The flowering plants and ferns of Anacapa Island, California

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ABSTRACT.—The 3 islets of Anacapa Island, with a combined area of 1.1 mi² (2.9 km²), lie 13 mi (20 km) off the coast of southern California. Historically, each of Anacapa's islets has been subjected to periodic grazing by sheep, and the eastern islet has also had a sizeable population of introduced rabbits. In spite of these past perturbations, the recovery of the island's vegetation has been remarkable since sheep removal in 1937. Despite its small size, Anacapa Island supports a surprising diversity of vascular plants, with nearly 200 native taxa from 50 plant families. Twenty-one of these native taxa are restricted to the California Islands; one annual species of *Malacothrix* occurs as a narrow endemic found only on Middle Anacapa Island, while another annual subspecies of *Malacothrix* is known only from West and East Anacapa. The floral diversity of this island has apparently been influenced by its close proximity to the mainland and other larger islands and by its diverse topography. Anacapa Island supports a slightly larger native flora than San Miguel Island, which is about 13 times larger and is located about 50 mi (80 km) to the west. The Anacapa native flora is more than twice the size of that found on Santa Barbara Island, which has almost the same area as Anacapa Island but is located approximately 62 mi (100 km) to the southeast. Even though botanical exploration on Anacapa began in 1889, the current work represents the first complete enumeration of the island's flora.

RESUMEN.—Los tres islotes de la isla Anacapa, con un área combinada de 1.1 mi² (2.9 km²), se encuentran a 13 millas (20 km) de la costa del sur de California. Históricamente, cada uno de los islotes de Anacapa fue sometido a pastoreos de ovejas periódicos, y el islote oriental presentó, además, una población considerable de conejos introducidos. Pese a estas alteraciones pasadas, la recuperación de la vegetación de la isla fue notable desde la remoción de las ovejas en 1937. A pesar de su pequeño tamaño, la isla Anacapa tiene una sorprendente diversidad de plantas vasculares, con casi 200 taxa nativos de 50 familias de plantas. Veintiuno de estos taxa nativos se limitan a las Islas de California; una especie anual de *Malacothrix* es endémica y limitada al centro de la isla de Anacapa, mientras que otra subespecie anual de *Malacothrix* se conoce solo al oeste y al este de Anacapa. La diversidad floral de esta isla estuvo aparentemente condicionada por su proximidad al continente y a otras islas de mayor tamaño, y por su diversa topografía. La isla Anacapa consta de una flora nativa un poco más grande que la de la isla San Miguel que es, aproximadamente, 13 veces más grande y que se encuentra a unas 50 mi (80 km) al oeste. La flora nativa de Anacapa dobla el tamaño de la que se encuentra en la isla Santa Bárbara, que tiene casi la misma superficie que Anacapa, pero que se ubica, aproximadamente, a 62 mi (100 km) al sureste. Aunque la exploración botánica comenzó en Anacapa en 1889, el trabajo actual representa el primer inventario completo de la flora en la isla.

On a clear day several of the 8 California Channel Islands can be seen from Los Angeles, one of the largest metropolitan areas in the United States. The 8 islands have been divided into 2 major groups: (1) the Northern Channel Islands of San Miguel, Santa Rosa, Santa Cruz, and Anacapa, and (2) the Southern Channel Islands of Santa Barbara, San Nicolas, Santa Catalina, and San Clemente. These islands represent emergent portions of a complex system of submarine canyons and ridges in a geomorphic province referred to as the California Continental Borderland (Vedder 1976).

STUDY SITE

Anacapa Island is the smallest, easternmost portion of the Northern Channel Islands. Its closest neighbor in the island chain is Santa Cruz, which is located 5 mi (8 km) to the west. On California's mainland coast, Port Hueneme is the closest point at 13 mi (20 km) to the northeast. Anacapa is located in Ventura County and is part of Channel Islands National Park.

Roughly 5 mi (8 km) long and with a maximum width of about 0.7 mi (1 km), Anacapa is a long, narrow chain composed of 3 islets

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running along a west–east axis. This orientation creates an onshore side facing mainland California to the north and an offshore side facing the open Pacific Ocean to the south. The 3 islets named West, Middle, and East Anacapa have a combined total area of about 1.1 mi² (2.9 km²) and are surrounded by precipitous rocky cliffs, most of which drop off directly into the sea. Gleason (1950) provided a marvelous description of these cliffs:

The perpendicular sides emerge from deep water, the lava formation hanging like tattered garments. The sea has honey-combed the bases into caves which echo to the sound of seal and sea lion. . . . The heaving ground swell enters some of the lower caves and air pressure thus created sends out a blast of spray accompanied by a startling hiss and snort.

West Anacapa, the largest of the 3 islets (approximately 449 acres or 181.8 ha), has the most topographic diversity and 2 major peaks (acreage estimates for all islets from Roberts 1979). Summit Peak measures 930 ft. (283.5 m) and Camel Peak reaches 811 ft. (247.2 m) above sea level. The offshore side of West Anacapa is extremely steep and offers a sheer wall of rock to the sea. The relatively gentle slopes on the onshore side, however, include several north–south-running canyons with luxuriant vegetation.

Middle and East Anacapa are basically flat-topped mesas surrounded by nearly vertical sea cliffs which reach heights of over 200 ft. (60 m). Middle Anacapa reaches a maximum elevation of 325 ft. (99.1 m) and has an area of about 175 acres (70.8 ha). East Anacapa, with its highest point at 240 ft. (73.2 m) above sea level, has an area of about 106 acres (43 ha).

Geologically, Anacapa is almost entirely composed of dark-colored Miocene-age Conejo Volcanics with some modest-to-significant interbeds of lighter-colored San Onofre Breccia, also of Miocene age (Scholl 1960, Johnson 1979).

Anacapa Island essentially has a Mediterranean climate with mild, frost-free, wet winters and dry, warm summers. Coastal fog can be persistent in the summer months, however, and can significantly affect maximum and minimum temperatures. Climatological data for East Anacapa are sporadic and limited, and data are lacking for both West and Middle Anacapa. Dunkle (1950) reported an average annual rainfall for East Anacapa of 12.58 inches

(31.95 cm) for an unspecified 8-year period. He added that “this period includes two rather exceptional wet years.” Only sporadic precipitation data are available for the years 1946–1968; the average annual figure for an 11-year period (1947, 1951–1952, 1960–1967) was 6.59 inches (16.74 cm) (Weissman and Rentz 1977). Precipitation measured on East Anacapa by the National Park Service averaged 7.55 inches (20.45 cm) annually across 9 calendar years between 2008 and 2016 (Western Regional Climate Center 2017). In contrast, the Stanton Ranch at approximately the same elevation on Santa Cruz Island received an average annual rainfall of 19.71 in (50.06 cm) for an 89-year period (1904–1993) (Junak et al. 1995). Dunkle, Weissman, and Rentz attributed the low rainfall figures for East Anacapa to a rain shadow created by Santa Cruz Island and West Anacapa. It is clear that more data are needed to more completely understand Anacapa’s climate.

Surface flow of freshwater is lacking on Middle and East Anacapa, except immediately after rain events. The only reliable source of freshwater on the island is in a large cave near sea level on the north side of West Anacapa. Yates (1890) reported a flow of 70 gallons per day from this cave spring, which apparently was used by Native Americans as a water source.

The history of human land use on Anacapa Island since the mid-1800s has been documented by Roberts (1979, 1983) and Livingston (2006). Sheep were reportedly present on Anacapa as early as 1869, but most were removed by 1937. Middle Anacapa was used as the headquarters for sheep ranching activities, but sheep were present on all islets for varying amounts of time. Rabbits were introduced to East Anacapa in the 1930s or 1940s (Paul Collins, personal communication, 2016; McEachern et al. 2016) and were still present there in the 1960s (Banks 1966).

HISTORY OF BOTANICAL EXPLORATION

Botanical exploration on Anacapa Island began in the late 1880s and early 1890s with the visits of Lorenzo Gordin Yates, an English-born dentist, naturalist, and author who moved to Santa Barbara in 1882 (Camp 1963). He was the president of the Santa Barbara Society of Natural History and had a wide variety of

interests, including anthropology, botany, conchology, mineralogy, paleontology, and zoology. Yates landed on Middle Anacapa in 1889 with a group of artists and scientists and collected botanical specimens on the island in the early 1890s (his collections are labeled with the date “about 1893”).

Subsequent botanical collections were made on the island by the following individuals (names of collectors are followed by the year or years when collections were made by that person):

Henry Hemphill (1901)
 Joseph Grinnell (1903)
 John Thomas Howell (1928)
 Ralph Hoffmann et al. (1928–1930)
 George R. Johnstone (1928, 1931–1932)
 Lincoln Ellison (1929)
 Ira W. Clokey (1930)
 LeRoy Abrams and Ira L. Wiggins (1931)
 Nesta Dunn (1932)
 Reid V. Moran (1934)
 Francis Elmore (1938)
 Richard M. Bond (1939–1940)
 Meryl B. Dunkle (1940)
 Reid V. Moran (1941)
 Cornelius H. Muller (1951)
 Rimo Bacigalupi (1959)
 Elwood R. “Jim” Blakley (1959–1965, 1969)
 Katherine K. Muller (1961)
 Louis C. Wheeler (1961–1962)
 Clifton F. Smith (1962)
 Martin A. Piehl (1963)
 Ralph N. Philbrick et al. (1964–1968, 1974, 1978–1980, 1982)
 Leonard E. Allen (1966)
 Frank Gress (1970–1971)
 David B. Weissman (1971)
 Robert J. Gustafson (1973)
 Lawrence R. Heckard (1974)
 Steven A. Junak et al. (1978–2017)
 John Storrer (1979)
 David Pritchett (1984)
 Sally Unser (1984)
 Ronilee A. Clark (1985–1986)
 Karen Danielson and William Halvorson (1987)
 Sarah Chaney (1993–2016)

Our knowledge of Anacapa’s flora, both past and present, is the result of the collective efforts of these scientific collectors and observers. Unfortunately not much was collected there in the early 1900s; there was a 25-year gap in botanical documentation efforts (between 1903 and 1928) during the sheep ranching era on the island. There was another gap

of about 18 years (between 1941 and 1959), starting in the World War II years, when the islands were closed to yachts and travel across the Santa Barbara Channel was rigidly controlled by defense authorities (Junak et al. 1995). Although Cornelius Muller visited the island in 1951, he only collected a few specimens on that trip. As was the case with most of the Channel Islands, grazing animals were turned loose and caused significant ecological disturbance before botanical collectors had the chance to document the native flora.

FLORA OF ANACAPA

The vascular flora of Anacapa Island consists of 196 native taxa, including 2 taxa that are only known from Anacapa and 21 additional taxa that are endemic to 2 or more of the California Islands (itemized in Appendix). In terms of life form, the insular endemics include 1 tree, 14 shrubs or subshrubs, 1 herbaceous perennial, 1 perennial vine, and 6 annual herbs. As to distribution on other islands, 9 of the insular endemics are found on 1 or more of the other Northern Channel Islands (in addition to Anacapa), 11 are shared with the Northern and Southern Channel Islands, and 1 is shared only with the Southern Channel Islands.

In terms of distribution on the islets of Anacapa, 170 of the native taxa have been documented on West Anacapa, 129 are known to occur on Middle Anacapa, and 87 have been collected on East Anacapa. A total of 19 of the insular endemics known from the island occur (or have occurred) on West Anacapa, 14 are found on Middle Anacapa, and 9 are known from East Anacapa.

The floral diversity of Anacapa has apparently been influenced by its close proximity to the mainland and other larger islands and by its diverse topography. Anacapa Island supports a slightly larger native flora than San Miguel Island, which is about 13 times larger and located about 80 km to the west. The Anacapa native flora is more than twice the size of that found on Santa Barbara Island, which has almost the same area as Anacapa but is located approximately 100 km to the southeast (Junak 2008).

A total of 87 nonnative plant taxa have been documented on Anacapa Island (itemized in the Annotated Catalog of the Vascular Plants

of Anacapa Island, see below). One additional cultivated plant (*Amaryllis belladonna* L.) was observed near buildings on East Anacapa in the early 1980s, but no specimen was collected to document its occurrence. Twenty-one percent of the documented nonnative taxa were first found on West Anacapa, 22% were first found on Middle Anacapa (especially in areas disturbed by nesting seagulls), and 34% were first found on East Anacapa (especially along trails and in or near the campground). For the other 23% of the nonnative taxa found on Anacapa, the islet where the first collection was made was not specified by the collector.

Of the 87 nonnative plant taxa known on Anacapa, 1 was first collected on the island between 1900 and 1919, 20 were collected between 1920 and 1939, 10 between 1940 and 1959, 25 between 1960 and 1979, and 25 between 1980 and 1999. A total of 6 additional nonnative taxa have been documented since 2000. In other words, 56 (nearly 63%) of the nonnative plant taxa known on Anacapa were encountered for the first time after 1960. This is not surprising because visitation by daytime users and overnight campers has increased dramatically during the last 50–60 years.

In recent years sources of invasive plant introductions on Anacapa have included nesting Western Gulls (*Larus occidentalis*) on Middle Anacapa (which disturb the habitat around their nests and bring items from California mainland dumps) and human visitors on East Anacapa (some of whom do not carefully clean their clothing, shoes, and equipment before coming to the island). Several new weeds were also found in imported gravel and soil on East Anacapa (which apparently contained seeds of those weedy plants).

ANNOTATED CATALOG OF THE VASCULAR PLANTS OF ANACAPA ISLAND

Plants listed in this table are arranged alphabetically by family within 5 major plant groups (lycophytes, ferns, gymnosperms, eudicots, and monocots). Taxa presumed to be introduced to California and/or Anacapa Island by human activities are preceded by an asterisk (*). This list does not include plant taxa that have been planted near the buildings on the island unless they have survived without cultivation.

For most taxa, classification, nomenclature, and abbreviations of author names follow Baldwin et al. (2012). A few names were updated in accordance with the Jepson eFlora. Selected synonyms are shown in brackets (i.e., [ ]). Common names are mostly according to Abrams (1940–1951), Abrams and Ferris (1960), Junak et al. (1995), Junak et al. (1997), Smith (1998), and Baldwin et al. (2012).

Abundance ratings (rare, scarce, occasional, common, and abundant) and distribution descriptions are based on observations of the authors. Dates of first known collection from Anacapa Island are included for nonnative taxa.

Voucher specimens are cited for each taxon. These are arranged by islet (i.e., WA for West Anacapa, MA for Middle Anacapa, and EA for East Anacapa). Labels on some early voucher specimens did not include precise locality information; these are cited as A (for Anacapa Island). Label data cited have been edited in some cases (e.g., Frenchman's Cove on West Anacapa is consistently cited as Frenchy's Cove). Specimens without a collector's number are listed as "s.n."; herbarium accession numbers are cited if there is no collector's number. Abbreviations for herbaria where voucher specimens are deposited are those used in Holmgren et al. (1990). If no depository is cited, specimens can be found at the Santa Barbara Botanic Garden (SBBG). No effort was made to provide an exhaustive list of herbaria where particular voucher specimens have been deposited.

LYCOPHYTES SELAGINELLACEAE (Spike-Moss Family)

Selaginella bigelovii Underw. **bushy spike-moss**
Rare; ridgetops on West Anacapa.

WA, 18 May 1967, Philbrick & Ricker B67-13.

FERNS DRYOPTERACEAE (Wood Fern Family)

Dryopteris arguta (Kaulf.) Maxon **wood fern** Rare;
vicinity of Cherry Canyon on West Anacapa and
an unspecified location on Middle Anacapa.

WA, 9 May 1963, Blakley 5765 (SBBG, SD, UCR);
MA, Sep 1966, Baker & Baker s.n. (SBBG 55190).

POLYPODIACEAE (Polypody Family)

Polypodium californicum Kaulf. **California polypody**
Scarce; north-facing slopes on all islets.

WA, 30 Mar 1995, *Junak* WA-380 (RSA, SBBG); MA, 2 Jun 1978, *Philbrick & Hochberg* B78-300 (RSA, SBBG); EA, 26 Apr 1959, *Blakley* 2801.

PTERIDACEAE
(Maiden Hair Family)

Adiantum capillus-veneris L. **southern maidenhair**
Rare; north-facing slopes in Box and Willow canyons on West Anacapa.

WA, 8 May 1980, *Junak et al.* WA-153.

Adiantum jordanii Mull. Hal. **California maidenhair**
Scarce; north-facing slopes and canyons on West and Middle Anacapa.

WA, 18 May 1961, *Blakley* 4344 (RSA, SBBG, SD, UCR); MA, 1 May 1986, *Junak* MA-184 (CAS, SBBG).

Pellaea andromedifolia (Kaulf.) Fee **coffee fern** Scarce;
north-facing slopes on West and Middle Anacapa.

WA, 6 Sep 1964, *Philbrick & Flinck* B64-323; MA, 2 Jun 1978, *Philbrick* B78-312.

Pentagramma triangularis (Kaulf.) Yatsk. *et al.* subsp. *triangularis* [*Pityrogramma t.* (Kaulf.) Maxon var. *t.*] **goldback fern** Scarce; north-facing slopes and canyons on West and Middle Anacapa.

WA, 28 Mar 1979, *Junak et al.* WA-45; MA, 2 Jun 1978, *Philbrick & Hochberg* B78-297.

GYMNOSPERMS
CUPRESSACEAE
(Cypress Family)

Hesperocyparis macrocarpa* (Hartw.) Bartel [*Cupressus m.* Hartw.] **Monterey cypress Rare; planted by buildings on East Anacapa as early as 1936 (Lighthouse Keeper logs at National Archives). Not seen recently.

EA, 25 Apr 1959, *Blakley* 2782.

EUDICOTS
AIZOACEAE
(Iceplant Family)

Aptenia cordifolia* (L.f.) Schwantes **baby sun-rose
Rare; disturbed flats near buildings on East Anacapa. First collected there in August 1974.

EA, 5 Aug 1974, *Philbrick* B74-141.

Carpobrotus chilensis* (Molina) N.E.Br. [*C. aequilaterus* (Haw.) N.E.Br., misapplied] **sea-fig
Scarce; flats and slopes near Frenchy's Cove on West Anacapa and near west end of East Anacapa. First collected on "beach" (islet not specified) in September 1930.

A, 22 Sep 1930, *Hoffmann s.n.* (SBBG 80047); WA, 18 May 1961, *Muller* 1176; EA, 26 Apr 1959, *Blakley* 2812.

Carpobrotus edulis* (L.) N.E.Br. **freeway iceplant
Rare; disturbed flats near buildings on East Anacapa. First collected there in April 1979.

EA, 30 Apr 1979, *Junak* EA-19.

*Malephora crocea (Jacq.) Schwantes Common; disturbed flats and offshore bluffs on East Anacapa and in the eastern portion of Middle Anacapa. First collected at "west end of flat part" of East Anacapa in 1959. This taxon was abundant on East Anacapa, but has now been almost eradicated from the flats there; it is still persisting and slowly spreading on the offshore bluffs of Middle and East Anacapa, and is occasional on the terrace of Middle Anacapa.

MA, 5 May 1998, *Junak* MA-397; EA, 26 Apr 1959, *Blakley* 2813.

Mesembryanthemum crystallinum* L. **crystalline iceplant Common; widespread on disturbed flats and slopes on all islets. First collected on the island (exact location and islet not specified) in June 1930.

A, 16 Jun 1930, *Hoffmann s.n.* (SBBG 77688); WA, 18 May 1961, *Blakley* 4359; MA, 28 Oct 1979, *Junak et al.* MA-41; EA, 24 Apr 1959, *Blakley* 2766a (CAS, SBBG).

Mesembryanthemum nodiflorum* L. **small-flowered iceplant Common; widespread on disturbed flats and slopes on all islets. First collected on "bare ground at border of cliff" (exact location and islet not specified) in March 1928.

A, 11 Mar 1928, *Hoffmann s.n.* (SBBG 77689); WA, 18 May 1961, *Blakley* 4358 (CAS, RSA, SBBG); MA, 18 May 1961, *Muller* 1181; EA, 26 Apr 1959, *Blakley* 2788 (SBBG, US).

Tetragonia tetragonioides* L. **New Zealand spinach
Rare; known only from back beach area at Frenchy's Cove on West Anacapa. First collected there in May 1961.

WA, 27 May 1961, *Wheeler* 7806 (RSA, SBBG); WA, 31 Mar 1962, *Blakley* 4935 (RSA, SBBG); WA, 16 Nov 1969, *Blakley* 7022.

AMARANTHACEAE
(Amaranth Family)

*Amaranthus albus L. **tumbleweed** Rare; known from a single collection on flats near Sheep Camp landing on Middle Anacapa in June 1978.

MA, 3 Jun 1978, *Philbrick & Hochberg* B78-335.

Amaranthus powellii S. Watson **Powell's amaranth**
Rare; known from a single collection on slopes below lighthouse on East Anacapa.

EA, 19 Aug 1988, *Junak* EA-90 (SBBG, UCR).

ANACARDIACEAE
(Sumac Family)

Rhus integrifolia (Nutt. in Torr. & A. Gray) Brewer & S. Watson **lemonade berry** Occasional; flats and steep coastal slopes on all islets.

WA, 18 May 1961, *Blakley* 4354 (CAS, JEPS, RSA, SBBG); MA, 7 Apr 1968, *Philbrick & Osborne* B68-167; EA, 26 Apr 1959, *Blakley* 2807.

Toxicodendron diversilobum (Torr. & A. Gray) Greene
poison-oak Scarce; canyons on north side of
West Anacapa.

WA, 18 May 1961, *Blakley 4381* (RSA, SBBG).

APIACEAE
(Carrot or Celery Family)

Apiastrum angustifolium **wild celery** Nutt. Scarce;
moist slopes and flats on West and Middle
Anacapa.

WA, 23 Apr 1982, *Junak WA-189*; MA, 1 Jun 1978,
Philbrick & Hochberg B78-272.

Daucus pusillus Michx. **rattlesnake weed** Occasional;
flats on all islets.

WA, 9 May 1963, *Piehl 63-190*; MA, 4 May 1998,
Junak MA-374; EA, 26 Apr 1959, *Blakley 2814*.

Sanicula arguta Greene ex J.M. Coult. & Rose
sharp-toothed snakeroot Occasional; moist flats
and slopes on all islets.

WA, 18 May 1961, *Blakley 4374*; MA, 31 Mar 1962,
Blakley 4895; EA, 27 Mar 1979, *Junak et al. EA-2*
(JEPS, SBBG).

ASTERACEAE
(Sunflower Family)

Achillea millefolium L. **yarrow** Occasional; flats and
slopes on all islets.

WA, 18 May 1961, *Blakley 4402* (CAS, SBBG); MA,
1 Apr 1984, *Junak MA-274* (RSA, SBBG); EA, 25 Apr
1959, *Blakley 2778* (CAS, JEPS, RSA, SBBG, SD).

Amblyopappus pusillus Hook. & Arn. **pineapple
weed** Common; open flats along terrace edges
on all islets.

WA, 19 May 1928, *Howell 3815* (CAS); MA, 9 May
1963, *Blakley 5722* (CAS, RSA, SBBG); EA, 28 Apr
1993, *Junak EA-116* (RSA, SBBG).

Ambrosia acanthicarpa* Hook. **annual bur-sage
Rare; known from a single collection on East
Anacapa in October 1979 (large plant growing
on mixed fill and gravel pile which had been
brought to the island in early February 1979
[George Leone, personal communication, 1979]).

EA, 26 Oct 1979, *Junak & Philbrick EA-27*.

Ambrosia chamissonis (Less.) Greene **silver beach-
bur** Rare; known only from beach at Frenchy's
Cove on West Anacapa.

WA, 9 May 1963, *Blakley 5793*; WA, 6 Apr 1968,
Philbrick & Osborne B68-138.

Artemisia californica Less. **coastal sagebrush** or
california sagebrush Common; flats and slopes
on all islets.

WA, 18 May 1961, *Blakley 4383* (RSA, SBBG); MA,
9 May 1963, *Piehl 63-200*; EA, 26 Oct 1979, *Junak &
Philbrick EA-31*.

Baccharis pilularis DC. subsp. *consanguinea* (DC.)
C.B. Wolf **coyote brush** Occasional on flats and

in canyons of West Anacapa; rare on flats of
Middle and East Anacapa.

WA, 9 May 1963, *Blakley 5757*; MA, 12 May 1963,
Piehl 63-283; EA, 5 Aug 1974, *Philbrick B74-152*.

Baccharis plummerae A. Gray subsp. *plummerae*
Plummer's baccharis Rare; known from a single
collection just northeast of Camel Peak on West
Anacapa.

WA, 27 Oct 1979, *Junak & Philbrick WA-90* (JEPS,
SBBG).

Baccharis salicifolia (Ruiz & Pav.) Pers. subsp. *salici-
folia* **mule fat** Rare; moist flats and slopes near
Frenchy's Cove on West Anacapa.

WA, 9 May 1963, *Blakley 5793* (CAS, RSA, SBBG).

Brickellia californica (Torr. & A. Gray) A. Gray
California brickell-bush or **California boneset**
Rare; slopes on West Anacapa.

WA, 19 Mar 1967, *Philbrick & Ricker B67-27*; WA,
2 October 1978, *Junak & Timbrook WA-7*.

Centaurea melitensis* L. **tocalote Scarce; dis-
turbed flats and slopes along trail on West
Anacapa and on disturbed flats in campground
on East Anacapa. First collected on west flanks
of Summit Peak on West Anacapa in June
1992.

WA, 3 Jun 1992, *Junak WA-255* (RSA, SBBG); EA,
9 Jul 1998, *Junak EA-169*.

Corethrogyne filaginifolia (Hook. & Arn.) Nutt. [*Les-
singia* f. (Hook. & Arn.) M.A. Lane] **California-
aster** or **cudweed-aster** Common; flats and
north-facing slopes on West and Middle Anacapa;
scarce on north-facing slopes on East Anacapa.

WA, 11 May 1963, *Blakley 5801*; MA, 28 Oct 1979,
Junak MA-38.

*Cotula australis (Spreng.) Hook. f. **Australian cotula**
Scarce; disturbed flats on all islets. First col-
lected near visitor's center building on East
Anacapa in March 1979.

WA, 8 May 1980, *Junak & Philbrick WA-155*; MA,
1 May 1986, *Junak MA-189*; EA, 30 Mar 1979, *Junak
EA-11*.

Cotula coronopifolia* L. **brass buttons Rare; flats
on West and East Anacapa. First collected just
east of the mouth of Box Canyon on West
Anacapa in May 1980.

WA, 8 May 1980, *Junak & Philbrick WA-158*; EA,
23 Apr 1982, *Junak EA-64*; EA, 11 May 1984, *Pritchett
101*.

Deinandra clementina (Brandeggee) B.G. Baldwin
[*Hemizonia* c. Brandeggee] **island tarplant**
Common; flats on Middle and East Anacapa.
ENDEMIC to Santa Cruz, Anacapa, Santa
Barbara, San Nicolas, Santa Catalina, and San
Clemente islands.

MA, 28 May 1963, *Blakley 5936* (CAS, SBBG); EA,
12 May 1984, *Pritchett 109*.

- Deinandra fasciculata* (DC.) Greene [*Hemizonia f.* (DC.) Torr. & A. Gray] **common tarplant** Scarce; flats on west end of West Anacapa.
WA, 3 Jun 1992, *Junak* WA-247 (RSA, SBBG).
- *Delairea odorata Lam. [*Senecio mikanoides* Walp.] **cape ivy** Scarce; onshore slopes and canyons on West Anacapa. First collected in lower portion of Summit Canyon on that islet in November 2007.
WA, November 2007, *Chaney & Rodriguez s.n.*
- Encelia californica* Nutt. **bush sunflower** Common on south-facing slopes of West and Middle Anacapa and along edges of terraces on Middle Anacapa; occasional on south-facing slopes and near center of terrace on East Anacapa.
WA, 27 Oct 1979, *Junak & Philbrick* WA-84; MA, 7 Apr 68, *Philbrick & Osborne* B68-166 (CAS, SBBG); EA, 26 Apr 1959, *Blakley* 2815 (JEPS, RSA, SBBG, SD).
- **Erigeron bonariensis* L. [*Conyza b.* (L.) Cronquist] **flax-leaved fleabane** Scarce; flats on West and East Anacapa. First collected in Cherry Canyon on West Anacapa in September 1964.
WA, 6 Sep 1964, *Blakley* 6518; EA, 5 Aug 1974, *Philbrick* B74-148.
- Erigeron canadensis* L. [*Conyza c.* (L.) Cronquist] **horseweed** Rare; flats on West and East Anacapa.
WA, 1 Oct 1978, *Junak et al.* WA-1; EA, 23 Aug 1978, *Junak & Hochberg s.n.* (SBBG 53423).
- Erigeron foliosus* var. *foliosus* Nutt. [*E. f.* var. *stenophyllus* (Nutt.) A. Gray] **leafy fleabane** Rare; flats and slopes on West and Middle Anacapa.
WA, 10 May 1963, *Piehl* 63-238; MA, 9 May 1963, *Blakley* 5720 (CAS, SBBG).
- Erigeron glaucus* Ker Gawl. **seaside daisy** Occasional; north-facing slopes and terrace edges on all islets. The populations on Anacapa Island represent the southeastern-most occurrence of this taxon in the wild.
WA, 18 May 1961, *Blakley* 4333 (JEPS, RSA, SBBG); MA, 9 May 1963, *Blakley* 5740; EA, 24 Apr 1959, *Blakley* 2754 (CAS, JEPS, RSA, SBBG).
- **Erigeron sumatrensis* Retz. [*Conyza floribunda* Kunth, misapplied] **tropical horseweed** Rare; canyon bottom on West Anacapa and flats on East Anacapa. First collected on north side of West Anacapa in September 2012.
WA, 27 Sept 2012, *Junak* WA-461; EA, 29 Sept 2017, *Junak* EA-175.
- Eriophyllum confertiflorum* (DC.) A. Gray var. *confertiflorum* **golden-yarrow** Common; flats and slopes on all islets.
WA, 18 May 1961, *Blakley* 4409 (RSA, SBBG); MA, 18 May 1961, *Muller* 1185; EA, 26 Apr 1959, *Blakley* 2797 (JEPS, RSA, SBBG).
- Eriophyllum staechadifolium* Lag. **seaside woolly sunflower** Occasional; north-facing slopes on all islets.
WA, 10 May 1963, *Piehl* 63-236; MA, 18 May 1961, *Muller* 1163 (RSA, SBBG); EA, 25 Apr 1959, *Blakley* 2779.
- Euthamia occidentalis* Nutt. [*Solidago o.* (Nutt.) Torr. & A. Gray] **western goldenrod** Rare; known from a single collection in Cherry Canyon on West Anacapa.
WA, 3 Oct 1978, *Junak et al.* WA-19.
- Gamochaeta ustulata* (Nutt.) Holub [*Gnaphalium purpureum* L., misapplied] **purple cudweed** Scarce; north-facing slopes in Cherry and Willow canyons on West Anacapa.
WA, 9 May 1963, *Blakley* 5774 (RSA, SBBG); WA, 3 Oct 1978, *Junak & Hochberg* WA-25.
- Grindelia stricta* DC. var. *platyphylla* (Greene) M.A. Lane **gumplant** Abundant; flats and gentle slopes on all islets.
WA, 6 Sep 1964, *Philbrick & Flinck* B64-319 (CAS, RSA, SBBG); MA, 5 Apr 1962, *Blakley* 5015; EA, 24 Apr 1959, *Blakley* 2743 (CAS, NY, RSA, SBBG, SD, US).
- Hazardia detonsa* (Greene) Greene [*Haplopappus d.* (Greene) Raven] **northern island hazardia** Common; north-facing slopes and flats on West Anacapa and extreme west end of Middle Anacapa. ENDEMIC to Santa Rosa, Santa Cruz, and Anacapa islands. Hybridizes with *Hazardia squarrosa* var. *grindeloides*.
WA, 3 Oct 1978, *Junak et al.* WA-15; MA, 23 Nov 1988, *Junak* MA-216 (RSA, SBBG).
- Hazardia squarrosa* (Hook. & Arn.) Greene var. *grindeloides* (DC.) W.D. Clark [*Haplopappus s.* Hook. & Arn. subsp. *g.* (DC.) D.D. Keck] **saw-toothed goldenbush** Scarce; slopes and flats on West Anacapa.
WA, 2 Oct 1978, *Junak & Timbrook* WA-11.
- **Helianthus annuus* L. **common sunflower** Rare; known from a single collection on flats at west end of West Anacapa in September 1986.
WA, 23 Sep 1986, *Drost* 393.
- **Hypochaeris glabra* L. **smooth cat's-ear** Rare; flats and slopes on all islets. First collected on grassy slope just west of lighthouse on East Anacapa in April 1970.
WA, 6 May 1980, *Junak & Philbrick* WA-118; MA, 28 Feb 1980, *Junak & Philbrick* MA-44; EA, 22–23 Apr 1970, *Benedict s.n.* (SBBG 54303).
- Isocoma menziesii* (Hook. & Arn.) G.L. Nesom var. *sedoides* (Greene) G.L. Nesom [*Haplopappus venetus* (Kunth) S.F. Blake var. *s.* (Greene) Munz] **prostrate coastal goldenbush** Rare; flats on East Anacapa.
EA, 26 Apr 1959, *Blakley* 2822.
- Isocoma menziesii* (Hook. & Arn.) G.L. Nesom var. *vernonioides* (Nutt.) G.L. Nesom **coastal goldenbush** [*Haplopappus v.* (Kunth) S.F. Blake var. *v.*] Occasional; flats and slopes on all islets.

- WA, 16 Nov 1969, *Blakley* 7025; MA, 7 Sep 1964, *Blakley* 6529; EA, 17 Jan 1985, *Junak & Fowler* EA-83.
- *Lactuca serriola L. **prickly lettuce** Rare; known from 2 occurrences: on a slope in the upper east fork of Box Canyon on West Anacapa and in open grassland on the ridge near the west end of Middle Anacapa. Both occurrences were very small populations (2 juvenile plants on West Anacapa and 12 adults and 1 juvenile plant on Middle Anacapa); all plants seen were removed. First collected on West Anacapa in May 1980.
- WA, 5 May 1980, *Junak & Philbrick* WA-151; MA, 16 Jul 2001, *Junak & Rosen* MA-426.
- Lasthenia gracilis* (DC.) Greene **common goldfields** Occasional; flats and slopes on all islets.
- WA, 4 Apr 1996, *Junak* WA-416 (RSA, SBBG); MA, 23 Apr 1982, *Junak & Philbrick* MA-47; EA, 25 Apr 1959, *Blakley* 2774 (JEPS, NY, RSA, SBBG, SD, US).
- Leptosyne gigantea* Kellogg [*Coreopsis* g. (Kellogg) H.M. Hall] **giant coreopsis** Abundant; flats and slopes, especially north-facing, on all islets.
- WA, 27 Mar 1965, *Philbrick* B65-503; EA, 24 Apr 1959, *Blakley* 2761 (CAS, RSA, SBBG, SD).
- Logfia filaginoides* (Hook. & Arn.) Morefield [*Filago californica* Nutt.] **california cotton-rose** Scarce; open flats and slopes on West and Middle Anacapa.
- WA, 3 Apr 1996, *Junak* WA-402; MA, 5 Apr 1995, *Junak* MA-302 (RSA, SBBG).
- Malacothrix foliosa* A. Gray subsp. *crispifolia* W.S. Davis **Anacapa Island chicory** Rare; flats and gentle slopes on extreme eastern end of West Anacapa and on East Anacapa. ENDEMIC to Anacapa Island.
- WA, 31 Mar 1962, *Blakley* 4940; EA, 28 Apr 1993, *Junak* EA-119.
- Malacothrix junakii* W.S. Davis **Junak's island chicory** Rare; ledges and slopes on Middle Anacapa. ENDEMIC to Anacapa Island.
- MA, 22 Apr 1986, *Junak* MA-105.
- Malacothrix saxatilis* (Nutt.) Torr. & A. Gray var. *implicata* (Eastw.) H.M. Hall **cliff malacothrix** Occasional; flats and slopes on all islets. ENDEMIC to San Miguel, Santa Rosa, Santa Cruz, Anacapa, and San Nicolas islands.
- WA, 18 May 1961, *Muller* 1173; MA, 27 Mar 1979, *Junak & Hochberg* MA-28; EA, 22-23 Apr 1970, *Benedict* s.n. (SBBG 43139).
- Malacothrix squalida* Greene **island malacothrix** Rare; flats and gentle slopes on Middle Anacapa. ENDEMIC to Santa Cruz and Anacapa islands.
- MA, 30 Apr 1986, *Junak* MA-172.
- **Matricaria discoidea* DC. [*Chamomilla suaveolens* (Pursh) Rydb., *M. matricarioides* (Less.) Porter] **pineapple weed** Rare; known from a single collection near buildings on East Anacapa in March 1979.
- EA, 27 Mar 1979, *Junak & Hochberg* EA-6.
- Perityle emoryi* Torr. **Emory's rock daisy** Occasional; flats and slopes, especially south-facing, on all islets.
- WA, 9 May 1963, *Blakley* 5749 (CAS, RSA, SBBG); MA, 9 May 1963, *Blakley* 5734; EA, 22-23 Apr 1970, *Benedict* s.n. (SBBG 43196).
- Pseudognaphalium biolettii* Anderb. [*Gnaphalium bicolor* Bioletti] **bicolored everlasting** Scarce; flats and slopes on all islets.
- WA, 7 May 1980, *Junak & Philbrick* WA-127; MA, 2 Jun 1978, *Philbrick & Hochberg* B78-307; EA, 30 Mar 1979, *Philbrick & Hochberg* B79-17b.
- Pseudognaphalium californicum* (DC.) Anderb. [*Gnaphalium* c. DC.] **green everlasting** Rare; known from two collections ("brushy slope" on unspecified islet and Cherry Canyon on West Anacapa).
- A, 16 Mar 1929, *Hoffmann* s.n. (SBBG 80027); WA, 9 May 1963, *Blakley* 5776.
- **Pseudognaphalium luteoalbum* (L.) Hilliard & B.L. Burt [Gnaphalium l. L.] **weedy cudweed** Rare; known from a single collection in Cherry Canyon on West Anacapa in October 1978.
- WA, 3 Oct 1978, *Junak et al.* WA-21.
- Pseudognaphalium microcephalum* (Nutt.) Anderb. [*Gnaphalium canescens* subsp. m. (Nutt.) Stebbins & D.J. Keil] **white everlasting** Rare; flats and slopes on West and East Anacapa.
- WA, 27 Oct 1979, *Junak & Philbrick* WA-89; EA, 22-23 Apr 1970, *Benedict* s.n. (SBBG 43166).
- Pseudognaphalium stramineum* (Kunth) Anderb. [*Gnaphalium chilense* Spreng., *Gnaphalium* s. Kunth] **cotton-batting** Scarce; flats and slopes on all islets.
- WA, 9 Apr 1998, *Junak* WA-443 (RSA, SBBG); MA, 1 May 1986, *Junak* MA-192; EA, 24 Apr 1959, *Blakley* 2750 (CAS, RSA, SBBG).
- Rafinesquia californica* Nutt. **California chicory** Rare; flats and slopes on West and Middle Anacapa.
- WA, 3 Jun 1992, *Junak* WA-249 (RSA, SBBG); MA, 6 Apr 1995, *Junak* MA-317.
- *Senecio vulgaris L. **common groundsel** Rare; flats on all islets. First collected near east end of East Anacapa, above Arch Rock in April 1959.
- WA, 28 Mar 1979, *Junak & Hochberg* WA-46; MA, 23 Apr 1982, *Junak & Philbrick* MA-51; EA, 25 Apr 1959, *Blakley* 2769.
- *Silybum marianum (L.) Gaertn. **milk thistle** Rare; disturbed flats on East Anacapa. First collected near the northern edge of the water catchment pad on East Anacapa in March 1995. All plants seen were removed at that time. The taxon was

seen again near the campground in March 2015.

EA, 1 March 1995, *Chaney SC495*.

*Sonchus asper (L.) Hill **prickly sow thistle** Rare; flats on West and East Anacapa. First collected at edge of water catchment area on East Anacapa in April 1959.

WA, 9 May 1963, *Blakley 5769* (RSA, SBBG); EA, 26 Apr 1959, *Blakley 2795* (CAS, SBBG).

Sonchus oleraceus* L. **common sow thistle Common; flats and slopes on all islets. First collected on island (islet and exact location not specified) in 1901.

A, 1901, *Hemphill s.n.* (UC 134386); WA, 18 May 1961, *Blakley 4386* (CAS, RSA, SBBG, SD); MA, 31 Mar 1962, *Blakley 4907* (RSA, SBBG); EA, 24 Apr 1959, *Blakley 2746* (CAS, JEPS, SBBG).

Stebbinsoseris heterocarpa (Nutt.) K.L. Chambers [*Microseris h.* (Nutt.) K.L. Chambers] Rare; known from 2 collections on terrace just south-west of Sheep Camp on Middle Anacapa.

MA, 22 Apr 1986, *Junak MA-86*; MA, 5 May 1998, *Junak MA-387*.

Uropappus lindleyi (DC.) Nutt. [*Microseris lindleyi* (DC.) A. Gray, *M. linearifolia* (DC.) Sch.Bip.] **silver puffs** Occasional; flats and slopes on West and Middle Anacapa.

WA, 1 Apr 1962, *Blakley 4999* (RSA, SBBG); MA, 9 May 1963, *Piehl 63-185* (CAS, SBBG).

BERBERIDACEAE (Barberry Family)

Berberis pinnata Lagasca subsp. *insularis* Munz [*Mahonia p.* (Lagasca) Fedde subsp. *i.* (Munz)] **Roof island barberry** Rare; most recently known from a single colony in Summit Canyon on West Anacapa and now presumed to be extinct on the island, where it was last seen alive in August 1990. ENDEMIC to Santa Rosa (last collected there in 1930), Santa Cruz, and Anacapa islands.

WA, 26 Aug 1940, *Dunkle 7668* (SBBG, SD); WA, 7 May 1980, *Junak & Philbrick WA-141* (CAS, RSA, SBBG); WA, 30 Aug 1990, *Junak WA-240*; WA, 15 Nov 1994, *Junak & Chaney WA-335* (branches of dead shrub).

BORAGINACEAE (Borage Family)

Amsinckia intermedia Fisch. & C.A. Mey. **common fiddleneck** Scarce; flats and slopes on all islets.

WA, 28 Mar 1979, *Philbrick B79-5*; MA, 2 Apr 1998, *Junak & Kirkland MA-349* (RSA, SBBG); EA, 22 Apr 1970, *Benedict s.n.* (SBBG 43419).

Amsinckia menziesii (Lehm.) A. Nelson & J.F. Macbr. **small-flowered fiddleneck** Rare; flats on Middle Anacapa.

MA, 1 Apr 1994, *Junak MA-291*.

Amsinckia spectabilis Fisch. & C.A. Mey. var. *spectabilis* **seaside fiddleneck** Rare; flats and gentle slopes on all islets.

WA, 22 Apr 1970, *Benedict s.n.* (SBBG 43398); MA, 30 Apr 1986, *Junak MA-170*; EA, 26 Apr 1959, *Blakley 2790* (CAS).

Cryptantha clevelandii Greene var. *florosa* I.M. Johnst. **coastal cryptantha** Occasional; flats on West and Middle Anacapa.

WA, 20 Mar 1997, *Junak & Kirkland WA-434*; MA, 2 Apr 1998, *Junak & Kirkland MA-350*.

Eucrypta chrysanthemifolia (Benth.) Greene var. *chrysanthemifolia* Occasional; flats and slopes, especially along northern edge of terraces, on West and Middle Anacapa.

WA, 18 Mar 1941, *Moran & Templeton 725* (RSA, SBBG); MA, 31 Mar 1962, *Blakley 4915* (JEPS, SBBG).

Heliotropium curassavicum L. var. *oculatum* (A. Heller) Tidestr. **seaside heliotrope** or **alkali heliotrope** Rare; flats and slopes on West and Middle Anacapa. Not seen recently.

WA, 18 May 1961, *Muller 1174*; MA, 1 Aug 1938, *Elmore 222* (POM).

Pectocarya linearis (Ruiz & Pav.) DC. subsp. *ferocula* (I.M. Johnst.) Thorne **slender comb-seed** Scarce; open flats and slopes along main ridge on West Anacapa.

WA, 3 Apr 1996, *Junak WA-401*.

Phacelia cicutaria Greene var. *hispida* (A. Gray) J.T. Howell **caterpillar phacelia** Scarce; flats and north-facing slopes on West and Middle Anacapa.

WA, 28 Mar 1965, *Philbrick B65-521*; MA, 29 Apr 1986, *Junak MA-154*.

Phacelia distans Benth. **wild-heliotrope** Occasional; flats and gentle slopes on all islets.

WA, 18 Mar 1941, *Moran 721* (RSA, SBBG); MA, 2 Apr 1998, *Junak & Kirkland MA-353* (RSA, SBBG); EA, 24 Apr 1959, *Blakley 2749* (OBI, SBBG).

Phacelia viscida (Lindl.) Torr. var. *viscida* **sticky phacelia** Rare; rocky slopes on West and Middle Anacapa.

WA, 11 May 1963, *Blakley 5795* (RSA, SBBG); MA, 30 Apr 1986, *Junak MA-169*.

Plagiobothrys canescens Benth. var. *catalinensis* (A. Gray) Jeps. **Santa Catalina popcorn-flower** Rare; flats and ridgetops near Camel Peak on West Anacapa.

WA, 1 Apr 1962, *Blakley 4977a*.

Plagiobothrys collinus (Phil.) I.M. Johnst. var. *gracilis* (I.M. Johnst.) Higgins **San Diego popcorn-flower** Scarce; flats and ridgetops on West and Middle Anacapa.

WA, 3 Apr 1996, *Junak WA-407*; MA, 31 Mar 1962, *Blakley 4927*.

BRASSICACEAE
(Mustard Family)

*Brassica nigra (L.) W.D.J. Koch **black mustard** Rare; known from a single collection at water catchment pad on East Anacapa in February 1980. EA, 27 Feb 1980, *Junak* & *Philbrick* EA-36.

*Cakile maritima Scop. **sea rocket** Rare; rocky beach at Frenchy's Cove on West Anacapa. First collected there in May 1963.

WA, 11 May 1963, *Blakley* 5794 (JEPS, RSA, SBBG, US).

Cardamine californica (Nutt.) Greene [*Dentaria c.* Nutt.] **milk maids** Rare; on north-facing slopes in and near *Eucalyptus* grove at Sheep Camp landing on Middle Anacapa.

MA, 31 Mar 1962, *Blakley* 4891 (CAS, JEPS, RSA, SBBG, US).

Caulanthus lasiophyllus (Hook. & Arn.) Payson [*Guillemia l.* (Hook. & Arn.) Greene] **California mustard** Occasional; flats and slopes on West and Middle Anacapa.

WA, 31 Mar 1962, *Blakley* 4941 (CAS, RSA, SBBG); MA, 9 May 1963, *Blakley* 5739 (RSA, SBBG).

Descurainia pinnata (Walter) Britton subsp. *pinnata* **tansy mustard** Rare; known from a single collection "east of the top of the highest peak" on West Anacapa in April 1962. Not seen recently.

WA, 1 Apr 1962, *Blakley* 4980.

Erysimum insulare Greene **island wallflower** Rare; slopes on West Anacapa and flats, especially those with shell middens, on East Anacapa. ENDEMIC to San Miguel, Santa Rosa, Santa Cruz, and Anacapa islands.

WA, 11 May 1963, *Blakley* 5800 (CAS, JEPS, RSA, SBBG); EA, 27 Feb 1980, *Junak* & *Philbrick* EA-45.

Hornungia procumbens (L.) Hayek [*Hutchinsia p.* (L.) Desv.] Rare; slopes on north side of West and Middle Anacapa.

WA, 5 Apr 1962, *Smith* 6654; MA, 23 Apr 1982, *Junak* & *Philbrick* MA-46.

*Lepidium didymum L. [*Coronopus d.* (L.) Sm.] **lesser swine cress** Rare; north-facing slopes east of Sheep Camp landing on Middle Anacapa, in seagull nesting area. Also known from East Anacapa on east side of Cathedral Cove and at top of stairs at Landing Cove. First collected on island in April 1991.

MA, 30 Apr 1991, *Junak* MA-237 (RSA, SBBG); EA, 15 Mar 2010, *Chaney* SC493.

Lepidium nitidum Nutt. **shining peppergrass** Occasional; flats on West and Middle Anacapa.

WA, 1 Apr 1962, *Blakley* 4961 (CAS, JEPS, RSA, SBBG, US); MA, 2 Apr 1998, *Junak* & *Kirkland* MA-351.

Lepidium oblongum Small [*L. o.* var. *insulare* C.L. Hitchc.] **lentejilla** Occasional; flats and slopes on all islets.

WA, 11 May 1963, *Blakley* 5808; MA, 30 Apr 1991, *Junak* MA-234 (CAS, RSA, SBBG, SD); EA, 2 Mar 1993, *Junak* EA-98.

*Sisymbrium irio L. **London rocket** Rare; flats and slopes on West and Middle Anacapa. First collected near Frenchy's Cove on West Anacapa in May 1963.

WA, 11 May 1963, *Piehl* 63-277 (RSA, SBBG); MA, 26 Mar 1979, *Junak* MA-10.

**Sisymbrium orientale* L. Occasional on Middle Anacapa, especially on disturbed flats along northern edge of terrace. Rare on East Anacapa, where it is known from a single collection. First collected near northeast end of water catchment pad on East Anacapa in February 1980.

MA, 29 Apr 1986, *Junak* MA-130 (CAS, RSA, SBBG); EA, 27 Feb 1980, *Junak* & *Philbrick* EA-35a.

CACTACEAE
(Cactus Family)

Cylindropuntia prolifera (Engelm.) F.M. Knuth [*Opuntia p.* Engelm.] **coastal cholla** Occasional; southern edges of terraces and south-facing slopes on all islets.

EA, 24 Apr 1959, *Blakley* 2762.

Opuntia ficus-indica* (L.) Mill. **mission prickly-pear Rare; slopes near Sheep Camp landing on Middle Anacapa. First collected on island "near abandoned ranch" (islet not specified, but probably Middle Anacapa) in June 1930.

A, 15 Jun 1930, *Hoffmann* 6528.

Opuntia littoralis (Engelm.) **Cockerell coastal prickly-pear** Occasional; flats and south-facing slopes on all islets. Hybridizes with *O. oricola*.

EA, 26 Apr 1959, *Blakley* 2823 (SBBG, SD).

Opuntia oricola Philbrick **tall prickly-pear** Occasional; flats and south-facing slopes on all islets.

MA, 1 Aug 1938, *Elnore* 245 (RSA).

CARYOPHYLLACEAE
(Pink Family)

Cerastium glomeratum* Thuill. **sticky mouse-ear chickweed Rare; north-facing slope above Sheep Camp landing on Middle Anacapa. First collected there in April 1991.

MA, 30 Apr 1991, *Junak* MA-238.

Polycarpon tetraphyllum* (L.) L. var. *tetraphyllum* **four-leaved all-seed Rare; along trail at Sheep Camp landing on Middle Anacapa. First collected there in April 1986.

MA, 29 Apr 1986, *Junak* MA-118.

*Silene gallica L. **windmill pink** Occasional; open flats and slopes on all islets. First collected on West Anacapa (exact location not specified) in May 1940.

- WA, 16 May 1940, *Bond* 519; MA, 31 Mar 1962, *Blakley* 4899 (CAS, JEPS, NY, RSA, SBBG, SD, US); EA, 26 Apr 1959, *Blakley* 2798.
- Silene laciniata* Cav. subsp. *laciniata* [S.L. subsp. *major* C.L. Hitchc. & Maguire] **mexican pink** Occasional; north-facing slopes on all islets.
WA, 18 May 1961, *Blakley* 4373 (CAS, JEPS, RSA, SBBG); MA, 18 May 1962, *Muller* 1177; EA, 26 Oct 1979, *Junak* & *Philbrick* EA-30.
- **Spergularia bocconi* (Scheele) Graebn. **boccone's sand-spurrey** Scarce; along trails and on disturbed flats on Middle and East islets. First collected at campsite above Sheep Camp landing on Middle Anacapa in June 1992.
MA, 2 Jun 1992, *Junak* MA-245 (RSA, SBBG); EA, 6 Apr 1993, *Junak* EA-107.
- Spergularia macrotheca* (Cham. & Schltdl.) Heynh. subsp. *macrotheca* **sticky sand-spurrey** Occasional; terrace edges and slopes, especially north-facing, on all islets.
WA, 10 Apr 1998, *Junak* WA-454; MA, 31 Mar 1962, *Blakley* 4879 (RSA, SBBG); EA, 26 Apr 1959, *Blakley* 2785 (CAS, JEPS, RSA, SBBG, SD, US).
- Spergularia marina* (L.) Besser **saltmarsh sand-spurrey** Rare; disturbed flats on East islet.
EA, 13 Apr 1984, *Drost* 385.
- *Stellaria media (L.) Vill. **common chickweed** Occasional; flats and north-facing slopes on all islets. First collected above Sheep Camp landing on Middle Anacapa in March 1979.
WA, 8 May 1980, *Junak* & *Philbrick* WA-154 (RSA, SBBG); MA, 25 Mar 1979, *Philbrick* s.n. (SBBG 53326); EA, 4 Apr 1995, *Junak* EA-133.
- CHENOPODIACEAE
(Goosefoot Family)
- Aphanisma blitoides* Moq. **aphanisma** Rare; south-facing slopes at edge of terrace on Middle Anacapa.
MA, 2 Jun 1992, *Junak* MA-249 (CAS, RSA, SBBG); MA, 19 Mar 1997, *Junak* MA-342.
- Atriplex californica* Moq. **California saltbush** Occasional; slopes and flats, especially at edges of terraces, on all islets.
WA, 31 Mar 1994, *Junak* WA-328 (RSA, SBBG); MA, 1 Apr 1994, *Junak* MA-270 (RSA, SBBG); EA, 18 Mar 1996, *Junak* EA-149 (RSA, SBBG).
- Atriplex coulteri* (Moq.) D. Dietr. **Coulter's saltscale** Rare; open sites at southern edge of terrace on Middle Anacapa.
MA, 30 Apr 1991, *Junak* MA-233 (CAS, RSA, SBBG).
- Atriplex lentiformis* (Torr.) S. Watson subsp. *breweri* (S. Watson) H.M. Hall & Clem. **Brewer's saltbush** Scarce; flats and slopes on all islets.
WA, 23 Apr 1982, *Junak* WA-196; MA, 1 Nov 1988, *Junak* MA-200 (CAS, RSA, SBBG); EA, 26 Apr 1959, *Blakley* 2794 (CAS, JEPS, NY, RSA, SBBG, SD, US).
- Atriplex leucophylla* (Moq.) D. Dietr. **seascale** Rare; known from a single collection on "steep rocky slope" on Middle Anacapa. Not seen recently.
MA, 1 Aug 1938, *Elmore* 237 (RSA).
- Atriplex pacifica* A. Nelson **south coast saltscale** Scarce; flats and slopes on West and Middle Anacapa.
WA, 3 Apr 1996, *Junak* WA-403 (CAS, RSA, SBBG); MA, 30 Apr 1986, *Junak* MA-166 (CAS, SBBG).
- **Atriplex semibaccata* R. Br. **Australian saltbush** Common; disturbed flats and slopes on all islets. First collected on island in June 1930 (exact location and islet not specified).
A, 16 Jun 1930, *Hoffmann* s.n. (SBBG 77630); WA, 18 May 1961, *Blakley* 4357 (CAS, JEPS, RSA, SBBG, US); MA, 28 Oct 1979, *Junak et al.* MA-40 (RSA, SBBG); EA, 25 Apr 1959, *Blakley* 2772 (CAS, JEPS, RSA, SBBG, SD).
- Atriplex watsonii* Abrams **matscale** Rare; north-western portion of terrace on East Anacapa.
EA, 30 Mar 1979, *Philbrick* & *Hochberg* B79-18.
- *Beta vulgaris L. subsp. *maritima* (L.) Arcang. **Sea beet** Rare; known from a single collection at Frenchy's Cove on West Anacapa in April 1968.
WA, 6 Apr 1968, *Philbrick* & *Osborne* B68-131.
- Chenopodium berlandieri* Moq. var. *sinuatum* (Murr) Wahl **pitted goosefoot** Rare; disturbed flats and gentle slopes on Middle and East Anacapa.
MA, 1 Nov 1988, *Junak* MA-198 (RSA, SBBG); EA, 25 Apr 1959, *Blakley* 2768 (JEPS, RSA, SBBG, SD, US).
- Chenopodium californicum* (S. Watson) S. Watson **soaproot** Occasional; flats and slopes on all islets.
WA, 4 Apr 1996, *Junak* WA-412 (RSA, SBBG); MA, 30 Apr 1986, *Junak* MA-173; EA, 18 Mar 1996, *Junak* EA-148 (RSA, SBBG).
- **Chenopodium murale* L. **nettle-leaf goosefoot** Occasional; disturbed flats and slopes on all islets. First collected "near harbor for landing sheep" on Middle Anacapa in September 1930.
WA, 2 Oct 1978, *Junak* & *Timbrook* WA-10; MA, 22 Sep 1930, *Hoffmann* s.n. (SBBG 77579); EA, 24 Apr 1959, *Blakley* 2751 (RSA, SBBG, US).
- Salicornia pacifica* Standl. [*S. virginica* L., misapplied] **pickleweed** Rare; known from a single collection on "sea cliff" on Middle Anacapa in August 1940.
MA, 21 Aug 1940, *Dunkle* 7652 (RSA, SBBG).
- *Salsola tragus L. **russian thistle** or **tumbleweed** Common; flats and slopes on Middle Anacapa. First collected on western portion of Middle Anacapa terrace in July 2001, when less than 50 plants were seen. Most of the plants seen in 2001 were on a slope heavily disturbed by nesting sea gulls. This taxon has spread rapidly since then, especially during dry years.
MA, 17 Jul 2001, *Junak* & *Rosen* MA-429.

Suaeda taxifolia (Standl.) Standl. [*S. californica* S. Watson var. *pubescens* Jeps.; *S. c.* var. *taxifolia* (Standl.) Munz] **woolly seablite** Occasional; flats, especially along southern edges of terraces, and on slopes around perimeter of all islets.

WA, 27 Mar 1965, *Philbrick B65-505*; MA, 1 Nov 1988, *Junak MA-201* (RSA, SBBG, SD); EA, 21 May 1982, *Junak EA-79*.

CONVOLVULACEAE
(Morning Glory Family)

Calystegia macrostegia (Greene) Brummitt subsp. *macrostegia* **island morning-glory** Common; flats and slopes on all islets. ENDEMIC to San Miguel, Santa Rosa, Santa Cruz, Anacapa, Santa Catalina, San Martin, and Guadalupe islands.

WA, 18 May 1961, *Muller 1166*; MA, 29 Apr 1986, *Junak MA-135* (CAS, RSA, SBBG, SD); EA, 24 Apr 1959, *Blakley 2763* (CAS, RSA, SBBG, US).

Cressa truxillensis Kunth **alkali weed** Rare; flats on Middle Anacapa.

MA, 9 May 1963, *Piehl 63-199* (RSA, SBBG).

Cuscuta salina Engelm. **salt marsh dodder** Rare; flats at western end of terrace on East Anacapa. Host plants for this parasitic plant include *Dudleya caespitosa*, *Frankenia salina*, and *Suaeda taxifolia* on Anacapa.

EA, 26 Apr 1959, *Blakley 2811* (CAS, JEPS, RSA, SBBG); EA, 17 Sep 1978, *Hochberg s.n.* (SBBG 54282, SBBG 54283).

CRASSULACEAE
(Stonecrop Family)

Crassula connata (Ruiz & Pav.) A. Berger [*Tillaea erecta* Hook. & Arn.] **pygmy weed** Rare; open sites on flats and slopes on all islets.

WA, 10 Apr 1998, *Junak WA-455* (RSA, SBBG); MA, 30 Apr 1991, *Junak MA-222* (RSA, SBBG); EA, 26 Apr 1959, *Blakley 2805*.

Dudleya caespitosa (Haw.) Britton & Rose **sand-lettuce** Abundant; flats and slopes on all islets.

WA, 18 May 1961, *Blakley 4411* (CAS, JEPS, RSA, SBBG); MA, 27 Mar 1965, *Philbrick B65-469a*; EA, 26 Apr 1959, *Blakley 2808* (CAS, JEPS, RSA, SBBG, SD, US).

CUCURBITACEAE
(Gourd Family)

Marah macrocarpa (Greene) Greene [*M. m.* var. *major* (Dunn) Stocking] **chilicothe** or **wild cucumber** Occasional; flats and north-facing slopes on all islets.

WA, 13 Jan 1994, *Junak WA-263* (RSA, SBBG, SD, UC, UCD); MA, 21 Mar 1996, *Junak MA-329* (RSA, SBBG, SD); EA, 24 Apr 1959, *Blakley 2760* (JEPS, RSA, SBBG).

ERICACEAE
(Heather Family)

Comarostaphylis diversifolia (Parry) Greene subsp. *planifolia* (Jeps.) G.D. Wallace **summer holly** Rare; known from a single individual found on a northeast-facing slope in upper east fork of Oak Canyon on West Anacapa.

WA, 9 May 1985, *Junak et al. WA-218*.

EUPHORBIACEAE
(Spurge Family)

Chamaesyce maculata* (L.) Small **spotted spurge Rare; known from a single collection at landing on East Anacapa. First collected there in March 1996.

EA, 18 Mar 1996, *Junak EA-145*.

Euphorbia spathulata Lam. Rare; known from a single population on gentle west-facing slope on terrace in the southwestern portion of West Anacapa.

WA, 10 Apr 1998, *Junak WA-458* (RSA, SBBG, UCR).

FABACEAE
(Pea Family)

Acacia longifolia* (Andrews) Willd. **golden wattle Rare; known from a single individual on north-facing slope below lighthouse on East Anacapa. First collected there in November 1988.

EA, 23 Nov 1988, *Junak EA-93*.

Acmispon dendroideus (Greene) Brouillet var. *dendroideus* [*Lotus d.* (Greene) Greene var. *d.*, *L. scoparius* (Nutt.) Ottley var. *d.* (Greene) Ottley] **island deerweed** or **island broom** Common; flats and slopes on all islets. ENDEMIC to Santa Rosa, Santa Cruz, Anacapa, and Santa Catalina islands. Some plants on Anacapa approach var. *veatchii* of San Miguel Island.

WA, 13 Jan 1994, *Junak WA-264* (CAS, RSA, SBBG, SD, UCD); MA, 22 Oct 1991, *Junak MA-242* (CAS, RSA, SBBG, SD); EA, 21 May 1982, *Junak EA-78*.

Acmispon maritimus (Nutt.) D.D. Sokoloff var. *maritimus* [*Lotus salsuginosus* Greene var. *s.*] **coastal lotus** Scarce; open ridgetops and slopes on West and Middle Anacapa.

WA, 29 Mar 1995, *Junak WA-353*; MA, 4 May 1998, *Junak MA-369* (RSA, SBBG).

Acmispon strigosus (Nutt.) Brouillet [*Lotus s.* (Nutt.) Greene] **bishop's lotus** Scarce; flats and slopes on Middle Anacapa.

MA, 5 May 1998, *Junak MA-385* (RSA, SBBG, SD).

Acmispon wrangelianus (Fisch. & C.A. Mey.) D.D. Sokoloff [*Lotus w.* Fisch. & C.A. Mey., *L. subpinnatus* Lag., misapplied] Rare; known from a single collection on West Anacapa (exact location not specified) in May 1940.

WA, 16 May 1940, *Bond 512*.

- Astragalus didymocarpus* Hook. & Arn. var. *didymocarpus* [A. *catalinensis* Nutt.] **common dwarf locoweed** or **two-seeded milkvetch** Rare; flats and slopes on West Anacapa.
WA, 3 Apr 1996, *Junak* WA-406.
- Astragalus miguelensis* Greene **San Miguel Island locoweed** Occasional; flats and slopes on West and Middle Anacapa. ENDEMIC to San Miguel, Santa Rosa, Santa Cruz, Anacapa, and San Clemente islands.
WA, 6 May 1980, *Junak* & *Philbrick* WA-110; MA, 15 Jun 1982, *Junak* & *Philbrick* MA-75.
- Astragalus trichopodus* (Nutt.) A. Gray var. *lonchus* (M.E. Jones) Barneby [A. *t.* subsp. *leucopsis* (Torr. & A. Gray) Thorne] **southern California locoweed** Occasional; flats and slopes on all islets.
WA, 30 Mar 1994, *Junak* WA-308; MA, 30 Apr 1986, *Junak* MA-168; EA, 30 Mar 1979, *Philbrick* & *Hochberg* B79-11.
- Lathyrus vestitus* Nutt. var. *vestitus* **wild sweet pea** Occasional; flats and slopes on West Anacapa.
WA, 9 May 1963, *Blakley* 5762 (CAS, RSA, SBBG, SD).
- Lupinus albifrons* Benth. var. *douglasii* (J. Agardh) C.P. Sm. **silver bush lupine** Occasional; flats and slopes on West Anacapa.
WA, 21 Mar 1941, *Moran* 738 (CAS, DS, RSA, SD, UCR).
- Lupinus bicolor* Lindl. **dove lupine** Occasional; flats and slopes on West and Middle Anacapa.
WA, 18 Mar 1967, *Philbrick* & *Ricker* B67-8; MA, 5 Apr 1962, *Smith* 6667.
- Lupinus hirsutissimus* Benth. **stinging lupine** Rare; south-facing slopes, especially those with loose talus, on south side of West Anacapa, just west of Cat Rock.
WA, 29 Mar 1995, *Junak* WA-360.
- Lupinus succulentus* K. Koch **arroyo lupine** or **succulent lupine** Occasional; grassy flats and moist slopes on West and Middle Anacapa.
WA, 29 Mar 1994, *Junak* WA-273 (RSA, SBBG); MA, 5 Apr 1995, *Junak* MA-306 (RSA, SBBG).
- Lupinus truncatus* Nutt. **truncate lupine** Scarce; flats and rocky slopes on all islets.
WA, 28 Mar 1979, *Junak* & *Hochberg* WA-65; MA, 22 Apr 1986, *Junak* MA-81; EA, 4 Apr 1995, *Junak* EA-141 (RSA, SBBG).
- **Medicago polymorpha* L. **bur-clover** Occasional; flats and slopes on all islets. First collected on northeastern side of West Anacapa in May 1961.
WA, 18 May 1961, *Blakley* 4372 (RSA, SBBG); MA, 31 Mar 1962, *Blakley* 4933; EA, 26 Oct 1979, *Junak et al.* EA-34.
- *Medicago sativa L. **alfalfa** Rare; flats on Middle Anacapa. Known from a single collection from middle part of the islet in August 1940.
MA, 20 Aug 1940, *Dunkle* 7645 (POM, SBBG).
- *Melilotus albus Medik. **white sweet-clover** Rare; known from a single collection at water catchment pad on East Anacapa in October 1979 (growing on mixed fill and gravel pile which had been brought to the island in early February 1979 [George Leone, personal communication, 1979]).
EA, 26 Oct 1979, *Junak* & *Philbrick* EA-28.
- **Melilotus indicus* (L.) All. **sour-clover** Occasional; flats and slopes on all islets. First collected on island (exact location and islet not specified) in June 1930.
A, 15 Jun 1930, *Hoffmann s.n.* (SBBG 78336); WA, 11 May 1963, *Piehl* 63-281; MA, 17 May 1940, *Bond* 511; EA, 23 Apr 1982, *Junak* EA-65.
- Trifolium depauperatum* Desv. var. *truncatum* (Greene) Isely [T. *amplectens* Torr. & A. Gray var. *t.* (Greene) Jepson] **dwarf bladder clover** Rare; moist flats and slopes on West and Middle Anacapa.
WA, 1 Apr 1962, *Blakley* 4970 (OBI, SBBG); MA, 26 Mar 1979, *Junak* & *Hochberg* MA-5a.
- Trifolium fucatum* Lindl. var. *gambelii* (Nutt.) Jeps. **bull clover** Scarce; flats on East Anacapa.
EA, 6 Apr 1993, *Junak* EA-99 (RSA, SBBG, SD).
- Trifolium gracilentum* Torr. & A. Gray **pinpoint clover** Scarce; flats and slopes on all islets.
WA, 8 Apr 1998, *Junak* WA-442 (RSA, SBBG); MA, 2 Apr 1998, *Junak* MA-345; EA, 28 Apr 1993, *Junak* EA-111.
- Trifolium microcephalum* (Pursh) Poir. **small-headed clover** Rare; flats and slopes on and near ridgetop of West Anacapa.
WA, 9 Apr 1998, *Junak* WA-448 (RSA, SBBG).
- Trifolium palmeri* S. Watson [T. *gracilentum* var. *p.* (S. Watson) McDermott] **southern island clover** Rare; slopes in southwestern portion of West Anacapa. ENDEMIC to Anacapa, Santa Barbara, San Nicolas, Santa Catalina, San Clemente, and Guadalupe islands.
WA, 2 Apr 1996, *Junak* WA-395 (RSA, SBBG).
- Trifolium willdenovii* Spreng. [T. *tridentatum* Lindl.] **tomcat clover** Occasional; flats and slopes on all islets.
WA, 9 May 1963, *Blakley* 5782 (RSA, SBBG); MA, 22 Apr 1986, *Junak* MA-79; EA, 26 Apr 1959, *Blakley* 2810.
- **Vicia benghalensis* L. **purple vetch** Rare; known from a single collection in Oak Canyon on West Anacapa in April 1987.
WA, 7 Apr 1987, *Danielsen* & *Halverson s.n.* (SBBG 129245).
- Vicia hassei* S. Watson [V. *exigua* Nutt. var. *h.* (S. Watson) Jeps.] **slender vetch** Rare; slopes on north side of Middle Anacapa.
MA, 30 Apr 1986, *Junak* MA-159.

Vicia ludoviciana Torr. & A. Gray var. *ludoviciana* [V. *exigua* Nutt.] **deer-pea vetch** Rare; flats and slopes in southwestern portion of West Anacapa.
WA, 20 Mar 1997, *Junak* WA-437 (RSA, SBBG).

*Vicia sativa L. subsp. *sativa* **spring vetch** Rare; known from a single collection near Sheep Camp landing on Middle Anacapa in April 1986.
MA, 22 Apr 1986, *Junak* MA-87.

FAGACEAE
(Oak Family)

Quercus chrysolepis Liebm. **canyon live oak** Rare; lower portion of Oak Canyon on West Anacapa.
WA, 1 Oct 1978, *Junak* & *Hochberg* WA-4 (CAS, SBBG).

Quercus tomentella Engelm. **island oak** Scarce; small localized groves in Oak Canyon on West Anacapa. ENDEMIC to Santa Rosa, Santa Cruz, Anacapa, Santa Catalina, San Clemente, and Guadalupe islands.
WA, 3 Jun 1951, *Muller* 8931.

FRANKENIACEAE
(Frankenia Family)

Frankenia salina (Molina) I.M. Johnst. [*F. grandifolia* Cham. & Schltdl.] **alkali heath** Common; flats and coastal slopes on all islets.
WA, 11 May 1963, *Blakley* 5805; MA, 31 Mar 1962, *Blakley* 4878; EA, 28 Apr 1993, *Junak* EA-118 (RSA, SBBG).

GERANIACEAE
(Geranium Family)

Erodium cicutarium* (L.) L'Her. **redstem filaree Scarce; open and eroded areas on all islets. First collected on island (exact locality and islet not specified) in March 1929.

A, 16 Mar 1929, *Hoffmann* s.n. (SBBG 78444); WA, 10 May 1963, *Piehl* 63-249b; MA, 22 Apr 1986, *Junak* MA-93; EA, 26 Apr 1959, *Blakley* 2820.

Erodium moschatum* (L.) L'Her. **whitestem filaree Occasional; flats and slopes on all islets. First collected above East Fish Camp on Middle Anacapa in March 1962.

WA, 1 Apr 1962, *Blakley* 4978; MA, 31 Mar 1962, *Blakley* 4932; EA, 27 Feb 1980, *Junak* & *Philbrick* EA-42.

GROSSULARIACEAE
(Currant or Gooseberry Family)

Ribes malvaceum Sm. var. *malvaceum* **chaparral currant** Rare; canyons on north side of West Anacapa.

WA, 18 May 1961, *Blakley* 4391 (CAS, RSA, SBBG).

LAMIACEAE
(Mint Family)

Salvia mellifera Greene **black sage** Common; ridgetops and slopes, especially on south side, of West Anacapa.

WA, 1 Apr 1962, *Blakley* 4982 (CAS, RSA, SBBG).

Stachys bullata Benth. **wood-mint** Occasional; canyons on north side of West Anacapa.

WA, 8 May 1980, *Junak* & *Philbrick* WA-143 (RSA, SBBG).

MALVACEAE
(Mallow Family)

*Malva arborea (L.) Webb & Berthel. [*Lavatera a.* L.] **tree mallow** Common; disturbed flats and slopes on Middle Anacapa. First collected near water tank building on East Anacapa in April 1999, but not seen recently on that islet.

MA, 3 May 2000, *Junak* MA-414; MA, 15 Dec 2009, *Junak* & *Chaney* MA-432; EA, 15 Apr 1999, *Williams* & *Chaney* SC510.

Malva assurgentiflora (Kellogg) M.F. Ray [*L. a.* Kellogg subsp. *a.*] **malva rosa** or **northern island tree mallow** Rare; slopes on northern side of West and Middle Anacapa. Populations on East Anacapa were planted there by the National Park Service. This Northern Island form is ENDEMIC to San Miguel and Anacapa islands; populations on Santa Rosa and other California islands have apparently been planted.

WA, 3 Oct 1978, *Timbrook* & *Philbrick* 652; MA, 22 Sep 1930, *Hoffmann* s.n. (SBBG 79965).

*Malva parviflora L. **cheeseweed** Common; disturbed areas on all islets. First collected on north side of Middle Anacapa in March 1962 and at Frenchy's Cove on West Anacapa in May 1963.

WA, 11 May 1963, *Piehl* 63-278; MA, 31 Mar 1962, *Blakley* 4934 (SBBG, UCR); EA, 27 Mar 1979, *Junak* & *Hochberg* EA-5.

Malva pseudolavatera* Webb & Berthel. [*Lavatera cretica* L.] **cretan mallow Common; disturbed flats and slopes on Middle and East Anacapa. First collected near Sheep Camp landing on Middle Anacapa in March 1979; it has spread aggressively on Middle Anacapa since then. First collected along edges of water catchment pad on East Anacapa in April 1993.

MA, 27 Mar 1979, *Junak et al.* MA-12 (RSA, SBBG); EA, 6 Apr 1993, *Junak* EA-108 (SBBG, SD).

MONTIACEAE
(Miner's Lettuce Family)

Calandrinia menziesii (Hook.) Torr. & A. Gray **Red maids** Scarce; flats and slopes on all islets, but extremely localized (especially on East Anacapa).

WA, 4 Apr 1996, *Junak* WA-417 (RSA, SBBG); MA, 30 Apr 1991, *Junak* MA-228 (CAS, RSA, SBBG, SD); EA, 4 Apr 1985, *Junak* EA-134.

Cistanthe maritima (Nutt.) Hershk. [*Calandrinia m.* Nutt.] **seaside cistanthe** or **sea kisses** Rare; open ridgetops, terrace edges, and slopes on all islets. Abundance can be extremely variable; rare in most years.

WA, 29 Mar 1995, *Junak* WA-359; MA, 15 Jun 1982, *Junak* & *Philbrick* MA-74; EA, 28 May 2014, *Chaney* & *Green* SC500.

Claytonia parviflora Hook. subsp. *parviflora* **miner's lettuce** Rare; known from a single collection "north of and below summit" on West Anacapa.

WA, 10 May 1963, *Piehl* 63-257 (in part; CAS 982487).

Claytonia perfoliata Willd. subsp. *mexicana* (Rydb.) John M. Miller & K.L. Chambers **miner's lettuce** Occasional; moist flats and north-facing slopes on West and Middle Anacapa.

WA, 10 Apr 1998, *Junak* WA-457 (RSA, SBBG); MA, 4 May 1998, *Junak* MA-379 (RSA, SBBG).

Claytonia perfoliata Willd. subsp. *perfoliata* **miner's lettuce** Rare; north-facing slope near Sheep Camp landing on Middle Anacapa.

MA, 30 Mar 1995, *Junak* MA-296 (SBBG, UCR).

MYRSINACEAE (Myrsine Family)

Lysimachia arvensis* (L.) U. Manns & Anderb. [*Anagallis a.* L.] **scarlet pimpernel Rare; disturbed flats and slopes near Sheep Camp landing on Middle Anacapa and near buildings on East Anacapa. First collected on Middle Anacapa in June 1978.

MA, 1 Jun 1978, *Philbrick* & *Hochberg* B78-291; EA, 5 Apr 1995, *Junak* EA-144.

MYRTACEAE (Myrtle Family)

Eucalyptus globulus* Labill. **blue gum Rare; north-facing slope above Sheep Camp landing on Middle Anacapa, and previously growing by water tank building on East Anacapa (trees were planted there as early as 1936 [Lighthouse Keeper logs at National Archives] and were dead by 1980). Trees on Middle Anacapa are visible in photographs taken in the late 1880s (i.e., photographs from the Lorenzo Yates expedition).

MA, 7 Sep 1964, *Philbrick* & *Flinck* B64-326; EA, 26 Apr 1959, *Blakley* 2793.

NYCTAGINACEAE (Four O'clock Family)

Abronia maritima S. Watson **sticky sand-verbena** Rare; beach (presumably at Frenchy's Cove on West Anacapa) and rocky slopes on Middle Anacapa.

A, 19 May 1928, *Howell* 3796 (CAS); A, 22 Sep 1930, *Hoffmann s.n.* (SBBG 77661); MA, 1 Aug 1938, *Elmore* 243 (RSA).

Mirabilis laevis (Benth.) Curran var. *crassifolia* (Choisy) Spellensb. [*M. californica* A. Gray] **wish-bone bush** Occasional; flats and slopes on all islets.

WA, 29 Mar 1994, *Junak* WA-341 (CAS, RSA, SBBG); MA, 31 Mar 1994, *Junak* MA-257 (RSA, SBBG, SD); EA, 26 Apr 1959, *Blakley* 2802 (CAS, JEPS, RSA, SBBG, SD).

OLEACEAE (Olive Family)

*Olea europaea L. **olive** Rare; known from a single collection of a juvenile plant in the upper portion of Box Canyon on West Anacapa in October 1978.

WA, 3 Oct 1978, *E.G. Hochberg s.n.* (SBBG 53450).

ONAGRACEAE (Evening Primrose Family)

Camissoniopsis micrantha (Spreng.) W.L. Wagner & Hoch [*Camissonia m.* (Spreng.) P.H. Raven] **small evening primrose** Rare; known from a single collection from northern edge of terrace on Middle Anacapa.

MA, 30 Apr 1991, *Junak* MA-227 (RSA, SBBG).

Clarkia epilobioides (Torr. & A. Gray) A. Nelson & J.F. Macbr. Rare; known from a single collection in Cherry Canyon on West Anacapa.

WA, 9 May 1963, *Blakley* 5755 (RSA, SBBG, SD).

Epilobium canum (Greene) P.H. Raven subsp. *canum* [*Zauschneria c.* Greene] **California-fuchsia** Occasional; canyons and slopes on north side of West and Middle Anacapa.

WA, 5 Sep 1964, *Philbrick* & *Flinck* B64-315 (JEPS, SBBG); MA, 1 Nov 1988, *Junak* MA-195 (RSA, SBBG).

OROBANCHACEAE (Broomrape Family)

Castilleja affinis Hook. & Arn. subsp. *affinis* **red paintbrush** Common; flats and north-facing slopes on all islets.

WA, 21 Mar 1941, *Moran* 742 (RSA, SBBG); MA, 5 Apr 1962, *Smith* 6660; EA, 24 Apr 1959, *Blakley* 2764 (RSA, SBBG).

Castilleja hololeuca Greene [*C. lanata* A. Gray subsp. *h.* (Greene) T.I. Chuang & Heckard] **island paintbrush** Occasional; flats and slopes, especially south-facing, on West and Middle Anacapa. ENDEMIC to San Miguel, Santa Rosa, Santa Cruz, and Anacapa islands.

WA, 5 Apr 1962, *Smith* 6649; MA, 31 Mar 1994, *Junak* MA-258 (RSA, SBBG).

Orobanche fasciculata Nutt. **clustered broomrape** Rare; known from a single collection in Summit Canyon on West Anacapa.

WA, 7 May 1980, *Junak* & *Philbrick* WA-142.

OXALIDACEAE
(Oxalis Family)

Oxalis pes-caprae* L. **Bermuda buttercup Rare; flats near campground on East Anacapa. First collected there in March 2010.

EA, March 2010, *Chaney s.n.*

PAPAVERACEAE
(Poppy Family)

Eschscholzia ramosa (Greene) Greene **island poppy** Rare; flats just east of campground on East Anacapa. This taxon had not been seen on the island until *Malephora crocea* was removed from the area. ENDEMIC to San Miguel, Santa Rosa, Santa Cruz, Anacapa, Santa Barbara, San Nicolas, Santa Catalina, San Clemente, Los Coronados, Todos Santos, San Martin, Guadalupe, San Benito, Cedros, and Natividad islands.

EA, 3 May 2014, *Chaney & Green SC503*.

Papaver heterophyllum (Benth.) Greene [*Stylomecon h.* (Benth.) G. Taylor] **wind poppy** Rare; north-facing slopes near Frenchy's Cove on West Anacapa.

WA, 5 Apr 1962, *Smith 6652*.

Platystemon californicus Benth. **cream cups** Rare; slopes on West Anacapa.

WA, 28 Mar 1965, *Philbrick B65-515*.

PHRYMACEAE
(Lopseed Family)

Mimulus aurantiacus Curtis var. *parviflorus* (Greene) D.M. Thoms. [*Diplacus p.* Greene, *M. flemingii* Munz] **island monkey flower** Occasional; north-facing slopes and canyons on West Anacapa. ENDEMIC to San Miguel, Santa Rosa, Santa Cruz, Anacapa, and San Clemente islands. Some plants on Anacapa with yellow-orange corollas appear to be hybrids with *Mimulus aurantiacus* var. *pubescens*, but that taxon has not been seen on the island.

WA, 28 Mar 1979, *Junak & Hochberg WA-48*.

PLANTAGINACEAE
(Plantain Family)

Antirrhinum nuttallianum A.DC. subsp. *subsessile* (A. Gray) D.M. Thoms. **Nuttall's snapdragon** Occasional; terrace edges and slopes on all islets.

WA, 8 May 1980, *Junak & Philbrick WA-156*; MA, 1 Jun 1978, *Philbrick & Hochberg B78-293*; EA, 22 Apr 1970, *Benedict s.n.* (SBBG 43155).

Keckiella cordifolia (Benth.) Straw **climbing pentstemon** Scarce; Oak and Summit canyons on West Anacapa.

WA, 7 May 1980, *Junak & Philbrick WA-140* (CAS, SBBG).

Nuttallanthus texanus (Scheele) D.A. Sutton [*Linaria canadensis* (L.) Chaz., in part, misapplied] **blue toadflax** Scarce; ridgetops and flats on all islets.

WA, 9 Apr 1998, *Junak WA-446*; MA, 31 Mar 1962, *Blakley 4896* (JEPS, RSA, SBBG, SD); EA, 4 Apr 1995, *Junak EA-136*.

Plantago coronopus* L. **cut-leaved plantain Rare; known from a single collection on disturbed flats at campground on East Anacapa in July 1998; all plants seen were removed.

EA, 9 Jul 1998, *Junak EA-164*.

Plantago erecta E. Morris **California plantain** Occasional; flats and slopes, especially open rocky sites, on West Anacapa.

WA, 31 Mar 1995, *Junak WA-394* (RSA, SBBG).

Plantago ovata Forssk. var. *insularis* (Eastw.) S.C. Meyers & A. Liston [*P. insularis* Eastw.] Occasional; open flats and slopes on West Anacapa.

WA, 3 Jun 1992, *Junak WA-256*.

PLUMBAGINACEAE
(Plumbago Family)

*Limonium perezii (Stapf) F.T. Hubb. **sea-lavender** or **statice** Scarce; flats and slopes on Middle Anacapa. First collected near south edge of terrace just west of high point on islet in April 1995.

MA, 5 Apr 1995, *Junak MA-299*; MA, 4 May 1998, *Junak MA-377*.

POLEMONIACEAE
(Phlox Family)

Gilia clivorum (Jeps.) V.E. Grant **purplespot gilia** Scarce; flats and slopes on West and Middle Anacapa.

WA, 28 Mar 1965, *Philbrick B65-547*; MA, 5 Apr 1962, *Blakley 5013* (JEPS, RSA, SBBG).

Gilia nevinii A. Gray **island gilia** Occasional; flats and slopes on West and Middle Anacapa. ENDEMIC to Santa Rosa, Santa Cruz, Anacapa, Santa Barbara, San Nicolas, Santa Catalina, San Clemente, and Guadalupe islands.

WA, 28 Mar 1965, *Philbrick B65-525*; MA, 30 Apr 1986, *Junak MA-183* (CAS, SBBG).

POLYGONACEAE
(Buckwheat Family)

Eriogonum arborescens Greene **Santa Cruz Island buckwheat** Common; flats and slopes on all islets. ENDEMIC to Santa Rosa, Santa Cruz, and Anacapa islands.

WA, 18 May 1961, *Blakley 4343* (CAS, RSA, SBBG, SD); MA, 22 Oct 1991, *Junak MA-244* (RSA, SBBG); EA, 26 Apr 1959, *Blakley 2800* (CAS, JEPS, RSA, SBBG, SD, US).

Eriogonum grande Greene var. *grande* **island buck-wheat** Common; flats and slopes on all islets. ENDEMIC to Santa Cruz, Anacapa, Santa Catalina, and San Clemente islands.

WA, 18 May 1961, *Blakley* 4404; MA, 23 Oct 1990, *Junak* & *Halvorson* MA-219 (RSA, SBBG); EA, 24 Apr 1959, *Blakley* 2756 (CAS, JEPS, SBBG).

Polygonum aviculare* L. subsp. *depressum* (Meisn.) Arcang. [*P. arenastrum* Boreau] **common knot-weed Occasional; along trails and in campground on East Anacapa. First collected near Visitor Center building in August 1988.

EA, 19 Aug 1988, *Junak* EA-92 (RSA, SBBG).

Pterostegia drymarioides Fisch. & C.A. Mey. **fairy mist** or **woodland threadstem** Occasional; flats and north-facing slopes on all islets.

WA, 10 May 1963, *Piehl* 63-256; MA, 27 Mar 1965, *Philbrick* B65-493 (JEPS, SBBG).

*Rumex crispus L. **curly dock** Rare; flats and gullies on Middle Anacapa and disturbed flats on East Anacapa. First collected on island (exact location and islet not specified) in June 1930.

A, 15 Jun 1930, *Hoffmann* s.n. (SBBG 77474); MA, 4 May 1998, *Junak* MA-378 (RSA, SBBG); EA, 9 Jul 1998, *Junak* EA-167.

PRIMULACEAE (Primrose Family)

Primula clevelandii var. *insularis* (H.J. Thoms.) Mast & Reveal [*Dodecatheon* c. Greene subsp. *insulare* H.J. Thoms.] **shooting star** Scarce; flats and north-facing slopes on all islets.

WA, 28 Mar 1965, *Philbrick* B65-530; MA, 16 Mar 1941, *Moran* 713 (CAS, RSA, SBBG, SD, UCR); EA, 28 Apr 1993, *Junak* EA-112.

RANUNCULACEAE (Buttercup Family)

Delphinium parryi A. Gray subsp. *maritimum* (Davidson) M.J. Warnock **maritime larkspur** Scarce; flats and north-facing slopes on all islets.

WA, 8 May 1980, *Junak* & *Philbrick* WA-174; MA, 16 Mar 1941, *Moran* 714 (DS, RSA, SBBG, SD, UCR); EA, 26 Apr 1959, *Blakley* 2803.

RESEDACEAE (Mignonette Family)

Oligomeris linifolia (Hornem.) J.F. Macbr. **oligomeris** Scarce; ridgetops, flats, and slopes on West and Middle Anacapa.

WA, 9 May 1963, *Blakley* 5744 (CAS, SBBG); MA, 22 Apr 1986, *Junak* MA-92 (CAS, SBBG).

RHAMNACEAE (Buckthorn Family)

Ceanothus megacarpus Nutt. var. *insularis* (Eastw.) Munz **island big-pod ceanothus** Occasional;

canyons and slopes on West Anacapa. ENDEMIC to San Miguel (not seen there since 1886), Santa Rosa, Santa Cruz, Anacapa, Santa Catalina, and San Clemente islands.

WA, 9 May 1963, *Blakley* 5761 (RSA, SBBG).

Ceanothus megacarpus Nutt. var. *megacarpus* **big-pod ceanothus** Rare; canyon bottoms and slopes on West Anacapa.

WA, 9 May 1963, *Blakley* 5765a.

ROSACEAE (Rose Family)

Heteromeles arbutifolia (Lindl.) M. Roem. **toyon** Scarce; canyons on north side of West Anacapa.

WA, 18 May 1961, *Blakley* 4380 (CAS, RSA, SBBG, US).

Prunus ilicifolia (Hook. & Arn.) D. Dietr. subsp. *lyonii* (Eastw.) P.H. Raven **island cherry** or **catalina cherry** Occasional; canyons on north side of West Anacapa.

WA, 28 Mar 1965, *Philbrick* B65-536 (JEPS, SBBG).

RUBIACEAE (Madder Family)

Galium angustifolium Nutt. subsp. *foliosum* (Hilend & J.T. Howell) Dempster & Stebbins **narrow-leaved bedstraw** Common; canyons and north-facing slopes on West Anacapa and northern edge of terrace on Middle Anacapa. ENDEMIC to Santa Rosa, Santa Cruz, and Anacapa islands.

WA, 18 May 1961, *Blakley* 4328 (RSA, SBBG); MA, 1 Nov 1988, *Junak* MA-203 (RSA, SBBG).

Galium aparine L. **goose-grass** or **cleavers** Occasional; flats and north-facing slopes on all islets.

WA, 1 Apr 1962, *Blakley* 4988; MA, 20 Mar 1996, *Junak* MA-323 (RSA, SBBG); EA, 25 Apr 1959, *Blakley* 2775 (RSA, SBBG).

SALICACEAE (Willow Family)

Salix lasiolepis Benth. **arroyo willow** Rare; known from a single collection in the middle portion of Willow Canyon on West Anacapa.

WA, 3 Oct 1978, *Hochberg* s.n. (SBBG 53463).

SAXIFRAGACEAE (Saxifrage Family)

Heuchera maxima Greene **island alum-root** Scarce; canyons on north side of West Anacapa. ENDEMIC to Santa Rosa, Santa Cruz, and Anacapa islands.

WA, 17 Mar 1941, *Moran* 717 (DS, NY, RSA, SBBG).

SOLANACEAE (Nightshade Family)

Lycium californicum Nutt. **California box-thorn** Scarce; ridgetops and terrace edges on all islets.

WA, 13 Jan 1994, *Junak* WA-266; MA, 7 Sep 1964, *Blakley* 6527; EA, 26 Apr 1959, *Blakley* 2789 (CAS, JEPS, RSA, SBBG).

Lycopersicum esculentum* Mill. **tomato Rare; disturbed flats and slopes on Middle and East Anacapa. First collected on northeast side of East Anacapa in August 1988 (and seen on East Anacapa by National Park Service personnel in February 1980).

MA, 1 Nov 1988, *Junak* MA-199 (RSA, SBBG); EA, 19 Aug 1988, *Junak* EA-91 (CAS, RSA, SBBG, SD).

Nicotiana clevelandii A. Gray **Cleveland's tobacco** Rare; ridgetops on West Anacapa.

WA, 3 Jun 1992, *Junak* WA-244 (RSA, SBBG).

Solanum americanum* Mill. **white nightshade Rare; disturbed areas on West Anacapa, especially on extreme western end. First collected in Cherry Canyon in October 1978.

WA, 3 Oct 1978, *Junak et al.* WA-18.

Solanum douglasii Dunal **Douglas' nightshade** Rare; flats and slopes on all islets.

WA, 4 Apr 1996, *Junak* WA-413 (RSA, SBBG, SD); MA, 23 Nov 1986, *Junak* MA-217; EA, 12 May 1984, *Pritchett* 102.

TAMARICACEAE (Tamarisk Family)

Tamarix parviflora* DC. **small-flowered tamarisk Rare; near buildings on East Anacapa. First collected there in April 1959.

EA, 26 Apr 1959, *Blakley* 2786 (CAS, RSA, SBBG).

URTICACEAE (Nettle Family)

Parietaria hespera Hinton var. *californica* Hinton **western pellitory** Rare; slopes, mostly north-facing, on all islets.

WA, 11 May 1963, *Blakley* 5798 (CAS, JEPS, RSA, SBBG); MA, 2 Apr 1998, *Junak* MA-358 (SBBG, UCR); EA, 27 Feb 1980, *Junak & Philbrick* EA-49.

Urtica dioica L. subsp. *holosericea* (Nutt.) Thorne **giant creek nettle** or **hoary nettle** Rare; known from a single collection from "seepage cliff" at Spring Cave on West Anacapa. Not seen recently.

WA, 20 August 1940, *Dunkle* 7648 (DS, RSA, SBBG).

*Urtica urens L. **dwarf nettle** Rare; known from a single collection below lighthouse on East Anacapa in February 2014, on a northeast-facing slope disturbed by seabirds.

EA, Feb 2014, *Echols & Chaney* SC506.

MONOCOTS JUNCACEAE (Rush Family)

Juncus bufonius L. **toad rush** Rare; edge of vernal pool in Cherry Canyon on West Anacapa and on

disturbed flats near campground on East Anacapa.

WA, 9 May 1963, *Blakley* 5770 (RSA, SBBG, SD); EA, 6 Apr 1993, *Junak* EA-101a.

LILIACEAE (Lily Family)

Lilium humboldtii Duch. subsp. *ocellatum* (Kellogg) Thorne **Humboldt lily** Rare; known only from northeast-facing slope in Oak Canyon on West Anacapa.

WA, 9 May 1985, *Junak et al.* WA-222.

MELANTHIACEAE (False-Hellebore Family)

Toxicoscordion fremontii (Torr.) Rydb. [*Zigadenus f.* (Torr.) S. Watson] **chaparral zyadene** or **death camas** Scarce; flats and slopes on all islets.

WA, 28 Mar 1979, *Junak & Hochberg* WA-57 (JEPS, SBBG); MA, 27 Mar 1965, *Philbrick* B67-47; EA, 18 Mar 1996, *Junak* EA-151 (RSA, SBBG).

POACEAE (Grass Family)

Agrostis stolonifera* L. **creeping bent Rare; known only from Spring Cave on north side of West Anacapa. First collected there in August 1940.

WA, 21 Aug 1940, *Dunkle* 7650 (DS, RSA, SBBG, SD).

*Avena barbata Link. **slender wild oat** Common; flats and slopes on all islets. First collected on island (islet not specified) in June 1930.

A, 15 Jun 1930, *Hoffmann s.n.* (SBBG 77138); WA, 1 Apr 1962, *Blakley* 4986; MA, 9 May 1963, *Piehl* 63-192; EA, 26 Apr 1959, *Blakley* 2818 (CAS, OBI, RSA, SBBG, SD, UCD).

*Avena fatua L. **wild oat** Common; flats and slopes on all islets. First collected on island (islet not specified) in April 1939.

A, 16 Apr 1939, *Bond* 338; WA, 30 Mar 1995, *Junak* WA-369; MA, 27 Mar 1965, *Philbrick* B65-464a; EA, 28 Apr 1993, *Junak* EA-125.

*Briza minor L. **small quaking grass** Known from a single collection at campground on East Anacapa in June 2000.

EA, 23 Jun 2000, *Junak & Burgess* EA-172.

Bromus arizonicus (Shear) Stebbins **Arizona brome** Scarce; flats and slopes on West and Middle Anacapa. Presence and abundance on the island varies significantly from year to year.

WA, 6 May 1980, *Junak et al.* WA-116; MA, 2 Apr 1998, *Junak* MA-348.

Bromus berteroi Colla [*B. trinii* Desv. var. *t.*] **Chilean chess** Rare; known from a single collection on "mesa" (exact location and islet not specified) in March 1928. Not seen recently.

A, 11 Mar 1928, *Hoffmann s.n.* (SBBG 80252).

Bromus carinatus Hook. & Arn. var. *carinatus* **California brome** Scarce; north-facing slopes on West Anacapa.

WA, 9 May 1963, *Blakley* 5758 (CAS, SBBG).

Bromus carinatus Hook. & Arn. var. *marginatus* (Steud.) Barkworth & Anderton **mountain brome** Rare; flats on Middle Anacapa.

MA, 22 Apr 1986, *Junak* MA-88.

Bromus catharticus* Vahl var. *elatus* (E. Desv.) Planchuelo [*B. stamineus* E. Desv.] **chilean brome Rare; flats and slopes on one of the islets. First collected on “mesa” (exact location and islet not specified) in March 1928. Not seen recently.

A, 11 Mar 1928, *Hoffmann s.n.* (SBBG 80211).

*Bromus diandrus Roth **ripgut brome** Common; flats and slopes on all islets. First collected on island (exact location and islet not specified) in April 1939.

A, 16 Apr 1939, *Bond* 329; WA, 18 May 1961, *Blakley* 4362 (SBBG, SD); MA, 9 May 1963, *Piehl* 63-233; EA, 24 Apr 1959, *Blakley* 2757 (CAS, SBBG, UCD).

Bromus hordeaceus* L. [*B. mollis* L., misapplied] **soft chess Common; flats and slopes on all islets. First collected on “mesa” (exact location and islet not specified) in March 1928.

A, 11 Mar 1928, *Hoffmann s.n.* (SBBG 80105); WA, 18 May 1961, *Blakley* 4366; MA, 31 Mar 1962, *Blakley* 4906a; EA, 24 Apr 1959, *Blakley* 2744 (CAS, SBBG, UCR).

Bromus madritensis* L. subsp. *rubens* (L.) Husn. **red brome Common; flats and slopes on all islets. First collected on “mesa” (exact location and islet not specified) in March 1928.

A, 11 Mar 1928, *Hoffmann s.n.* (SBBG 80257); WA, 18 May 1961, *Blakley* 4345; MA, 31 Mar 1962, *Blakley* 4903 (RSA, SBBG); EA, 26 Oct 1979, *Junak* & *Philbrick* EA-25.

Bromus maritimus (Piper) Hitchc. **maritime brome** Occasional; flats and rocky slopes, especially north-facing, on West and Middle Anacapa.

WA, 3 Jun 1992, *Junak* WA-243 (RSA, SBBG, UCR); MA, 29 Apr 1986, *Junak* MA-115.

Bromus sitchensis Trin. **Sitka brome** or **Alaska brome** Rare; flats and slopes on West and Middle Anacapa.

WA, 5 Apr 1962, *Smith* 6657; EA, 5 Aug 1974, *Philbrick* B74-140.

*Cynodon dactylon (L.) Pers. **Bermuda grass** Rare; gentle north-facing slope in seagull nesting area on Middle Anacapa. First collected at east end of Middle Anacapa in September 1964.

MA, 7 Sep 1964, *Blakley* 6530; MA, 22 Oct 1991, *Junak* MA-240 (CAS, RSA, SBBG, SD, UC).

Distichlis spicata (L.) Greene **saltgrass** Occasional; flats and slopes, especially along north edge of terraces, on all islets.

WA, 11 May 1963, *Piehl* 63-276; MA, 9 May 1963, *Piehl* 63-196; EA, 26 Apr 1959, *Blakley* 2787.

Elymus condensatus J.Presl [*Leymus c.* (J. Presl) Love] **giant wild-rye** Occasional; flats and slopes, especially along north edge of terraces, on all islets.

WA, 15 Nov 1969, *Blakley* 7015 (JEPS, SBBG); MA, 22 Oct 1991, *Junak* MA-243 (RSA, SBBG, SD); EA, 25 Apr 1959, *Blakley* 2773 (CAS, SBBG).

Elymus × *gouldii* J.P. Sm. & Columbus Rare; disturbed flats and slopes on Middle Anacapa. This taxon is a sterile hybrid between *Elymus triticoides* and *E. condensatus*.

MA, 9 May 1963, *Piehl* 63-221.

Elymus triticoides Buckley [*Leymus t.* (Buckley) Pilg.] **beardless wild-rye** Scarce; flats and slopes, especially along north edge of terraces, on West and Middle Anacapa.

WA, 30 Aug 1990, *Junak* WA-238 (RSA, SBBG); MA, 22 Oct 1991, *Junak* MA-239 (CAS, RSA, SBBG).

Festuca bromoides* L. [*Vulpia b.* (L.) Gray] **brome fescue Occasional; flats and slopes on all islets. First collected on island (exact location and islet not specified) in March 1929.

A, 16 Mar 1929, *Hoffmann s.n.* (CAS 168488; SBBG 79937); WA, 18 Mar 1967, *Philbrick* & *Ricker* B67-9; MA, 31 Mar 1962, *Blakley* 4906; EA, 26 Apr 1959, *Blakley* 2809 (CAS, JEPS, RSA, SBBG).

Festuca microstachys Nutt. [*Vulpia m.* var. *pauciflora* (Beal) Lonard & Gould] **pacific fescue** Rare; ridgetops on West Anacapa.

WA, 9 Apr 1998, *Junak* WA-450 (CAS, RSA, SBBG).

*Festuca myuros L. [*Vulpia m.* (L.) C.C. Gmel. var. *hirsuta* Hack] **foxtail fescue** Scarce; flats and slopes on all islets. First collected on “mesa” (exact location and islet not specified) in March 1928.

A, 11 Mar 1928, *Hoffmann s.n.* (SBBG 80236); WA, 6 May 1980, *Junak et al.* WA-117; MA, 31 Mar 1962, *Blakley* 4917 (RSA, SBBG); EA, 27 Feb 1980, *Junak* & *Philbrick* EA-51.

Festuca octoflora Walter [*Vulpia o.* (Walter) Rydb. var. *hirtella* (Piper) Henrard] **six-weeks fescue** Rare; flats and ridgetops on all islets.

WA, 19 Mar 1967, *Philbrick* & *Ricker* B67-30; MA, 5 Apr 1995, *Junak* MA-302 (RSA, SBBG); EA, 4 Apr 1995, *Junak* EA-137.

Hordeum brachyantherum Nevski subsp. *californicum* (Covas & Stebbins) Bothmer *et al.* **california barley** or **meadow barley** Occasional; flats and slopes on all islets.

WA, 10 Apr 1998, *Junak* WA-453 (CAS, RSA, SBBG); MA, 9 May 1963, *Piehl* 63-198 (RSA, SBBG); EA, 26 Apr 1959, *Blakley* 2821.

Hordeum intercedens Nevski **vernal barley** or **little barley** Scarce; low spots on terraces and along trails on all islets.

- WA, 29 Mar 1994, *Junak* WA-280; MA, 1 Apr 1994, *Junak* MA-290; EA, 6 Apr 1993, *Junak* EA-103 (CAS, RSA, SBBG, SD).
- *Hordeum murinum L. subsp. *glaucum* (Steud.) Tzvelev **smooth barley** or **foxtail** Common; disturbed flats and slopes on all islets. First collected on "mesa" on island (exact location and islet not specified) in March 1928.
- A, 11 Mar 1928, *Hoffmann s.n.* (SBBG 79934); WA, 9 Mar 1967, *Philbrick & Ricker* B67-37; MA, 7 Apr 1968, *Philbrick & Osborne* B68-158; EA, 5 Aug 1974, *Philbrick* B74-145.
- *Hordeum murinum L. subsp. *leporinum* (Link) Arcang. **hare barley** or **foxtail** Common; disturbed flats and slopes on all islets. First collected on "poor soil" on island (exact location and islet not specified) in March 1929.
- A, 16 Mar 1929, *Hoffmann s.n.* (SBBG 79933); WA, 19 Mar 1967, *Philbrick & Ricker* B67-36; MA, 9 May 1963, *Piehl* 63-224; EA, 24 Apr 1959, *Blakley* 2748.
- *Lamarckia aurea (L.) Moench. **goldentop** Common; flats and slopes on all islets. First collected "between the boat landing and light station housing area" on East Anacapa in April 1959.
- WA, 8 May 1980, *Junak* WA-164 (RSA, SBBG); MA, 31 Mar 1962, *Blakley* 4881 (JEPS, OBI, SBBG, SD); EA, 24 Apr 1959, *Blakley* 2752 (CAS, SBBG, UCD).
- Melica imperfecta* Trin. **Coast Range melic** Occasional; flats and slopes on all islets.
- WA, 30 Mar 1995, *Junak* WA-391 (RSA, SBBG); MA, 22 Apr 1986, *Junak* MA-112 (CAS, SBBG); EA, 18 Mar 1996, *Junak* EA-150 (RSA, SBBG).
- Muhlenbergia microsperma* (DC.) Kunth **littleseed muhly** Scarce; slopes, especially south-facing, on West and Middle Anacapa.
- WA, 29 Mar 1995, *Junak* WA-342 (RSA, SBBG); MA, 27 Mar 1979, *Junak & Philbrick* MA-14.
- **Parapholis incurva* (L.) C.E. Hubb. **sickle grass** Rare; flats on East Anacapa. First collected along trail, just east of campground, on East Anacapa in May 1982.
- EA, 21 May 1982, *Junak* EA-73; EA, 9 Jul 1998, *Junak* EA-161.
- **Pennisetum clandestinum* Chiov. **kikuyu grass** Rare; flats and north-facing slopes disturbed by nesting seagulls on Middle and East Anacapa. First collected just downslope from lighthouse on East Anacapa in August 1988.
- MA, 23 Nov 1988, *Junak* MA-214 (CAS, RSA, SBBG); EA, 19 Aug 1988, *Junak* EA-89 (CAS, RSA, SBBG, SD, UC).
- *Phalaris minor Retz. **little-seeded canary grass** Scarce; flats and slopes on all islets. First collected on island (exact location and islet not specified) in June 1930.
- A, 16 Jun 1930, *Hoffmann s.n.* (SBBG 77173); WA, 11 May 1963, *Piehl* 63-269; MA, 9 May 1963, *Blakley* 5738 (CAS, RSA, SBBG, UCR); EA, 6 Apr 1993, *Junak* EA-104.
- **Phalaris paradoxa* L. **hood canary grass** Scarce; disturbed flats on East Anacapa. First collected along trail between water tank building and water catchment pad in June 1997.
- EA, 17 Jun 1997, *Junak & Kirkland* EA-158.
- *Poa annua L. **annual bluegrass** Rare; disturbed flats and slopes on all islets. First collected along trail just west of ranger residence on East Anacapa in March 1979.
- WA, 9 Apr 1998, *Junak* WA-444 (RSA, SBBG); MA, 20 Mar 1996, *Junak* MA-327; EA, 30 Mar 1979, *Philbrick & Hochberg* B79-8.
- Poa secunda* J. Presl subsp. *secunda* [*P. scabrella* (Thurb.) Vasey] **one-sided bluegrass** Occasional; flats and north-facing slopes on all islets.
- WA, 6 Apr 1968, *Philbrick & Osborne* B68-134 (RSA, SBBG); MA, 31 Mar 1962, *Blakley* 4913 (CAS, RSA, SBBG); EA, 27 Feb 1980, *Junak & Philbrick* EA-44 (RSA, SBBG).
- **Polypogon monspeliensis* (L.) Desf. **rabbitfoot grass** Rare; low spots on flats on Middle and East Anacapa. First collected near buildings on East Anacapa in August 1974.
- MA, 3 Jun 1978, *Philbrick & Hochberg* B78-341; EA, 5 Aug 1974, *Philbrick* B74-149.
- *Sorghum bicolor (L.) Moench. **sorghum** Rare; known from a single collection "around water faucet in front of bunkhouse" on East Anacapa in July 1984.
- EA, 27 Jul 1984, *Drost* 386.
- Stipa cernua* Stebbins & Love [*Nassella* c. (Stebbins & Love) Barkworth] **nodding needle grass** Scarce; ridgetops and slopes on West and East Anacapa.
- WA, 3 Jun 1992, *Junak* WA-258; EA, 28 Apr 1993, *Junak* EA-128.
- Stipa diegoensis* Swallen [*Achnatherum d.* (Swallen) Barkworth] **San Diego needle grass** Occasional; flats and slopes on all islets. This taxon reaches its northern limits on the Northern Channel Islands (Ferren *et al.* 1986).
- WA, 3 Jun 1992, *Junak* WA-248 (RSA, SBBG, SD); MA, 29 Apr 1986, *Junak* MA-133 (RSA, SBBG, SD); EA, 6 Apr 1993, *Junak* EA-105 (RSA, SBBG).
- Stipa lepida* Hitchc. [*Nassella l.* (Hitchc.) Barkworth] **foothill needle grass** Rare; slopes on north side of West Anacapa.
- WA, 18 May 1961, *Blakley* 4339.
- *Stipa miliacea (L.) Hoover var. *miliacea* [*Piprathium m.* (L.) Coss. subsp. *m.*] **smilo grass** or **rice grass** Rare; disturbed flats and slopes, especially on north side, of Middle Anacapa. First collected in seagull nesting area above Lavatera Cove in November 1988.
- MA, 22 Nov 1988, *Junak* MA-211 (RSA, SBBG).

Stipa pulchra Hitchc. [*Nassella p.* (Hitchc.) Barkworth] **purple needle grass** Occasional; flats and slopes on all islets.

WA, 3 Jun 1992, *Junak* WA-254 (RSA, SBBG); MA, 31 Mar 1994, *Junak* MA-256; EA, 22 Apr 1970, *Benedict s.n.* (SBBG 43151).

THEMIDACEAE
(Brodiaea Family)

Dichelostemma capitatum (Benth.) Alph. Wood subsp. *capitatum* **blue dicks** Common; flats on all islets. Apparent abundance varies significantly from year to year.

WA, 30 Mar 1995, *Junak* WA-364 (RSA, SBBG, SD); MA, 31 Mar 1962, *Blakley* 4919 (RSA, SBBG); EA, 26 Apr 1959, *Blakley* 2796 (JEPS, RSA, SBBG, SD, UCR).

ZOSTERACEAE
(Eel-Grass Family)

Phyllospadix scouleri Hook. **surf-grass** Occasional; known from shallow water around perimeter of Middle Anacapa. Distribution needs further study.

MA; 29 Aug 1940, *Dunkle* 7673 (RSA, SBBG).

Phyllospadix torreyi S. Watson **surf-grass** Occasional; known from shallow water at and near Frenchy's Cove on West Anacapa. Distribution needs further study.

WA, 28 May 1963, *Blakley* 5927.

Zostera marina L. **eel-grass** Scarce; waters near Frenchy's Cove on West Anacapa, north side of Middle Anacapa, and Landing Cove on East Anacapa. Distribution needs further study.

WA, 24 May 1969, *Bleck s.n.* (RSA 684212); MA, 2 Jun 1978, *Philbrick & Hochberg* B78-296 (JEPS, SBBG); EA, 23 Apr 1982, *Philbrick s.n.* (SBBG).

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