiflora*, 08/28/2013, Jim West.

Caryopsis collection data: 2013-244, *Agrostis densiflora*, 08/28/2013, Jim West.

Caryopsis collection data: 2013-478, *Agrostis densiflora*, 07/29/2013, Jim West.

Caryopsis collection data: 2014-56, *Agrostis* aff. *densiflora*, 07/30/2014, Jim West.

Caryopsis collection data: 2014-100, *Agrostis* aff. *densiflora*, 07/30/2014, Jim West.

Caryopsis collection data: 2015-204, *Agrostis densiflora*, 08/21/2015, Jim West.

Caryopsis collection data: 2015-206, *Agrostis densiflora*, 07/01/2015, Jim West.

Caryopsis collection data: 2016-221, *Agrostis densiflora*, 06/22/2016, Jim West.

Caryopsis collection data: 2016-222, *Agrostis densiflora*, 06/30/2016, Jim West.

Caryopsis collection data: 2017-325, *Agrostis densiflora*, 07/11/2017, Jim West.

Caryopsis collection data: 2017-327, *Agrostis densiflora*, 07/11/2017, Jim West.

*Agrostis microphylla*

\*\**Agrostis microphylla*/The populations for this rare, in Santa Cruz County, native *Agrostis* species, occupy three distinctly different habitats: (1) seasonally wet, vertical cliff faces overlooking the s-half of Greyhound Rock Beach, (2) arid, exposed fragmented terrace, midway down Gulch #4, overlooking Highway 1 and (3) an isolated colony on ridge between the Upper Seymore Field and the Mill Creek riparian corridor. All of these *A. microphylla* populations differ from the forma typical, in possessing a palea and not growing in a vernal pool habitat. The small population growing midway down Gulch #4, in several ways matched *A. aristiglumis* Swallen from Marin County, which is now subsumed under the *A. microphylla* name. All of these local populations need to be studied on both a morphological and genetic level and after those workups, compared with populations growing away from the central coast.

#1) Between 37.077393, -122.263174, elevation 93 feet and 37.074715, -122.262362, elevation 74 feet/seasonally wet, vertical siliceous mudstone cliff/waterfall faces, s-end of Greyhound Rock Beach. The waterfalls drain the gulches, beginning with Lasher Marsh and moving eastward, that have their origins on the Western Terrace aka coastal prairie and in some cases, share rare species..... e.g. *Erythranthe arenicola*.

Herbarium data: JEPS100279, *Agrostis microphylla*, Dean W. Taylor, 9307, 1987-8-20.

Herbarium data: UCSC011420, *Agrostis microphylla*, Dylan M. Neubauer, 908, 2017-4-1.

Caryopsis collection data: 2008-399, *Agrostis microphylla*, 09/24/2008, Jim West.

Caryopsis collection data: 2015-209, *Agrostis microphylla*, 07/27/2015, Jim West.

Caryopsis collection data: 2016-89, *Agrostis microphylla*, 06/02/2016, Jim West.

Caryopsis collection data: 2016-90, *Agrostis microphylla*, 06/02/2016, Jim West.

#2) 37.075468, -122.260731, elevation 274 feet/se-facing fragmented siliceous mudstone terrace remnant, overlooking lower portion of Gulch #4. This isolated population, was growing in an exposed, arid environment (coastal fog the principal moisture conveyer) and in overall morphology, matched a taxon from Marin County, *Agrostis aristiglumis*, which has been reduced to synonymy under *A. microphylla*. Since access to recollect is no longer possible, the current status of this taxon is unknown.

Herbarium data: JEPS82598, *Agrostis microphylla*, James A. West, 218, 1984-5-8.

Herbarium data: JEPS82606, *Agrostis microphylla*, James A. West, 210, 1984-4-16.

#3) 37.095424, -122.233583, elevation 504 feet/gulchlet draining siliceous mudstone ridge, "Chalks", that separates the Upper Seymore Field from the Mill Creek riparian corridor. This is an area of rich biodiversity, that in spite of losing much of its aerial biomass in the 2009 Lockheed Fire, has rebounded. The negative byproduct of the fire, was the population explosion of fire follower, *Ceanothus thrysiflorus* var. *thrysiflorus*, which makes access to much of this area problematic. Some of the native taxa sharing this ecologically severe aerie with the *Agrostis microphylla*, include: *Arctostaphylos glutinosa* (extensive population of surviving old shrubs and newly emerging recruitments), *Arctostaphylos crustacea* subsp. *crinita* (a polymorphic "genetic sponge"), an isolated population of *Dudleya caespitosa*, that may turn out to be an older and less genetically complex representative of this polyploid/polyphyletic taxon, than the morphologically diverse populations growing on the coastal headlands (e.g. the area between the *Agrostis* Rectangle and lower China Ladder Gulch), a reduced in stature *Eriophyllum confertiflorum* var. *confertiflorum* with intensely colored inflorescences [cypselae collection data: 2012-555, *Eriophyllum confertiflorum* var. *confertiflorum*, 02/26/2012, Jim West], a population of *Stephanomeria*, which appeared the following year containing plants 1.5m in height and are part of a complex in need of a molecular workup [cypselae collection data: 2010-45, *Stephanomeria* aff. *elata*, 07/15/2010, Jim West], *Festuca octoflora*, and numerous other "natives" of interest.

Caryopsis collection data: 2010-28, *Agrostis microphylla*, 07/15/2010, Jim West.

Note: This population should be raised out and a comparison study done with the populations growing on the seasonally wet cliff faces overlooking the s-end of Greyhound Rock Beach.

*Galium trifidum subsp. columbianum*

\*\**Galium trifidum subsp. columbianum*/This native *Galium* is rare in Santa Cruz County and in the Scott Creek Watershed, resides in a series of related, landslide derived, ancient marshes and tends to restrict itself to anchoring its perennial root systems within *Juncus effusus subsp. pacificus* tussocks.

#1) 37.088563, -122.258600, elevation 586 feet/Laguna de las Trancas, growing up within long established tussocks of *Juncus effusus subsp. pacificus*, with its aerial stems dying back seasonally after flowering/fruitletting.

Seed collection data: 2002-505, *Galium trifidum subsp. columbianum*, 09/25/2002, Jim West.

Seed collection data: 2007-1224, *Galium trifidum subsp. columbianum*, 10/03/2007, Jim West.

Seed collection data: 2007-1225, *Galium trifidum subsp. columbianum*, 07/09/2007, Jim West.

Seed collection data: 2008-1550, *Galium trifidum subsp. columbianum*, 08/02/2008, Jim West.

Seed collection data: 2013-208, *Galium trifidum subsp. columbianum*, 09/01/2013, Jim West.

Seed collection data: 2013-479, *Galium trifidum subsp. columbianum*, 11/05/2013, Jim West.

Seed collection data: 2018-639, *Galium trifidum subsp. columbianum*, 10/01/2018, Jim West.

#2) 37.087824, -122.253949, elevation 369 feet/Marti's Park Marsh, growing within *Juncus effusus subsp. pacificus* tussocks. Since the mature fruits of this *Galium* species are spheroid, smooth and black, and in the Scott Creek Watershed, the plants grow within *Juncus* tussocks, are birds the primary depositors of these seeds?

Seed collection data: 2009-679, *Galium trifidum subsp. columbianum*, 08/03/2009, Jim West.

Seed collection data: 2014-173, *Galium trifidum subsp. columbianum*, 06/22/2014, Jim West.

#3) 37.094265, -122.255718, elevation 582 feet/"Beaver Flat", is the uppermost situated marsh, also derived from an ancient series of landslides and home to the same fortress like *Juncus* tussocks, which provide the rare *Galium* with protection from the local herbivores (aka beef cattle and deer).

Seed collection data: 2009-767, *Galium trifidum subsp. columbianum*, 07/21/2009, Jim West.

#4) 37.089788, -122.256053, elevation 491 feet/The West Spring Marsh, lies midway between the Beaver Flat and the Marti's Park Marshes, and provides the same suitable habitat for the weak stem/scandent in growth *Galium*, specifically *Juncus effusus subsp. pacificus* tussocks. This reniform shaped marsh is also home to the giant native dock, *Rumex occidentalis* and the vanilla scented *Plagiobothrys chorisianus var. chorisianus*.

Seed collection data: 2011-372, *Galium trifidum subsp. columbianum*, 09/02/2011, Jim West.

*Dudleya caespitosa*

\*\**Dudleya caespitosa*/This taxon is a polyploid/polyphyletic complex, with diploid *D. farinosa* found to the north and south of Santa Cruz County but not within it. The Scott Creek Watershed/Environs hosts a very diverse assemblage of taxa that fall within the *D. caespitosa* complex and range from an isolated population, growing on the "Chalks" between the upper Seymore Field and the Mill Creek riparian corridor down to the edge of the Santa Cruz Terrace, between the *Agrostis* Rectangle and lower section of China Ladder Gulch. The interior population, is uniform morphologically and appears to be relictual isolate, representing an earlier and perhaps lower ploidy level stage in the *D. caespitosa* complex's evolution, while the populations growing on the ocean side edge of the Santa Cruz Terrace, between the *Agrostis* Rectangle and China Ladder Gulch, are the most variable as to overall

morphology (leaves, inflorescence and floral characteristics). While most of the *Dudleya caespitosa* populations found within the Scott Creek Watershed/Environs have been documented via seed collections and deposited with the UCSC Arboretum, no DNA or chromosomal workups have been performed on these populations. A research study could begin, by comparing the farthest inland, least variable and most ecologically isolated population, with the polymorphic population growing on the edge of the eolian sand covered Santa Cruz Terrace. One could later add another isolated population growing within the Little Creek sub-watershed, which grows on near vertical rock faces and produces multi-branched overarching inflorescences. The below listed seed collections document these three populations, separated from each other by several miles.

#1) 37.097429, -122.232730, elevation 721 feet/"The Chalks", a complex ridge dissected with several gulchlets, the whole geomorphic entity framed on the west by the Upper Seymore Field and the east by the Mill Creek riparian corridor. Home to an extensive population of the endemic manzanita, *Arctostaphylos glutinosa*, which suffered extensive losses as the result of the 2009 Lockheed Fire but still maintains its tenuous foothold on this desiccated part of the Scott Creek Watershed.

Seed collection data: 2011-377, *Dudleya caespitosa*, 10/01/2011, Jim West.

Seed collection data: 2011-378, *Dudleya caespitosa*, 10/01/2011, Jim West.

Seed collection data: 2012-253, *Dudleya* aff. *caespitosa*, 09/21/2012, Jim West.

Seed collection data: 2012-255, *Dudleya* aff. *caespitosa*, 09/21/2012, Jim West.

#2) Between 37.060130, -122.252554, elevation 124 feet and 37.063222, -122.253680, elevation 136 feet/area between "Agrostis Rectangle" and lower China Ladder Gulch, which also contains the largest documented population of *Agrostis blasdalei*, south of Marin County. The *Dudleya caespitosa* population growing along this relatively narrow strip of the Santa Cruz Terrace are so variable as to overall gross morphology, that no two plants look identical and appear to reflect an ancestry of multiple parents. A parallel can be drawn with the *Arctostaphylos crustacea* sensu lato populations growing on the Schoolhouse Ridge complex. This immediate coastal population appears to be in a rapid state of evolution and its morphological instability suggests that several of its inherited genetic components are in competition with each other. An in depth study, comparing this population with the isolated "Chalks" population on morphological, DNA, ploidy level and pollinating vector aspects, would create a baseline for an even larger endeavor. . . .namely, doing a ploidy level mapping for all of the documented *Dudleya* populations in the Scott Creek Watershed/Environs and see what patterns emerge, where isolation versus sympatry, elevation and underlying geomorphology and periodic ecological disruptions via natural or anthropogenic activities are in play.

Seed collection data: 2007-1407, *Dudleya caespitosa*, 09/12/2007, Jim West.

Seed collection data: 2010-40, *Dudleya caespitosa*, 07/15/2010, Jim West.

Seed collection data: 2011-213, *Dudleya caespitosa*, 12/28/2011, Jim West.

Seed collection data: 2012-86, *Dudleya caespitosa*, 10/09/2012, Jim West.

Seed collection data: 2012-251, *Dudleya caespitosa*, 09/24/2012, Jim West.

Seed collection data: 2012-252, *Dudleya caespitosa*, 09/24/2012, Jim West.

Seed collection data: 2013-171, *Dudleya caespitosa*, 08/15/2013, Jim West.

Seed collection data: 2013-513, *Dudleya caespitosa*, 10/20/2013, Jim West.

Seed collection data: 2015-109, *Dudleya caespitosa*, 09/10/2015, Jim West.

Seed collection data: 2015-110, *Dudleya caespitosa*, 09/10/2015, Jim West.

Seed collection data: 2015-111, *Dudleya caespitosa*, 09/10/2015, Jim West.

Seed collection data: 2015-112, *Dudleya caespitosa*, 09/10/2015, Jim West.

Seed collection data: 2018-642, *Dudleya caespitosa*, 09/24/2018, Jim West.

#3) Between 37.068407, -122.213342, elevation 332 feet and 37.069064, -122.211533, elevation 353 feet./Little Creek sub-watershed, series of near vertical s-facing road banks, proximal to old Boy Scout Camp. This isolated population of *Dudleya caespitosa*, is growing on moss covered boulders, with the rosettes perpendicular to the dirt road beneath them and the inflorescences arching outward, often 2 feet. Like the “Chalks” population, this isolated group is uniform as to morphology and shares the same pale yellow, thin textured corollas with its higher elevation counterpart and is distinctly different from the coastal headland populations. An interesting molecular workup study would be to compare the “Chalks” and Little Creek populations with each other and then with the “Agrostis Rectangle” population.

Seed collection data: 2007-1402, *Dudleya caespitosa*, 09/18/2007, Jim West.

Seed collection data: 2007-1411, *Dudleya caespitosa*, 08/13/2007, Jim West.

Seed collection data: 2012-349, *Dudleya caespitosa*, 10/12/2012, Jim West.

Seed collection data: 2013-473, *Dudleya caespitosa*, 09/09/2013, Jim West.

Seed collection data: 2015-22, *Dudleya caespitosa*, 03/19/2015, Jim West.

Seed collection data: 2015-242, *Dudleya caespitosa*, 10/07/2015, Jim West.

Seed collection data: 2015-243, *Dudleya caespitosa*, 10/07/2015, Jim West.

*Elymus aff. glaucus subsp. virescens*

\*\**Elymus aff. glaucus subsp. virescens*/Growing along the ocean edge of the Santa Cruz Terrace, between the n-end of the Greyhound Rock Beach parking lot and Dylan’s Garden, an extremely reduced in stature, densely cespitose in habit with virtually awnless glumes and lemma component of the *Elymus glaucus* complex exists and definitely warrants a full study. This distinctive taxon may prove to be a new species or a yet to be documented subspecies of *Elymus glaucus*. Populations of *E. glaucus subsp. virescens* occur 400+ feet in elevation above this coastal bluff component of the *E. glaucus* complex but do not in any way, resemble the “new” entity and both taxon should be raised out under controlled conditions and studied.

Note: data added on 08/30/2019..... The reduced in stature, loosely cespitose, virtually awnless populations, found within Dylan’s Garden and growing on the w-facing edge of the coastal bluffs overlooking the n-end of Greyhound Rock Beach, should be studied and evaluated in reference to a related taxon not documented for Santa Cruz County, namely *Elymus pacificus* [= *Leymus pacificus*, *Agropyron arenicola*]. If this distinctive taxon, relative to the other two phases of *Elymus glaucus* (*subsp. glaucus* and *subsp. virescens*) should prove to be conspecific with *Elymus pacificus*, then this would add a new native (and California endemic) grass to the Santa Cruz plant checklist.

#1) Between 37.074757, -122.262109, elevation 138 feet and 37.073651, -122.261894, elevation 152 feet/Dylan’s Garden, an isolated area of biodiversity overlooking Pelican Rock and the lower half of Grey Hound Rock Beach. Some of the rarer natives found within this secluded niche, are *Erysimum franciscanum* [var. *crassifolium*], *Poa unilateralis*, *Heterotheca sessiliflora subsp. bolanderi*, *Pseudognaphalium “gianonei”* (pro.sp.nov.), *Calystegia subacaulis subsp. subacaulis*, *Piperia michaelii*, *Agrostis densiflora*, *Agoseris apargioides var. apargioides*, etc.

Caryopsis collection data: 2009-877, *Elymus glaucus aff. subsp. virescens*, 07/02/2009, Jim West.

Caryopsis collection data: 2013-106, *Elymus glaucus aff. subsp. virescens*, 11/27/2013, Jim West.

Caryopsis collection data: 2013-120, *Elymus glaucus aff. subsp. virescens*, 11/27/2013, Jim West.

Caryopsis collection data: 2015-77, *Elymus glaucus aff. subsp. virescens*, 08/13/2015, Jim West.

Caryopsis collection data: 2015-78, *Elymus glaucus* aff. subsp. *virescens*, 08/13/2015, Jim West.

Caryopsis collection data: 2015-93, *Elymus glaucus* aff. subsp. *virescens*, 06/20/2015, Jim West.

Caryopsis collection data: 2015-94, *Elymus glaucus* aff. subsp. *virescens*, 06/20/2015, Jim West.

Caryopsis collection data: 2015-95, *Elymus glaucus* aff. subsp. *virescens*, 06/20/2015, Jim West.

Caryopsis collection data: 2015-205, *Elymus glaucus* aff. subsp. *virescens*, 08/13/2015, Jim West.

Caryopsis collection data: 2016-214, *Elymus glaucus* aff. subsp. *virescens*, 06/27/2016, Jim West.

Caryopsis collection data: 2018-683, *Elymus glaucus* aff. subsp. *virescens*, 07/09/2018, Jim West.

#2) 37.080151, -122.267126, elevation 111 feet/Santa Cruz Terrace, overlooking upper half of Greyhound Rock Beach. Like Dylan's Garden, this isolated edge of terra firma before it drops off precipitously beachward, contains one rare, one uncommon and one yet-to-be-named taxa..... *Agrostis blasdalei*, *Plagiobothrys chorisianus* var. *chorisianus* and *Trifolium* "mini-macraei" (TYPE population).

Caryopsis collection data: 2002-539, *Elymus glaucus* aff. subsp. *virescens*, 09/30/2002, Jim West.

Caryopsis collection data: 2007-1060, *Elymus glaucus* aff. subsp. *virescens*, 09/21/2007, Jim West.

Caryopsis collection data: 2013-104, *Elymus glaucus* aff. subsp. *virescens*, 11/27/2013, Jim West.

Caryopsis collection data: 2013-121, *Elymus glaucus* aff. subsp. *virescens*, 11/27/2013, Jim West.

Caryopsis collection data: 2015-98, *Elymus glaucus* aff. subsp. *virescens*, 06/16/2015, Jim West.

Caryopsis collection data: 2015-99, *Elymus glaucus* aff. subsp. *virescens*, 06/16/2015, Jim West.

Caryopsis collection data: 2015-100, *Elymus glaucus* aff. subsp. *virescens*, 06/16/2015, Jim West.

#3) 37.085914, -122.261494, elevation 572 feet/n-facing slope overlooking Last Chance Road and the source of Gianone Barn Gulch/Spring. This population of *Elymus glaucus* subsp. *virescens*, falls within the circumscription of the forma typica for this taxon and shares habitat with *E. glaucus* subsp. *glaucus* but the two subspecies are not growing intermixed and each sympatric population, maintains its respective distinguishing features. When the *E. glaucus* subsp. *virescens* plants from this population are placed side by side with the *E. glaucus* aff. subsp. *virescens* from Dylan's Garden or the edge of the Santa Cruz Terrace overlooking upper half of Greyhound Rock Beach, they look like two separate species.

Caryopsis collection data: 2014-46, *Elymus glaucus* subsp. *virescens*, 08/23/2014, Jim West.

Caryopsis collection data: 2015-97, *Elymus glaucus* subsp. *virescens*, 06/17/2015, Jim West.

Caryopsis collection data: 2015-104, *Elymus glaucus* subsp. *virescens*, 07/27/2015, Jim West.

Caryopsis collection data: 2016-77, *Elymus glaucus* subsp. *virescens*, 06/10/2016, Jim West.

Caryopsis collection data: 2016-210, *Elymus glaucus* subsp. *virescens*, 07/11/2016, Jim West.

Caryopsis collection data: 2018-681, *Elymus glaucus* subsp. *virescens*, 09/20/2018, Jim West.

**Volume 3***Elymus californicus*

\*\**Elymus californicus*/This locally uncommon and ornamentally striking native member of the rye grass clan aka California bottle-brush grass, has been documented in three localized populations within the Scott Creek Watershed proper. The first two, occupy precarious positions more or less opposite each other within the Scott Creek riparian corridor, midway between the confluences of Mill and Big Creek with Scott Creek. Population #1, is perched on an alluvium derived bank, periodically undercut by high water levels, while its analog, Population #2, resides on the opposite side of the creek, margining the near vertical sides of a north facing gulchlet. Population #3, resides high and dry, entwined within an extensive colony of *Toxicodendron diversilobum*, proximal to the upper end of Beaver Flat Marsh and partially circumscribed by a mature *Quercus agrifolia* var. *agrifolia* woodland. With two such ecologically diverse habitats supporting this infrequently encountered but visually memorable member of the Poaceae, other populations may exist in out of the way corners of this topographically varied watershed.

#1) 37.074856, -122.240251, elevation 81 feet/along horse trail, between confluences of Mill Creek and Big Creek with Scott Creek.

Herbarium data: JEPS81548, *Elymus californicus*, Roy E. Buck and James A. West, 1982-8-15.

Caryopsis collection data: 2007-1374, *Elymus californicus*, 07/25/2007, Jim West.

Caryopsis collection data: 2007-1376, *Elymus californicus*, 07/25/2007, Jim West.

Caryopsis collection data: 2012-192, *Elymus californicus*, 08/03/2012, Jim West.

Caryopsis collection data: 2013-105, *Elymus californicus*, 08/11/2013, Jim West.

#2) 37.074620, -122.240759, elevation 101 feet/lower portion of n-facing gulchlet draining into Scott Creek, originating from inner prairie east of Cookhouse Gulch complex.

Caryopsis collection data: 2016-209, *Elymus californicus*, 08/06/2016, Jim West.

#3) 37.096645, -122.259564, elevation 682 feet/n-facing, *Toxicodendron diversilobum* stabilized slope, overlooking Lair Gulch and proximal to the upper end of Beaver Flat Marsh.

Caryopsis collection data: 2007-1375, *Elymus californicus*, 08/06/2007, Jim West.

*Ranunculus uncinatus*

\*\**Ranunculus uncinatus*/Rare native member of the Ranunculaceae for Santa Cruz County, previously found only near the Nisene Marks State Park. In the Scott Creek Watershed, *Ranunculus uncinatus* occupies a narrow ribbon of habitat, margining horse trail (Swanton Pacific Ranch side of Scott Creek), between the confluences of Mill Creek and Big Creek with Scott Creek. Superficially, this *Ranunculus* species, when displaying inflorescences with mature achenes, resembles sympatrically growing *Sanicula crassicaulis*. Google Earth coordinates for this recently discovered “new native taxa” for the watershed: between 37.070525, -122.232791, elevation 64 feet and 37.069956, -122.231364, elevation 62 feet.

Achene collection data: 2011-178, *Ranunculus uncinatus*, 05/29/2011, Jim West.

Achene collection data: 2012-67, *Ranunculus uncinatus*, 05/22/2012, Jim West.

Achene collection data: 2012-200, *Ranunculus uncinatus*, 07/28/2012, Jim West

Achene collection data: 2012-344, *Ranunculus uncinatus*, 06/06/2012, Jim West.

Achene collection data: 2013-459, *Ranunculus uncinatus*, 06/16/2013, Jim West.

*Ligusticum apiifolium*

\*\**Ligusticum apiifolium*/In Santa Cruz County, the celery-leaved licorice-root, is only documented for the Swanton area. Occupying a narrow zone between the Upper Cowboy Shack Gulch and the Magic Triangle, with a detour down to the oak/conifer woodland, between the Buckeye Grove Ridge and the Bulb Field.

#1) 37.080590, -122.257601, elevation 513 feet/the edge of the synform, which defines the above ground manifestation of the Santa Cruz Syncline and is known as the “Magic Triangle”. This relatively small, near vertical slope, has been documented for containing 120 native plant species, which in one case, represents the only known example for Santa Cruz County..... that singular taxon, is *Castilleja subinclusa* subsp. *franciscana*. Some other uncommon “natives” sharing in this aggregation of diversity, are *Collinsia multicolor*, *Delphinium decorum* subsp. *decorum*, *Stebbinsoseris decipiens* and its two parents, *Microseris bigelovii* and *Uropappus lindleyi*. Nearby, *Plagiobothrys diffusus* and *Cirsium quercetorum* have been documented.

Herbarium data: JEPS81521, *Ligusticum apiifolium*, Roy E. Buck and James A. West, 8, 1982-6-11.

#2) 37.066311, -122.244603, elevation 596 feet/Solar Panel Gate Refugium is a repository of 120 documented native species, occupying the edge of the synform which drops off on three sides and acts as a self-contained botanical hotspot. Besides *Ligusticum apiifolium*, a sampling of the other 119 natives, includes *Stebbinsoseris decipiens*, *Erigeron foliosus* var. *franciscensis*, *Claytonia exigua* subs. *exigua*, *Festuca roemeri* var. *klamathensis*, *Primula hendersonii* and *Trifolium willdenovii* (low growing form with yellow seeds).

Schizocarp collection data: 2007-143, *Ligusticum apiifolium*, 07/13/2007, Jim West.

Schizocarp collection data: 2008-382, *Ligusticum apiifolium*, 07/15/2008, Jim West.

Schizocarp collection data: 2009-602, *Ligusticum apiifolium*, 08/05/2009, Jim West.

Schizocarp collection data: 2013-308, *Ligusticum apiifolium*, 09/24/2013, Jim West.

Schizocarp collection data: 2014-167, *Ligusticum apiifolium*, 08/21/2014, Jim West.

Schizocarp collection data: 2016-78, *Ligusticum apiifolium*, 06/03/2016, Jim West.

#3) 37.076864, -122.250130, elevation 357 feet/mixed oak and coniferous woodland, which forms head of gulch between Buckeye Grove Ridge and the Bulb Field.

Schizocarp collection data: 2007-139, *Ligusticum apiifolium*, 07/28/2007, Jim West.

#4) 37.064318, -122.239908, elevation 697 feet/w-facing forested slope overlooking upper Cowboy Shack Gulch. Both *Berberis pinnata* subsp. *pinnata* and *Amelanchier utahensis* have been observed growing within the confines of this dense woodland and several years ago, one plant of *Piperia unalascensis*, was discovered..... this solitary representative of a widespread New World Orchid, was a perfect analog to the type collection from Unalaska Island in the Aleutians and has been documented occurring on the w-facing slopes of both lower Morehus Arroyo and Lasher Marsh Gulch.

Schizocarp collection data: 2010-186, *Ligusticum apiifolium*, 10/01/2010, Jim West.

#### *Delphinium californicum* subsp. *californicum*

\*\**Delphinium californicum* subsp. *californicum*/Of the five native *Delphinium* species found within the confines of the Scott Creek Watershed/Environs, this one owns the epithet *gigas*, for its stature potential.....some plants have been observed, over the past four decades, that attained 2+ meters in height!!!

#1) 37.080525, -122.257592, elevation 525 feet/Magic Triangle..... this botanical “hotspot” also hosts *Delphinium decorum* subsp. *decorum*.

Herbarium data: JEPS81497, *Delphinium californicum* subsp. *californicum*, Roy E. Buck and James A. West, 28, 1982-6-20.

Herbarium data: JEPS81498, *Delphinium californicum* subsp. *californicum*, Roy E. Buck and James A. West, 28, 1982-6-20.

#2) Between 37.055398, -122.225286, elevation 54 feet and 37.056767, -122.225061, elevation 55 feet/w-facing *Toxicodendron diversilobum* cloaked slope, overlooking Swanton Road, between Winter Creek and Archibald Creek.

Seed collection data: 2007-1222, *Delphinium californicum* subsp. *californicum*, 08/02/2007, Jim West.

Seed collection data: 2009-656, *Delphinium californicum* subsp. *californicum*, 08/25/2009, Jim West.

Seed collection data: 2009-763, *Delphinium californicum* subsp. *californicum*, 07/20/2009, Jim West.

Seed collection data: 2015-115, *Delphinium californicum* subsp. *californicum*, 08/13/2015, Jim West.

Seed collection data: 2015-254, *Delphinium californicum* subsp. *californicum*, 10/22/2015, Jim West.

Seed collection data: 2016-187, *Delphinium californicum* subsp. *californicum*, 08/03/2016, Jim West.

#3) 37.041225, -122.223408, elevation 89 feet/s-end of Swanton Road, brush covered inner bank overlooking Scott Creek Marsh and proximal to a long established *Chenopodium californicum* plant.

Seed collection data: 2015-107, *Delphinium californicum* subsp. *californicum*, 07/07/2015, Jim West.

#4) 37.035808, -122.225459, elevation 112 feet/relictual eolian dune system, fully covered with native coastal sage scrub vegetation, between Swanton Berry Farm and lower Molino Creek drainage.

Seed collection data: 2009-762, *Delphinium californicum* subsp. *californicum*, 07/28/2009, Jim West.

#5) 37.043180, -122.219690, elevation 84 feet/w-facing slope overlooking lower Queseria Creek drainage. This gulch, along with its two companion gulches, “No Name Gulch” and “George Valentine Gulch”, contain the only documented populations for *Prunus emarginata* in the Scott Creek Watershed.

Seed collection data: 2011-422, *Delphinium californicum* subsp. *californicum*, 10/11/2011, Jim West.

*Pseudognaphalium* “*gianonei*”, *pro.sp.nov.*

\*\**Pseudognaphalium* “*gianonei*”, *pro.sp.nov.*/This is a morphologically stable taxon, putatively derived from hybridization, between *Pseudognaphalium californicum* and *Pseudognaphalium stramineum*. The chemical signature of *P. “gianonei”* combines the distinctive scents of both parents and warrants a separate study of the biochemical makeup of each parent and then seeing if some combination of these two distinctive scents occur in the hybrid. *Pseudognaphalium “gianonei”* often occurs along the immediate coast, in the company of one or both parents but can also occur without them. A population of more than 100 plants was discovered in 2012, growing along the Lockheed Fire Road, that was morphologically uniform and had apparently survived the 2009 Lockheed Fire. Several populations have been documented via cypselae collections and if raised out, could give an in depth overview as to how each separate population reconfigures its hybrid genes and if growing sympatrically with one or both parents, to what extent has backcrossing affected the parent populations. If the hybrid is self-fertile, then selfing might also provide some insight as to parental influences and where hybrid and parent(s) co-exist, are there intermediate forms that could be mistaken, as aberrant forms of either parent?

Note: a recurring problem, when attempting to collect viable cypselae, is that fact that often a majority of the developing ovules have been eaten by the larval stage of some diurnal/nocturnal lepidoptera and waste byproducts can to the naked eye, be misconstrued as cypselae.

#1) 37.069506, -122.256482, elevation 270 feet/Transverse gulchlet paralleling Highway One and +/- connecting the lower portions of Morehus Arroyo and Big Willow Gulch.

Herbarium data: JEPS82801, *Pseudognaphalium*, Roy E. Buck and James A. West, 293, 1983-5-26.

Herbarium data: JEPS82802, *Pseudognaphalium*, Roy E. Buck and James A. West, 293, 1983-5-26.

#2) 37.074135, -122.262228, elevation 162 feet/"Dylan's Garden", isolated edge of Santa Cruz Terrace, overlooking Pelican Rock and lower half of Greyhound Rock Beach. This micro-botanical hotspot, has gathered within its topographical "smallness" an abundance of botanical "richness". Some of the associate taxa include: *Erysimum franciscanum* (var. *crassifolium*), *Poa unilateralis*, *Calystegia subacaulis* subsp. *subacaulis*, *Heterotheca sessiliflora* subsp. *bolanderi*, *Agoseris apargioides* var. *apargioides*, *Horkelia cuneata* var. *cuneata*, *Piperia michaelii*, *Agrostis densiflora*, *Fritillaria affinis* aff. var. *tristulis* (or perhaps a new species related to *F. affinis*), etc.

Cypselae collection data: 2008-1606, *Gnaphalium gianonei*, pro.sp.nov., 07/12/2008, Jim West.

Cypselae collection data: 2008-1607, *Gnaphalium gianonei*, pro.sp.nov., 07/11/2008, Jim West.

Cypselae collection data: 2008-1609, *Gnaphalium gianonei*, pro.sp.nov., 07/13/2008, Jim West.

Cypselae collection data: 2015-231, *Pseudognaphalium gianonei*, pro.sp.nov., 07/11/2015, Jim West.

Cypselae collection data: 2015-233, *Pseudognaphalium gianonei*, pro.sp.nov., 08/12/2015, Jim West.

Cypselae collection data: 2016-127, *Pseudognaphalium gianonei*, pro.sp.nov., 07/01/2016, Jim West.

Cypselae collection data: 2018-660, *Pseudognaphalium gianonei*, pro.sp.nov., 07/09/2018, Jim West.

#3) 37.085360, -122.224290, elevation 1034 feet/Lockheed Fire Road, traversing Mill Creek side of ridge separating the Mill and Big Creek sub-watersheds.

Cypselae collection data: 2012-165, *Pseudognaphalium gianonei*, pro.sp.nov., 01/18/2012, Jim West.

#4) Between 37.082758, -122.263771, elevation 306 feet and 37.081454, -122.263014, elevation 336 feet/extended grass covered slope, circumscribed above and below by hairpin turn, and bordered on the east by the Harry Wain Arroyo and the west, by Washout Turn.

Cypselae collection data: 2007-1276, *Pseudognaphalium "gianonei"*, pro.sp.nov., 10/03/2007, Jim West.

Cypselae collection data: 2007-1278, *Pseudognaphalium "gianonei"*, pro.sp.nov., 07/09/2007, Jim West.

Cypselae collection data: 2007-1279, *Pseudognaphalium "gianonei"*, pro.sp.nov., 08/19/2007, Jim West.

Cypselae collection data: 2008-992, *Pseudognaphalium "gianonei"*, pro.sp.nov., 06/28/2008, Jim West.

Cypselae collection data: 2008-1605, *Pseudognaphalium "gianonei"*, pro.sp.nov., 06/14/2008, Jim West.

Cypselae collection data: 2008-1608, *Pseudognaphalium "gianonei"*, pro.sp.nov., 07/03/2008, Jim West.

Cypselae collection data: 2012-308, *Pseudognaphalium "gianonei"*, pro.sp.nov., 10/31/2012, Jim West.

Cypselae collection data: 2012-309, *Pseudognaphalium "gianonei"*, pro.sp.nov., 11/07/2012, Jim West.

Cypselae collection data: 2012-420, *Pseudognaphalium "gianonei"*, pro.sp.nov., 10/27/2012, Jim West.

Cypselae collection data: 2012-449, *Pseudognaphalium "gianonei"*, pro.sp.nov., 01/14/2012, Jim West.

Cypselae collection data: 2012-530, *Pseudognaphalium "gianonei"*, pro.sp.nov., 05/30/2012, Jim West.

Cypselae collection data: 2012-531, *Pseudognaphalium "gianonei"*, pro.sp.nov., 06/08/2012, Jim West.

Cypselae collection data: 2012-551, *Pseudognaphalium "gianonei"*, pro.sp.nov., 11/18/2012, Jim West.

Cypselae collection data: 2012-552, *Pseudognaphalium "gianonei"*, pro.sp.nov., 11/15/2012, Jim West.

Cypselae collection data: 2013-377, *Pseudognaphalium "gianonei"*, pro.sp.nov., 07/28/2013, Jim West.

#6) 37.035637, -122.225467, elevation 115 feet/Stabilized eolian dune system, between Swanton Berry Farm and lower Molino Creek drainage.

Cypselae collection data: 2009-798, *Gnaphalium gianonei*, pro.sp.nov., 07/28/2009, Jim West.

#7) 37.078454, -122.245425, elevation 99 feet/sw-facing roadbank, between entrance to Purdy Road and Harvey Field.

Cypselae collection data: 2009-800, *Gnaphalium gianonei*, pro.sp.nov., 07/13/2009, Jim West.

Cypselae collection data: 2011-367, *Pseudognaphalium* “gianonei”, pro.sp.nov., 09/02/2011, Jim West.

Note: The following herbarium pressings of Randall Morgan, were collected within the boundaries framed by the description, Scott Creek Watershed/Environs, but lacked Google Earth co-ordinates.

Herbarium data: UCSC007544, *Pseudognaphalium*, Randall Morgan, 4770, 2007-5-16.

Herbarium data: UCSC007622, *Pseudognaphalium*, Randall Morgan, 4770, 2007-5-16.

*Trifolium obtusiflorum* aff. var. *cruzense*

\*\**Trifolium obtusiflorum* aff. var. *cruzense*/Randall Morgan, in his monographic overview of the California clovers, discovered and validated on a genotypical level, a new variety of *T. obtusiflorum*. This new variety, var. *cruzense*, grows proximal to springs and zones of concentrated moisture along logging roads as opposed to streamsides, where the forma typical of *T. obtusiflorum* resides. The year following the 2009 Lockheed Fire, a population of this recently described variety was discovered growing along the damp edges of the dirt road access to the upper reaches of the Little Creek sub-watershed and was localized in the area of its discovery and has subsequently disappeared or the seeds remain dormant until another disturbance event. The below listed seed collection, needs to be raised out and studied on both a morphological and genetic level, to determine, if indeed, this is the recently described var. *cruzense* and make both a substantial number of herbarium pressings for distribution and create enough seed for cryogenic storage.

#1) 37.067904, -122.214742, elevation 298 feet/Little Creek sub-watershed, localized along the moist margins of dirt road, which provides access to the upper reaches of the Little Creek riparian corridor.

Seed collection data: 2010-32, *Trifolium obtusiflorum* aff. var. *cruzense*, 09/07/2010, Jim West.

*Heterotheca sessiliflora* subsp. *bolanderi*

\*\**Heterotheca sessiliflora* subsp. *bolanderi*/In Santa Cruz County, this taxon appears to be restricted within the Scott Creek Watershed/Environs area and is principally found on both sides of Highway 1, the Western Terrace (coastal prairie) and Santa Cruz Terrace (oceanside of Highway 1). Inland and at higher elevations, subsp. *bolanderi* is replaced by subsp. *echioides*, with its camphor scented foliage and many headed inflorescences.

Herbarium data: JEPS81545, *Heterotheca sessiliflora* subsp. *bolanderi*, Roy E. Buck and James A. West, 111, 1982-8-15.

Herbarium data: JEPS81546, *Heterotheca sessiliflora* subsp. *bolanderi*, Roy E. Buck and James A. West, 110, 1982-8-15.

#1) Between 37.072030, -122.254525, elevation 370 feet and 37.070161, -122.255069, elevation 361 feet/eolian sand covered sections of the Western Terrace mirroring lower Big Willow Gulch. Both of these opposite sides of Big Willow Gulch host several rare and uncommon “natives”, which include: *Clarkia* aff. *davyi*, *Clarkia* aff. *prostrata*, *Perideridia gairdneri* subsp. *gairdneri*, *Berberis pinnata* subsp. *pinnata*, *Armeria maritima* subsp. *californica*, *Wyethia angustifolia*, *Grindelia hirsutula*, *Horkelia cuneata* var. *cuneata* and *Acaena pinnatifida* var. *californica*.

Cypselae collection data: 2008-1622, *Heterotheca sessiliflora* subsp. *bolanderi*, 08/10/2008, Jim West.

Cypselae collection data: 2008-756, *Heterotheca sessiliflora* subsp. *bolanderi*, 10/08/2008, Jim West.

Cypselae collection data: 2008-757, *Heterotheca sessiliflora* subsp. *bolanderi*, 10/08/2008, Jim West.

Cypselae collection data: 2009-803, *Heterotheca sessiliflora* subsp. *bolanderi*, 08/20/2009, Jim West.

Cypselae collection data: 2011-348, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/27/2011, Jim West.

Cypselae collection data: 2011-349, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/24/2011, Jim West.

Cypselae collection data: 2012-268, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/23/2012, Jim West.

Cypselae collection data: 2012-270, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/23/2012, Jim West.

Cypselae collection data: 2013-296, *Heterotheca sessiliflora* subsp. *bolanderi*, 11/07/2013, Jim West.

Cypselae collection data: 2014-161, *Heterotheca sessiliflora* subsp. *bolanderi*, 08/26/2014, Jim West.

Cypselae collection data: 2014-162, *Heterotheca sessiliflora* subsp. *bolanderi*, 08/26/2014, Jim West.

#2) 37.072626, -122.257414, elevation 352 feet/eolian sand covered bluff, between w-edge of Pumpkin Field Marsh and Gulch #5(#7). *Heterotheca sessiliflora* subsp. *bolanderi* shares this ocean viewing terrace edge with several uncommon native taxa, including: *Clarkia* aff. *prostrata*, *Cirsium quercetorum*, *Spiranthes romanzoffiana*, *Sidalcea malviflora* subsp. *malviflora*, etc.

Cypselae collection data: 2011-351, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/24/2011, Jim West.

Cypselae collection data: 2011-352, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/24/2011, Jim West.

Cypselae collection data: 2011-366, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/02/2011, Jim West.

Cypselae collection data: 2012-269, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/19/2012, Jim West.

Cypselae collection data: 2012-424, *Heterotheca sessiliflora* subsp. *bolanderi*, 10/29/2012, Jim West.

Cypselae collection data: 2013-173, *Heterotheca sessiliflora* subsp. *bolanderi*, 08/06/2013, Jim West.

#3) 37.076339, -122.260248, elevation 316 feet/edge of Western Terrace, between Gulches #3 & #4.

Cypselae collection data: 2011-351, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/24/2011, Jim West.

Cypselae collection data: 2011-352, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/24/2011, Jim West.

Cypselae collection data: 2013-295, *Heterotheca sessiliflora* subsp. *bolanderi*, 09/14/2013, Jim West.

#4) 37.042963, -122.212854, elevation 431 feet/ridge system, separating Queseria and Molino riparian corridors. Isolated population of *Heterotheca sessiliflora* subsp. *bolanderi*, growing with *Horkelia cuneata* and below massive population of *Clarkia purpurea* subsp. *purpurea*, established on an ancient eolian sand dune system (4<sup>th</sup> terrace).

Cypselae collection data: 2012-425, *Heterotheca sessiliflora* subsp. *bolanderi*, 10/26/2012, Jim West.

Cypselae collection data: 2012-426, *Heterotheca sessiliflora* subsp. *bolanderi*, 10/26/2012, Jim West.

*Sanicula gianonei*, pro.sp.nov.

\*\**Sanicula gianonei*, pro.sp.nov./The criteria used to define this widespread but repeatedly misdiagnosed taxon, center on ecology and habitat preference, biochemical signature, foliar/bract morphology and attendant cellular structure/behavior of marginal trichomes (becoming indurate and forming callosities in *S. crassicaulis* versus caducous/withering and detaching, with *S. gianonei*, pro.sp.nov.), floral pigmentation, an unblemished epigynous disc, mature schizocarp configuration, body color and alignment of the uncinated bristles. Comparison studies with the related, and where grassland meets the woodland understory, sympatric *S. crassicaulis*, should be undertaken,

with emphasis on chromosome counts, biochemical (alkaloids, et al.) analysis using electrophoresis techniques, a histological investigation of the foliar trichomes, below ground stem and root structures and breeding systems (obligate selfer versus out-breeder) with emphasis on reproductive isolation mechanisms versus potential for reciprocal/unidirectional gene flow. Since *Sanicula hoffmannii* and *Sanicula laciniata* have been the proposed putative parents of the polyploid *Sanicula crassicaulis*, study the foliar polymorphism of the latter in conjunction with *S. gianonei*, pro.sp.nov., \**S. pseudo-laciniata*, pro.sp.nov. and the rare, at least within the Scott Creek Watershed, *S. hoffmannii*. Focusing on the role *S. hoffmannii* may play in the *S. crassicaulis* genome, note the following features, which can be observed in situ: (1) a distinct chemical signature when stems and foliage are crushed, (2) the viniferous pigmentation found on the lower third of the petiole, (3) the free and narrowing, to the point of attachment, central lobe of the leaf, (4) the usually present glaucous bloom/blue-green pigmentation of/on the adaxial surface of the leaves, (5) the shared trait with related *S. bipinnatifida*, of the stem sap turning a milky-white upon exposure to the air, when the petiole is snapped in half, (6) the distinctive schizocarp morphology and (7) the phenology spectrum, with *S. gianonei*, pro.sp.nov., the first to flower/fruit and *S. hoffmannii*, the last to flower/fruit. A comparative study, based on stamen morphology, anther color, size and degree of exertion between the various *Sanicula* taxa found within the Scott Creek Watershed, may also yield some valuable data from a taxonomic perspective.

Note: \**Sanicula pseudo-laciniata*, pro.sp.nov./this distinctive component of the *S. crassicaulis* complex, has only been found twice, pre- and post-2009 Lockheed Fire, growing on both sides of the upper Seymore Hill and besides the schizocarp collections, has only been documented via herbarium pressing, once..... JEPS82953, *Sanicula crassicaulis*, James A. West, 40-3, 1983-4-7. Although filed at the Jepson under the name, *Sanicula crassicaulis*, this sheet was collected and diagnosed as being distinct from *S. crassicaulis sensu strictu* and given the working name of *S. pseudo-laciniata* and warrants being studied as perhaps reflecting the diploid *S. laciniata* contribution to the tetraploid *S. crassicaulis*, with *S. hoffmannii* being the other diploid parent. *Sanicula* “*pseudo-laciniata*”, besides having a chemical signature distinct from *S. hoffmannii*, *S. gianonei*, pro.sp.nov. and *S. crassicaulis*, has leaves with lacinate/serrulate margins and flowers with bright yellow petals and anthers.

Note: While populations *Sanicula gianonei*, pro.sp.nov. are scattered throughout the Scott Creek Watershed/Environs, the below listed three are representative for both the taxon’s genotypic uniqueness and habitat preference.

#1) Between 37.079773, -122.246856, elevation 103 feet and 37.067212, -122.230827, elevation 68 feet/Scott Creek riparian corridor, from Swanton Pacific Ranch Apple Orchard down to confluence of Big and Little Creeks. Principally growing on either side of Scott Creek, in association with *Acer negundo* and in alluvium deposits enriched with the decomposed leaf litter from *Acer*, *Alnus* and *Sambucus* species. Within the area defined by the above Google Earth coordinates, several hundred plants of *Sanicula gianonei*, pro.sp.nov. exist and all are uniform as to the morphological criteria set out in the above paragraph and this also holds true for the remaining populations found scattered throughout the Scott Creek Watershed /Environs.

Schizocarp collection data: 2007-153, *Sanicula gianonei*, pro.sp.nov., 06/16/2007, Jim West.

Schizocarp collection data: 2007-155, *Sanicula gianonei*, pro.sp.nov., 07/07/2007, Jim West.

Schizocarp collection data: 2007-158, *Sanicula gianonei*, pro.sp.nov., 06/08/2007, Jim West.

Schizocarp collection data: 2008-387, *Sanicula gianonei*, pro.sp.nov., 08/29/2008, Jim West.

Schizocarp collection data: 2008-395, *Sanicula gianonei*, pro.sp.nov., 07/27/2008, Jim West.

Schizocarp collection data: 2008-430, *Sanicula gianonei*, pro.sp.nov., 06/05/2008, Jim West.

Schizocarp collection data: 2009-62, *Sanicula gianonei*, pro.sp.nov., 07/01/2009, Jim West.

Schizocarp collection data: 2009-63, *Sanicula gianonei*, pro.sp.nov., 06/21/2009, Jim West.

Schizocarp collection data: 2009-259, *Sanicula gianonei*, pro.sp.nov., 08/01/2009, Jim West.

Schizocarp collection data: 2009-260, *Sanicula gianonei*, pro.sp.nov., 05/26/2009, Jim West.

Schizocarp collection data: 2009-261, *Sanicula gianonei*, pro.sp.nov., 07/13/2009, Jim West.

Schizocarp collection data: 2011-399, *Sanicula gianonei*, pro.sp.nov., 06/22/2011, Jim West.

Schizocarp collection data: 2012-363, *Sanicula gianonei*, pro.sp.nov., 07/16/2012, Jim West.

Schizocarp collection data: 2012-540, *Sanicula gianonei*, pro.sp.nov., 06/09/2012, Jim West.

Schizocarp collection data: 2013-432, *Sanicula gianonei*, pro.sp.nov., 06/18/2013, Jim West.

Schizocarp collection data: 2013-433, *Sanicula gianonei*, pro.sp.nov., 06/13/2013, Jim West.

Schizocarp collection data: 2014-298, *Sanicula gianonei*, pro.sp.nov., 05/27/2014, Jim West.

Schizocarp collection data: 2014-299, *Sanicula gianonei*, pro.sp.nov., 05/27/2014, Jim West.

Schizocarp collection data: 2017-87, *Sanicula gianonei*, pro.sp.nov., 06/17/2017, Jim West.

Schizocarp collection data: 2018-490, *Sanicula gianonei*, pro.sp.nov., 09/09/2018, Jim West.

#2) 37.088702, -122.248651, elevation 142 feet/extensive population growing within *Aesculus californica* grove, proximal to Purdy Road slide area/cattle guard.

Schizocarp collection data: 2002-547, *Sanicula gianonei*, pro.sp.nov., 10/01/2002, Jim West.

Schizocarp collection data: 2007-159, *Sanicula gianonei*, pro.sp.nov., 06/26/2007, Jim West.

Schizocarp collection data: 2009-61, *Sanicula gianonei*, pro.sp.nov., 06/02/2009, Jim West.

#3) 37.070856, -122.256162, elevation 210 feet/Extensive buckeye grove which defines the lower portion of Big Willow Gulch before it drains under Highway 1 and via a 100+ foot waterfall, enters the Pacific Ocean.

Schizocarp collection data: 2007-157, *Sanicula gianonei*, pro.sp.nov., 06/30/2007, Jim West.

Note: the following herbarium pressings, regardless of being accessioned as *Sanicula crassicaulis*, are bonafied *Sanicula gianonei*, pro.sp.nov. and were collected within the Scott Creek Watershed/Environs.

Herbarium data: UCSC008761, *Sanicula*, Dylan M. Neubauer, 47, 2014-3-18.

Herbarium data: JEPS82008, *Sanicula crassicaulis*, Roy E. Buck and James A. West, 144, 1983-3-6.

Herbarium data: JEPS82009, *Sanicula crassicaulis*, Roy E. Buck and James A. West, 149, 1983-3-6.

Herbarium data: JEPS82010, *Sanicula crassicaulis*, Roy E. Buck and James A. West, 177, 1983-4-3.

Herbarium data: JEPS82012, *Sanicula crassicaulis*, Roy E. Buck and James A. West, 172, 1983-3-27.

Herbarium data: JEPS83051, *Sanicula crassicaulis*, James A. West, 298, 1985-1-22.

*Nemophila aff. pulchella var. fremontii*

\*\**Nemophila aff. pulchella var. fremontii*/This rare local, appears to be closest in overall morphology, to *Nemophila pulchella var. fremontii*, which would make it, a new addition to Santa Cruz County's native species checklist. A molecular workup needs to be done and when observed growing sympatrically with both *N. parviflora* and *N. pedunculata*, no hybrids have been observed. Several localized populations have been documented within the Scott Creek Watershed proper and both herbarium pressings and seed collections (curated by the UCSC Arboretum) have been made for the majority of them. Several of the pressings held by the Jepson Herbarium, have been misdiagnosed as *Nemophila heterophylla*, from which *N. aff. pulchella var. fremontii* differs in corolla and style configuration

(e.g. corolla lobes lanceolate with apices entire and overall length of style, circa 1mm, with branches shallowly bifurcate) and the first developed basal leaves, are arranged in a rosette pattern.

#1) 37.084422, -122.255711, elevation 436 feet/s-facing slope overlooking central section of Gianone Barn Gulch. The habitat is principally a mixed oak/conifer woodland [*Quercus agrifolia* var. *agrifolia*, *Quercus parvula* var. *shrevei* and *Pinus x attenuradiata*], with *Nemophila parviflora* growing sympatrically.

Herbarium data: OBI80933, *Nemophila*, Jim West, 2015-3-28.

Herbarium data: OBI80934, *Nemophila*, Jim West, 2015-3-28.

Herbarium data: UCSC011032, *Nemophila*, Jim West, s.n., 2015-3-28.

Seed collection data: 2011-180, *Nemophila* aff. *pulchella* var. *fremontii*, 05/29/2011, Jim West.

Seed collection data: 2012-65, *Nemophila* aff. *pulchella* var. *fremontii*, 05/19/2012, Jim West.

Seed collection data: 2013-257, *Nemophila* aff. *pulchella* var. *fremontii*, 05/09/2013, Jim West.

Seed collection data: 2014-113, *Nemophila* aff. *pulchella* var. *fremontii*, 05/26/2014, Jim West.

Seed collection data: 2016-277, *Nemophila* aff. *pulchella* var. *fremontii*, 05/12/2016, Jim West.

Seed collection data: 2018-670, *Nemophila* aff. *pulchella* var. *fremontii*, 06/11/2018, Jim West.

#2) 37.079475, -122.248524, elevation 155 feet/Bottom of Buckeye Grove Gulch.

Herbarium data: JEPS83082, *Nemophila*, James A. West, 335.1, 1985-2-20.

#3) 37.088414, -122.251375, elevation 159 feet/Mouth of Graveyard Gulch.

Herbarium data: JEPS82946, *Nemophila*, James A. West, 30.2, 1983-3-28.

#4) 37.087043, -122.251292, elevation 149 feet/Mouth of Gianone Barn Gulch.

Herbarium data: JEPS82949, *Nemophila*, James A. West, 33.2, 1983-3-30.

Note: The below listed herbarium pressings have been accessioned as *Nemophila heterophylla* but are in reality, *Nemophila* aff. *pulchella* var. *fremontii*.

Herbarium data: JEPS100958, *Nemophila heterophylla*, Dean W. Taylor, 9652, 1988-5-22.

Herbarium data: JEPS100959, *Nemophila heterophylla*, Dean W. Taylor, 9653, 1988-5-22.

Herbarium data: JEPS82017, *Nemophila heterophylla*, Roy E. Buck, James A. West and R. Doug Stone, 191, 1983-4-10.

Herbarium data: JEPS82573, *Nemophila heterophylla*, Roy E. Buck and James A. West, 208, 1983-4-16.

Herbarium data: JEPS82572, *Nemophila heterophylla*, James A. West, 30.2, 1983-3-28.

**Volume 4***Nemophila pedunculata*

\*\**Nemophila pedunculata*/This species, while considered rare within Santa Cruz County, exists in several small populations, often growing sympatrically with *Nemophila paviflora* and occasionally with the rare *Nemophila aff. pulchella* var. *fremontii*. Floral pigmentation/corolla markings vary from population to population, raising the question: are all of these spatially separated populations with differences in corolla pigmentation/patterning, minor variations of one species or is there more than one species masquerading as *N. pedunculata* and does this variability involve some form of crypticism?

#1) 37.076724, -122.260733, elevation 302 feet/upper nw-facing slope of Gulch #3.

Herbarium data: JEPS82014, *Nemophila pedunculata*, Roy E. Buck, James A. West and Randy Morgan, 188, 1983-4-3.

#2) 37.077607, -122.255881, elevation 525 feet/Magic Triangle Ridge, ne facing slope overlooking Upper Dump Gulch.

Herbarium data: JEPS82775, *Nemophila pedunculata*, James A. West, 57, 1983-4-23.

#3) 37.086954, -122.251271, elevation 144 feet/mouth of Gianone Spring [Barn] Gulch. This population was growing in association with both *N. parviflora* and *N. aff. pulchella* var. *fremontii*

Herbarium data: JEPS82776, *Nemophila pedunculata*, James A. West, 31, 1983-3-28.

Herbarium data: JEPS82947, *Nemophila pedunculata*, James A. West, 31, 1983-3-28.

#4) 37.084258, -122.245307, elevation 162 feet/Lower Schoolhouse Gulch, proximal to Boy Scout Camp. This population of *N. pedunculata* is growing sympatrically with both *N. parviflora* and *N. aff. pulchella* var. *fremontii*.

Seed collection data: 2015-218, *Nemophila pulchella*, 04/28/2015, Jim West.

Seed collection data: 2016-273, *Nemophila pulchella*, 05/12/2016, Jim West.

#5) between 37.076010, -122.241053, elevation 95 feet and 37.075507, -122.240337, elevation 96 feet/along both sides of Swanton Road, across from entrance to the Old Miller Ranch Road.

Seed collection data: 2008-1004, *Nemophila pedunculata*, 05/08/2008, Jim West.

Seed collection data: 2012-666, *Nemophila pedunculata*, 04/29/2012, Jim West.

Seed collection data: 2013-51, *Nemophila pedunculata*, 05/09/2013, Jim West.

Seed collection data: 2014-305, *Nemophila pedunculata*, 05/26/2014, Jim West.

Seed collection data: 2015-216, *Nemophila pedunculata*, 04/28/2015, Jim West.

Seed collection data: 2015-219, *Nemophila pedunculata*, 04/13/2015, Jim West.

Seed collection data: 2016-41, *Nemophila pedunculata*, 05/03/2016, Jim West.

*Wyethia glabra*

\*\**Wyethia glabra*/To date, only one population of this taxon has been documented for the Scott Creek Watershed proper. In the upper San Vicente Watershed, above Davenport, scattered populations exist, +/- at the same general elevation as the Scott Creek (Seymore Hill) one and with further exploration of the upper ridges within the Mill Creek, Big Creek, Little Creek and Queseria Creek sub-watersheds, more may exist. The Scott Creek side of the Seymore Hill population has been observed over the course of four decades and has, in spite of cattle grazing,

retained its foothold on an exposed, arid in summer w-facing hillside. In 2009, the Lockheed Fire turned the Wyethia's grassland habitat into a blackened patch of ash and Toxicodendron diversilobum remnants and it was not until the following year's post-Spring rains that the Coast Range mule's-ears signature foliage began to appear, albeit slightly outside of the original population site. The current (2019) satellite population, is most likely recruitment via seed from the nearby original one. Another ecological factor that may determine the post-2009 Lockheed Fire recovery for this site specific population, is that a large percentage of the developing cypselae are bored into and rendered non-viable by the larval stage of perhaps a yet-to-be-determined, diurnal lepidopteran.

#1) 37.097926, -122.238221, elevation 1018 feet/Scott Creek facing crest of Seymore Hill, growing sympatrically with Clarkia purpurea subsp. quadrivulnera, Grindelia hirsutula, Brodiaea elegans subsp. elegans, Perideridia kelloggii, etc.

Cypselae collection data: 2007-1307, Wyethia glabra, 07/10/2007, Jim West.

Cypselae collection data: 2008-978, Wyethia glabra, 06/28/2008, Jim West.

Cypselae collection data: 2008-1635, Wyethia glabra, 08/08/2008, Jim West.

Cypselae collection data: 2013-292, Wyethia glabra, 06/18/2013, Jim West.

Cypselae collection data: 2014-53, Wyethia glabra, 08/09/2014, Jim West.

Cypselae collection data: 2015-310, Wyethia glabra, 07/02/2015, Jim West.

Cypselae collection data: 2016-194, Wyethia glabra, 07/01/2016, Jim West.

#### *Malacothrix floccifera*

\*\*Malacothrix floccifera/This locally rare Asteraceae, representing the Cichorieae Tribe, has been documented for three sites within the Scott Creek Watershed proper, with two occurring on the Schoolhouse Ridge and the third, just beyond the crest of the Seymore Hill where the beginning of the "Chalks" takes place.

#1) 37.085562, -122.246715, elevation 237 feet/near vertical grassland, w-facing slope of lower Schoolhouse Ridge (Scott Creek side), overlooking Squirrel Flat. Growing sympatrically with Stebbinsoseris decipiens, Phacelia distans, Trifolium ciliolatum, Eriogonum nudum, Stephanomeria sp., Dudleya caespitosa, Uropappus lindleyi, Rafinesquia californica, Silene antirrhina, etc.

Note: Of the three populations noted here, this is the only one that has been documented with an herbarium pressing and several cypselae collections.

Herbarium data: JEPS82788, Malacothrix floccifera, Roy E. Buck and James A. West, 308, 1983-5-29.

Cypselae collection data: 2009-610, Malacothrix floccifera, 06/14/2009, Jim West.

Cypselae collection data: 2015-166, Malacothrix floccifera, 06/02/2015, Jim West.

Cypselae collection data: 2015-222, Malacothrix floccifera, 06/26/2015, Jim West.

#2) 37.091343, -122.237960, elevation 800 feet/Mill Creek side of Schoolhouse Ridge, exposed and arid (basically weathered and fragmented siliceous mudstone) e-facing extension of ridge, populated with Quercus chrysolepis, Arctostaphylos crustacea subsp. crinita, Adenostoma fasciculatum var. fasciculatum, Lupinus hirsutissimus, Dendromecon rigida, etc.

#3) 37.099395, -122.237260, elevation 1050 feet/the beginning of the "Chalks", siliceous mudstone so weathered, that it looks bleached. Principal native botanical constituents, include: Pinus attenuata, Arctostaphylos crustacea subsp. crinita, Adenostoma fasciculatum var. fasciculatum, Rosa spithamea, Dendromecon rigida, etc.

#### *Lupinus formosus* var. *formosus*

\*\**Lupinus formosus* var. *formosus*/this county wide uncommon lupine, is restricted to a very localized area, which forms a deltoid shaped zone principally overlooking the w-fork of Cookhouse Gulch with two satellite populations.....one proximal to the abandoned cement reservoir and the other overlooking the Bulb Field. One digitally documented hybrid between *L. formosus* var. *formosus* and *L. arboreus*, was discovered circa a decade ago which has since disappeared. The photographic capture of this rare hybrid, resides on the CalPoly/Swanton Pacific Ranch's digital herbarium, which through the ongoing efforts of student researchers, will eventually encompass the more than 600 native taxa residing within the Scott Creek Watershed.

#1) 37.071115, -122.250384, elevation 486 feet/the largest of the three populations, comprising 30+ plants, which are variable as to floral pigmentation and extremely varied in seed coat patterning.

Herbarium data: JEPS83096, *Lupinus formosus*, Roy E. Buck and James A. West, 437, 1983-7-17.

Seed collection data: 2013-307, *Lupinus formosus* var. *formosus*, 08/04/2013, Jim West.

#2) 37.074552, -122.248160, elevation 424 feet/satellite population, on n-facing grassy slope above Bulb Field.

#3) 37.068990, -122.249009, elevation 495 feet/scattered population, growing on se-facing slope, between source of China Ladder Gulch and abandoned cement reservoir.

### *Microseris bigelovii*

\*\**Microseris bigelovii*/Within the area designated as the Scott Creek Watershed/Environs, this diploid co-parent of *Stebbinsoseris decipiens* is variable both as to foliar morphology/overall stature and size of capitula and cypselae. Whether there is more than one species lurking within this array of inter-populational variability, is sufficient reason to raise out populations from the below listed cypselae collections, analyze/compare the observable gross morphologies and do genetic profiling of each collection, then plot the end results on a topographical map to see if any biogeographical patterns emerge (akin to a similar project needed to be initiated with the local *Dudleya caespitosa* populations).

#1) 37.081376, -122.263493, elevation 313feet/n-end of Swanton Road, outer edge overlooking Greyhound Rock Beach parking lot and flanked on the east by the Harry Wain Arroyo. Growing with *Trifolium willdenovii* (low growing, yellow seed type), *Cardionema ramosissimum* and circa 50m up road from *Stebbinsoseris decipiens*. This population appears to have cypselas nearly double the size (comparing in situ collected material) with those observed in the following population (#2).

Cypselae collection data: 2007-1290, *Microseris bigelovii*, 05/17/2007, Jim West.

Cypselae collection data: 2009-815, *Microseris bigelovii*, 05/28/2009, Jim West.

Cypselae collection data: 2012-288, *Microseris bigelovii*, 05/12/2012, Jim West.

Cypselae collection data: 2012-663, *Microseris bigelovii*, 04/29/2012, Jim West.

Cypselae collection data: 2013-65, *Microseris* aff. *bigelovii*, 04/27/2013, Jim West.

Cypselae collection data: 2015-143, *Microseris bigelovii*, 05/03/2015, Jim West.

Cypselae collection data: 2015-144, *Microseris bigelovii*, 04/13/2015, Jim West.

Cypselae collection data: 2015-145, *Microseris bigelovii*, 04/22/2015, Jim West.

Cypselae collection data: 2017-119, *Microseris bigelovii*, 05/28/2017, Jim West.

#2) 37.075011, -122.253852, elevation 463 feet/edge of synform, which overlooks the western portion of the Pumpkin Field Marsh. The cypselae from this population appear to be half the size of those found in the mature capitula of population #1 and whether this represents a separate genotype or is just an ecologically based response, is worth investigating.

Herbarium data: UCSC011076, *Microseris bigelovii*, Jim West, s.n., 2016-5-1.

Cypselae collection data: 2007-1293, *Microseris bigelovii*, 05/20/2007, Jim West.

Cypselae collection data: 2012-289, *Microseris bigelovii*, 05/12/2012, Jim West.

Cypselae collection data: 2012-667, *Microseris bigelovii*, 04/29/2012, Jim West.

Cypselae collection data: 2013-47, *Microseris bigelovii*, 04/28/2013, Jim West.

Cypselae collection data: 2015-146, *Microseris bigelovii*, 04/13/2015, Jim West.

Cypselae collection data: 2015-147, *Microseris bigelovii*, 05/02/2015, Jim West.

Cypselae collection data: 2015-148, *Microseris bigelovii*, 05/02/2015, Jim West.

Cypselae collection data: 2016-44, *Microseris bigelovii*, 05/01/2016, Jim West.

#3) 37.074344, -122.262366, elevation 105 feet/edge of “Dylan’s Garden”, overlooking s-end of Greyhound Rock Beach and Pelican Rock. Growing with *Agoseris apargioides* var. *apargioides*, *Agrostis densiflora*, *Heterotheca sessiliflora* subsp. *bolanderi*, *Poa unilateralis*, *Erysimum franciscanum* (var. *crassifolium*), *Fritillaria affinis* (var. *tristulis* analog), etc.

Herbarium data: UCSC011073, *Microseris bigelovii*, Jim West, s.n., 2016-4-23.

Cypselae collection data: 2009-817, *Microseris bigelovii*, 07/02/2009, Jim West.

#4) 37.082767, -122.244048, elevation 358 feet/Schoolhouse Ridge, transitional corridor between Upper and Lower Pozzi Meadows. Growing sympatrically with *Stebbinsoseris decipiens*, *Lomatium caruifolium* var. *caruifolium*, *Dudleya caespitosa*, *Plectritis congesta* subsp. *brachystemon*, etc.

Herbarium data: UCSC011068, *Microseris bigelovii*, Jim West, s.n., 2016-4-25.

Cypselae collection data: 2007-1292, *Microseris bigelovii*, 05/17/2007, Jim West.

Cypselae collection data: 2015-149, *Microseris bigelovii*, 05/08/2015, Jim West.

Cypselae collection data: 2016-48, *Microseris bigelovii*, 05/02/2016, Jim West.

#5) 37.060813, -122.253091, elevation 77 feet/oceanside edge of *Agrostis* Rectangle. While more than half of this localized population had already finished flowering/producing mature seed heads, the remainder was beginning to initiate/developing flowering capitula and the whole concentrated population, unlike the further inland populations, remained a vibrant green in all parts and behaved like miniature perennials. Perhaps, the proximity to the ocean with nocturnal condensation and periodic fog, accounts for this population’s extended growing/flowering behavior.

Cypselae collection data: 2016-85, *Microseris bigelovii*, 06/03/2016, Jim West.

Cypselae collection data: 2016-86, *Microseris bigelovii*, 06/03/2016, Jim West.

#6) 37.101332, -122.245379, elevation 556 feet/along roadbed that leads down into Bettencourt Gulch from Scott Creek side of Seymore Hill. Growing sympatrically with *Trifolium buckwestiorum*, *Micropus californicus* var. *californicus*, *Plagiobothrys diffusus*, *Plantago erecta*, etc.

Cypselae collection data: 2008-1012, *Microseris bigelovii*, 05/08/2008, Jim West.

Cypselae collection data: 2009-816, *Microseris bigelovii*, 05/11/2009, Jim West.

#7) 37.083146, -122.242769, elevation 362 feet/Upper Pozzi Meadow, w-facing slope overlooking gulchlet, which drains down into Mill Creek. Growing sympatrically with *Agoseris grandiflora*, *Agoseris heterophylla* and *Stebbinsoseris decipiens*.

Cypselae collection data: 2007-1291, *Microseris bigelovii*, 05/17/2007, Jim West.

#8) 37.066281, -122.244522, elevation 608 feet/Solar Panel Gate Refugium..... isolated portion of the synform, that has been documented containing 120 species of native taxa. In many ways, a mirror image of the Magic Triangle.

Cypselae collection data: 2007-1170, *Microseris bigelovii*, 05/26/2007, Jim West.

Cypselae collection data: 2009-814, *Microseris bigelovii*, 05/29/2009, Jim West.

Cypselae collection data: 2016-84, *Microseris bigelovii*, 06/03/2016, Jim West.

#9) 37.070476, -122.255897, elevation 299 feet/w-facing slope overlooking extensive grove of *Aesculus californica*, which defines the confluence of the east and west forks of Big Willow Gulch, before it goes under Highway 1. Growing sympatrically with *Stebbinsoseris decipiens*, *Micropus amphibolus*, *Lasthenia gracilis*, *Calochortus albus* (nanistic race), etc.

Cypselae collection data: 2007-1167, *Microseris bigelovii*, 05/27/2007, Jim West.

Cypselae collection data: 2009-818, *Microseris bigelovii*, 06/06/2009, Jim West.

Cypselae collection data: 2016-87, *Microseris bigelovii*, 06/13/2016, Jim West.

Cypselae collection data: 2017-118, *Microseris bigelovii*, 05/24/2017, Jim West.

Cypselae collection data: 2018-648, *Microseris bigelovii*, 07/01/2018, Jim West.

Note: The following four herbarium sheets, while documenting *Microseris bigelovii* from the upper reaches of the Scott Creek Watershed, were done before Google Earth existed and are appended to this document without exact site coordinates.

Herbarium data: CAS-BOT-BC348725, *Microseris bigelovii*, J.H. Thomas, 4094, 1954-5-7.

Herbarium data: CAS-BOT-BC348727, *Microseris bigelovii*, J.H. Thomas, 4094, 1954-5-7.

Herbarium data: JEPS21192, *Microseris bigelovii*, J.H. Thomas, 4094, 1954/5/4.

Herbarium data: RSA133909, *Microseris bigelovii*, John H. Thomas, 4094, 1954/5/7.

### *Layia gaillardoides*

\*\**Layia gaillardoides*/This rare in Santa Cruz County native member of the Subtribe Madiinae, differs locally, in having ray flowers concolored without white tips. The isolated population above the Purdy Road cattleguard (a near vertical grassland surrounded by an oak/coniferous woodland, perched 100+ feet above Purdy Road) had inflorescences primarily concolored a bright yellow with a 1-2% subset of the population a much paler yellow. The herbage of this localized population was redolent of a citrus-based fragrance.

#1) 37.088821, -122.247652, elevation 295 feet/w-facing "vertical grassland", above Purdy Road and documented via cypselae collections, some of which were raised out by Randall Morgan, and constitute the ex situ derived pressing listed below.

Herbarium data: UCSC007398, *Layia gaillardoides*, Randall Morgan, 5032, 2010-5-24.

Herbarium data: JEPS82643, *Layia gaillardoides*, Roy E. Buck and James A. West, 217, 1983-4-22.

Herbarium data: JEPS89803, *Layia gaillardoides*, Dean Wm Taylor with Roy Buck, Jim West and Glenn Clifton, 9658, 1988-5-22.

Cypselae collection data: 2009-609, *Layia gaillardoides*, 06/10/2009, Jim West.

Cypselae collection data: 2011-459, *Layia gaillardoides*, 07/17/2011, Jim West.

Note: the below listed herbarium documentation, was done within the general area but lacks Google Earth coordinates.

Herbarium data: OBI45583, *Layia gaillardoides*, David J. Keil, V.L. Holland and Larry Kelly, 20612, 1988-5-7.

*Wyethia angustifolia*

\*\**Wyethia angustifolia*/the narrow-leaved mule's-ears occurs sporadically along the Western Terrace aka coastal prairie and can comprise a small gathering of 6-8 plants or be an expansive population of 30+ individuals, becoming thru time, a dominant presence in the landscape.

#1) 37.070105, -122.255078, elevation 359 feet/edge of Western Terrace, between Big Willow Gulch and Morehus Arroyo. Growing sympatrically with *Grindelia hirsutula*, *Heterotheca sessiliflora* subsp. *bolanderi*, *Perideridia gairdneri* subsp. *gairdneri*, etc.

Herbarium data: UCSC010488, *Wyethia angustifolia*, Dylan M. Neubauer, Tim Forsell, James A. West and Christian Schwarz, 622, 2016-4-5.

Herbarium data: UCSC010489, *Wyethia angustifolia*, Dylan M. Neubauer, Tim Forsell, James A. West and Christian Schwarz, 622, 2016-4-5.

Cypselae collection data: 2007-1059, *Wyethia angustifolia*, 09/28/2007, Jim West.

Cypselae collection data: 2007-1306, *Wyethia angustifolia*, 06/30/2007, Jim West.

Cypselae collection data: 2008-1632, *Wyethia angustifolia*, 06/01/2008, Jim West.

Cypselae collection data: 2008-1634, *Wyethia angustifolia*, 07/15/2008, Jim West.

Cypselae collection data: 2009-615, *Wyethia angustifolia*, 08/19/2009, Jim West.

Cypselae collection data: 2011-484, *Wyethia angustifolia*, 08/27/2011, Jim West.

Cypselae collection data: 2012-367, *Wyethia angustifolia*, 07/04/2012, Jim West.

Cypselae collection data: 2013-355, *Wyethia angustifolia*, 11/12/2013, Jim West.

Cypselae collection data: 2013-482, *Wyethia angustifolia*, 06/17/2013, Jim West.

Cypselae collection data: 2014-154, *Wyethia angustifolia*, 08/25/2014, Jim West.

Cypselae collection data: 2015-311, *Wyethia angustifolia*, 07/11/2015, Jim West.

#2) 37.071984, -122.253155, elevation 393 feet/biodiverse refugium, overlooking Frog Pond/central Big Willow Gulch. Growing sympatrically with *Perideridia gairdneri* subsp. *gairdneri*, *Hosackia gracilis*, *Carex densa*, *Danthonia californica*, *Stachys ajugoides*, *Juncus phaeocephalus* var. *phaeocephalus*, *Isolepis carinata*, *Deschampsia cespitosa* subsp. *holciformis*, etc.

Cypselae collection data: 2009-844, *Wyethia angustifolia*, 07/27/2009, Jim West.

#3) 37.065401, -122.252347, elevation 323 feet/edge of Western Terrace, overlooking Highway 1 between *Agrostis* Rectangle and China Ladder Gulch. Small, isolated population, growing on exposed edge of coastal prairie.

Cypselae collection data: 2015-312, *Wyethia angustifolia*, 08/26/2015, Jim West.

#4) 37.074796, -122.258896, elevation 369 feet/Western Terrace, between Gulches #3 & #4.

Herbarium data: JEPS82805, *Wyethia angustifolia*, Roy E. Buck and James A. West, 290, 1983-5-22.

Cypselae collection data: 2011-329, *Wyethia angustifolia*, 09/21/2011, Jim West.

Cypselae collection data: 2013-356, *Wyethia angustifolia*, 09/12/2013, Jim West.

*Hosackia stipularis* var. *stipularis*

\*\**Hosackia stipularis* var. *stipularis* [*Lotus stipularis* var. *stipularis*]/Within the Scott Creek Watershed proper, this former member of the genus *Lotus* is rare and to date, restricted to a narrow strip of chaparral, sandwiched in between Laird Gulch and the Scott Creek riparian corridor. Occasionally, isolated plants occur, growing on sandbars along lower Scott Creek, but the preferred habitat for this horticulturally attractive perennial, appears to be the chaparral. The form of *H. stipularis* that occurs in the Swanton region, is distinctive in being resinous-glandular throughout and balsam scented and was typified as [*Hosackia balsamifera* Kell. Proc. Calif. Acad. 2:123 1861/*Lotus balsamiferus* Greene, Man. Bay Reg. 93 1894/*Hosackia stipularis* subsp. *balsamifera* (Kell.) Abrams].

#1) 37.064424, -122.230051, elevation 45 feet/gravelly sandbar adjacent to Scott Creek, between the confluences of Big and Little Creeks with Scott Creek.

Herbarium data: JEPS83126, *Lotus stipularis* var. *stipularis*, Roy E. Buck and James A. West, 372, 1983-6-23.

Seed collection data: 2004-284, *Hosackia stipularis* var. *stipularis*, 09/15/2004, Jim West.

Seed collection data: 2004-285, *Hosackia stipularis* var. *stipularis*, 09/15/2004, Jim West.

#2) between 37.101598, -122.257235, elevation 830 feet and 37.108492, -122.257405, elevation 1019 feet/Laird Gulch Ridge, chaparral habitat, along edges of horse trail.

Seed collection data: 2009-675, *Hosackia stipularis* var. *stipularis*, 06/15/2009, Jim West.

Seed collection data: 2011-415, *Hosackia stipularis* var. *stipularis*, 10/15/2011, Jim West.

Note: Due to the rarity of the subsp. *balsamifera* form within Santa Cruz County, at least one batch of seeds should be raised out and planted within the UCSC Arboretum's California section, seeds distributed to other arboreta and herbarium pressings made. Also, a genetic workup needs to be done, comparing the subsp. *balsamifera* with the non-glandular var. *stipularis*, to see if presence/absence of balsam scented glands are indicative of other non-visible physiological distinctions.

*Trifolium* "mini-macraei"

\*\**Trifolium* "mini-macraei"/in his monographing of the California *Trifoliums*, Randall Morgan added several new taxa (based on their genetic signature) from the Scott Creek Watershed/Environs. One such taxon, was originally discovered on the edge of the Santa Cruz Terrace, overlooking the w-end of Greyhound Rock Beach. Since then, additional populations have been found, mainly growing on exposed siliceous mudstone bedding planes that morphologically mimic the TYPE population and warrant being raised out and genetically profiled. If each of these new populations prove to be genetically identical with the Greyhound Rock Beach bluff TYPE population and not reduced-in-stature ecotypes of *T. macraei* sensu strictu, then Santa Cruz County may have a new endemic clover.

#1) 37.080155, -122.267117, elevation 112 feet/ TYPE AREA for *Trifolium* "mini-macraei" pro.sp.nov. population, as described by Randall Morgan in his monographic study of the California clovers.

#2) 37.069719, -122.256477, elevation 268 feet/narrow sliver of remnant terrace, separating lower Morehus Arroyo from lower Big Willow Gulch. Scattered but concentrated micro-populations of *T. aff.* "mini-macraei", growing in shallow moss lined depressions, along this weathered/exposed habitat. All taxa within this series of clustered micro-populations, are morphological analogs to the constituents of the TYPE population.

Seed/plant material collection data: 2016-167, *Trifolium* aff. "minimacraei", 08/25/2016, Jim West.

Seed/plant material collection data: 2018-658, *Trifolium* aff. "minimacraei", 07/01/2018, Jim West.

Seed/plant material collection data: 2018-659, *Trifolium* aff. "minimacraei", 07/05/2018, Jim West.

#3) 37.066712, -122.254286, elevation 247 feet/w-facing exposed sliver of remnant terrace, between China Ladder Gulch and Morehus Arroyo.

Seed/plant material collection data: 2017-107, *Trifolium* aff. “minimacraei”, 06/05/2017, Jim West.

Seed/plant material collection data: 2017-108, *Trifolium* aff. “minimacraei”, 06/05/2017, Jim West.

#4) 37.070306, -122.256446, elevation 267 feet/w-facing eroded terrace, which overlooks/parallels lower Big Willow Gulch.

Seed/plant material collection data: 2016-150, *Trifolium* aff. “minimacraei”, 06/30/2016, Jim West.

Seed/plant material collection data: 2017-262, *Trifolium* aff. “minimacraei”, 07/25/2017, Jim West.

Note: The UCSC Arboretum houses additional seed/plant material collections, which deal with *T. macraei* sensu strictu and possible transitional forms that may give molecular insight into the origins of *T. “minimacraei”*. A selection of those collections is listed below.....

#5) 37.072183, -122.258251, elevation 261 feet/s-facing exposed terrace face, overlooking Highway 1, between lower Gulch #7 and w-fork of Big Willow Gulch.

Seed/plant material collection data: 2016-148, *Trifolium* aff. “minimacraei”, 06/26/2016, Jim West.

#6) 37.083553, -122.264657, elevation 311 feet/sw-facing exposed edge of terrace overlooking original Old Coast Road and more or less, 200 feet in elevation above the TYPE LOCATION for *Trifolium minimacraei*.

Seed/plant material collection data: 2016-147, *Trifolium* aff. “minimacraei”, 06/24/2016, Jim West.

Seed/plant material collection data: 2017-101, *Trifolium* aff. “minimacraei”, 05/28/2017, Jim West.

Seed/plant material collection data: 2017-102, *Trifolium* aff. “minimacraei”, 05/28/2017, Jim West.

#7) 37.075566, -122.252585, elevation 472 feet/edge of synform overlooking w-end of Pumpkin Field Marsh.

Seed/plant material collection data: 2016-149, *Trifolium* aff. “minimacraei”, 07/25/2016, Jim West.

Seed/plant material collection data: 2017-103, *Trifolium macraei*, 05/24/2017, Jim West.

#8) between 37.072890, -122.252770, elevation 458 feet and 37.072311, -122.252532, elevation 436 feet/top of synform overlooking central portion of Big Willow Gulch/Frog Pond.

Seed/plant material collection data: 2012-64, *Trifolium macraei*, 05/21/2013, Jim West.

Seed/plant material collection data: 2013-64, *Trifolium macraei*, 05/12/2013, Jim West.

### *Trifolium “silvestre”*

\*\**Trifolium “silvestre”*/along inner edge of Purdy Road, paralleling Squirrel Flat, a species of *Trifolium* was recently discovered that may prove to be *Trifolium “silvestre”* [provisional name], discovered by Randall Morgan in the late 1990s..... along moist forested roadsides in Bonny Doon. While looking like *T. oliganthum*, genetically it is an undescribed variety of *T. willdenovii*. The Scott Creek population, is definitely in need of a genetic profiling, to determine its status within the native clover hierarchy.

#1) Between 37.084517, -122.246599, elevation 117 feet and 37.083421, -122.247216, elevation 110 feet/margining inner edge of dirt road, sharing habitat with *Trifolium dianthum* [*T. variegatum* complex]. Sympatric natives, include: *Collinsia multicolor*, *Luzula comosa* var. *laxa*, *Claytonia perfoliata* subsp. *perfoliata*, *Heuchera micrantha*, *Berberis pinnata* subsp. *pinnata*, etc. Road grading, may have compromised if not wiped out, this yet to be determined population, so the seed collections need to be raised out for study and seed banking.

Seed collection data: 2015-325, *Trifolium* sp., 08/11/2015, Jim West.

Seed collection data: 2015-326, *Trifolium* sp., 06/27/2015, Jim West.

Seed collection data: 2015-327, *Trifolium* sp., 06/22/2015, Jim West.

Seed collection data: 2015-328, *Trifolium* sp., 06/22/2015, Jim West.

Seed collection data: 2015-329, *Trifolium* aff. *oliganthum*, 05/12/2015, Jim West.

Seed collection data: 2015-330, *Trifolium* aff. *oliganthum*, 05/12/2015, Jim West.

Seed collection data: 2015-332, *Trifolium* aff. *oliganthum*, 06/03/2015, Jim West.

Seed collection data: 2015-333, *Trifolium* aff. *oliganthum*, 05/08/2015, Jim West.

Seed collection data: 2015-334, *Trifolium* aff. *oliganthum*, 05/30/2015, Jim West.

Seed collection data: 2016-154, *Trifolium* aff. "silvestre", 07/17/2016, Jim West.

Seed collection data: 2017-96, *Trifolium* "silvestre", 06/24/2017, Jim West.

Seed collection data: 2018-665, *Trifolium* aff. *oliganthum*, 06/21/2018, Jim West.

*Tiarella trifoliata* var. *unifoliata*

\*\**Tiarella trifoliata* var. *unifoliata*/to date, only the Big Creek sub-watershed, hosts this shade loving ground cover, belonging to the Saxifragaceae and known colloquially, as sugar-scoop.

#1) 37.075874, -122.220047, elevation 132 feet/located between the Big Creek Fish Hatchery and the confluence of Berry Creek with Berry Creek.

Seed collection data: 2007-1263, *Tiarella trifoliata* var. *unifoliata*, 08/23/2007, Jim West.

Seed collection data: 2008-1597, *Tiarella trifoliata* var. *unifoliata*, 08/24/2008, Jim West.

Seed collection data: 2009-603, *Tiarella trifoliata* var. *unifoliata*, 08/12/2009, Jim West.

Seed collection data: 2012-332, *Tiarella trifoliata* var. *unifoliata*, 10/17/2012, Jim West.

Seed collection data: 2012-257, *Tiarella trifoliata* var. *unifoliata*, 10/06/2015, Jim West.

Note: due to the local rarity of this native member of the Saxifrage Family, populations should be raised and some plants pressed and distributed to various herbaria.

**Volume 5***Piperia unalascensis*

\*\**Piperia unalascensis* [= *Plantanthera unalascensis* subsp. *unalascensis*]/the locally documented populations for this widespread terrestrial orchid are distinctive, in that they match only the type collection from Unalaska Island in the Aleutian Islands. After being documented via herbarium pressings and in situ photography, the coastal headland populations disappeared. .... whether due to environmental stress and/or an air/soil born pathogen, was never determined. All of this was taking place during Randall Morgan's monographing of the genus *Piperia* and due to the current inaccessible status for the documented sites, there is no data reflecting, if the populations overlooking Highway 1 are marginally present or permanently extinct. Two subsequent populations, both very localized and small in stature, were found on what is now property owned by CalPoly aka the Swanton Pacific Ranch, and need to be revisited, to determine if these populations are still extant.

#1) Between 37.079560, -122.261688, elevation 319 feet and 37.079782, -122.261283, elevation 352 feet/w-facing, near vertical slope overlooking lower Lasher Marsh Gulch.

Herbarium data: JEPS81531, *Piperia unalascensis*, R. Doug Stone, 459, 1982-5-13.

Herbarium data: UCSC008331, *Piperia unalascensis*, James A. West, 300-P-309-P.

Herbarium data: UCSC008332, *Piperia unalascensis*, Randall Morgan, 1805, 1990-5-11.

Herbarium data: UCSC011112, *Plantanthera unalascensis* subsp. *unalascensis*, James A. West, 60-P through 73-P, 1980-7-30.

Herbarium data: UCSC011113, *Plantanthera unalascensis* subsp. *unalascensis*, James A. West, 300-P through 309-P, 1981-5-14.

#2) 37.068061, -122.254722, elevation 197 feet/w-facing slope overlooking lower Morehus Arroyo.

Note: this site was visited on 4/17/2019, and no *Piperia*/*Plantanthera* specimens were observed.

#3) 37.064551, -122.240010, elevation 638 feet/w-facing slope, overlooking upper Cowboy Shack Gulch.

Note: one flowering example of this locally rare terrestrial orchid was observed a decade ago and the w-facing forested (mixed oak/conifer) slopes need to be revisited and meticulously explored.

*Plantago elongata*

\*\**Plantago elongata*/the below listed collections, represent the only documentation for this species along the north coast of Santa Cruz County.

#1) 37.083481, -122.264273, elevation 313 feet/growing in moss lined fractures of the siliceous mudstone bedding plane, that constituted the original Old Coast Road above Washout Turn. *Plantago erecta* is growing sympatrically, along with *Isolepis carinata* and *Isolepis cernua* (annual type).

Seed collection data: 2011-447, *Plantago elongata*, 07/09/2011, Jim West

Seed collection data: 2011-461, *Plantago elongata*, 07/02/2011, Jim West.

Seed collection data: 2012-90, *Plantago elongata*, 05/19/2012, Jim West.

Seed collection data: 2012-440, *Plantago elongata*, 09/06/2012, Jim West.

Seed collection data: 2014-129, *Plantago elongata*, 06/03/2014, Jim West.

Seed collection data: 2016-123, *Plantago elongata*, 08/14/2016, Jim West.

Seed collection data: 2016-124, *Plantago elongata*, 08/16/2016, Jim West.

Seed collection data: 2018-647, *Plantago elongata*, 06/09/2018, Jim West.

*Gilia clivorum*

\*\**Gilia clivorum*/this species of *Gilia* has been sporadically documented for Santa Cruz County but is nowhere common and in some sites, no longer extant.

#1) 37.077045, -122.261356, elevation 315 feet/ridge separating Gulches #2 & #3.

Herbarium data: JEPS81982, *Gilia clivorum*, Roy E. Buck, James A. West and Randy Morgan, 187, 1983-4-3.

#2) 37.082205, -122.245327, 307 feet/"Beehive Hill", w-facing, near vertical grassland with exposed terrace bedding planes, overlooking Purdy Road between mouth of Schoolhouse Gulch and Swanton Road.

Seed collection data: 2009-652, *Gilia clivorum*, 05/10/2009, Jim West.

#3) 37.083519, -122.264680, elevation 304 feet/exposed terrace face/bedding planes, overlooking original Old Coast Road. Growing sympatrically with *Silene verecunda*, *Trifolium macraei*.

Seed collection data: 2012-658, *Gilia clivorum*, 04/29/2012, Jim West.

Seed collection data: 2013-74, *Gilia clivorum*, 05/12/2013, Jim West.

Seed collection data: 2014-288, *Gilia clivorum*, 06/03/2014, Jim West.

Seed collection data: 2016-62, *Gilia clivorum*, 05/25/2016, Jim West.

Seed collection data: 2016-129, *Gilia clivorum*, 06/24/2016, Jim West.

Seed collection data: 2017-89, *Gilia clivorum*, 05/28/2017, Jim West.

#4) 37.074858, -122.253968, elevation 467 feet/edge of synform, overlooking w-end of Pumpkin Field Marsh. Growing sympatrically with *Silene verecunda*, *Lomatium caruifolium* var. *caruifolium*, *Layia platyglossa*, *Viola pedunculata*, *Poa unilateralis*, *Microseris bigelovii*, *Stebbinsoseris decipiens*, *Trifolium macraei*, etc.

*Isolepis cernua*

\*\**Isolepis cernua* [annual form]/the forma typica locally for this widespread native species, is a densely caespitose perennial, which typically favors seeps along the immediate coast and is often proximal to the direct influence of the wind referenced ocean spray. The annual form is rare within the Scott Creek Watershed, and ironically, grows so intermixed with related *Isolepis carinatus*. that until teased apart, appears to be one plant with two distinct inflorescence gestalts. With two ecologically and morphologically dissimilar taxa included within one species, on a genetic level, are there sufficient differences to separate the two as varieties?

#1) 37.083613, -122.263708, elevation 334 feet/exposed siliceous mudstone roadbed that constituted the original Old Coast Road and is seasonally saturated by winter/spring rains. Also growing on/along this historically significant transportation venue, are: *Isolepis carinata*, *Plantago erecta*, *Plantago elongata*, *Zeltnera davyi*, *Silene verecunda*, *Gilia clivorum*, *Juncus bufonius*, *Navarretia squarrosa*, *Trifolium dianthum* [T. variegatum complex], etc.

Herbarium data: OBI80726, *Isolepis cernua*, Dylan M. Neubauer, James A. West, 77c, 2014-5-28.

Herbarium data: UCSC008882, *Isolepis cernua*, Dylan M. Neubauer, 77a, 2014-5-28.

Herbarium data: UCSC008883, *Isolepis cernua*, Dylan M. Neubauer, 77b, 2014-5-28.

Herbarium data: UCSC008884, *Isolepis cernua*, Dylan M. Neubauer, 77c, 2014-5-28.

Herbarium data: UCSC008885, *Isolepis cernua*, Dylan M. Neubauer, 77d, 2014-5-28.ata

Achene collection data: 2012-68, *Isolepis cernua*, 05/19/2012, Jim West.

Achene collection data: 2014-157, *Isolepis cernua*, 08/03/2014, Jim West.

Achene collection data: 2014-177, *Isolepis cernua*, 06/14/2014, Jim West.

Achene collection data: 2014-178, *Isolepis cernua*, 06/14/2014, Jim West.

Achene collection data: 2015-23, *Isolepis cernua*, 05/19/2015, Jim West.

Achene collection data: 2015-26, *Isolepis cernua*, 05/17/2015, Jim West.

Achene collection data: 2015-152, *Isolepis cernua*, 03/29/2015, Jim West.

Achene collection data: 2015-153, *Isolepis cernua*, 03/29/2015, Jim West.

Achene collection data: 2015-154, *Isolepis cernua*, 03/29/2015, Jim West.

Achene collection data: 2015-155, *Isolepis cernua*, 03/29/2015, Jim West.

Achene collection data: 2015-181, *Isolepis* aff. *cernua*, 05/12/2015, Jim West.

Achene collection data: 2015-182, *Isolepis* aff. *cernua*, 05/12/2015, Jim West.

Achene collection data: 2016-74, *Isolepis cernua*, 05/25/2016, Jim West.

Achene collection data: 2018-685, *Isolepis cernua*, 06/11/2018, Jim West.

#2) 37.072317, -122.251531, elevation 411 feet/along dirt road, connecting Big Willow Marsh with Frog Pond (central Big Willow Gulch).

Herbarium data: UCSC008888, *Isolepis cernua*, Dylan M. Neubauer, 79, 2014-5-28.

Achene collection data: 2014-180, *Isolepis cernua*, 05/27/2014, Jim West.

### *Rumex occidentalis*

\*\**Rumex occidentalis*/This striking and uncommon native dock should be incorporated in landscaping with other coastal native species. In old coastal marshes, plants can exceed two meters in height and a mature inflorescence can be colored a sunset riot of orange, red and pink. Basal leaves can reach one meter in length.

#1) 37.066506, -122.251314, elevation 322 feet/China Ladder Marsh.

Herbarium data: JEPS81557, *Rumex occidentalis*, Roy E. Buck and James A. West, 105, 1982-7-25.

Herbarium data: JEPS81558, *Rumex occidentalis*, Roy E. Buck and James A. West, 105, 1982-7-25.

Achene collection data: 2002-176, *Rumex occidentalis*, 10/12/2002, Jim West.

#2) 37.089631, -122.256055, elevation 489 feet/West's Spring Marsh

Achene collection data: 2007-168, *Rumex occidentalis*, 07/19/2007, Jim West.

Achene collection data: 2007-1150, *Rumex occidentalis*, 08/13/2007, Jim West.

Achene collection data: 2009-654, *Rumex occidentalis*, 08/04/2009, Jim West.

Achene collection data: 2011-376, *Rumex occidentalis*, 09/03/2011, Jim West.

Achene collection data: 2013-476, *Rumex occidentalis*, 11/07/2013, Jim West.

Achene collection data: 2016-122, *Rumex occidentalis*, 09/15/2016, Jim West.

#3) 37.087925, -122.254242, elevation 380 feet/Marti's Park Marsh.

Achene collection data: 2007-169, *Rumex occidentalis*, 07/19/2007, Jim West.

#4) 37.063231, -122.253348, elevation 158 feet/area between Agrostis Rectangle and China Ladder Gulch.

Achene collection data: 2007-170, *Rumex occidentalis*, 07/30/2007, Jim West.

Achene collection data: 2008-415, *Rumex occidentalis*, 07/11/2008, Jim West.

Achene collection data: 2015-279, *Rumex occidentalis*, 07/09/2015, Jim West.

#5) 37.080684, -122.260743, elevation 388 feet/Lasher Marsh

Achene collection data: 2007-176, *Rumex occidentalis*, 08/12/2007, Jim West.

Achene collection data: 2008-417, *Rumex occidentalis*, 10/01/2008, Jim West.

#6) 37.088779, -122.258873, elevation 585 feet/Laguna de las Trancas.

Achene collection data: 2009-270, *Rumex occidentalis*, 07/21/2009, Jim West.

Achene collection data: 2013-477, *Rumex occidentalis*, 06/30/2013, Jim West.

#7) 37.061501, -122.253030, elevation 91 feet/Agrostis Rectangle.

Achene collection data: 2009-271, *Rumex occidentalis*, 07/02/2009, Jim West.

#8) 37.094519, -122.257305, elevation 621 feet/Beaver Flat Marsh (upper portion).

Achene collection data: 2013-271, *Rumex occidentalis*, 07/05/2013, Jim West.

Achene collection data: 2015-280, *Rumex occidentalis*, 07/07/2015, Jim West.

*Agoseris apargioides* var. *eastwoodiae*

\*\**Agoseris apargioides* var. *eastwoodiae* [= var. *apargioides*]/this locally rare taxon, has only been found growing in sandy soil, on an exposed coastal bluff overlooking Pelican Rock.

#1) 37.073971, -122.262347, elevation 122 feet/Dylan's Garden, a perched and isolated vestige of coastal scrub, hosting *Erysimum franciscanum*, *Poa unilateralis*, *Dudleya caespitosa*, *Horkelia cuneata* subsp. *cuneata*, *Pinus radiata*, etc.

Herbarium data: JEPS82557, *Agoseris apargioides* var. *eastwoodiae* [= *A. apargioides* var. *apargioides*], James A. West, 167, 1983-7-20.

Cypselae collection data: 2009-607, *Agoseris apargioides* var. *eastwoodiae*, 07/02/2009, Jim West.

Cypselae collection data: 2009-685, *Agoseris apargioides* var. *eastwoodiae*, 07/11/2009, Jim West.

Cypselae collection data: 2009-686, *Agoseris apargioides* var. *eastwoodiae*, 07/13/2009, Jim West.

Cypselae collection data: 2009-687, *Agoseris apargioides* var. *eastwoodiae*, 06/25/2009, Jim West.

*Agoseris heterophylla*

\*\**Agoseris heterophylla*/a rare taxon within the Scott Creek Watershed, which on the lower Schoolhouse Ridge (upper Pozzi Meadow), occurs on one w-facing slope, growing sympatrically with *Agoseris grandiflora*, *Stebbinsoseris decipiens*, *Clarkia purpurea* subsp. *purpurea*, *Melica californica*, *Poa secunda*, etc. This species' cypselae are both polymorphic and polychromatic.

#1) 37.083245, -122.242760, elevation 372 feet.

Herbarium data: UCSC011072, *Agoseris heterophylla*, James A. West, s.n., 2016-4-25.

Herbarium data: UCSC011067, *Agoseris heterophylla*, James A. West, s.n., 2016-4-25.

Herbarium data: UCSC011070, *Agoseris heterophylla*, James A. West, s.n., 2016-4-25.

Herbarium data: UCSC011071, *Agoseris heterophylla*, James A. West, s.n., 2016-4-25.

Cypselae collection data: 2008-1011, *Agoseris heterophylla*, 05/08/2008, Jim West.

Cypselae collection data: 2009-708, *Agoseris heterophylla*, 05/17/2009, Jim West.

Cypselae collection data: 2009-709, *Agoseris heterophylla*, 05/11/2009, Jim West.

Cypselae collection data: 2009-710, *Agoseris heterophylla*, 06/24/2009, Jim West.

Cypselae collection data: 2013-78, *Agoseris heterophylla*, 05/12/2013, Jim West.

Cypselae collection data: 2014-346, *Agoseris heterophylla* var. *heterophylla*, 05/25/2014, Jim West.

Cypselae collection data: 2015-141, *Agoseris heterophylla* var. *heterophylla*, 05/08/2015, Jim West.

Cypselae collection data: 2015-142, *Agoseris heterophylla* var. *heterophylla*, 04/13/2015, Jim West.

Cypselae collection data: 2016-39, *Agoseris heterophylla*, 04/28/2016, Jim West.

Cypselae collection data: 2016-45, *Agoseris heterophylla*, 05/02/2016, Jim West.

Cypselae collection data: 2017-112, *Agoseris heterophylla*, 05/23/2017, Jim West.

#2) 37.098159, -122.239998, elevation 889 feet/Scott Creek side of Seymore Hill, nw-facing grassy slope overlooking Purdy Aluminum Barn (no longer standing, as of 2019).

Cypselae collection data: 2009-688, *Agoseris heterophylla*, 06/13/1982, Jim West.

#3) 37.074336, -122.262361, elevation 107 feet/Dylan's Garden.....w-facing marine terrace overlooking se end of Greyhound Rock Beach.

Herbarium data: JEPS82558, *Agoseris heterophylla* var. *heterophylla*, James A. West, 166, 1983-7-20.

Note: addendum to Volume four of this series/due to an accession error for the envelope containing mature/pressable plant material and viable seed, the name *Aeonium percarneum* needs to be replaced with *Trifolium "mini-macraei"*. The proper/correct designation and pertinent data is as follows:

*Trifolium "mini-macraei"*, TYPE POPULATION!!!

37.080323, -122.266887, elevation 120 feet/edge of Santa Cruz Terrace, overlooking n-end of Greyhound Rock Beach. Localized/concentrated population of 100+ plants, representing a genetically distinct component of the *Trifolium macraei* complex and described by Randall Morgan in his *Trifolium* monograph.

Seed/plant collection data corrected: 2017-73, *Aeonium percarneum* [should read: *Trifolium "mini-macraei"*], 06/07/2017, Jim West.

*Triphysaria micrantha*

\*\**Triphysaria micrantha*/only two documentations of this diminutive annual for Santa Cruz County and both from the Scott Creek Watershed. The two pressings were taken on the Magic Triangle Ridge, where this locally rare taxon was growing sympatrically with *Triphysaria eriantha* subsp. *rosea* (*T. eriantha* subsp. *eriantha* analogs growing

intermixed) and *Triphysaria pusilla* (both normal purple/maroon and greenish yellow forms). *Triphysaria micrantha* looked like a hybrid between *T. eriantha* and *T. pusilla*.

#1) 37.076816, -122.255223, elevation 528 feet/ne-facing grassy slope formed by the eastward dipping slope representing the synform manifestation of the underlying syncline.

Herbarium data: JEPS82584, *Triphysaria micrantha*, James A. West, 198, 1984-3-3.

Herbarium data: JEPS89206, *Triphysaria micrantha*, James A. West, 28, 1983-3-25.

*Castilleja subinclusa* subsp. *franciscana*

\*\**Castilleja subinclusa* subsp. *franciscana*/this visually striking paintbrush, has only been documented locally, from one localized area on the North Coast of Santa Cruz County. When first discovered in the mid-1970s, this taxon was growing adjacent to another hummingbird pollinated species, namely *Aquilegia formosa*. Subsequent brush removing activities destroyed the shared habitat for both species, and the Franciscan paintbrush has not been seen since in Santa Cruz County. Fortunately, three separate herbarium pressings were made for this taxa and its genetic material appears to reside within our polychromatic *Castilleja affinis* subsp. *affinis* complex.

#1) 37.080602, -122.257272, elevation 489 feet/base of the “Magic Triangle”, the exposed portion of the syncline, which bisects the Swanton Pacific Ranch/Old H-H Ranch, from the Scott Creek Marsh up to the n-end of Swanton Road.

Herbarium data: UCSC006143, *Castilleja subinclusa* subsp. *franciscana*, Randall Morgan, s.n., 1978-6-12.

Herbarium data: JEPS81530, *Castilleja subinclusa* subsp. *franciscana*, R. Doug Stone, Roy E. Buck and James A. West, 458, 1982-5-13.

Herbarium data: JEPS83086, *Castilleja subinclusa* subsp. *franciscana*, James A. West, 372, 1985-4-17.

*Trifolium willdenovii*

\*\**Trifolium willdenovii*/Within the area designated as Scott Creek Watershed/Environs, two visually distinct forms of *T. willdenovii* occur. Form #1 is found on the immediate coast, is reduced in stature and consistently produces seeds colored a greenish yellow. Form #2 occupies the interior of the watershed, is robust in overall growth habit and dependably produces blackish seeds. Whether the growth patterns and seed coloring disparities reflect differences on a molecular level, warranting varietal status, remains to be seen. All pertinent data regarding location is written on the respective envelopes

[yellow seed form]

Seed collection data: 2015-320, *Trifolium* aff. *willdenovii*, 06/03/2015, Jim West.

Seed collection data: 2015-321, *Trifolium* aff. *willdenovii*, 06/03/2015, Jim West.

Seed collection data: 2016-37, *Trifolium willdenovii*, 04/28/2016, Jim West.

Seed collection data: 2017-100, *Trifolium* aff. *willdenovii*, 05/26/2017, Jim West.

Seed collection data: 2018-667, *Trifolium willdenovii*, 06/11/2018, Jim West.

Seed collection data: 2018-668, *Trifolium willdenovii*, 06/11/2018, Jim West.

Seed collection data: 2018-669, *Trifolium willdenovii*, 07/02/2018, Jim West.

[dk brown/almost black seed form]

Seed collection data: 2012-361, *Trifolium willdenovii*, 07/18/2012, Jim West.

Seed collection data: 2015-319, *Trifolium* aff. *willdenovii*, 06/03/2015, Jim West.

Seed collection data: 2015-322, *Trifolium* aff. *willdenovii*, 08/11/2015, Jim West.

Seed collection data: 2016-153, *Trifolium willdenovii*, 07/01/2016, Jim West.

Seed collection data: 2017-98, *Trifolium* aff. *willdenovii*, 06/01/2017, Jim West.

Seed collection data: 2017-99, *Trifolium* aff. *willdenovii*, 05/30/2017, Jim West.

Seed collection data: 2018-651, *Trifolium willdenovii*, 06/11/2018, Jim West.

Seed collection data: 2018-652, *Trifolium willdenovii*, 06/11/2018, Jim West.

Seed collection data: 2018-653, *Trifolium willdenovii*, 06/20/2018, Jim West.

Seed collection data: 2018-654, *Trifolium willdenovii*, 06/30/2018, Jim West.

Note: for the robust form with blackish seeds, the slide area along Purdy Road is a representative habitat [37.087529, -122.248635, elevation 142 feet].

Note: for the reduced in stature, coastal form with yellow seeds, the section of Swanton Road paralleling the Harry Wain Arroyo, is a representative habitat [37.081160, -122.263243, elevation 309 feet].

*Plagiobothrys chorisianus* var. *chorisianus*

\*\**Plagiobothrys chorisianus* var. *chorisianus*/This listed (1B.2) component of the Boraginaceae, is primarily found within several old, landslide derived marshes and tends to grow between (and often climbing into) tussocks of *Calamagrostis nutkaensis*, *Juncus effusus* subsp. *pacificus* and *Juncus hesperius*. When in full flower, even when hidden from view, an intense vanilla like scent alerts the olfactory perceptive botanist as to its presence. Below, are listed six such marshes and with the exception of the Lasher Marsh, *Plagiobothrys chorisianus* var. *chorisianus* still can be found.

#1) 37.094371, -122.255814, elevation 583 feet/Beaver Flat Marsh.

Nutlet collection data: 2008-1544, *Plagiobothrys chorisianus* var. *chorisianus*, 06/17/2008, Jim West.

Nutlet collection data: 2008-1545, *Plagiobothrys chorisianus* var. *chorisianus*, 06/17/2008, Jim West.

Nutlet collection data: 2011-201, *Plagiobothrys chorisianus* var. *chorisianus*, 06/30/2011, Jim West.

Nutlet collection data: 2014-340, *Plagiobothrys chorisianus* var. *chorisianus*, 06/11/2014, Jim West.

Nutlet collection data: 2015-276, *Plagiobothrys chorisianus* var. *chorisianus*, 06/01/2015, Jim West.

#2) 37.091252, -122.257901, elevation 592 feet/Rosetta Stone Pine Marsh.

Nutlet collection data: 2008-991, *Plagiobothrys chorisianus* var. *chorisianus*, 06/30/2008, Jim West.

Nutlet collection data: 2009-636, *Plagiobothrys chorisianus* var. *chorisianus*, 06/02/2009, Jim West.

Nutlet collection data: 2009-760, *Plagiobothrys chorisianus*, 06/20/2009, Jim West.

Nutlet collection data: 2009-761, *Plagiobothrys chorisianus* var. *chorisianus*, 05/27/2009, Jim West.

Nutlet collection data: 2011-258, *Plagiobothrys chorisianus* var. *chorisianus*, 06/07/2011, Jim West.

Nutlet collection data: 2012-394, *Plagiobothrys chorisianus* var. *chorisianus*, 07/12/2012, Jim West.

Nutlet collection data: 2013-438, *Plagiobothrys chorisianus* var. *chorisianus*, 06/30/2013, Jim West.

Nutlet collection data: 2015-277, *Plagiobothrys chorisianus* var. *chorisianus*, 05/30/2015, Jim West.

#3) 37.090280, -122.256243, elevation 494 feet/West's Spring Marsh.

Nutlet collection data: 2007-1216, *Plagiobothrys chorisianus* var. *chorisianus*, 08/10/2007, Jim West.

Nutlet collection data: 2007-1217, *Plagiobothrys chorisianus* var. *chorisianus*, 08/10/2007, Jim West.

Nutlet collection data: 2007-1218, *Plagiobothrys chorisianus* var. *chorisianus*, 07/20/2007, Jim West.

Nutlet collection data: 2008-1546, *Plagiobothrys chorisianus* var. *chorisianus*, 06/09/2008, Jim West.

Nutlet collection data: 2009-759, *Plagiobothrys chorisianus*, 06/30/2009, Jim West.

Nutlet collection data: 2011-200, *Plagiobothrys chorisianus* var. *chorisianus*, 06/30/2011, Jim West.

Nutlet collection data: 2012-393, *Plagiobothrys chorisianus* var. *chorisianus*, 07/12/2012, Jim West.

Nutlet collection data: 2015-274, *Plagiobothrys chorisianus* var. *chorisianus*, 06/06/2015, Jim West.

#4) 37.087793, -122.253783, elevation 363 feet/Marti's Park Marsh.

Nutlet collection data: 2008-1543, *Plagiobothrys chorisianus* var. *chorisianus*, 08/03/2008, Jim West.

Nutlet collection data: 2009-758, *Plagiobothrys chorisianus*, 06/21/2009, Jim West.

Nutlet collection data: 2011-204, *Plagiobothrys chorisianus* var. *chorisianus*, 06/30/2011, Jim West

Nutlet collection data: 2013-525, *Plagiobothrys chorisianus* var. *chorisianus*, 07/07/2013, Jim West.

Nutlet collection data: 2014-130, *Plagiobothrys chorisianus* var. *chorisianus*, 09/13/2014, Jim West.

Nutlet collection data: 2015-275, *Plagiobothrys chorisianus* var. *chorisianus*, 06/05/2015, Jim West.

#5) 37.085977, -122.250351, elevation 123 feet/Lower Gianone Barn Gulch Marsh.

Note: Small population observed over the course of several years, growing deep within marsh and the whole area currently overridden with *Conium maculatum*. No pressings or nutlet collections made for this population.

#6) 37.08039ee7, -122.260675, elevation 383 feet/Lasher Marsh.

Herbarium data: JEPS82766, *Plagiobothrys chorisianus* var. *chorisianus*, James A. West, 69, 1983-5-3.

#7) 37.080889, -122.250129, elevation 248 feet/Central section of Old Road, where horse trail intersects at water tank.

Herbarium data: JEPS82567, *Plagiobothrys chorisianus* var. *chorisianus*, James A. West, 162, 1983-7-8.

#8) 37.075369, -122.247311, elevation 375 feet/Bulb Field aka Hayfield.

Nutlet collection data: 2013-58, *Plagiobothrys chorisianus* var. *chorisianus*, 05/03/2013, Jim West.

*Deschampsia cespitosa* subsp. *holciformis*

\*\**Deschampsia cespitosa* subsp. *holciformis*/within Santa Cruz County, separated by elevation, at least two subsp. of *D. cespitosa* are known to occur [ subsp. *cespitosa* and subsp. *holciformis*] and to what extent gene flow between these two subspecies has taken place, remains a research topic to pursue. The Scott Creek Watershed/Environs populations are quite uniform as to the characters defining subsp. *holciformis* and a morphometric analysis between the populations on Calpoly's Swanton Pacific Ranch coastal terrace populations with those occurring in neighboring San Mateo County [between Ano Nuevo and Gazos Creek], should be undertaken and then compared with the higher elevation populations [subsp. *cespitosa*?] at Marshall Field [Santa Cruz County].

#1) 37.078806, -122.260943, elevation 374 feet/coastal terrace near head of Gulch #1 [Old H-H Ranch].

Herbarium data: JEPS83108, *Deschampsia cespitosa* subsp. *holciformis*, Roy E. Buck and James A. West, 350, 1983-6-11.

#2) 37.075345, -122.252538, elevation 477 feet/upper edge of slope, between Buckeye Grove and Cement Reservoir and bisected by Back Ranch Road.

Cypselae collection data: 2012-113, *Deschampsia cespitosa* subsp. *holciformis*, 10/10/2012, Jim West.

Cypselae collection data: 2013-129, *Deschampsia cespitosa* subsp. *holciformis*, 07/07/2013, Jim West.

Cypselae collection data: 2014-68, *Deschampsia cespitosa* subsp. *holciformis*, 06/25/2014, Jim West.

Cypselae collection data: 2016-225, *Deschampsia cespitosa* subsp. *holciformis*, 08/28/2016, Jim West.

#3) 37.070047, -122.255157, elevation 355 feet/coastal prairie, between Morehus Arroyo and lower Big Willow Gulch.

Cypselae collection data: 2007-1212, *Deschampsia cespitosa* subsp. *holciformis*, 07/30/2007, Jim West.

Cypselae collection data: 2009-665, *Deschampsia cespitosa* subsp. *holciformis*, 06/28/2009, Jim West.

#4) 37.077134, -122.260112, elevation 373 feet/Western Terrace (coastal prairie) between Allium Marsh (Gulch #2) and Gulch #3.

Cypselae collection data: 2012-345, *Deschampsia cespitosa* subsp. *holciformis*, 06/08/2012, Jim West.

Cypselae collection data: 2013-130, *Deschampsia cespitosa* subsp. *holciformis*, 09/12/2013, Jim West.

#5) 37.071881, -122.253208, elevation 385 feet/"micro-refugium", overlooking Frog Pond/central section of Big Willow Gulch.

Cypselae collection data: 2013-128, *Deschampsia cespitosa* subsp. *holciformis*, 06/21/2013, Jim West.

#6) 37.072653, -122.257575, elevation 442 feet/oceanside edge of coastal prairie overlooking Gulch #5[#7]

Cypselae collection data: 2013-131, *Deschampsia cespitosa* subsp. *holciformis*, 08/06/2013, Jim West.

#7) 37.071870, -122.255500, elevation 363 feet/oceanside edge of Western Terrace [coastal prairie], between e & w forks of Big Willow Gulch.

Cypselae collection data: 2014-66, *Deschampsia cespitosa* subsp. *holciformis*, 08/17/2014, Jim West.

#8) 37.070683, -122.254647, elevation 359 feet/edge of Western Terrace [coastal prairie] overlooking lower Big Willow Gulch/Highway 1.

Cypselae collection data: 2014-67, *Deschampsia cespitosa* subsp. *holciformis*, 08/26/2014, Jim West.

### *Plagiobothrys bracteatus*

\*\**Plagiobothrys bracteatus*/this variable taxon, is uncommon within Santa Cruz County, and in the Scott Creek Watershed/Environs, has possibly been misdiagnosed as *Plagiobothrys hispidulus*, which is out of TJM2 range for this species [OBI45560, *Plagiobothrys hispidulus*, David J. Keil, V.L. Holland and Larry Kelly, 20636, 1988-5-7]. All of the documented populations, as listed below, should be carefully evaluated and when possible, raised out to determine, if more than one taxon is masquerading as the bonafide *P. bracteatus*.

#1) 37.091403, -122.248606, elevation 154 feet/sw-facing drainage area (alluvial fan) of unnamed gulch, between Calf Gulch and Purdy Road cattleguard.

Nutlet collection data: 2009-753, *Plagiobothrys* aff. *bracteatus*, 06/03/2009, Jim West.

#2) 37.082495, -122.246746, elevation 123 feet/lower Schoolhouse Gulch Road where it interdicts Purdy Road.

Nutlet collection data: 2009-635, *Plagiobothrys* aff. *bracteatus*, 05/28/2009, Jim West.

Nutlet collection data: 2009-754, *Plagiobothrys* aff. *bracteatus*, 06/03/2009, Jim West.

Nutlet collection data: 2011-202, *Plagiobothrys* aff. *bracteatus*, 06/30/2011, Jim West.

Nutlet collection data: 2012-54, *Plagiobothrys* aff. *bracteatus*, 05/27/2012, Jim West.

Nutlet collection data: 2012-210, *Plagiobothrys* aff. *bracteatus*, 07/29/2012, Jim West.

Nutlet collection data: 2012-546, *Plagiobothrys* aff. *bracteatus*, 06/09/2012, Jim West.

Nutlet collection data: 2016-272, *Plagiobothrys* aff. *bracteatus*, 05/16/2016, Jim West.

#3) 37.059694, -122.225832, elevation 111 feet/seasonally moist depressions on old dirt road, paralleling Swanton Road, between the entrance to Old Schoolhouse Gulch Road and the Big Creek Fire Station.

Nutlet collection data: 2007-1175, *Plagiobothrys* aff. *bracteatus*, 05/22/2007, Jim West.

Nutlet collection data: 2008-1542, *Plagiobothrys* aff. *bracteatus*, 05/16/2008, Jim West.

Nutlet collection data: 2009-755, *Plagiobothrys* aff. *bracteatus*, 06/03/2009, Jim West.

Nutlet collection data: 2009-757, *Plagiobothrys* aff. *bracteatus*, 05/16/2009, Jim West.

#4) 37.084075, -122.246812, elevation 113 feet/edge of Squirrel Flat paralleling Purdy Road, which is saturated during the Winter/Spring months.

Nutlet collection data: 2009-756, *Plagiobothrys* aff. *bracteatus*, 06/14/2009, Jim West.

Nutlet collection data: 2013-268, *Plagiobothrys* aff. *bracteatus*, 06/04/2013, Jim West.

Nutlet collection data: 2015-272, *Plagiobothrys* aff. *bracteatus*, 06/22/2015, Jim West.

Nutlet collection data: 2015-273, *Plagiobothrys* aff. *bracteatus*, 05/30/2015, Jim West.

#5) 37.069091, -122.231561, elevation 74 feet/Swanton Pacific Ranch, along horse trail proximal to the confluence of Big and Scott Creeks.

Nutlet collection data: 2011-203, *Plagiobothrys* aff. *bracteatus*, 06/30/2011, Jim West.

Nutlet collection data: 2012-545, *Plagiobothrys* aff. *bracteatus*, 06/09/2012, Jim West.

Nutlet collection data: 2016-274, *Plagiobothrys* aff. *bracteatus*, 05/11/2016, Jim West.

#6) 37.074836, -122.239199, elevation 110 feet/drainage ditch along Swanton Road, between entrance to Old Miller Ranch and Canfield driveway.

Nutlet collection data: 2012-92, *Plagiobothrys* aff. *bracteatus*, 05/27/2012, Jim West.

Nutlet collection data: 2012-280, *Plagiobothrys* aff. *bracteatus*, 05/16/2012, Jim West.

Nutlet collection data: 2014-341, *Plagiobothrys* aff. *bracteatus*, 05/24/2014, Jim West.

Nutlet collection data: 2017-261, *Plagiobothrys* aff. *bracteatus*, 07/02/2017, Jim West.

**Volume 6***Agoseris hirsuta*

\*\**Agoseris hirsuta*/this uncommon species was documented from the Old H-H Ranch in the early 1980s, growing on the ne-facing windswept slope forming the Magic Triangle Ridge (in reality, an eastward dipping synform, the above ground manifestation of the underlying syncline).

#1) 37.079517, -122.257291, elevation 550 feet.

Herbarium data: JEPS83123, *Agoseris hirsuta*, Roy E. Buck and James A. West, 375, 1983-6-23.

*Stachys chamissonis*

\*\**Stachys chamissonis*/this uncommonly beautiful native member of the Lamiaceae, occurs in only one place within the Scott Creek Watershed/Environs, namely the China Ladder Marsh. Within the marsh, *S. chamissonis*, supported by colonies of *Rubus ursinus* and low hanging *Salix lasiolepis* branches, can reach 2.5m in height.

#1) 37.066502, -122.251370, elevation 320 feet/China Ladder Marsh

Herbarium data: JEPS81507, *Stachys chamissonis*, Roy E. Buck and James A. West, 16, 1982-6-11.

Herbarium data: JEPS81508, *Stachys chamissonis*, Roy E. Buck and James A. West, 16, 1982-6-11.

Nutlet collection data: 2009-671, *Stachys chamissonis*, 09/01/2009, Jim West.

Nutlet collection data: 2011-408, *Stachys chamissonis*, 10/17/2011, Jim West.

Nutlet collection data: 2013-123, *Stachys chamissonis*, 10/22/2013, Jim West.

*Agrostis aff. exarata*

\*\**Agrostis aff. exarata*/a distinctive member of the *A. exarata* alliance, which occurs in ancient marshes within the Scott Creek Watershed and occasionally elsewhere in Santa Cruz County. While this taxon's awnless lemmas would place it within what used to be called var. *exarata* (which occurs along the n-end of Swanton Road in seasonally wet drainage ditches), the habitat, robust growth gestalt and dense/interrupted inflorescences, immediately remove it from the roadside relative. This local native grass, due to its overall distinctiveness, warrants being raised out under controlled conditions and analyzed on both a morphological and molecular level, to see if the observable differences reflect underlying genetic support.

#1) 37.094515, -122.257274, elevation 618 feet/Beaver Flat Marsh, upper end.

Caryopsis collection data: 2007-577, *Agrostis exarata*, 08/06/2007, Jim West.

Caryopsis collection data: 2013-247, *Agrostis exarata*, 07/07/2013, Jim West.

Caryopsis collection data: 2013-248, *Agrostis exarata*, 07/07/2013, Jim West.

#2) 37.087858, -122.254144, elevation 376 feet/Marti's Park Marsh.

Caryopsis collection data: 2013-249, *Agrostis exarata*, 07/07/2013, Jim West.

Caryopsis collection data: 2013-250, *Agrostis exarata*, 07/07/2013, Jim West.

Caryopsis collection data: 2013-251, *Agrostis exarata*, 07/07/2013, Jim West.

*Lasthenia glaberrima*

\*\**Lasthenia glaberrima*/"Frog Pond", seasonal body of water which drains into upper portion of Beaver Flat Marsh. This isolated population has not been seen in recent years and during May 30, 1983, when the below documentation

was made, another county wide rarity was documented [*Phalaris angusta*], but no trace of that herbarium pressing can be found..... it may exist in the late Roy Buck's collection of Scott Creek Watershed pressings, some that still await being accessioned at the Jepson Herbarium or elsewhere.

#1) 37.095682, -122.258193, elevation 653 feet.

Herbarium data: JEPS82599, *Lasthenia glaberrima*, James A. West, 104, 1983-5-30.

*Plectritis ciliosa*

\*\**Plectritis ciliosa*/only one localized population for this native taxon has been documented for the Scott Creek Watershed/Environs as well as for Santa Cruz County. The plants in this isolated population, growing along Swanton Road between the entrance to Old Schoolhouse Road and the Big Creek Fire Station, all have the two reddish spots on the lower lip, where it is attached to the corolla tube. A population should be raised out for comparison with populations in neighboring counties and making herbarium sheets.

#1) 37.058514, -122.225447, elevation 87 feet.

Achene collection data: 2007-1161, *Plectritis ciliosa*, 05/22/2007, Jim West.

Achene collection data: 2009-663, *Plectritis ciliosa*, 06/16/2007, Jim West.

Achene collection data: 2009-891, *Plectritis ciliosa*, 05/15/2009, Jim West.

Achene collection data: 2012-294, *Plectritis ciliosa*, 05/12/2012, Jim West.

Achene collection data: 2013-190, *Plectritis ciliosa*, 05/12/2013, Jim West.

Achene collection data: 2014-339, *Plectritis ciliosa*, 05/25/2014, Jim West.

Achene collection data: 2015-235, *Plectritis ciliosa*, 04/28/2015, Jim West.

*Pogogyne serpylloides*

\*\**Pogogyne serpylloides*/this diminutive native member of the Lamiaceae, has only been observed twice in the Scott Creek Watershed/Environs..... (a) the Sandy-bottom Reservoir [37.074030, -122.252903, elevation 461 feet], which was never documented via herbarium pressings nor seed and (b) on a w-facing slope overlooking the upper Big Willow Gulch, which was pressed and deposited with the Jepson Herbarium. The intensity of scent this Lilliputian mint gives off when stepped on, is such, that one smells it long before seeing it.

#1) 37.072051, -122.251627, elevation 411 feet.

Herbarium data: JEPS82600, *Pogogyne serpylloides*, James A. West, 139, 1983-6-24.

*Crassula aquatica*

\*\**Crassula aquatica*/unlike its sister species, *Crassula connata*, this miniature native annual rarely makes an appearance in the Scott Creek Watershed/Environs. A careful cataloging of all the micro-species growing in the seasonally wet habitats on the Western Terrace [coastal prairie] and adjacent areas [including all of the abandoned reservoirs] should be initiated.

#1) 37.041914, -122.228903, elevation 10 feet/Scott Creek Marsh, exact location within the marsh is uncertain, based on the herbarium sheet's lack of specific data.

Herbarium data: OBI72953, *Crassula aquatic*, David J. Keil, 20560, 1988-5-3.

#2) 37.078653, -122.265337, elevation 7 feet/s-end of Greyhound Rock Beach, seasonally wet/marshy area behind back dunes. Many seasonal storms have come and gone since this population's seeds were collected and the entire

dune system has changed radically. The seasonally wet, marsh like habitat no longer exists and the seed collection, is the only documentation for that taxon's presence along Greyhound Rock's south end beach system.

Seed collection data: 1982-38, *Crassula* [Tillaea] *aquatica*, 06/23/1982, Jim West.

#3) 37.074030, -122.252903, elevation 461 feet/Sandy-bottom Reservoir. Populations, of both *Crassula aquatica* and *Pogogyne serpylloides*, which grew sympatrically in this artificially sculpted water storage area, have not been seen in recent years.

Seed collection data: 1982-47, *Crassula* [Tillaea] *aquatica*, 06/13/1982, Jim West.

**Volume 7***Juncus hesperius x patens*

\*\**Juncus hesperius x patens*/this naturally occurring F1 hybrid, had not been documented prior to the 1982/1983 pressings made on the H-H Ranch [the sites of the two pressings, Pumpkin Field Marsh and Sandy Bottom Reservoir] now part of the CalPoly/Swanton Pacific Ranch holdings. The below listed in situ seed/inflorance collections, represent a selection of those F1 hybrids found growing on property currently owned by the CalPoly Corporation and are housed at the UCSC Arboretum. The Arboretum also holds extensive in situ seed/inflorance collections, documenting this F1 hybrid collected elsewhere within the Scott Creek Watershed/Environs, plus seed collections gathered from ex situ raised F2 plants, representing the next generation of the original in situ F1 hybrids. The fertility of the F2 raised hybrids varies considerably from plant to plant, and four F3 generation ex situ plants have been raised producing an abundance of capsules filled with fully formed ovules suggesting that apomixis may be occurring..... all of this, from the in situ F1 hybrids up thru the ex situ raised F3 generation, represent terra incognita as to whether plants growing within naturally occurring mixed species populations, are valid species or natural hybrids passing as species. The F1 hybrids, while generally having culms green as in the *J. hesperius* parent, often possess a slight bluish cast when viewed relative to the time of day/angle of the sunlight reaching the plant(s) in question but usually have mature capsules overtopped by the perianth parts and when the flowers are open, six stamens are usually present [*J. hesperius* has three stamens while *J. patens* has six]. Because the F1 hybrids generally mimic the *J. hesperius* parent in the mixed *J. hesperius*/*J. patens* populations and to what extent backcrossing or obligate selfing may also occur, this hybrid could be more common than its lack of past documentation may suggest.

#1) 37.074067, -122.252903, elevation 462 feet/Sandy Bottom Reservoir

Herbarium data: JEPS83075, *Juncus hesperius*, Roy E. Buck and James A. West, 407, 1983-7-3.

Seed collection data: 2011-275, *Juncus x hesperius x patens*, 12/08/2011, Jim West.

Seed collection data: 2012-485, *Juncus x hesperius x patens*, 08/27/2012, Jim West.

Seed collection data: 2012-486, *Juncus x hesperius x patens*, 08/27/2012, Jim West.

Seed collection data: 2012-487, *Juncus x hesperius x patens*, 08/27/2012, Jim West.

Seed collection data: 2012-491, *Juncus x hesperius x patens*, 08/23/2012, Jim West.

Seed collection data: 2012-492, *Juncus x hesperius x patens*, 08/23/2012, Jim West.

Seed collection data: 2013-219, *Juncus x hesperius x patens*, 06/02/2013, Jim West.

Seed collection data: 2013-220, *Juncus x hesperius x patens*, 06/02/2013, Jim West.

Seed collection data: 2013-321, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2013-325, *Juncus x hesperius x patens*, 06/02/2013, Jim West.

Seed collection data: 2013-326, *Juncus x hesperius x patens*, 11/07/2013, Jim West.

Seed collection data: 2013-327, *Juncus x hesperius x patens*, 11/07/2013, Jim West.

Seed collection data: 2013-417, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2013-418, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2015-361, *Juncus x hesperius x patens*, 07/24/2015, Jim West.

#2) 37.064987, -122.246142, elevation 406 feet/Solar Panel Gate Gulch [w-fork of Cowboy Shack Gulch]

Seed collection data: 2012-313, *Juncus x hesperius x patens*, 11/12/2012, Jim West.

Seed collection data: 2012-314, *Juncus x hesperius x patens*, 11/12/2012, Jim West.

Seed collection data: 2012-315, *Juncus x hesperius x patens*, 11/12/2012, Jim West.

Seed collection data: 2012-316, *Juncus x hesperius x patens*, 11/12/2012, Jim West.

Seed collection data: 2012-317, *Juncus x hesperius x patens*, 11/12/2012, Jim West.

Seed collection data: 2012-318, *Juncus x hesperius x patens*, 11/12/2012, Jim West.

Seed collection data: 2012-319, *Juncus x hesperius x patens*, 11/12/2012, Jim West.

Seed collection data: 2012-493, *Juncus x hesperius x patens*, 08/17/2012, Jim West.

Seed collection data: 2012-494, *Juncus x hesperius x patens*, 08/17/2012, Jim West.

Seed collection data: 2012-495, *Juncus x hesperius x patens*, 08/17/2012, Jim West.

Seed collection data: 2012-496, *Juncus x hesperius x patens*, 08/18/2012, Jim West.

Seed collection data: 2012-497, *Juncus x hesperius x patens*, 08/14/2012, Jim West.

Seed collection data: 2012-498, *Juncus x hesperius x patens*, 08/14/2012, Jim West.

Seed collection data: 2012-499, *Juncus x hesperius x patens*, 08/14/2012, Jim West.

Seed collection data: 2013-178, *Juncus x hesperius x patens*, 08/12/2013, Jim West.

Seed collection data: 2013-420, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2013-421, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2013-422, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2014-359, *Juncus x hesperius x patens*, 01/23/2014, Jim West.

Seed collection data: 2015-355, *Juncus x hesperius x patens*, 08/20/2015, Jim West.

Seed collection data: 2015-368, *Juncus x hesperius x patens*, 08/11/2015, Jim West.

#3) Between 37.072714, -122.249625, elevation 448 feet and 37.073240, -122.250283, elevation 440 feet/Big Willow Marsh.

Seed collection data: 2011-277, *Juncus x hesperius x patens*, 12/10/2011, Jim West.

Seed collection data: 2011-278, *Juncus x hesperius x patens*, 12/10/2011, Jim West.

Seed collection data: 2012-236, *Juncus x hesperius x patens*, 07/29/2012, Jim West.

Seed collection data: 2012-237, *Juncus x hesperius x patens*, 07/29/2012, Jim West.

Seed collection data: 2012-238, *Juncus x hesperius x patens*, 07/29/2012, Jim West.

Seed collection data: 2012-239, *Juncus x hesperius x patens*, 07/29/2012, Jim West.

Seed collection data: 2012-320, *Juncus x hesperius x patens*, 11/09/2012, Jim West.

Seed collection data: 2012-321, *Juncus x hesperius x patens*, 11/09/2012, Jim West.

Seed collection data: 2013-72, *Juncus x hesperius x patens*, 05/09/2013, Jim West.

Seed collection data: 2013-73, *Juncus x hesperius x patens*, 05/09/2013, Jim West.

Seed collection data: 2013-179, *Juncus x hesperius x patens*, 05/28/2013, Jim West.

Seed collection data: 2013-221, *Juncus x hesperius x patens*, 05/28/2013, Jim West.

Seed collection data: 2013-322, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2013-328, *Juncus x hesperius x patens*, 11/07/2013, Jim West.

Seed collection data: 2013-423, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2013-424, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2013-427, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2013-428, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2013-429, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2013-430, *Juncus x hesperius x patens*, 07/12/2013, Jim West.

Seed collection data: 2014-307, *Juncus x hesperius x patens*, 06/26/2014, Jim West.

Seed collection data: 2014-308, *Juncus x hesperius x patens*, 06/24/2014, Jim West.

Seed collection data: 2014-309, *Juncus x hesperius x patens*, 06/24/2014, Jim West.

Seed collection data: 2014-351, *Juncus x hesperius x patens*, 07/07/2014, Jim West.

Seed collection data: 2014-352, *Juncus x hesperius x patens*, 07/07/2014, Jim West.

Seed collection data: 2014-353, *Juncus x hesperius x patens*, 07/07/2014, Jim West.

Seed collection data: 2015-269, *Juncus x hesperius x patens*, 10/28/2015, Jim West.

Seed collection data: 2015-356, *Juncus x hesperius x patens*, 09/09/2015, Jim West.

Seed collection data: 2015-357, *Juncus x hesperius x patens*, 09/10/2015, Jim West.

Seed collection data: 2015-367, *Juncus x hesperius x patens*, 08/11/2015, Jim West.

#4) 37.068744, -122.250834, elevation 428 feet/Slope overlooking Western Terrace, between China Ladder Marsh and Morehus Arroyo, proximal to Grey Hayes's Test Plot.

Seed collection data: 2011-234, *Juncus x hesperius x patens*, 12/25/2011, Jim West.

Seed collection data: 2011-235, *Juncus x hesperius x patens*, 12/25/2011, Jim West.

Seed collection data: 2015-360, *Juncus x hesperius x patens*, 07/24/2015, Jim West.

#5) 37.072354, -122.251540, elevation 406 feet/seasonally wet dirt road paralleling Upper Big Willow Gulch down to Frog Pond.

Seed collection data: 2013-176, *Juncus x hesperius x patens*, 08/15/2013, Jim West.

Seed collection data: 2013-177, *Juncus x hesperius x patens*, 08/15/2013, Jim West.

#6) 37.073139, -122.255444, elevation 384 feet/Pumpkin Field Marsh [central portion].

Herbarium data: JEPS81543, *Juncus*, Roy E. Buck and James A. West, 114, 1982-8-29.

Seed collection data: 2014-350, *Juncus x hesperius x patens*, 07/06/2014, Jim West.

#7) 37.075147, -122.254081, elevation 438 feet/e-edge of dirt road connecting Back Ranch Road to w-end of the Pumpkin Field Marsh.

Seed collection data: 2013-223, *Juncus x hesperius x patens*, 08/06/2013, Jim West.

Note: When raising out the *Juncus hesperius x patens* F1, F2, F3 hybrids, it is important to understand that the fertile seed is pin prick in size and intermixed with abortive seeds and chaff like capsule fragments. The seeds are best

sown on a sterile medium that is lightly covered with a layer of small sized gravel/sand particles as one may find stream side sand bars composed of. Scatter the seeds (fertile, sterile and chaff) over the uneven seed bed surface and thoroughly mist until the seeds are positioned in between the top dressing's granular components. Keep growing containers moist and covered with a pane of glass or some similar light transmitting but moisture retaining material. As the viable seeds imbibe the surrounding moisture and begin to swell, usually after 1-2 weeks, the first cotyledon should appear and along with the first leaf, looks less than the terete culms of either hybrid parent but more like a species of grass. Eventually, the terete culms will appear and can range in color, from the glaucous/blue of the *J. patens* parent to grass green, derived from the *J. hesperius* parent. The terete culms of the adult plants may be originally derived from an ancestral grass like leaf that infolded on itself and eventually fused its margins, becoming terete in gestalt. With the adult foliage of *Juncus* species ranging from grass like (*J. occidentalis*) thru iris mimics (*J. xiphioides* and *J. phaeocephalus*), the terete culmed *Juncus* species may be the most recent in evolutionary derivation.