

INTRODUCTION TO THE CHECKLIST

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Third Edition, June 1, 2021

At the start of 2020 my wife and I were all set to begin exploring the South Pacific. Starting year three of our nomadic life we were headed for New Caledonia (to see the serpentine soils and native stands of *Araucaria*), then to island-hop our way towards Southeast Asia. But after a month and a half of car camping in Japan, two months of the same in New Zealand, and with typhoon season about to start in the South Pacific we decided to take a break in Hawaii before picking up the trail again. Then the world shut down due to the Coronavirus pandemic.

To be sure, there are worse places to get stuck. And we counted our blessings that we weren't in the Solomon Islands when the pandemic hit. But I needed something to fill my days while we waited and hoped for the world to reopen. After encouragement from my colleagues in the Yerba Buena Chapter of the California Native Plant Society (CNPS), and with reliable internet access, updating our chapter's 2nd edition of the *Annotated Checklist of the Vascular Plants of San Francisco* (Checklist) seemed the perfect pandemic project.

When I joined chapter's board of directors in 1994, I was in awe of the stores of knowledge my fellow board members had regarding what grows where. These observations, collected since the late 1970s, were stored in the minds of the "old-timers" and

recorded on loose sheets of paper stuffed into files, folders, and cabinets, and tucked into the pages of dog-eared copies of *A California Flora* (Munz and Keck, 1973) and *The Jepson Manual* (Baldwin, et al., 1993).

The last flora of San Francisco County was completed in 1958 (Howell, *et al.*). Other local floras to which we frequently refer include those covering San Bruno Mountain (McClintock, *et al.* 1990) and the Santa Cruz Mountains (Thomas, 1961). Marin County has its updated flora (Howell, *et al.* 2007) as does the East Bay (Ertter and Naumovich, 2013). I asked my colleagues if we shouldn't undertake the effort to compile the species lists that had been amassed. I was "volunteered" for the job. The 1st edition of the Checklist was released in 2010.

It was my intention to compile all that knowledge into a master list of the plant species one might encounter when exploring San Francisco's hills, dunes, meadows, coastal bluffs, and seashores. I'm a big fan of local lists and you can find excellent examples on the websites of our neighboring chapters. By providing a comprehensive guide to native and nonnative plants in the city's natural and naturalized places I hoped to inspire folks to both investigate and protect these remaining pockets of diversity.

In addition to the Checklist, I parsed out the occurrence data to produce individual lists for 58 natural areas. All of these lists are available as free, downloadable PDFs¹. These lists will be updated with release of the 3rd edition of the Checklist.

This effort led to three spin-off projects: Checklist of the Extirpated Plants of San Francisco², a list of the rare plants of San Francisco, and a list of the Locally Significant Plants of San Francisco³. Finally, in 2013, I wrote a pair of articles discussing the objectives and methods used in compiling the 2nd edition of the Checklist⁴.

Since release of the 2nd edition of the Checklist in 2014 there have been a lot of boots on the ground surveying and restoring natural areas in the city. Folks with the Presidio Trust and Golden Gate National Recreation Area (GGNRA) have undertaken significant efforts to document and restore natural plant communities found on lands under their jurisdiction. Similarly, the San Francisco Recreation and Parks Department (RPD) has directed hundreds of volunteer work parties to eradicate invasive plants and protect natural stands of native species on city-owned properties. In addition, organizations such as the California Academy of Sciences, Nature in the City, and RPD have hosted many bioblitzes. The bioblitz, a term first coined by the United States National Park Service in 1996, is a focused effort to record all living organisms within a specific area in the span

of 24 hours. Bioblitzes are a wonderful way to put citizen scientists in direct contact with scientists and experienced naturalists and increase the coverage of targeted areas.

Another notable change since release of the 2nd edition was the creation of the iNaturalist database⁵. A joint initiative by the National Geographic Society and the California Academy of Sciences, iNaturalist provides a platform for anyone with an interest in the natural world to share their observations with a broad community of experts and novices. Since the first plant was recorded in 2010 in iNaturalist, over 103,000 verifiable plant observations have been recorded for San Francisco County. Considering these facts and the many changes in taxonomy and rarity ratings, it made sense to issue an update to the Checklist.

WHAT'S NEW

Like the 2nd edition, this updated and expanded Checklist is intended to serve as an easy-to-use guide to the floristic diversity of San Francisco County. I wish to emphasize that the Checklist is entirely the result of desktop analysis and is not supported by ground-truthing, collection of voucher specimens, or the review of herbaria records.

¹ <https://www.wood-biological.com/san-francisco-plant-checklist/>

² <http://cnps-yerbabuena.org/the-extirpated-plants-of-san-francisco/>

³ <http://cnps-yerbabuena.org/locally-significant-plants-of-san-francisco/>

⁴ Part 1: <http://cnps-yerbabuena.org/checklist-of-the-extant-flora-of-san-francisco/>

Part 2: <http://cnps-yerbabuena.org/annotated-checklist-of-the-vascular-plants-of-san-franciscos-natural-areas-pt-ii/>

⁵ www.inaturalist.org

The 3rd edition of the Checklist covers all taxa indigenous to San Francisco, as well as introduced California natives, nonnatives, and naturalized and non-naturalized taxa. Records include both historic and extant reports and include 1,616 distinct taxa. The composition of the 3rd edition differs from that of the 2nd edition. Notably, the total number of extant species has increased from 1,027 to 1,170 and the number of extant indigenous taxa increased from 468 to 508. There has also been a dramatic increase in the number of nonnative taxa, from 417 to 643. A comparison of the taxa included in the 2nd and 3rd editions of the Checklist is presented in Table 1.

Table 1. Comparison of the 2nd and 3rd Editions of the Checklist

	2 nd ed. 2014		3 rd ed. 2021	
Families	117		105	
Genera	474		498	
Taxa	1,027		1,170	
SF Indigenous Taxa	468	45.6%	508	43.4%
Nonnative Taxa	417	40.6%	643	54.9%
Invasive Taxa	103	10.0%	96	8.2%
Reintroduced Taxa	17		30	
Listed Rare Taxa	24	2.3%	25	2.1%

In the 2nd edition of the Checklist, taxa were sorted by family, an arrangement that many users found confounding. In the 3rd edition, taxa are sorted alphabetically by genus, with a three-letter code to indicate families. For those users who think in terms of families, I have created a separate table listing all plant

families covered in the Checklist along with each genus to aid in cross-referencing (see Appendix 3). The table also includes a cross-reference to family and genus names that have undergone recent taxonomic changes to aid users not yet familiar with new names. An explanation of abbreviations and acronyms used throughout the Checklist is provided inside the back cover.

Whereas the 2nd edition of the Checklist included only extant plant taxa, with extirpated taxa compiled in a separate list, the 3rd edition includes all plant taxa ever reported from San Francisco, extant and extirpated. For purposes of the Checklist, extirpated taxa are those not seen since 1980. The date 1980 might seem like an arbitrary cutoff between historic and contemporary. But after an informal poll of my fellow board members, it was agreed that it is a reasonable date to mark the beginning of the modern era characterized by renewed efforts to survey and restore San Francisco’s natural areas.

In updating the scientific names of our plants, I quickly encountered conflicts between the nomenclature used by the Jepson Flora Project (JFP, 2021) and that found in *Plants of the World Online* (POWO, 2019), the source of names found in the iNaturalist database. In the Checklist, scientific nomenclature and taxonomy conform to JFP. Where they differ, I’ve included POWO nomenclature in the “notes” field as POWO provides what is arguably the most current nomenclature, and that which may ultimately be adopted by JFP. The names used by iNaturalist are included in the “notes” field followed by the word “pending.” Synonyms and misapplied names conform to JFP (2021), Hrusa (2006), Flora of North America (FNA, 1993+),

and/or U.S. Department of Agriculture (USDA, 2021) and are shown between square brackets [] in the “notes” field.

For those interested in cross-referencing nomenclature used in the Checklist, scientific names used in *The Flora of San Francisco* (Howell, *et al.*, 1958) have been UNDERLINED. Taxa in **BOLD TYPE** are listed as endangered, threatened or rare by the federal and state governments and CNPS. All extirpated taxa are HIGHLIGHTED, making them easy to spot when scanning the list. Extirpated indigenous taxa that have been reintroduced are indicated with (r).

Common names conform to JFP (2021). While JFP includes a range of common names for most species, only a single common name is included in the Checklist. There will no doubt be disagreement with some of the names chosen for the Checklist. Bear in mind that this list is intended to be dynamic, and changes made to the online version are instantly available.

In compiling occurrence records, I made a careful review of the online records in the Consortium of California Herbaria (CCH), reviewing every collection recorded for San Francisco County. The “notes” field now includes a list of all locations from which each native taxon has been collected or reported historically (i.e., prior to 1980); the earliest year in which each was collected or recorded is noted. For all extirpated indigenous taxa, the date of the most recent collection or report has been included. I have also indicated which indigenous taxa are not represented by herbarium specimens in CCH and for which a voucher specimen is needed.

Contemporary plant observations (i.e., 1980 and later) are based on field notes assembled by and personal communications with knowledgeable persons, staff of the Presidio Trust, Golden Gate National Recreation Area (GGNRA), and RPD, as well as published and unpublished lists contained in technical reports and planning documents. I reviewed all San Francisco reports contained in the Calflora database (2020-2021) and over 40,000 “research grade” observations in iNaturalist (2020-2021). The “notes” column lists up to 20 place names of all extant taxa. With the exception of historic references, I have avoided intensively urbanized sites that have little value in terms of biodiversity or habitat preservation or restoration.

For purposes of the Checklist, emphasis has been placed on natural and naturalized areas. Natural areas are defined here as those lands supporting a preponderance of indigenous plant taxa in concentrations that characterize natural plant assemblages. Naturalized areas are those lands that have been adversely impacted by human disturbance or colonization by nonnative plants, but which support abundant naturally occurring indigenous species, examples of natural plant assemblages, or which are in the process of being restored to a more natural condition.

The Checklist covers 67 natural areas, 38 naturalized areas and 17 parks. These lands fall under the jurisdiction of the City and County of San Francisco (including RPD, the Real Estate Division, the San Francisco Public Utilities Commission, the Department of Public Works, and the San Francisco Unified School District); the National Park Service (including GGNRA and the Presidio Trust); the California Department of Parks and

Recreation; the University of California, San Francisco; the University of San Francisco; and numerous privately owned parcels. For a map of the natural, naturalized and park lands, see Nature in the City, *et al.* (2018). A list of San Francisco place names used in the Checklist is presented in Appendix 2.

The “notes” field includes current rarity rankings and invasive status. Rarity rankings have been updated and conform to the California Natural Diversity Database (CNDDDB, 2020; 2021a, 2021b), CNPS (2021), and the U.S. Fish and Wildlife Service (USFWS, 2021). The invasive status conforms to the California Invasive Plant Council (Cal-IPC, 2021), San Francisco Weed Management Area (SFWMA, 2010), California Department of Food and Agriculture (CDFA, 2009), and USDA (2021). Thanks to input from Liam O’Brien (O’Brien, pers. comm.) and Jeffrey Caldwell (2020), I have also added notes on butterfly host plants.

The 3rd edition of the Checklist includes an expanded discussion of the growth habit and ecological affinities of each taxon, and elevational ranges; this data conforms to JFP (2021). Also included are the Wetland Indicator Status (WET), conforming to the U.S. Army Corps of Engineers (USACE, 2018) and the Serpentine Affinity Ratings (SERP), conforming to Safford and Miller (2020). I have added a column to indicate taxa that are endemic to San Francisco, the Bay Area, and California.

BY THE NUMBERS

As mentioned above, the 3rd edition of the Checklist has been expanded to include not only extirpated taxa previously compiled in a separate list but also a great many taxa from historical data and new discoveries. Based on a tally of the current data set, the Checklist lists 1,616 taxa belonging to 679 genera and 136 families. A total 1,170 taxa are believed extant in the city. Of these, 769 (47.6%) are considered indigenous to San Francisco while 816 (50.5%) are introduced. The composition of the historic and extant flora presented in the 3rd edition of the Checklist is summarized in Table 2.

San Francisco currently supports some 24 taxa listed as Endangered, Threatened, or Rare by the federal and/or state governments or by CNPS. A total of 63 rare taxa have been extirpated from San Francisco (see Table 3).

From a management perspective, it is interesting to consider the species diversity at each natural area. The extant flora is comprised of 508 indigenous taxa; 43.4% of the total number of taxa present occurred in the County at the time of colonization. The sites with the greatest diversity of indigenous taxa include Tennessee Hollow (197 taxa, or 38.8% of all extant indigenous taxa), followed by Presidio Bluffs (196 taxa), Glen Canyon (194 taxa), World War II Memorial (180 taxa), and Inspiration Point (170 taxa). Twelve of the top 20 sites in terms of diversity of indigenous species occur in the Presidio. The top 20 sites with the highest diversity of indigenous plants are listed in Table 4.

Table 2. Composition of the Flora of San Francisco

Historic Flora			
Total Families:	136		
Total Genera:	679		
Total Taxa:	1,616		
Total SF Indigenous Taxa:	769	47.6%	
Total Non-Indigenous Taxa:	816	50.5%	
SF Indig. (Status Uncertain):	31		
Extant Flora			
Total Families:	105		
Total Genera:	498		
Total Taxa:	1,170		
Total SF Indigenous Taxa:	507	43.3%	
Total Non-Indigenous Taxa:	643	55.0%	
SF Indigenous taxa (Status Uncertain):	20	1.7%	
Total Invasive* Taxa:	96	8.2%	
Total Reintroduced Taxa:	29		
Total SF Endemic Taxa:	2	0.2%	
Total Bay Area Endemic Taxa:	10	0.9%	
Total CA Endemic Taxa:	102	8.7%	
Total Fed Listed Taxa:	6	0.5%	
Total State Listed Taxa:	4	0.3%	
Total CNPS List 1:	15	1.3%	
Total CNPS List 2:	1	0.1%	
Total CNPS List 3:	1	0.1%	
Total CNPS List 4:	7	0.6%	
Total Fed/St/CNPS List 1-3:	17	1.5%	
*Cal-IPC High and Moderate ratings			

Table 3. Rare Species of San Francisco

Rarity Status Indigenous Only	Extant	Extirpated	Extirpated but Reintroduced
Federally Listed Endangered	5	3	1
Federally Listed Threatened	1	1	0
Federally Listed Rare	0	2	0
State-Listed Endangered	6	4	1
State-Listed Threatened	0	0	0
State-Listed Rare	0	1	0
Total Federally or State- Listed Taxa	12	12	2
CNPS List 1	15	33	2
CNPS List 2	1	5	0
CNPS List 3	1	2	0
CNPS List 4	7	23	1
Total CNPS-Listed Taxa	24	63	3

It is also interesting to look at our natural areas in terms of the diversity of nonnative plants. The extant flora is comprised of 643 introduced taxa; 55% of the total number of taxa present have been introduced since the time of colonization. The sites with the greatest diversity of nonnative taxa include Yerba Buena Island (245 nonnative taxa, 38.1% of all extant nonnative taxa), Glen Canyon (196 taxa), Tennessee Hollow (186 taxa) Lobo Creek Valley (184 taxa) and McLaren Park (176 taxa). The top 20 sites with the highest diversity of nonnative taxa are listed in Table 5.

Table 4. Natural and Naturalized Areas with the Highest Diversity of Indigenous Plant Taxa

Site Name	Total # Of Indigenous Taxa	% Of All Indigenous Taxa*
Tennessee Hollow	197	38.9%
Presidio Bluffs	196	38.7%
Glen Canyon Park	194	38.3%
World War II Memorial	180	35.5%
Inspiration Point	170	33.5%
Presidio Hills	159	31.4%
Fort Point	153	30.2%
Bayview Hill	152	30.0%
Twin Peaks	146	28.8%
Lobos Creek Valley	142	28.0%
Mountain Lake	137	27.0%
McLaren Park	134	26.4%
Crissy Field	133	26.2%
SW Dunes	130	25.6%
Mt. Davidson	128	25.2%
Fort Funston	120	23.7%
O'Shaughnessy Hollow	120	23.7%
Yerba Buena Island	120	23.7%
Crissy Bluffs	114	22.5%
Baker Beach North	111	21.9%

* % of all indigenous plant taxa extant in San Francisco

The introduction and spread of invasive plants have had a profoundly damaging effect on native species diversity and natural plant assemblages. It is therefore important to keep track of these invading species. The extant flora of San Francisco

Table 5. Natural and Naturalized Areas with the Highest Diversity of Nonnative Plant Taxa

Site Name	Total # Of Nonnative Taxa	% Of All Nonnative Taxa*
Yerba Buena Island	245	38.1%
Glen Canyon Park	196	30.5%
Tennessee Hollow	186	28.9%
Lobos Creek Valley	184	28.6%
McLaren Park	176	27.4%
Presidio Hills	168	26.1%
Mountain Lake	161	25.0%
Presidio Bluffs	155	24.1%
Land's End	149	23.2%
Doyle Dr. Natural Area	148	23.0%
Crissy Field	136	21.2%
Fort Point	135	21.0%
Sutro Forest	129	20.1%
World War II Memorial	124	19.3%
Golf Course Natural Area	123	19.1%
Inspiration Point	121	18.8%
SW Dunes	116	18.0%
Crissy Bluffs	112	17.4%
Fort Funston	111	17.3%
Lake Merced	111	17.3%

* % of all indigenous plant taxa extant in San Francisco

includes many invasive plant taxa. A total of 96 taxa, or 8.2% of the extant flora, are considered invasive by Cal-IPC (2021). The 20 sites with the highest number of invasive species are listed in Table 6.

Table 6. Natural and Naturalized Areas with the Highest Diversity of Invasive Plant Taxa

Site Name	Total # Of Invasive* Taxa	% Of All Invasive* Taxa**
Yerba Buena Island	52	54.2%
Tennessee Hollow	50	52.1%
Presidio Bluffs	44	45.8%
Lobos Creek Valley	43	44.8%
McLaren Park	41	42.7%
Mountain Lake	38	39.6%
Presidio Hills	38	39.6%
Glen Canyon Park	37	38.5%
Crissy Bluffs	37	38.5%
Crissy Field	36	37.5%
Fort Point	36	37.5%
Doyle Dr. Natural Area	35	36.5%
World War II Memorial	35	36.5%
Sutro Forest	34	35.4%
Inspiration Point	34	35.4%
Land's End	33	34.4%
Lake Merced	30	31.3%
Twin Peaks	30	31.3%
Golf Course Natural Area	30	31.3%
SW Dunes	30	31.3%

* Cal-IPC rated high, moderate, moderate-alert

** % of all indigenous plant taxa extant in San Francisco

As a means of evaluating the plant diversity of San Francisco's natural areas, it can be helpful to look at the frequency with which each indigenous species occurs. California poppy occurs in 84.8% of the 105 natural and naturalistic areas covered in the Checklist. Table 7 lists the most frequently occurring indigenous taxa found in the city.

Table 7. Most Frequently Occurring Indigenous Plant Taxa*

Species	# Of Areas Found	% Of All Areas*
<i>Eschscholzia californica</i>	89	84.8%
<i>Claytonia perfoliata</i> ssp. <i>perfoliata</i>	79	75.2%
<i>Scrophularia californica</i>	76	72.4%
<i>Achillea millefolium</i>	74	70.5%
<i>Baccharis pilularis</i> ssp. <i>pilularis</i>	74	70.5%
<i>Heteromeles arbutifolia</i>	73	69.5%
<i>Toxicodendron diversilobum</i>	73	69.5%
<i>Rubus ursinus</i>	71	67.6%
<i>Lupinus arboreus</i>	69	65.7%
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	67	63.8%
<i>Marah fabacea</i>	66	62.9%
<i>Diplacus aurantiacus</i>	60	57.1%
<i>Eriogonum latifolium</i>	60	57.1%
<i>Galium aparine</i>	60	57.1%
<i>Fragaria chiloensis</i>	56	53.3%
<i>Polystichum munitum</i>	56	53.3%
<i>Bromus sitchensis</i> var. <i>carinatus</i>	55	52.4%
<i>Polypodium californicum</i>	55	52.4%
<i>Chlorogalum pomeridianum</i> var. <i>divaricatum</i>	54	51.4%
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	54	51.4%

*Natural and naturalized areas only

A large number of our extant indigenous taxa occur very infrequently. As shown in Table 8, a total of 94 taxa (18.5%) occur at only a single location, while 170 (33.5%) occur at three or fewer locations. At the opposite end of the spectrum, 214 indigenous taxa, or 42.2% of the total, occur at ten or more locations.

Table 8. Frequency of Extant Indigenous Taxa

# Of Occurrences*	# Of Extant Indigenous Taxa	% Of Extant Indigenous Taxa
1	94	18.5%
2	41	8.1%
3	35	6.9%
1-3	170	33.5%
4	41	8.1%
5	20	3.9%
6	16	3.2%
7	25	4.9%
8	17	3.4%
9	17	3.4%
10-19	99	19.5%
20-39	81	16.0%
40-59	20	3.9%
>60	14	2.8%
10+	214	42.2%

*Natural and naturalized areas only

Of the 1,170 extant plant taxa in San Francisco, 643 (55%) have been introduced. Some non-indigenous taxa (119) are native to other regions of the state but have been introduced here. The majority (643) are not naturally occurring in San Francisco or

California. Table 9 lists the most frequently occurring nonnative taxa found in the city.

Table 9. Most Frequently Occurring Nonnative Plant Taxa

Species	# Of Areas* Found	% Of All Areas*
<i>Oxalis pes-caprae</i>	84	80.0%
<i>Raphanus sativus</i>	83	79.0%
<i>Plantago lanceolata</i>	78	74.3%
<i>Ehrharta erecta</i>	76	72.4%
<i>Tropaeolum majus</i>	75	71.4%
<i>Rubus armeniacus</i>	74	70.5%
<i>Bromus diandrus</i>	72	68.6%
<i>Hesperocyparis macrocarpa</i>	72	68.6%
<i>Hedera helix</i>	71	67.6%
<i>Hordeum murinum</i>	71	67.6%
<i>Sonchus oleraceus</i>	70	66.7%
<i>Eucalyptus globulus</i>	69	65.7%
<i>Foeniculum vulgare</i>	67	63.8%
<i>Stellaria media</i>	67	63.8%
<i>Medicago polymorpha</i>	66	62.9%
<i>Delairea odorata</i>	63	60.0%
<i>Carpobrotus edulis</i>	62	59.0%
<i>Lysimachia arvensis</i>	62	59.0%
<i>Pinus radiata</i>	62	59.0%
<i>Rumex acetosella</i>	62	59.0%

*Natural and naturalized areas only

Considering the threats to the health and vitality of San Francisco’s natural areas, it is worthwhile to look at the frequency with which invasive species occur. A total of 194 taxa, or 16.6% of the extant flora found in our natural and naturalized areas, are considered invasive or at risk of becoming invasive (Cal-IPC, 2021). These include taxa rated as “High” (29, 2.5%), “Moderate-Alert” (10, 0.9%), “Moderate” (57, 4.9%), “Limited” (71, 6.1%), and “Watch” (27, 2.3%). The 20 most frequently occurring invasive taxa rated “High” or “Moderate” are listed in Table 10.

The Checklist should prove useful to land managers, weed-workers, habitat restorationists, trail walkers, and anyone who appreciates a natural or semi-natural landscape and enjoys imagining how the San Francisco Peninsula appeared at the time of colonization. It is my hope that readily accessible checklists for individual natural areas will serve to enhance the experience of visitors interested in learning the identities of the plants they encounter along the city’s many trails. More importantly, these lists should aid in conducting targeted searches for rare and unusual species, correcting misidentifications, focusing efforts on the eradication of invasive non-indigenous species, assembling a complete collection of voucher specimens for the county, and filling in those data gaps.

The 3rd edition of the Checklist is intended to serve as an easy-to-use compilation of information about the current and historical flora of San Francisco. The data set can be readily updated to incorporate new discoveries. As revisions to the

Table 10. Most Frequently Occurring Invasive Plant Taxa**

Species	# Of Areas* Found	% Of All Areas*
<i>Oxalis pes-caprae</i>	84	80.0%
<i>Ehrharta erecta</i>	76	72.4%
<i>Rubus armeniacus</i>	74	70.5%
<i>Bromus diandrus</i>	72	68.6%
<i>Hordeum murinum</i> ssp. <i>leporinum</i>	71	67.6%
<i>Hedera helix</i>	71	67.6%
<i>Foeniculum vulgare</i>	67	63.8%
<i>Delairea odorata</i>	63	60.0%
<i>Rumex acetosella</i>	62	59.0%
<i>Carpobrotus edulis</i>	62	59.0%
<i>Genista monspessulana</i>	61	58.1%
<i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i>	60	57.1%
<i>Festuca perennis</i>	60	57.1%
<i>Conium maculatum</i>	59	56.2%
<i>Avena barbata</i>	56	53.3%
<i>Hypochaeris radicata</i>	54	51.4%
<i>Vinca major</i>	48	45.7%
<i>Myoporum laetum</i>	45	42.9%
<i>Holcus lanatus</i>	44	41.9%
<i>Avena fatua</i>	42	40.0%

* Natural and naturalized areas only

** Cal-IPC rated high, moderate, moderate-alert

Checklists are prepared, they will be posted on our chapter website; be sure to check for updates as new discoveries are made. Also available for download are individual checklists for 67 of San Francisco’s natural areas; each includes a map of the site and should serve as a handy companion for your next hike.

THE EXTIRPATED PLANTS OF SAN FRANCISCO

Extinction is the loss of a species throughout its range. Extirpation, also referred to as local extinction, is the loss of a species from a portion of its range. If extinction is forever, extirpation can be thought of as one of many nails in a species' coffin. While the loss of a plant or animal species from within some arbitrarily defined geopolitical boundary may not mean much in biological terms, it does serve as an alarm to those tracking such things. If a given locality represents a geographic extreme or discontinuity in a species' distribution, its extirpation there may indeed represent a significant loss of genetic diversity within a given lineage. Known as peripheral populations, these plants may play a critical role in a species' chance of surviving gross- or fine-scale climatic changes by possessing greater genetic variability (Leppig and White, 2006). As we are witnessing dramatic shifts in local climates, there has never been a period in human history when this has been so critical. While the natural forces affecting plant and animal populations are profound, it's the unnatural forces that should concern us, especially those over which we have influence such as land use decisions and human-caused climate modification.

Some 99% of all species that ever evolved on Earth have gone extinct, primarily due to natural causes. Shifting continents, geologic uplift and subsidence, volcanism, the advance and retreat of glaciers, rising and falling ocean levels, inundation, desiccation, the formation of new islands and collapse of old ones, and the occasional meteor strike were the primary forces driving extinction before the Industrial Revolution. The resultant shifts in local and regional climatic conditions led to the

extirpation of some plant populations and the expansion of others and have driven evolution. California is a perfect example of such forces, supporting a flora with characteristics of three separate geofloras. The Madro-Tertiary, the Arcto-Tertiary and the Neotropical-Tertiary geofloras each left behind remnants from the east, north, and south, respectively. The alternating invasion and retreat of these geofloras, combined with California's terrifically varied geology, topography and micro-climates account for our state's incredible floristic diversity. By last count, California is host to some 7,600 species, subspecies and varieties of plants (Baldwin, *et al.* 2012). Nearly 5,000 taxa (83.4%) of these are native and 1,315 (22%) are endemic, meaning they are found nowhere else in the world.

It is with these thoughts in mind that I started to investigate just what San Francisco has lost, floristically speaking. I began by reviewing and annotating the 1958 flora (Howell, *et al.*, 1958) and the *Flora of Santa Cruz Mountains* (Thomas, 1961), the geographic reach of which extends into the northern San Francisco Peninsula. I reviewed all San Francisco collections in CCH and reviewed other historical accounts (see the list of references in Appendix 1). After cross-referencing all synonyms with the revised nomenclature in JFP, I then compared them with the extant taxa listed in the revised Checklist. Indigenous taxa that have not been reported in the County since 1980 were considered extirpated.

This effort follows that of biologists working with the National Park Service, the Presidio Trust, and the Golden Gate National Parks Conservancy who have worked diligently to document the botanical resources of the Presidio (Frey and Stevenson,

2010; Stevenson and Frey, 2010). And with an eye toward reintroducing long-lost native plants, they produced a guide to the extirpated plants of the Presidio (Pimentel, 2011).

My motivation for starting this effort was two-fold. For the reasons outlined above, I feel it is important to identify what we've lost in the hopes of inspiring decision-makers to take seriously the continued degradation of our remaining natural areas. The other reason is quite simple and practical; just because a species hasn't been seen recently doesn't necessarily mean that it has been lost. Some of the more obscure species or those that are difficult to identify may have just been overlooked. So, by drawing attention to extirpated species, I hope to help focus the efforts of future surveys.

The historic flora included at least 769 indigenous plant taxa, of which 507 are believed extant. Based on this current analysis, 262 indigenous taxa have been extirpated from San Francisco, representing a loss of species diversity of at least 34.1% of the pre-colonial flora. That's a substantial and worrisome loss. A summary of the extant and extirpated flora is presented in Table 11.

A total of 52 plant taxa are listed for San Francisco County in the Inventory of Rare and Endangered Plants (CNPS, 2021). Of these, 33 (66%) have been extirpated. As shown in Table 11, this includes ten federally or state-listed taxa, 26 CNPS List 1B taxa, five on CNPS List 2, two on List 3, and 11 on List 4.

Table 11. Summary of the Extirpated Flora of San Francisco

	Historic	Extant	Extirpated	Percent Extirpated
All Taxa	1,616	1,170	446	27.6%
Indigenous	769	507	262	34.1%
Non-indigenous	816	643	173	21.2%
Nativity Uncertain	31	20	11	35.5%
Rare and Endangered Taxa				
Total Fed Listed Taxa:	11	6	5	45.5%
Total State Listed Taxa:	9	4	5	55.6%
Total CNPS List 1:	41	15	26	63.4%
Total CNPS List 2:	6	1	5	83.3%
Total CNPS List 3:	3	1	2	66.7%
Total CNPS List 4:	18	7	11	61.1%
Total Fed/St/CNPS List 1-3:	50	17	33	66.0%

As mentioned above, there have been a lot of boots on the ground surveying, weeding and planting our natural areas. And those boots are usually connected to a pair of eyes, resulting in the detection of some species previously thought lost to history. In fact, a total of 39 taxa previously thought extirpated have been documented. This is exactly the type of attention I was hoping to draw to our dwindling native plant resources. Increased awareness of the rarity of many of our plant species can inspire a new focus on them, both for finding them and, once found, for preserving the ecological systems in which they evolved. A summary of newly found and rediscovered taxa since release of the 2nd edition of the Checklist is presented in Table 12.

Table 12. Newly Found and Rediscovered Taxa*

Species
<i>Acaena pinnatifida</i> var. <i>californica</i>
<i>Ammannia coccinea</i>
<i>Aphyllon robbinsii</i>
<i>Azolla filiculoides</i>
<i>Castilleja exserta</i> ssp. <i>latifolia</i>
<i>Centromadia pungens</i> ssp. <i>pungens</i>
<i>Chenopodium berlandieri</i> var. <i>zchackei</i>
<i>Chenopodium rubrum</i> var. <i>humile</i>
<i>Drymocallis glandulosa</i> var. <i>wrangelliana</i>
<i>Elymus elymoides</i> var.
<i>Elymus glaucus</i> ssp. <i>virescens</i>
<i>Elymus glaucus</i> ssp. <i>virescens</i>
<i>Elymus pacificus</i>
<i>Epilobium minutum</i>
<i>Epilobium minutum</i>
<i>Equisetum laevigatum</i>
<i>Erysimum capitatum</i> var.
<i>Erysimum capitatum</i> var.
<i>Heterotheca grandiflora</i>
<i>Leptosiphon parviflorus</i>
<i>Lomatium macrocarpum</i>
<i>Lupinus microcarpus</i> var. <i>microcarpus</i>
<i>Luzula subsesilis</i>
<i>Minuartia pusilla</i>
<i>Monardella villosa</i> ssp. <i>villosa</i>
<i>Phyllospadix torreyi</i>
<i>Polypodium glycyrrhiza</i>
<i>Ranunculus californicus</i> var. <i>cuneatus</i>
<i>Rumex transitorius</i>
<i>Sagina maxima</i> ssp. <i>crassicaulis</i>

<i>Spiranthes porrifolia</i>
<i>Spirodela polyrhiza</i>
<i>Stuckenia pectinata</i>
<i>Trifolium bifidum</i> var. <i>decipiens</i>
<i>Trillium albidum</i>
<i>Triphysaria versicolor</i> ssp. <i>faucibarbata</i>
<i>Triteleia hyacinthina</i>
<i>Typha domingensis</i>
<i>Zannichellia palustris</i>

* Since release of the 2nd edition of the Checklist (2014)

With the knowledge of what once occurred here but has been lost, a rational case can be made for reintroducing species into appropriate habitats. In fact, there have been numerous attempts to propagate plants collected elsewhere on the San Francisco Peninsula for out-planting in the city. Staff of the Presidio Trust and GGNRA have been particularly ambitious in this regard, reintroducing rare and unusual plants onto lands under their control. These efforts have met with varying degrees of success.

Attempts at reintroducing a total of 69 taxa have been made throughout the city, four of which have not been successful. Of these, 32 taxa had been completely extirpated from San Francisco while another 37 taxa were still extant at other locations. A summary of attempted and successful reintroductions is presented in Table 13.

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Table 13. Rare and Extirpated Taxa Reintroduced to San Francisco

Species	Status
<i>Acaena pinnatifida</i> var. <i>californica</i>	Extant. Reintroduced at Mt. Sutro.
<i>Agoseris grandiflora</i> var. <i>grandiflora</i>	Extant. Reintroduced at Sutro Forest.
<i>Agrostis densiflora</i>	Extirpated. Reintroduced at Presidio (Presidio Bluffs).
<i>Ambrosia psilostachya</i>	Extirpated. Incidental reintroduction at Pier 94.
<i>Amsinckia spectabilis</i> var. <i>spectabilis</i>	Extant. Reintroduced at Lake Merced.
<i>Angelica tomentosa</i>	Extirpated. Reintroduced at Glen Cyn. using seed collected from Crystal Springs.
<i>Aquilegia formosa</i>	Extant. Reintroduced at Glen Cyn., Islais Cr., Seward Mini Park, and Sutro Forest.
<i>Arabis blepharophylla</i>	Extant; CNPS List 4.3. Reintroduced at Sutro Forest.
<i>Arctostaphylos manzanita</i> ssp.	Extirpated. Reported from the Richmond Dist. where it was presumably planted.
<i>Azolla filiculoides</i>	Extant at McLaren Park. Reintroduced at the Presidio (Golf Course Natural Area, Lobos Cr. Valley, Mountain Lake).
<i>Baccharis salicifolia</i> ssp.	Extirpated. Reintroduced at Heron's Head and Hunters Pt. (India Basin Shoreline Park).
<i>Camissonia contorta</i>	Extirpated. Reportedly reintroduced at the Presidio (Presidio Hills, WWII Memorial); status uncertain.
<i>Carex aquatilis</i> var.	Extirpated. Reintroduced at the Presidio (Lobos Cr. Valley).
<i>Carex barbarae</i>	Extant. Reintroduced at Sutro Forest.
<i>Castilleja affinis</i> ssp. <i>affinis</i>	Extant. Reintroduced at Hawk Hill.
<i>Castilleja ambigua</i> ssp. <i>ambigua</i>	Extirpated; CNPS List 4.2. An attempted reintroduction at the Presidio (Crissy Field) was not successful.

<i>Ceanothus thyrsiflorus</i> var.	Extant. Reintroduced at Sutro Forest.
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Extirpated; CNPS List 1B.2. Reintroduced at the Presidio (Crissy Field).
<i>Cirsium quercetorum</i>	Extant. Reintroduced at Sutro Forest.
<i>Clarkia amoena</i> ssp. <i>amoena</i>	Extirpated. Reintroduced at Bernal Hts. Park.
<i>Clarkia purpurea</i> ssp. <i>quadriovulnera</i>	Extirpated. Reintroduced at the Presidio (Ft. Scott).
<i>Clarkia rubicunda</i>	Extant. Reintroduced at Sutro Forest.
<i>Collinsia corymbosa</i>	Extirpated; CNPS List 1B.2. Reintroduced at the Presidio (Baker Beach n., Crissy Field).
<i>Collinsia heterophylla</i> var. <i>heterophylla</i>	Extant. Reintroduced at Yerba Buena Is.
<i>Cornus sericea</i> ssp. <i>occidentalis</i>	Extirpated. Reintroduced at the Presidio (Dragonfly Cr.)
<i>Cornus sericea</i> ssp. <i>sericea</i>	Extant. Reintroduced at Alemany Farm, City College, Glen Cyn., Golden Gate Park (Lily Pond, Lake Merced, McLaren Park, Mission Bay, SFSU, and Sutro Forest).
<i>Croton setiger</i>	All extant occurrences likely represent recent incidental reintroductions.
<i>Cuscuta californica</i> var. <i>californica</i>	Extirpated. Reintroduced at the Presidio (Baker Beach n., Lobos Cr. Valley, sw. dunes).
<i>Dichondra donelliana</i>	Extant. Reintroduced at Sutro Forest.
<i>Drymocallis glandulosa</i> var. <i>glandulosa</i>	Extant. Reintroduced at Sutro Forest.
<i>Elymus mollis</i> ssp. <i>mollis</i>	Extant. Reintroduced at Balboa Natural Area and the Presidio (Baker Beach, Crissy Field).
<i>Eryngium armatum</i>	Extirpated. Reintroduced at the Presidio (Crissy Field).
<i>Erysimum franciscanum</i>	Extant; CNPS List 4.2. Reintroduced at City College.
<i>Erythranthe cardinalis</i>	Extirpated. Reintroduced at Glen Cyn., Golden Gate Park, Lone Mt., and Sutro Forest.

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<i>Erythranthe guttata</i>	Extant. Reintroduced at Sutro Forest.
<i>Garrya elliptica</i>	Extant. Reintroduced at Ft. Funston.
<i>Hesperomecon linearis</i>	Extirpated. Reintroduced at the Presidio (Lobos Cr. Valley).
<i>Hippuris vulgaris</i>	Extirpated. Reintroduced at the Presidio (Mountain Lake).
<i>Horkelia cuneata</i> var. <i>sericea</i>	Extirpated; CNPS List 1B.1. Reintroduced at the Presidio (Baker Beach n., Presidio Bluffs, sw. dunes).
<i>Iris longipetala</i>	Extant; CNPS List 4.2. Reintroduced at City College.
<i>Juncus mexicanus</i>	Extirpated. Reintroduced at the Presidio (Doyle Dr. Natural Area, Inspiration Pt., Mountain Lake, Presidio Hills, Tennessee Hollow).
<i>Lathyrus littoralis</i>	Extant. Attempted reintroductions at the Presidio (Baker Beach, Crissy Field) were not successful.
<i>Layia chrysanthemoides</i>	Extirpated. Reintroduced at Heron's Head Park and India Basin Shoreline Park.
<i>Lessingia germanorum</i>	Extant; FE/SE/CNPS List 1B.1. Reintroduced at Ft. Funston.
<i>Lomatium dasycarpum</i> ssp. <i>dasycarpum</i>	Extant. Reintroduced at Sutro Forest.
<i>Lupinus albifrons</i> var. <i>collinus</i>	Extant. Reintroduced at Mt. Sutro.
<i>Lupinus chamissonis</i>	Extant. Reintroduced at numerous sites.
<i>Lupinus formosus</i> var. <i>formosus</i>	Extant. Reintroduced at Sutro Forest.
<i>Lupinus microcarpus</i> var. <i>microcarpus</i>	Extant. Reported from Buena Vista Park and Yerba Buena Is., where it was presumably introduced.
<i>Lupinus succulentus</i>	Extant. Reintroduced at the Sunset Dist., Sutro Forest, Treasure Is., and Yerba Buena Is.
<i>Lysimachia maritima</i>	Extirpated. Reintroduced at the Presidio (Crissy Field, Tennessee Hollow).
<i>Maianthemum racemosum</i>	Extant. Reintroduced at Sutro Forest.

<i>Microseris sylvatica</i>	Extirpated; CNPS List 4.2. Reintroduced at the Presidio (Mountain Lake).
<i>Morella californica</i>	Extant. Reintroduced at Sutro Forest and presumably elsewhere.
<i>Oenanthe sarmentosa</i>	Extant. Reintroduced at Sutro Forest.
<i>Oenothera elata</i> ssp. <i>hookeri</i>	Extant. Reintroduced at the Presidio (WWII Memorial).
<i>Phacelia californica</i>	Extant. Reintroduced at Sutro Forest.
<i>Phleum alpinum</i>	Extirpated. Reintroduced at the Presidio (Ft. Point).
<i>Pholistoma auritum</i> var. <i>auritum</i>	Extant only at Yerba Buena Is. Extirpated on the mainland. Attempted reintroductions at the Presidio (Lobos Cr. Valley) have not been successful.
<i>Poa douglasii</i>	Extant. Reintroduced at Balboa Natural Area.
<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	Extant only at Bayview Hill. Reintroduced throughout the city; recolonizing spontaneously about the Presidio.
<i>Prunus virginiana</i> var. <i>demissa</i>	Extant. Reintroduced at the Presidio (Mountain Lake), and Sutro Forest.
<i>Rafinesquia californica</i>	Extirpated. Reintroduced at the Presidio (Lobos Cr. Valley).
<i>Rubus spectabilis</i>	Extirpated. Reintroduced at Sutro Forest.
<i>Scutellaria tuberosa</i>	Extirpated. Apparently planted at the Presidio (Mountain Lake Park Playground).
<i>Solidago confinis</i>	Extirpated. An attempted reintroduction at the Presidio (Crissy Field) was not successful.
<i>Stellaria littoralis</i>	Extirpated; CNPS List 4.2. An attempted reintroduction at the wetland at north Baker Beach was not successful.
<i>Suaeda californica</i>	Extirpated; FE/CNPS List 1B.1. Reintroduced at Heron's Head and the Presidio (Crissy Field); appears to have naturalized at Hunters Pt. and Pier 94.
<i>Thalictrum fendleri</i> var. <i>fendleri</i>	Extirpated. Reported from the Presidio (Mountain Lake); likely planted.

It is my hope that the 3rd edition of the Checklist will tide us over until Dr. Tom Daniel, Curator of Botany, Emeritus, at the California Academy of Sciences, completes his revised flora of San Francisco. Dr. Daniel reports that the flora will provide an update of the native and naturalized occurrences of plants in San Francisco County. His flora/field guide will include an introduction to the vegetation and flora of the county; identification keys to all genera and species; accounts of each species that will include scientific and common names; brief description of morphological features, habitats, whether native or naturalized; previous (pre-1957) and more recent collection and observation locales; notes on nomenclature, natural history, and ethnobotany; and many color photos and line drawings.

Until then, I hope this modest effort will continue to be of use to those fans of San Francisco's natural history. Check our chapter website for updates to the Checklist and for the soon to-be-released list of Locally Significant Species. I look forward to many new discoveries and increasing our knowledge of what grows here. I will be continuously updating the Checklist, so please forward your observations and discoveries to the author at mikeofftraveling@gmail.com.

PLANT COLLECTING

Now that I've drawn so much attention to the native plants of San Francisco I would be remiss in failing to discuss the ethics of plant collecting. Clearly, this project would not have been possible without the skills and dedication of the botanists that collected, pressed, and identified the specimens stored in herbaria around the state and the world. But over-collecting from

small populations of plants, especially peripheral populations or those that are already threatened by human activities or invasive plants, can have dire consequences for their long-term viability. And in a place as densely peopled and as intensively visited as are many of our open spaces, the potential for serious impacts is high. So, a brief discussion of survey etiquette is warranted. First and foremost, remember the adage "take only photos, leave only footprints." But in high traffic areas, even footprints can seriously damage tender annual wildflowers. The collecting of wildflowers from City-owned lands is generally not allowed and on private lands requires the permission of the landowner. Furthermore, without a scientific collector's permit, the collection of plants on federal lands such as the Presidio and GGNRA is prohibited, as is the collection of state or federally listed rare species. Remember, flowers provide the pollen for insects and produce the seeds that will foster next year's crop. And every flower picked is one fewer that others can enjoy. So please, tread carefully and don't pick the posies.

With that out of the way, I wish to point out some data gaps concerning the availability of properly collected and accessed voucher specimens of San Francisco plants. Voucher specimens provide a critical record of plant distribution and are vital for conservation planning. The collection of voucher specimens should never jeopardize the well-being of a population and should conform with conservation ethics. As an aid to qualified botanists and in the hopes that suitable voucher specimens can be collected and submitted to the herbaria at the California Academy of Sciences or the Jepson Herbarium, I have assembled a list of 113 taxa for which San Francisco specimens are lacking. A summary of these taxa is presented in Table 14.

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Table 14. Taxa* for Which San Francisco Herbarium Voucher Specimens are Needed

Species	Species	Species	Species
<i>Acmispon brachycarpus</i>	<i>Corallorhiza striata</i>	<i>Juncus mexicanus</i> (r)	<i>Ranunculus aquatilis</i> var. <i>diffusus</i>
<i>Actaea rubra</i>	<i>Cornus nuttallii</i>	<i>Juncus xiphioides</i>	<i>Ranunculus hebecarpus</i>
<i>Agoseris heterophylla</i> var.	<i>Croton setiger</i> (r)	<i>Lasthenia maritima</i>	<i>Ribes menziesii</i> var. <i>menziesii</i>
<i>Alopecurus geniculatus</i>	<i>Cryptantha flaccida</i>	<i>Lasthenia microglossa</i>	<i>Sagittaria montevidensis</i> ssp. <i>calycina</i>
<i>Amaranthus californicus</i>	<i>Cynoglossum grande</i>	<i>Leptosiphon rosaceus</i>	<i>Salvia spathacea</i>
<i>Amelanchier utahensis</i>	<i>Delphinium decorum</i> ssp. <i>decorum</i>	<i>Lilium maritimum</i>	<i>Sanicula tuberosa</i>
<i>Ammannia coccinea</i>	<i>Echinodorus berteroi</i>	<i>Lilium pardalinum</i> ssp.	<i>Sceptridium multifidum</i>
<i>Ammannia robusta</i>	<i>Elatine brachysperma</i>	<i>Limosella aquatica</i>	<i>Schoenoplectus acutus</i> var. <i>occidentalis</i>
<i>Angelica tomentosa</i> (r)	<i>Elymus multisetus</i>	<i>Lomatium macrocarpum</i>	<i>Scutellaria tuberosa</i> (r)
<i>Aphyllon californicum</i> ssp. <i>californicum</i>	<i>Elymus xancouverensis</i>	<i>Lupinus littoralis</i>	<i>Sidalcea malviflora</i> ssp. <i>malviflora</i>
<i>Aphyllon purpureum</i>	<i>Epilobium minutum</i>	<i>Lycopus americanus</i>	<i>Stebbinsoseris decipiens</i>
<i>Aphyllon robbinsii</i>	<i>Epipactis gigantea</i>	<i>Marah oregana</i>	<i>Stephanomeria virgata</i> ssp. <i>pleurocarpa</i>
<i>Apiastrum angustifolium</i>	<i>Eragrostis pectinacea</i> var. <i>pectinacea</i>	<i>Marsilea vestita</i> ssp. <i>vestita</i>	<i>Suaeda californica</i> (r)
<i>Bidens laevis</i>	<i>Eriophorum gracile</i>	<i>Microseris sylvatica</i> (r)	<i>Symphotrichum subulatum</i> var.
<i>Callitriche marginata</i>	<i>Eriophyllum lanatum</i> var. <i>arachnoideum</i>	<i>Minuartia pusilla</i>	<i>Tauschia kelloggii</i>
<i>Calystegia occidentalis</i>	<i>Eryngium armatum</i> (r)	<i>Nemophila heterophylla</i>	<i>Thalictrum fendleri</i> var. <i>fendleri</i> (r)
<i>Carex bolanderi</i>	<i>Erythranthe cardinalis</i> (r)	<i>Nuphar polysepala</i>	<i>Thalictrum fendleri</i> var. <i>polycarpum</i>
<i>Carex utriculata</i>	<i>Euphorbia serpillifolia</i> ssp.	<i>Pellaea andromedifolia</i>	<i>Trifolium albopurpureum</i>
<i>Castilleja attenuata</i>	<i>Extriplex joaquiniana</i>	<i>Phragmites australis</i>	<i>Trifolium bifidum</i> var. <i>bifidum</i>
<i>Castilleja foliolosa</i>	<i>Garrya elliptica</i>	<i>Plagiobothrys bracteatus</i>	<i>Trifolium dichotomum</i>
<i>Chenopodium rubrum</i> var. <i>humile</i>	<i>Githopsis specularioides</i>	<i>Plagiobothrys stipitatus</i> var.	<i>Trifolium grayi</i>
<i>Chloropyron maritimum</i> ssp. <i>palustre</i> (r)	<i>Heliotropium curassavicum</i> var. <i>oculatum</i>	<i>Plectritis macrocera</i>	<i>Trifolium oliganthum</i>
<i>Chorizanthe robusta</i> var. <i>robusta</i>	<i>Hemizonella minima</i>	<i>Polemonium carneum</i>	<i>Triglochin concinna</i> var. <i>concinna</i>
<i>Cicuta douglasii</i>	<i>Heteranthera dubia</i>	<i>Polystichum dudleyi</i>	<i>Trillium albidum</i>
<i>Cirsium remotifolium</i> var.	<i>Heterocodon rariflorum</i>	<i>Potamogeton natans</i>	<i>Trillium chloropetalum</i>
<i>Clarkia purpurea</i> ssp.	<i>Hordeum depressum</i>	<i>Potamogeton nodosus</i>	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>
<i>Claytonia sibirica</i>	<i>Hypericum scouleri</i>	<i>Pseudognaphalium beneolens</i>	<i>Wolffiella lingulata</i>
<i>Collomia heterophylla</i>	<i>Isolepis carinata</i>	<i>Quercus parvula</i> var. <i>shrevei</i>	<i>Wyethia helenioides</i>
			<i>Zeltnera muehlenbergii</i>

* Highlighted taxa are presumed extirpated and have not been reintroduced.

* Taxa in **BOLD** font are listed as rare

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Although this compendium is based on data gleaned from other sources, I take full responsibility for any mistakes or misrepresentations. Feel free to share with me your comments and corrections.

*This work is dedicated to the memory of Barbara and Roland Pitschel.
Long-time board members of the CNPS Yerba Buena Chapter, CNPS Fellows, producers of our fabulous quarterly newsletter,
and hosts of our monthly board and members' meetings, who dedicated so much of their lives to
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