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PLANTS OF THE COLONET REGION, BAJA CALIFORNIA, MEXICO, AND A VEGETATION MAP OF COLONET MESA

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ABSTRACT

The Colonet region is located at the southern end of the California Floristic Province, in an area known to have the highest plant diversity in Baja California. A preliminary list of vouchered specimens is developed for the area, and a vegetation map for Colonet Mesa is presented. The Colonet region has at least 435 vascular plant taxa, of which 383 are native to Baja California, and 52 are endemic or nearly endemic. This list includes five local endemic taxa known only from the Colonet region, 18 taxa on the California Native Plant Society List 1B of taxa that are “rare, threatened, or endangered in California and elsewhere,” and three on the Mexican NOM 059 list of protected taxa. The Mexican federal government has proposed to build a major port and a new city at Colonet. To understand the potential impact of the port on the regional biodiversity, we examine three areas—a Footprint area which will presumably be highly affected by the port, the Mesa area which contains all the known vernal pools, and a Buffer area surrounding the other two areas. The large Buffer shows the greatest number of native and endemic taxa, followed by the Mesa. The Footprint has two species of high conservation concern that are not represented elsewhere in the study area. The vegetation map of Colonet Mesa confirms the presence of large vernal pools and shows extensive maritime chaparral, neither of which has been reported from elsewhere in northwest Baja California. This report documents the high plant biodiversity of the region and highlights the rare and unique species and vegetation types of Colonet Mesa.

RESUMEN

La región de Colonet se localiza al límite sureste de la Provincia Florística de California, en un área reconocida por contar con una alta diversidad de plantas en Baja California. Una lista preliminar de especies colectadas se elaboró para el área y se presenta un mapa de vegetación para la mesa de Colonet. La región de Colonet cuenta con por lo menos 435 taxones de plantas vasculares, de las cuales 383 son nativas de Baja California y 52 son endémicas o casi endémicas. Este listado incluye cinco taxones de endemismos locales solo conocidos en la región de Colonet, 18 taxones en el listado 1B de la Sociedad de Plantas Nativas de California que son “rara, amenazada o en peligro en California y otros sitios” y tres enlistadas en la NOM 059 de las especies de protección en México. El Gobierno Federal Mexicano ha propuesto la construcción de un puerto de gran escala y una nueva ciudad en Colonet. Para entender el impacto potencial del puerto en la biodiversidad regional, examinamos tres áreas—un área de influencia la cual presumiblemente será altamente afectada por el puerto, el área de la Mesa en donde se localizan todas las charcas temporales y un área de amortiguamiento que rodea las otras dos áreas. La zona de amortiguamiento muestra el mayor número de taxones nativos y endémicos, seguida por la zona de la Mesa. La zona de influencia cuenta con dos especies de alto interés para la conservación que no se encuentran representadas en otros sitios dentro del área de estudio. El mapa de vegetación de la Mesa de Colonet confirma la presencia de grandes charcas temporales y muestra grandes extensiones de Chaparral Marítimo, no reportado en ningún otro sitio en el noroeste de Baja California. Este reporte documenta la alta diversidad de plantas de la región y resalta las especies raras y únicas, así como los tipos de vegetación de la Mesa de Colonet.

Key words: coastal development, Colonet, conservation, endemic plants, flora, maritime chaparral, maritime succulent scrub, rare plants, vegetation, vernal pool.

INTRODUCTION

The California Floristic Province (CFP) is an area of high floral biodiversity with about 4500 plant species, including a large percentage of endemic and threatened taxa (Myers et al. 2000; Brooks et al. 2002). The CFP is usually defined as the Pacific drainages extending from the Klamath Mountains in Oregon, USA, to El Rosario, Baja California, Mexico, at 30°N latitude (Hickman 1993). The Mexican part of the CFP has

lower rainfall than areas to the north, transitioning to desert at about 30°N (Minnich and Franco-Vizcaino 1998; González-Abraham et al. 2008).

The CFP of coastal Baja California can be broadly classified as consisting of three scrub communities (Garcillán et al. in press). (1) Coastal sage scrub consists of a mixture of evergreen and summer-deciduous species and is a common coastal community from Santa Barbara County, California, to Santo Tomás, Baja California (Rundel 2007). (2) Maritime succulent

scrub (also known as succulent coastal matorral) is the common coastal community to the south of coastal sage scrub and consists of a higher proportion of succulent species, often widely spaced; maritime succulent scrub can be found in southern San Diego County, California, and extends to the southern limit of the Province (Rundel 2007). (3) Chaparral, characterized by evergreen sclerophyllous shrubs, is primarily an inland community, but is also found in isolated patches on the coast, for example at Torrey Pines State Park in San Diego County, where it is called maritime chaparral (Keeley and Davis 2007). It is commonly agreed that, among the scrub communities of the southern CFP, plant species diversity is highest in the maritime succulent scrub of Baja California, with a peak in the southern part of this community from 31° to 30°N (Peinado et al. 1995; Riemann and Ezcurra 2007; Rundel 2007). No part of the coastal CFP in Baja California has been given legal protection under federal or local laws (Riemann and Ezcurra 2005).

The town of Colonet (31°5'N, 116°12'W) is about 180 km south of the border with the United States (US) on Mexican Federal Highway 1 on the Pacific coast of Baja California. Bahía Colonet (Colonet Bay) is formed at the mouths of two rivers, the Río San Rafael and—just a few miles to the south—the Río San Telmo (Roberts 1984; Baja Almanac Publishers n.d.). Punta Colonet (Colonet Point) is a coastal basalt mesa along the north bank of Río San Rafael, surrounded on three sides by sheer cliffs ca. 80 m high. Punta Colonet is more or less congruent with Colonet Mesa; the latter is defined here as the area south of the road to San Antonio del Mar, which passes along the southern limit of Johnson Ranch (a site name used in many early collections). Colonet Mesa forms the southern limit of an area of spectacular botanical diversity extending to at least Eréndira, about 25 km to the north (Fig. 1).

In 2006, the Mexican government announced plans for a container port at Colonet, with an associated town, infrastructure, and railroad following the Arroyo Seco/Río San Juan to San Matías pass and continuing on to the US (F. Ochoa Pineda, M. Carignan, C. O. García Zendejas, and J. Gleason, Report on the proposal to develop a port at Punta Colonet, Baja California, Mexico. ELAW & Defensa Ambiental del Noroeste, unpubl. report [2008]). The primary purpose of this port is to add capacity to US–Asian trade; initial capacity is estimated at 1–2 million TEUs (twenty-foot equivalent units), with construction of a city of up to 200,000 inhabitants (Dibble 2008; F. Ochoa Pineda et al., unpubl. report [2008]). The outline of the port as authorized (Secretaría de Comunicaciones y Transportes 2006, 2008) will span the coast from approximately the southern tip of Punta Colonet, past Río San Rafael, to the mouth of Río San Telmo (Fig. 1). The published outline of the port does not address or authorize any terrestrial impacts. The recent contraction of world trade has made this port less economically viable, at least in the short-term, but government officials continue to insist the port will be built (Anonymous 2009; Madrigal 2009).

Punta Colonet is known for its vernal pools and associated flora (Moran 1984; Bauder and McMillan 1998; Clark et al. 2009), including the largest vernal pools known from the CFP in Mexico (Moran 1984). The area also contains a number of local endemic plant species, as well as significant populations of many taxa listed by the US Endangered Species Act and the

California Endangered Species Act (Moran 1984; Clark et al. 2009). Little has been published about the flora or fauna of the region. The goal of this paper is to develop a preliminary list of the vascular plants of the region and a map of the vegetation of Punta Colonet.

BACKGROUND

Vernal pools are seasonal wetlands. Underlain by an impermeable layer, the pools fill during the wet winters and dry up during the summer (Solomeshch et al. 2007). The standing water in the spring excludes flooding-intolerant generalists, resulting in a unique flora with many endemic plants. Vernal pools also support a number of rare and endangered animals such as fairy shrimp (*Branchinecta sandiegoensis* Fugate), provide breeding habitat for amphibians such as the western spadefoot (*Spea hammondi* (Baird)), and are important habitat for migratory wading birds (Skinner 1994; Solomeshch et al. 2007; Clark et al. 2009). Loss of vernal pools has been high throughout California, and the most significant loss of habitat has been in San Diego County, where 95–97% of vernal pool habitat has been destroyed (U.S. Fish and Wildlife Service 1998; Bauder and McMillan 1998).

The only list of vernal pool plants of Baja California, and one of the few papers describing the region, was published by Moran (1984). The original extent and subsequent anthropogenic loss of vernal pools in Baja California have not been quantified, but even in 1984, a number of the known pools had been lost. Moran noted that Colonet Mesa harbors *Orcuttia californica* in “undoubtedly its largest stands,” as well as *Eryngium aristulatum* var. *parishii* and *Navarretia fossalis*. Since that time, there seemingly has been no effort to track any of these populations (U.S. Fish and Wildlife Service 2005), in spite of the potential importance of these populations to the genetic diversity of each species (Griggs 1984). All three taxa are listed under the US Endangered Species Act.

Three “local endemic” plant species have been described from the Colonet region. They are confined to the coast near or on Colonet Mesa (additional undescribed locally endemic taxa in *Dudleya* are discussed below). The early plant collector T. S. Brandegee discovered *Centromadia perennis* (Greene 1896; Lindsay 1955). *Centromadia perennis* is a vernal pool specialist known from the southern tip of Punta Colonet to ca. 2 km north of San Antonio del Mar. Historically, it occurred near San Quintín (Moran 23516 [SD]), and was thought to be extirpated there, but a small population has recently been rediscovered (Vanderplank 2010). Reid Moran collected extensively in the study area from 1946 to 1983 and documented the distribution of many species in the area, including the discovery of *Berberis claireae* (Moran 1982). *Berberis claireae* was known (before the collection noted below) only from arroyos and watercourses from Arroyo Hediondo (5 km north of the study area) to near San Antonio del Mar within a few km of the coast. *Hazardia ferrisiae* is a local endemic species (with a larger distribution than the foregoing) that is known from hills a few kilometers from the coast from Punta Cabras to Camalú (Clark 1979).

Adenothammus validus is a monotypic genus restricted to Baja California from Rosarito to Colonet. The type specimen was collected by T. S. Brandegee in 1893 at Johnson Ranch (Keck 1935), a few kilometers north of San Antonio del Mar

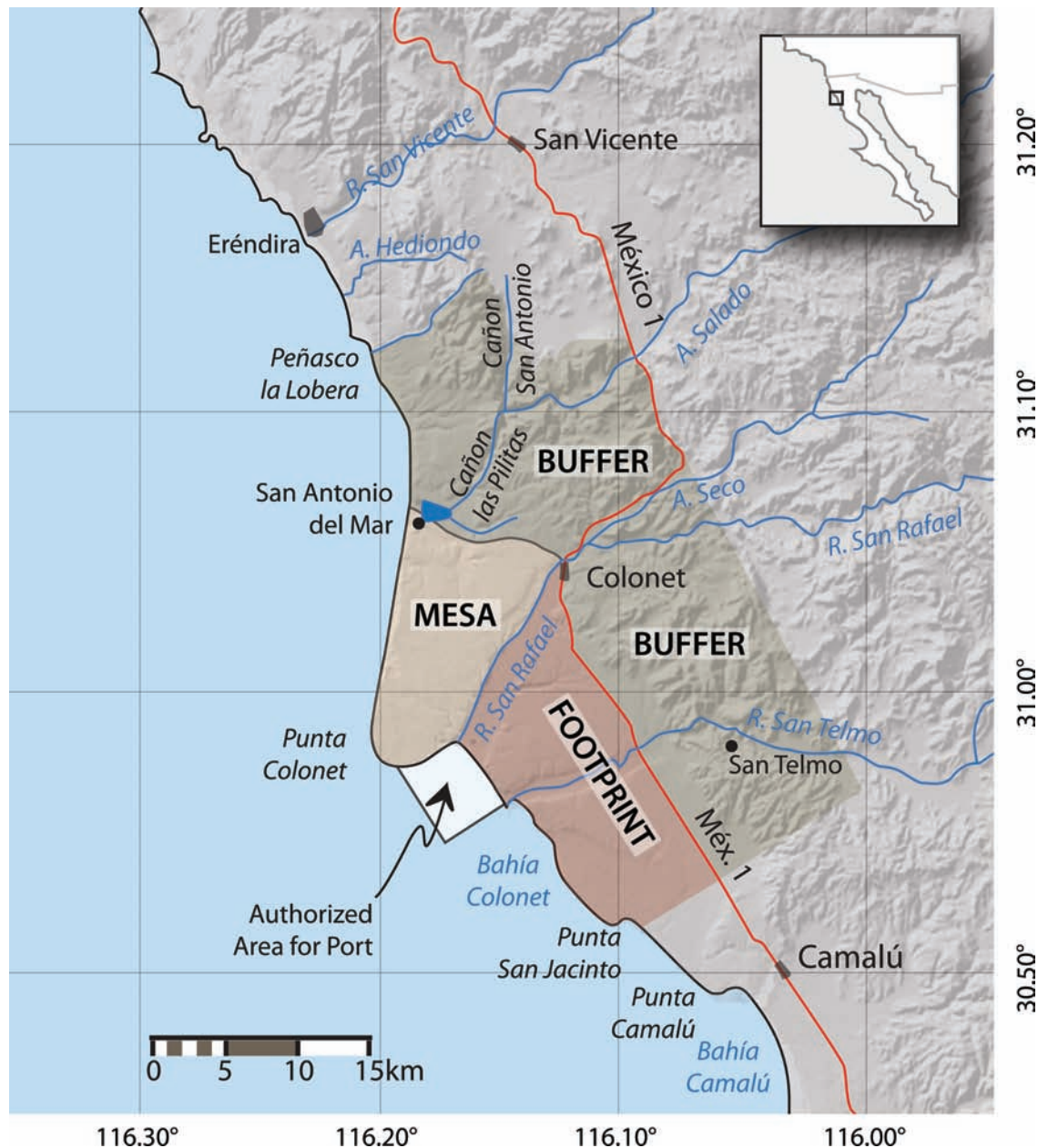


Fig. 1. Map of the Colonet region, showing the three study areas and the outline of the proposed port. The three study areas are shown in distinct colors. The Footprint is the area presumed to be affected most by the development of the port. The Mesa is hydrologically isolated and contains all the known vernal pools in the area. The Buffer is an area about 10 km wide that samples the flora of the surrounding area. The area officially authorized for the port is shown in white.

(notes on the location of this collection can be found in annotations attached to the herbarium voucher DS635046 at CAS). The species has not since been collected south of Arroyo Hediondo (e.g., *Moran 30013* [SD]).

Another highly threatened taxon in the study area is *Mammillaria lousiae*. This species is known from only a few locations near San Quintín; the most northerly collection is from the “mouth of the Arroyo San Telmo” in 1960 (*Moran 8261* [SD]). Because the other known populations have been reduced or extirpated (J. Rebman, pers. comm.), this population—if it still survives—may be very important to the persistence of this species in the wild.

The most narrowly restricted taxa known from the region are two (possibly three) morphologically distinct *Dudleya* that occur only on Colonet Mesa. These populations, probably related to *D. blochmaniae*, are distinct and restricted to specific areas on the mesa (Doderó 1995). Pending formal description, we refer to these populations here as *Dudleya* Species 1 and *Dudleya* Species 2. Species 1 has only been collected at a few localized areas of the mesa, in an area of perhaps 100 ha. Species 2 is known from an area of perhaps less than 10 ha in heavy clay soils. Although the exact taxonomic rank of these taxa within *Dudleya* has not been determined, they are obviously highly threatened due to their limited distribution.

METHODS

This study is intended to document the known flora and vegetation of the Colonet region in relation to the potential threat from the proposed port development project. Because the scope of the proposed port and associated infrastructure is currently unknown, we compiled information reported in public documents (newspapers, web sites, and local planning documents) that would shed light on the size and potential impact of the port. Published news articles have spoken of a port the size of the ports of Long Beach and Los Angeles, with a town of 200,000 inhabitants or more and a railroad connecting the port with the US. Because of limited resources and infrastructure in the area, the port will presumably have to generate electricity, produce desalinated water, and dispose of municipal waste on-site or nearby. Some news reports have spoken of housing being built on Mesa San Telmo (to the west of Highway 1 between Río San Rafael and Río San Telmo) and Mesa San Jacinto (the next mesa to the south). Municipal planning documents show planned “low density” development for the mesa, presumably housing and recreation (golf), with a narrow strip on the unbuildable cliffs left as a protected area. A summary of project alternatives has been published (Secretaría de Comunicaciones y Transportes 2002).

Preliminary Flora of the Colonet Region

To develop the list of vascular plants that could potentially occur in the area, we drew on four main sources: (1) a list maintained by M. Dodero and colleagues; (2) various field trips, including a collecting trip in June 2008; (3) the field collection journals of Reid Moran, Robert Thorne and Frank Gander; and (4) plant associates listed on herbarium labels from the area. Preliminary searches were made of the databases at the Mexican Biodiversity Information Network (CONABIO 2008), by taxon, and at San Diego Natural History Museum (Rebman 2008), by taxon, latitude-longitude, locality, and collector. For taxa not found in these databases, we searched in the herbaria at Rancho Santa Ana Botanic Garden (RSA), California Academy of Sciences (CAS, including the Dudley Herbarium, DS), San Diego Natural History Museum (SD), and The Huntington Botanical Garden (HNT). When we had access to the label text (i.e., all except some specimens accessed online), we georeferenced the locations or confirmed the georeferencing already made. Georeferencing was facilitated using maps (Baja Almanac Publishers n.d.), a database of place names provided by the Bajaflora database (Rebman 2008), and the “Google Earth” application. No attempt was made to confirm the identification of species on specimen sheets. Nomenclature was updated to that used by the Bajaflora database and the Checklist of the Vascular Plants of San Diego County (Rebman and Simpson 2008), using treatments found at Flora of North America (Efloras 2008), Jepson Interchange (Consortium of California Herbaria 2008), IPNI (International Plant Names Index 2008), and Tropicos (Missouri Botanical Garden 2008). We include synonyms for those taxa that have been changed since the publication of The Jepson Manual (Hickman 1993) or The Flora of Baja California (Wiggins 1980).

We used our knowledge of local occurrence, previous classifications (Bauder and McMillan 1998; Riemann and Ezcurra 2005), the SD database (Rebman 2008), the Jepson

Interchange (Consortium of California Herbaria 2008), and other online databases (e.g., California Native Plant Society 2010 and CONABIO 2008) to classify each taxon as: vernal pool specialist, local endemic, (Baja) peninsular endemic, near-state endemic, listed by the California or US Endangered Species Acts, listed on the Mexican NOM 059 list of protected species, and included on the California Native Plant Society Inventory of Rare and Endangered Plants of California (“CNPS Inventory”). Near-state endemics are taxa whose Mexican range is within the state of Baja California, and extends slightly into San Diego or Imperial Counties, California.

Only taxa currently represented in herbarium specimens are included in the list that follows. Several non-native and weedy species were observed but not vouchered, including: *Atriplex semibaccata* R.Br., *Brassica tournefortii* Gouan, *Bromus madritensis* L. subsp. *rubens* (L.) Husn., *Chenopodium murale* L., and *Nicotiana glauca* Graham.

Delimitation of Regions

In order to determine the possible impact of a port on the flora of the region, we defined three areas of interest within an overall study area (Fig. 1). These areas are defined by prominent geographic features (escarpments and roads).

Footprint.—The Footprint of the port consists of the area where reports have described possible development of a town (Secretaría de Comunicaciones y Transportes 2002): Mesa San Telmo and Mesa San Jacinto, extending from the coast inland to Highway 1 and including the riparian areas of the San Telmo and San Rafael rivers west of the highway. While this area is presumably much larger than that necessary for development (ca. 2–3 times the current area of Ensenada), it contains the areas most amenable to development, many of which are currently extensively farmed, with little native vegetation in upland areas.

Mesa.—The Mesa is the part of Punta Colonet south of the road from Colonet to San Antonio del Mar, including the dunes and lagoon around San Antonio del Mar. This area is often referred to as Mesa de Colonet (Moran 1984). This area contains almost all of the vernal pools and sandstone outcrops in the region, and was an area of particular interest to biologists before the port was announced. The Mesa is rather flat, underlain by basalt, about 80 m above sea level, and hydrologically isolated from the rivers and arroyos to the south and north. While the center and east sides of the Mesa have been extensively altered by grazing and agriculture, much of the southern and northern parts harbor seemingly intact native vegetation with few introduced species.

Buffer.—To understand the possible impact of the port, and to include species from the area that had not been collected from the two above areas, we defined a Buffer area that extends ca. 10 km to the north and east of the Mesa and Footprint, excluding areas south of San Vicente that are intensively farmed. The surface areas of the Footprint, Mesa, and Buffer areas are ca. 190 km², 130 km², and 480 km², respectively.

Vegetation Map

A photomosaic of the peninsula was obtained from Terra Peninsular, AC. This is a true-color image made during late

Table 1. Taxa occurring in three study areas of the Colonet region in Baja California, Mexico.

Category	Footprint		Mesa		Buffer		Total
	Unique	Total	Unique	Total	Unique	Total	
All species and subspecies	17	73	99	225	182	302	435
Native	12	64	87	204	159	268	383
Local endemics	0	1	3	5	0	2	5
Endemic and near-state endemic	2	14	11	27	21	35	52
NOM059	0	0	1	1	2	2	3
CNPS Lists 1–4	2	17	16	34	13	30	52
CNPS List 1B	1	6	6	10	5	8	18

For each study area, the number of species, subspecies or varieties that occur uniquely in that area, and the total number of taxa known from that area, are shown as “unique” and “total”, respectively. The first number for each area represents the number of taxa that could be lost from the study region if that area were destroyed, and the second number represents the number of taxa that would be included if that area were completely protected. The final column is the total number, for the study region, of taxa for each classification. Local endemics are species found only in the Colonet region and include two undescribed taxa. Endemics are species endemic to the Baja California peninsula; near-state endemics are species endemic to the state of Baja California that extend slightly into San Diego or Imperial Counties in California. CNPS Lists 1–4 include plants listed in the California Native Plant Society’s Inventory of Rare and Endangered Plants. CNPS List 1B taxa are those considered globally endangered, threatened or rare.

spring of 2004, a very dry year, with a resolution of about 10 m²/pixel, and georeferenced against 1:50,000 maps produced by INEGI (Instituto Nacional de Estadística y Geografía, Aguascalientes, Mexico).

In 2008, we identified distinguishable vegetation classifications for the Mesa, and we traced polygons for each vegetation type and transferred them to a GIS program. We visited the area in March 2008 to confirm the classifications made from aerial photos, and to correct the maps due to changes in land use since 2004. Aerial photos are lacking for the extreme west edge of the southern part of the mesa, so these areas were mapped in the field on foot and with a map.

RESULTS AND DISCUSSION

Preliminary Flora of the Colonet Region

We found 1180 plant specimens in the study region that we could georeference to one of the three areas of interest: Footprint, Mesa, or Buffer. These specimens were used as the primary data for the flora presented here.

The preliminary vascular flora of the Colonet region (Appendix 1) shows the 435 distinct taxa (species, subspecies, varieties, and hybrids) occurring within the study area. Of these taxa, 383 are native. Excluding subspecies, varieties and hybrids, the flora has 424 distinct species, of which 373 are native. The list includes 35 taxa endemic to the Baja California peninsula—of which five are local endemics—and 17 taxa that are near-state endemics.

A number of taxa found in the study area are listed as rare or protected. The CNPS Inventory lists 52 taxa, including 18 taxa on the list 1B (“Plants rare, threatened, or endangered in California and elsewhere”). Ten taxa are listed under either the US or California Endangered Species Acts (California Native Plant Society 2010). The Mexican NOM 059 “list of species at risk” (Secretaría de Medio Ambiente y Recursos Naturales 2002) includes three species from the study region. These species, and their classification status, are: *Callitropsis forbesii* (listed as *Cupressus forbesii*, protected); *Cylindropuntia californica* var. *rosarica* (listed as *Opuntia rosarica*, protected); and *Ferocactus viridescens* var. *viridescens* (listed as *F. viridescens*,

threatened). A fourth listed species, *Pinus muricata* D. Don, in danger of extinction, occurs just to the north of the study region (e.g., Moran 29467 [SD]; Minnich 1987).

We subdivided the results by species found in the Footprint, Mesa and Buffer (Table 1). This analysis gives us a very rough idea of the proportion of biodiversity attributable to each of the three areas. Note that these numbers must be taken as only a rough estimate—sources of error include different collection efforts for the areas, the fact that an exhaustive search for specimens was not made, and changes in habitat and land use since the collections were made (note that some taxa are vouchered with very old specimens, some over 100 years ago). But, even with these caveats, much of the biodiversity of the region is found in the Mesa and Buffer regions; indeed, the only region in which all five local endemic species are known to occur is the Mesa. The Footprint has a distinctly less diverse flora, as measured by this list, which may be surprising given the large riparian area encompassed by the Footprint. Possible reasons for these differences include edaphic factors, the larger area of the Buffer (about 2.5–3.5 times larger), unknown differences in collecting effort, and—we believe—the extensive areas already converted to agriculture in the Footprint. However, between two and 21 endemic or near-endemic taxa are unique to one—and not the other two—areas and would be threatened by development.

In June 2008, we spent two days collecting in the Colonet region. We found a specimen of *Berberis claireae* in a canyon at the south end of the Mesa (30°57.750'N, 116°17.807'W). This is the first population known from south of San Antonio del Mar, and expands the north–south range of this species from ca. 12 km to ca. 35 km. This collection suggests that there may be other novel plants to be found in the region.

Vegetation Map

It is inherently difficult to classify coastal scrub vegetation (Rundel 2007), in part because of a large number of local endemics with limited range. Our classification is based on regionally-developed descriptions of maritime succulent scrub, coastal sage scrub, and maritime chaparral (Keeley and Davis

2007; Rundel 2007), which attempt to create broad classifications, in part by combining dominant congeners (such as *Salvia* spp.) that share structural and phenological characteristics.

The communities we mapped include:

1. *Maritime succulent scrub*.—This vegetation type is dominated by *Agave shawii* subsp. *shawii*, *Dudleya ingens*, *Euphorbia misera*, and *Rosa minutifolia*, with less dominant *Aesculus parryi*, *Artemisia californica*, *Bergerocactus emoryi*, *Encelia californica*, and *Rhus integrifolia*. In the field, what we classify as maritime succulent scrub is obviously a mixture of at least three vegetation types, which we could not resolve on the aerial photos. These three (unmapped) subtypes consist of drained soils with more *Agave shawii* subsp. *shawii*, *Dudleya ingens*, and *Euphorbia misera*; clayey soils with *Deinandra fasciculata*, and *Rosa minutifolia*; and linear sandy hummocks or stabilized dunes that are dominated by the larger shrubs such as *Aesculus parryi*, *Rhus integrifolia*, and *Salvia brandegeei*. These sandy areas have a rich concentration of shells, presumably from the Native American population that inhabited the region (Moore 1999). Maritime succulent scrub was further classified according the degree of disturbance: “intact” refers to areas with low levels of disturbance, or where grazing has reduced but not eliminated native vegetation, while “low quality” describes areas in which the vegetation has been highly impacted by bulldozers or anthropogenic fire. Our experience is that even the low quality areas will restore themselves, and are already undergoing that process.

2. *Chaparral*.—Chaparral on the Mesa is dominated by *Adenostoma fasciculatum*, *Cneoridium dumosum*, *Hazardia squarrosa* var. *grindeloides*, *Rhus integrifolia*, and *Salvia brandegeei*. *Agave shawii* subsp. *shawii* and *Dudleya ingens* also occur here but are less conspicuous than the larger shrubs. Maritime chaparral occurs only on sandstone outcrops, and, as far as we know, the major extent of this vegetation in Baja California is limited to Colonet Mesa.

3. *Coastal sage scrub*.—This vegetation type is dominated by *Artemisia californica* and *Salvia munzii* with *Adenostoma fasciculatum*, *Aesculus parryi*, *Dudleya ingens*, *Encelia californica*, *Simmondsia chinensis*, and *Stenocereus gummosus*; *Agave shawii* subsp. *shawii* is nearly absent. Although a number of endemics and near-state endemics occur here, the dominance of *Artemisia* and *Salvia* make this vegetation similar to the coastal sage scrub of southern California. Coastal sage scrub is found here only on north- and east-facing canyon walls.

4. *Vernal pools*.—Vernal pools were recognized by their morphology and as large areas of sparse vegetation. Species that occur here include *Centromadia perennis*, *Deinandra fasciculata* (shallower pools), *Eryngium aristulatum* var. *parishii*, *Lasthenia gracilis* (shallower pools), and *Orcuttia californica* (deeper pools). Some of the pools have been plowed and sown and have scarce native vegetation. Vernal pools in the Colonet region range from small pools <50 m in diameter to the largest pools known from NW Baja California, up to 1.4 km along the major diameter. Intermittent riparian areas also often support vernal pool species, but were not so mapped.

5. *Dunes*.—The study area has both active dunes and mostly stabilized dunes. The stabilized dunes support *Abronia umbellata* var. *umbellata*, *Helianthus niveus*, and *Lotus*

nutallianus, while the active dunes have sparse vegetation with *Abronia maritima* var. *maritima*, *A. umbellata*, *Cressa truxillensis*, *Distichlis spicata*, *Lotus argophyllus*, and—surprisingly—*Tamarix ramosissima* growing through the sand.

6. *Riparian and lagoon*.—Arroyo San Antonio and Arroyo El Salado join and flow to San Antonio del Mar, where they form a lagoon behind the beach. We included approximately the last 2 km of the arroyo and the lagoon in Fig. 1. Salt marsh was not mapped.

The vegetation map for Punta Colonet is shown in Fig. 2. It must be noted that land use has changed since this map was made (Jun 2008), and there has been additional destruction of native vegetation. The major native vegetation types shown on the map are maritime succulent scrub and maritime chaparral, the latter dominating the south-central part of the peninsula. We believe that this is the largest extent of maritime chaparral in the CFP in Mexico.

A study of vegetation along a transect from Colonet to the Sierra San Pedro Mártir has been conducted using phytosociological methods (Peinado et al. 1994). This study reported one mid-elevation and three low-elevation vegetation types that seem comparable to our classification. Although we used different methods to identify vegetation types, our coastal sage scrub appears to be identical with their *Salvia munzii*-*Artemisietum californicae*, and our maritime succulent scrub includes their classifications *Bergerocactus emoryi*-*Agavetum shawii* and *Rosa minutifoliae*-*Aesculetum parryi*. Our maritime chaparral is similar to their *Adenostometum fasciculati*, which they recognized as an upland, transitional, fire-maintained vegetation occurring no lower than 150 m elevation. We cannot evaluate the role of fire in the maritime chaparral in the Colonet region (see Van Dyke and Holl 2001), but many of the co-occurring species of the presumed inland climax vegetation type were absent. Because of the different species composition, we expect that the dynamics of *Adenostoma fasciculatum*-dominated chaparral differs between coastal and inland locations, emphasizing the regional uniqueness of maritime chaparral.

The dimensions and distribution of vernal pools are apparent from Fig. 2, with four large pools located in the middle of the Colonet peninsula. These pools are unique in Mexico, and probably in the CFP south of Santa Rosa Plateau (Riverside County, California), by virtue their depth and size. Even though they are heavily impacted by agriculture and grazing, these pools still maintain a number of vernal pool species, including the locally endemic *Centromadia perennis*. These pools support the only known extant population of *Orcuttia californica* in Baja California. Other notable vegetation areas are the active dunes and lagoon system around San Antonio del Mar, and the large stabilized dune on the southwest side of the mesa.

The number of taxa documented for the region is large—435 in total, 383 native—but perhaps not surprising. Two comparable floras have been reported from the CFP of Baja California. One is that of Punta Banda near Ensenada (Mulroy et al. 1979), with 258 taxa—208 native—observed in a much smaller area of study. The other is for Greater San Quintín, 60 km south of our study area, with 429 taxa, of which 351 are native (Vanderplank 2010). The area of Greater San Quintín is less than 50% of the area studied here, and the degree of disturbance and urbanization is much higher. Collecting

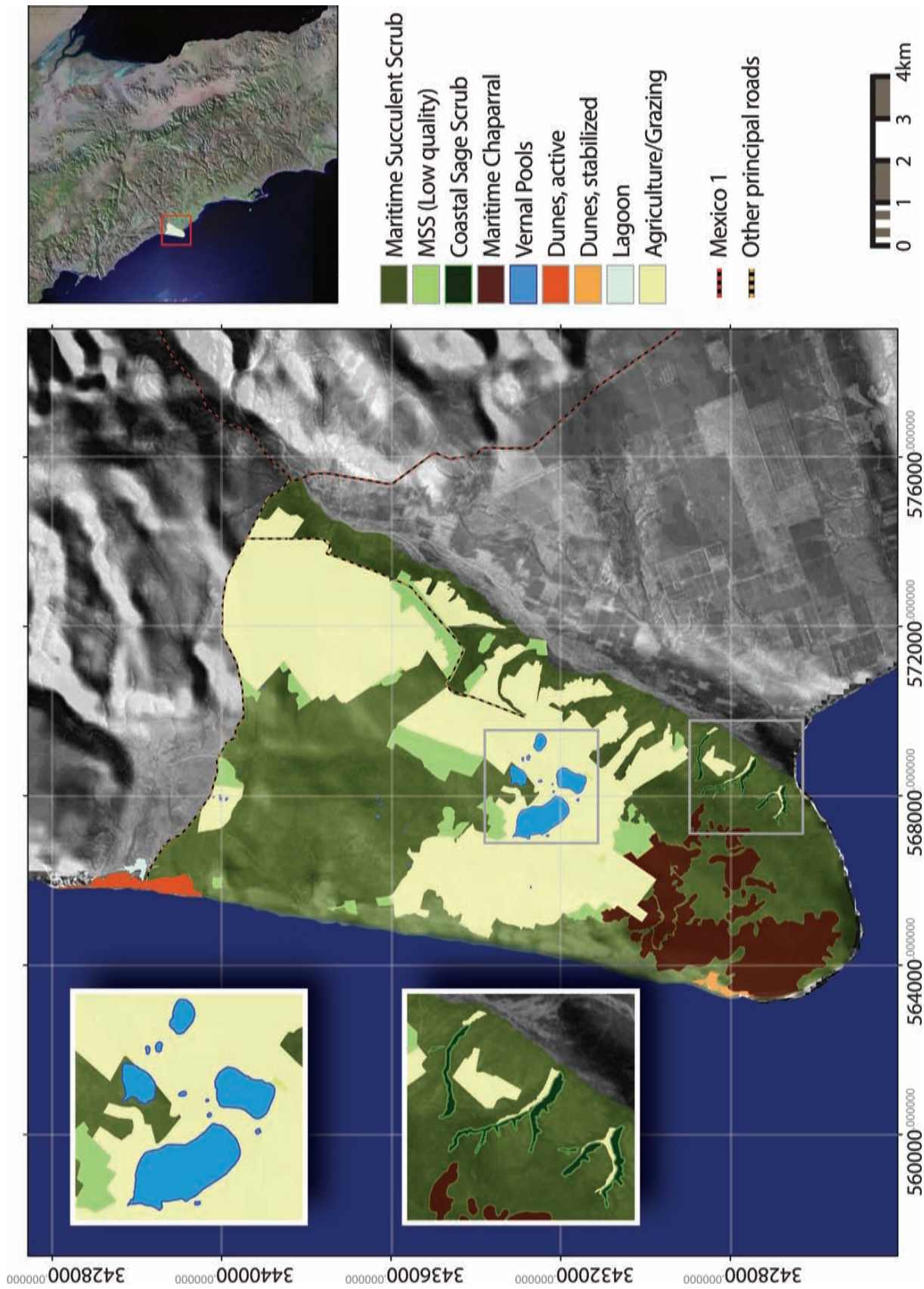


Fig. 2. Vegetation map of Colonet Mesa. Vegetation areas were determined from aerial photographs of the region taken in 2004 and verified and updated by field observations in 2008. The large vernal pools and the extensive areas of maritime chaparral are apparent.

efforts for both these studies were more intense than for the results presented here. We feel sure that continued collection will reveal many more species in the vascular flora of the Colonet region.

This paper points out some of the possible impacts that development could have on the flora of the Colonet region. The two sub-areas of highest floristic biodiversity are the Buffer, followed by the Mesa, although the Mesa with its vernal pools has a larger number of CNPS Inventory 1B plants and harbors all five of the local endemic taxa. Colonet is at the center of an area of “high species richness and endemism,” which has also been identified by gap analysis as important for vascular plant conservation in the Baja California peninsula (Riemann and Ezcurra 2005, 2007). Given the high floral diversity found, and the large number of endemics and threatened taxa in this limited area, we recommend that Colonet Mesa (Punta Colonet) be declared a protected area.

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LITERATURE CITED

- ANONYMOUS. 2009. Generará por lo menos 28 mil empleos puerto en Colonet. *La Frontera* 9 Mar 2009. <http://www.frontera.info/EdicionEnLinea/Notas/Noticias/09032009/362165.aspx> (Mar 2009).
- BAJA ALMANAC PUBLISHERS (n.d.). Baja California Almanac: Baja California Norte. Baja Almanac Publishers, Las Vegas, Nevada, USA. 64 p.
- BAUDER, E. T. AND S. McMILLAN. 1998. Current distribution and historical extent of vernal pools in southern California and northern Baja California, Mexico, pp. 56–70. In C. W. Witham, E. T. Bauder, D. Belk, and W. R. Ferren, Jr. [eds.], *Ecology, conservation, and management of vernal pool ecosystems: Proceedings from a 1996 conference*. California Native Plant Society, Sacramento, USA. 285 p.
- BROOKS, T. M., R. A. MITTERMEIER, C. G. MITTERMEIER, G. A. B. DA FONSECA, A. B. RYLANDS, W. R. KONSTANT, P. FLICK, J. PILGRIM, S. OLDFIELD, G. MAGIN, AND C. HILTON-TAYLOR. 2002. Habitat loss and extinction in the hotspots of biodiversity. *Conservation Biol.* 16: 909–923.
- CALIFORNIA NATIVE PLANT SOCIETY. 2010. Inventory of rare and endangered plants, v7-10a 1-19-10. <http://www.cnps.org/inventory> (Feb 2010).
- CLARK, K. B., M. DODERO, A. CHAVEZ, AND J. SNAPP-COOK. 2009. The threatened biological riches of Baja California's Colonet Mesa. *Fremontia* 36: 3–10.
- CLARK, W. D. 1979. The taxonomy of *Hazardia* (Compositae: Astereae). *Madroño* 26: 105–127.
- CONABIO (COMISIÓN NACIONAL PARA EL CONOCIMIENTO Y USO DE LA BIODIVERSIDAD). 2008. Red mundial de información sobre biodiversidad (Mexican biodiversity information network). http://www.conabio.gob.mx/remib/cgi-bin/clave_remib.cgi?lengua=es-MX (Sep 2008).
- CONSORTIUM OF CALIFORNIA HERBARIA. 2008. The Jepson Online Interchange of California Floristics. University of California, Berkeley. <http://ucjeps.berkeley.edu/interchange> (Feb 2010).
- DIBBLE, S. 2008. Calderon announces bidding for Punta Colonet project. *San Diego Union Tribune* 28 Sep 2008. <http://www.signonsandiego.com/news/mexico/tijuanal20080828-1930-bn28colonet.html> (Sep 2008).
- DODERO, M. W. 1995. Phylogenetic analysis of *Dudleya* subgenus *Hasseanthus* (Crassulaceae) using morphological and allozyme data. M.S. Thesis. San Diego State University, San Diego, USA. 202 p.
- EFLORAS. 2008. The flora of North America. http://efloras.org/flora_page.aspx?flora_id=1 (Jan 2008).
- GARCILLÁN, P., C. E. GONZÁLEZ-ABRAHAM, AND E. EZCURRA, E. In press. Phytogeography, vegetation, and ecological regions of Baja California. In J. Rebman and N. C. Roberts, *Baja California plant field guide*, 2nd ed. San Diego Natural History Society, San Diego, USA.
- GONZÁLEZ-ABRAHAM, C. E., P. P. GARCILLÁN, AND E. EZCURRA. 2008. Ecoregions of Baja California: a new synthetic proposal, pp. 358–378. In VI Simposio internacional sobre flora silvestre en zonas áridas. Centro de Investigaciones Biológicas del Noroeste, S.C., La Paz, Baja California Sur, Mexico. http://ecodesertica.org/medial/Gonzalez-Abraham_et_al_2008.pdf (Mar 2009).
- GREENE, E. L. 1896. New or noteworthy species—XV. *Pittonia* 3: 13–28.
- GRIGGS, F. 1984. A strategy for the conservation of the genus *Orcuttia*, pp. 255–262. In S. Jain and P. Moyle [eds.], *Vernal pools and intermittent streams*. Institute of Ecology, University of California, Davis, USA.
- HICKMAN, J. C. (editor). 1993. *The Jepson manual. Higher plants of California*. University of California Press, Berkeley, USA. 1400 p.
- INTERNATIONAL PLANT NAMES INDEX. 2008. Plant name query. <http://ipni.org/ipnilplantnamesearchpage.do> (Sep 2008).
- KECK, D. D. 1935. Studies upon the taxonomy of the Madinae. *Madroño* 3: 4–18.
- KEELEY, J. E. AND F. W. DAVIS. 2007. Chaparral, pp. 339–366. In M. G. Barbour, T. Keeler-Wolf, and A. A. Schoenherr [eds.], *Terrestrial vegetation of California*. 3rd ed. University of California Press, Berkeley, USA. 712 p.
- LINDSAY, G. E. 1955. Notes concerning the botanical explorers and exploration of Lower California, Mexico; a paper prepared for Biology 199, Stanford University, Winter Quarter, 1955. Reprinted by the Belvedere Scientific Fund, Stanford, California, USA. 105 p.
- MADRIGAL, N. 2009. Licitarán proyecto del Puerto Punta Colonet. *El Vigía* 14 Dec 2009. <http://host.elvigia.net/noticias/?seccion=generales&id=55473> (Feb 2010).
- MINNICH, R. A. 1987. The distribution of forest trees in northern Baja California, Mexico. *Madroño* 34: 98–127.
- AND E. FRANCO-VIZCAINO. 1998. Land of chamise and pines: historical accounts and current status of northern Baja California's vegetation. *Univ. Calif. Publ. Bot.* 80: 1–166.
- MISSOURI BOTANICAL GARDEN. 2008. Tropicos. <http://www.tropicos.org/> (Feb 2010).
- MOORE, J. D. 1999. Archaeology in the forgotten peninsula: prehistoric settlement and subsistence strategies in northern Baja California. *J. Calif. Great Basin Anthropol.* 21: 17–44.
- MORAN, R. 1982. *Berberis claireae*, a new species from Baja California, and why not *Mahonia*. *Phytologia* 52: 221–226.
- . 1984. Vernal pools in northwest Baja California, Mexico, pp. 173–184. In S. Jain and P. Moyle [eds.], *Vernal pools and intermittent streams*. Institute of Ecology, University of California, Davis, USA.
- MULROY, T. W., P. W. RUNDEL, AND P. A. BOWLER. 1979. The vascular flora of Punta Banda, Baja California Norte, Mexico. *Madroño* 26: 69–90.

- MYERS, N., R. A. MITTERMEIER, C. G. MITTERMEIER, G. A. B. DA FONSECA, AND J. KENT. 2000. Biodiversity hotspots for conservation priorities. *Nature* **403**: 853–858.
- PEINADO, M., F. ALCARAZ, J. L. AGUIRRE, AND J. DELGADILLO. 1995. Major plant communities of warm North American deserts. *J. Veg. Sci.* **6**: 79–94.
- , C. BARTHOLOMÉ, J. DELGADILLO, AND I. AGUADO. 1994. Pisos de vegetación de la Sierra de San Pedro Mártir, Baja California, México. *Acta Bot. Mex.* **29**: 1–30.
- REBMAN, J. P. 2008. The flora of Baja California: Baja Flora. San Diego Natural History Museum, San Diego, California, USA. <http://bajajflora.org> (Feb 2010).
- AND M. G. SIMPSON. 2008. Checklist of the vascular plants of San Diego County, 4th ed. Biodiversity Research Center of the Californias, San Diego Natural History Museum, San Diego, California, USA. <http://www.sdnhm.org/research/botany/sdplants/index.html> (Nov 2009).
- RIEMANN, H. AND E. EZCURRA. 2005. Plant endemism and natural protected areas in the peninsula of Baja California, Mexico. *Biol. Conservation* **122**: 141–150.
- AND ———. 2007. Endemic regions of the vascular flora of the peninsula of Baja California, Mexico. *J. Veg. Sci.* **18**: 327–336.
- ROBERTS, N. C. 1984. Important riparian/wetland systems of peninsular Baja California: an overview, pp. 391–404. In R. E. Warner and K. M. Hendrix [eds.], *California riparian systems: ecology, conservation, and productive management*. University of California Press, Berkeley, USA. Also online at: <http://content.cdlib.org/xtf/view?docId=ft1c6003wp&chunk.id=d0e49504&toc.id=d0e49504&brand=eschol> (May 2007).
- RUNDEL, P. W. 2007. Sage scrub, pp. 208–228. In M. G. Barbour, T. Keeler-Wolf, and A. A. Schoenherr [eds.], *Terrestrial vegetation of California*, 3rd ed. University of California Press, Berkeley, USA. 712 p.
- SECRETARÍA DE COMUNICACIONES Y TRANSPORTES. 2002. Proyecto multimodal Punta Colonet en Baja California. 32 p. <http://www.sct.gob.mx/uploads/medial/ColonetWWW.pdf> (Sep 2008).
- . 2006. Acuerdo por el que se delimita y determina el recinto portuario del puerto de Bahía Colonet, Municipio de Ensenada, Estado de Baja California. *Diario Oficial de la Federación* **18 Dec 2006** (section 1): 22–31.
- . 2008. Convocatoria para participar en el concurso.... *Diario Oficial de la Federación* **2 Sep 2008** (section 1): 16–41.
- SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES. 2002. Norma Oficial Mexicana NOM-059-ECOL-2001, Protección ambiental—Especies nativas de México de flora y fauna silvestres—Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio—Lista de especies en riesgo. *Diario Oficial de la Federación* **6 Mar 2002** (section 2): 1–85.
- SKINNER, M. W. 1994. North America regional centre of endemism: CPD site NA16g; vernal pools; California, USA, and Baja California, Mexico, pp. 82–85. In S. D. Davis, V. H. Heywood, and A. C. Hamilton [eds.], *Centres of plant diversity: a guide and strategy for their conservation*. World Wide Fund for Nature and International Union for Conservation of Nature, Cambridge, UK. <http://botany.si.edu/projects/cpd/na16.htm> (Jul 2009).
- SOLOMESHCH, A. I., M. G. BARBOUR, AND R. F. HOLLAND. 2007. Vernal pools, pp. 394–424. In M. G. Barbour, T. Keeler-Wolf, and A. A. Schoenherr [eds.], *Terrestrial vegetation of California*. 3rd ed. University of California Press, Berkeley, USA. 712 p.
- U.S. FISH AND WILDLIFE SERVICE. 1998. Vernal pools of Southern California Recovery Plan. Region 1 U.S. Fish and Wildlife Service, Portland, Oregon, USA. 113 p.
- . 2005. Recovery plan for vernal pool ecosystems of California and southern Oregon. Portland, Oregon, USA. 606 p.
- VAN DYKE, E. AND K. D. HOLL. 2001. Maritime chaparral community transition in the absence of fire. *Madroño* **48**: 221–229.
- VANDERPLANK, S. 2010. The vascular flora of Greater San Quintín, Baja California, Mexico. MS thesis. Claremont Graduate University, Claremont, California, USA.
- WIGGINS, I. L. 1980. *Flora of Baja California*. Stanford University Press, Stanford, California, USA. 1025 p.

APPENDIX

PRELIMINARY FLORA OF COLONET

Notes and symbols: * = non-native; vernal pool = vernal pool specialist; local endemic = known only within ca. 50 km from Colonet Mesa; peninsular endemic = known only from Baja California and Baja California Sur; near-state endemic = known only from Baja California and limited range in Southern California; A/Pr = NOM 059 Amenizada (threatened)/Protegida (protected); FC/FT/FE = U.S. Candidate/Threatened/Endangered; CaR/CaT/CaE = California Rare/Threatened/Endangered.

LYCOPHYTES [= LYCOPODS]

SELAGINELLACEAE

SELAGINELLA CINERASCENS A.A.Eaton. CNPS list 4.1. Mesa: 80 m, 25 Feb 1973, *Moran 20283* (SD).

LEPTOSPORANGIATE FERNS

MARSILEACEAE

MARSILEA VESTITA Hook. & Grev. Vernal pool. Mesa: 80 m, 4 May 1980, *Moran 28429* (SD).

POLYPODIACEAE

POLYPODIUM CALIFORNICUM Kaulf. Buffer: 100 m, 25 Mar 1979, *Moran 26822* (SD).

PTERIDACEAE

ADIANTUM JORDANII C.H.Mull. Buffer: 50 m, 23 Apr 1972, *Moran 19091* (SD).

ASPIDOTIS CALIFORNICA (Hook.) Nutt. ex Copel. Buffer: 1 Jan 1925, *Jones s.n.* (SD).

CHEILANTHES NEWBERRYI (D.C.Eaton) Domin. Buffer: 175 m, 3 Apr 1982, *Moran 30208* (SD).

NOTHOLAENA CALIFORNICA D.C.Eaton. Buffer: 17 Apr 1886, *Orcutt 1461* (SD).

PELLAEA ANDROMEDIFOLIA (Kaulf.) Fée. Buffer: 100 m, 25 Mar 1979, *Moran 26823* (SD).

PENTAGRAMMA TRIANGULARIS (Kaulf.) Yatsk., Windham & E.Wollenw. subsp. MAXONII (Weath.) Yatsk., Windham & E.Wollenw. Buffer: 50 m, 4 Mar 1979, *Moran 26586* (SD).

PENTAGRAMMA TRIANGULARIS (Kaulf.) Yatsk., Windham & E.Wollenw. subsp. VISCOSA (Nutt. ex D.C.Eaton) Yatsk., Windham & E.Wollenw. Buffer: 225 m, 12 May 1978, *Moran 25994* (SD).

CONIFERS

CUPRESSACEAE

CALLITROPIS FORBESII (Jeps.) D.P.Little. Near-state endemic; Pr; CNPS list 1B.1. Synonyms: *Cupressus forbesii*; *Cupressus guadalupensis* subsp. *forbesii*. Buffer: 30 m, 15 Jun 1976, *Moran 22359* (SD).

GNETALES

EPHEDRACEAE

EPHEDRA CALIFORNICA S.Watson. All areas: 15–30 m, 5 Jun 1988, *Boyd 2400* (RSA).

ANGIOSPERMS: MAGNOLIIDS—PIPERALES

SAURURACEAE

ANEMOPSIS CALIFORNICA Hook. & Arn. Footprint & Buffer: 21 Jun 2008, *Vanderplank CO28* (RSA).

ANGIOSPERMS: MONOCOTS

AGAVACEAE

AGAVE SHAWII Engelm. subsp. SHAWII. Near-state endemic; CNPS list 2.1. Mesa: 21 Jun 2008, *Vanderplank CO3* (RSA).

ALLIACEAE

ALLIUM PRAECOX Brandege. Mesa & Buffer: 80 m, 25 Mar 1979, *Moran 26811* (SD).

CYPERACEAE

BOLBOSCHOENUS MARITIMUS (L.) Palla subsp. PALUDOSUS (A.Nelson) T.Koyama. Synonym: *Scirpus maritimus*. Buffer: 50 m, 21 Sep 1983, *Thorne 57357* (SD).

CAREX SPISSA L.H.Bailey. Buffer: 13 Mar 1994, *Rebman 2414* (BCMEX).

CAREX TRIQUETRA Boott. Buffer: 225 m, 12 May 1978, *Moran 25999* (UCR).

CYPERUS LAEVIGATUS L. Buffer: 50 m, 21 Sep 1983, *Thorne 57354* (SD).

ELEOCHARIS ACICULARIS (L.) Roem. & Schult. Vernal pool. Mesa: 75 m, 4 May 1980, *Moran 28447* (SD).

ELEOCHARIS MACROSTACHYA Britton. Vernal pool. Mesa & Buffer: 25 m, 3 Jun 1979, *Moran 27563* (SD).

ELEOCHARIS MONTEVIDENSIS Kunth. Buffer: 80 m, 23 Sep 1998, *León de la Luz s.n.* (HCIB).

ELEOCHARIS PARISHII Britton. Buffer: 50 m, 21 Sep 1983, *Thorne 57360* (SD).

SCHOENOPLECTUS ACUTUS (Muhl. ex Bigelow) Á.Löve & D.Löve var. OCCIDENTALIS (S.Watson) S.G.Sm. Synonym: *Scirpus acutus* var. *occidentalis*. Buffer: 50 m, 21 Sep 1983, *Thorne 57358* (SD).

SCHOENOPLECTUS AMERICANUS (Pers.) Volkart ex Schinz & R.Keller. Synonym: *Scirpus americanus*. Buffer: 50 m, 21 Sep 1983, *Thorne 57359* (SD).

HYACINTHACEAE

CHLOROGALUM PARVIFLORUM S.Watson. Mesa: 21 Jun 2008, *Vanderplank C52* (RSA).

JUNCACEAE

JUNCUS ACUTUS L. subsp. LEOPOLDII (Parl.) Snogerup. CNPS list 4.2. Buffer: 50 m, 21 Sep 1983, *Thorne 57362* (SD).

JUNCUS BUFONIUS L. Mesa: 50–70 m, 1 Apr 1985, *Thorne 58827* (RSA).

JUNCUS DUBIUS Engelm. Buffer: 30 m, 15 Jun 1976, *Moran 23554* (SD).

JUNCUS PATENS E.Mey. Buffer: 100 m, 6 May 1979, *Moran 27180* (SD).

JUNCAGINACEAE

LILAEA SCILLOIDES (Poir.) Hauman. Vernal pool. Mesa: 75 m, 15 Mar 1981, *Moran 29482* (SD).

LILIACEAE

CALOCHORTUS SPLENDENS Douglas ex Benth. Mesa: 80 m, 4 May 1980, *Moran 28435* (SD).

CALOCHORTUS WEEDII Alph. Wood var. PENINSULARIS Ownbey. Near-state endemic. Buffer: 150 m, 10 Jun 1979, *Moran 27638* (SD).

MELANTHIACEAE

ZIGADENUS FREMONTII (Torr.) Torr. ex S.Watson. Synonym: *Toxicoscordion fremontii*. Buffer: 140 m, 3 Apr 1982, *Moran 30206* (SD).

ORCHIDACEAE

PIPERIA COOPERI (S.Watson) Rydb. CNPS list 4.2. Buffer: 50 m, 24 May 1970, *Moran 27163* (SD).

POACEAE

ACHNATHERUM DIEGOENSE (Swallen) Barkworth. CNPS list 4.2. Buffer: 4 May 1939, *Gander 7363* (SD).

AGROSTIS MICROPHYLLA Steud. Vernal pool. Mesa: 75 m, 31 May 1980, *Moran 28643* (SD).

ALOPECURUS SACCATUS Vasey. Vernal pool. Synonym: *Alopecurus howellii*. Mesa: 80 m, 4 May 1980, *Moran 28443* (SD).

BOTHRIOCHLOA BARBINODIS (Lag.) Herter. Mesa: 21 Jun 2008, *Vanderplank CO15* (RSA).

*BROMUS HORDEACEUS L. Buffer: 225 m, 12 May 1978, *Moran 25989* (SD).

*CYNODON DACTYLON (L.) Pers. Buffer: 80 m, 12 Oct 1977, *Moran 25085* (SD).

DESCHAMPSIA DANTHONIOIDES (Trin.) Munro. Vernal pool. Mesa: 80 m, 1 Apr 1985, *Thorne 58861* (RSA).

DISTICHLIS SPICATA (L.) Greene. Mesa & Buffer: 21 Jun 2008, *Vanderplank C40* (RSA).

*ERAGROSTIS CILIANENSIS (Bellardi) Vignolo ex Janch. Buffer: 75 m, 10 May 1978, *Moran 25844* (SD).

*GASTRIDIMUM PHLEOIDES (Nees & Meyen) C.E.Hubb. Synonyms: *Gastridium ventricosum*; *Gastridium ventricosum* subsp. *phleoides*. Buffer: 80 m, 10 May 1979, *Moran 25811* (SD).

*LAMARCKIA AUREA (L.) Moench. Footprint & Buffer: 31 Mar 1994, *Rebman 2410* (RSA).

LEYMUS CONDENSATUS (J.Presl) Á.Löve. Synonym: *Elymus condensatus*. Buffer: 35 m, 10 Jun 1979, *Moran 27622* (SD).

LEYMUS TRITICOIDES (Buckley) Pilg. Synonym: *Elymus triticoides*. Mesa & Buffer: 40 m, 3 Jun 1979, *Moran 27571* (SD).

- MELICA IMPERFECTA Trin. Buffer: 10 m, 4 Mar 1979, *Moran 26602* (SD).
 MUHLENBERGIA MICROSPERMA (DC.) Kunth. Buffer: 107 m, 15 Feb 1988, *Sanders 7672* (SD).
 MUHLENBERGIA RIGENS (Benth.) Hitchc. Buffer: 80 m, 12 Oct 1977, *Moran 25084* (SD).
 NASSELLA CERNUA (Stebbins & Love) Barkworth. Synonym: *Stipa cernua*. Mesa & Buffer: 80 m, 4 May 1980, *Moran 28432* (SD).
 NASSELLA LEPIDA (Hitchc.) Barkworth. Synonym: *Stipa lepida*. Mesa & Buffer: 35 m, 6 Mar 1982, *Bauml 821* (SD).
 NASSELLA PULCHRA (Hitchc.) Barkworth. Mesa: 17 Feb 2010, *Vanderplank 100217-1* (RSA).
 ORCUTTIA CALIFORNICA Vasey. Vernal pool; CNPS list 1B.1; FE; CaE. Footprint & Mesa: 21 Jun 2008, *Vanderplank C64* (RSA).
 PANICUM CAPILLARE L. Buffer: 50 m, 21 Sep 1983, *Thorne 57361* (BCMEX).
 *PARAPHOLIS INCURVA (L.) C.E.Hubb. Mesa & Buffer: 31 Mar 1985, *Thorne 58804* (RSA).
 *PHALARIS MINOR Retz. Buffer: 50 m, 25 Apr 1984, *Thorne 58126* (RSA).
 *PHALARIS PARADOXA L. Mesa: 80 m, 4 May 1980, *Moran 28444* (SD).
 POA SECUNDA J.Presl. Footprint: 40 m, 25 Mar 1979, *Moran 26833* (SD).
 *POLYPOGON MONSPELIENSIS (L.) Desf. Mesa: 15–30 m, 5 Jun 1988, *Boyd 2383* (RSA).
 *SCHISMUS BARBATUS (L.) Thell. Buffer: 5 m, 4 Mar 1979, *Moran 26580* (SD).
 *SORGHUM BICOLOR (L.) Moench. Footprint: 70 m, 12 Aug 1977, *Moran 24508* (SD).
 SPOROBOLUS AIROIDES (Torr.) Torr. Mesa & Buffer: 30 m, 11 Jun 1980, *Reeder 7252* (SD).
 VULPIA MICROSTACHYS (Nutt.) Munro var. PAUCIFLORA (Beal) Lonard & Gould. Mesa: 6 Apr 1931, *Wiggins 5189* (CAS).
 *VULPIA MYUROS (L.) C.C.Gmel. var. HIRSUTA Hack. Buffer: 80 m, 10 May 1978, *Moran 25812* (SD).
 *VULPIA MYUROS (L.) C.C.Gmel. var. MYUROS. Buffer: 80 m, 25 Mar 1979, *Moran 26803* (SD).
 VULPIA OCTOFLORA (Walter) Rydb. var. HIRTELLA (Piper) Henrard. Buffer: 180 m, 5 Apr 1958, *Raven 12216* (CAS).
 VULPIA OCTOFLORA (Walter) Rydb. var. OCTOFLORA. Mesa & Buffer: 6 Apr 1931, *Wiggins 5188* (CAS).

POTAMOGETONACEAE

- POTAMOGETON FOLIOSUS Raf. Buffer: 110 m, 20 Apr 1985, *Thorne 61018* (BCMEX).
 RUPPIA MARITIMA L. Buffer: 50 m, 25 Apr 1984, *Thorne 58133* (RSA).

THEMIDACEAE

- MUILLA MARITIMA (Torr.) S.Watson. Mesa: 80 m, 4 May 1980, *Moran 28434* (SD).

TYPHACEAE

- TYPHA DOMINGENSIS Pers. Footprint: 13 Mar 1994, *Rebman 2413* (HCIB).

ZANNICHELLIACEAE

- ZANNICHELLIA PALUSTRIS L. Buffer: 50 m, 25 Apr 1984, *Thorne 58136* (SD).

ANGIOSPERMS: EUDICOTS

ADOXACEAE

- SAMBUCUS NIGRA L. subsp. CAERULEA (Raf.) Bolli. Synonyms: *Sambucus nigra* subsp. *canadensis*; *S. mexicana*. Buffer: 35 m, 10 Jun 1979, *Moran 27631* (SD).

AIZOACEAE

- *CARPOBROTUS CHILENSIS (Molina) N.E.Br. Mesa & Buffer: 5 m, 1 Jun 1980, *Moran 28654* (SD).
 *MESEMBRYANTHEMUM CRYSTALLINUM L. Footprint & Buffer: 5 Aug 1990, *Espejel 648* (BCMEX).
 *MESEMBRYANTHEMUM NODIFLORUM L. Mesa: 5 m, 16 Jul 1967, *Moran 14062* (SD).

AMARANTHACEAE

- ALLENROLFEA OCCIDENTALIS (S.Watson) Kuntze. Mesa: 21 Jun 2008, *Vanderplank C47* (RSA).
 ARTHROCNEMUM SUBTERMINALE (Parish) Standl. Synonym: *Salicornia subterminalis*. All areas: 5 m, 1 Jun 1980, *Moran 28658* (SD).
 ATRIPLEX CALIFORNICA Moq. Buffer: 60 m, 4 Apr 1982, *Moran 30236* (SD).
 ATRIPLEX CANESCENS (Pursh) Nutt. Mesa: 21 Jun 2008, *Vanderplank CO21* (RSA).
 ATRIPLEX JULACEA S.Watson. Peninsula endemic. Footprint & Mesa: 5 Jun 1988, *Boyd 2398* (RSA).
 ATRIPLEX LEUCOPHYLLA (Moq.) D.Dietr. Buffer: 3 Mar 1979, *Moran 26555* (SD).
 *ATRIPLEX LINDLEYI Moq. Footprint: 80 m, 5 Sep 1978, *Moran 26284* (SD).
 ATRIPLEX PACIFICA A.Nelson. CNPS list 1B.2. Mesa: 30 m, 5 Jun 1984, *Dice 456* (SD).
 *ATRIPLEX ROSEA L. Buffer: 70 m, 5 Sep 1978, *Moran 26264* (SD).
 *ATRIPLEX SEMIBACCATA R.Br. Buffer: 70 m, 5 Sep 1978, *Moran 26279* (SD).
 ATRIPLEX SERENANA A.Nelson ex Abrams. Buffer: 70 m, 5 Sep 1978, *Moran 26268* (SD).
 *ATRIPLEX SUBERECTA I.Verd. Footprint: 80 m, 5 Sep 1978, *Moran 26283* (SD).
 ATRIPLEX WATSONII A.Nelson. Footprint & Mesa: 5 m, 1 Jun 1980, *Moran 28650* (SD).
 *BASSIA HYSSOPIFOLIA (Pall.) Kuntze. Buffer: 50 m, 21 Sep 1983, *Thorne 57364* (BCMEX).
 *BETA VULGARIS L. Mesa: 80 m, 1 Apr 1985, *Thorne 58889* (RSA).
 MONOLEPIS NUTTALLIANA (Schult.) Greene. Mesa: 80 m, 25 Feb 1973, *Moran 20285* (SD).
 *SALSOLA TRAGUS L. Buffer: 70 m, 5 Sep 1978, *Moran 26260* (SD).
 SARCOORNIA PACIFICA (Standl.) A.J.Scott. Synonym: *Salicornia virginica*. Mesa & Buffer: 70 m, 5 Sep 1978, *Moran 26266* (SD).
 SUAEDA NIGRA (Raf.) J.F.Macbr. Buffer: 70 m, 5 Sep 1978, *Moran 26263* (SD).
 SUAEDA TAXIFOLIA (Standl.) Standl. CNPS list 4.2. Synonyms: *Suaeda californica* var. *taxifolia*; *Suaeda californica* var. *pubescens*; *Suaeda pubescens*. Footprint & Buffer: 3 Mar 1979, *Moran 26557* (SD).

ANACARDIACEAE

- MALOSMA LAURINA (Nutt.) Nutt. ex Abrams. Mesa & Buffer: 21 Jun 2008, *Vanderplank C25* (RSA).
 RHUS INTEGRIFOLIA (Nutt.) Benth. & Hook.f. ex Rothr. Mesa & Buffer: 21 Jun 2008, *Vanderplank C24* (RSA).

APIACEAE

- APIASTRUM ANGUSTIFOLIUM Nutt. Mesa & Buffer: 225 m, 12 May 1978, *Moran 25995* (SD).
 *APIUM GRAVEOLENS L. Buffer: 70 m, 5 Sep 1978, *Moran 26276* (SD).
 BOWLESIA INCANA Ruiz & Pav. Buffer: 60 m, 4 Apr 1982, *Moran 30220* (SD).
 DAUCUS PUSILLUS Michx. Buffer: 80 m, 10 May 1978, *Moran 25817* (SD).

- ERYNGIUM ARISTULATUM Jeps. var. PARISHII (J.M.Coult. & Rose) Mathias & Constance. Vernal pool; CNPS list 1B.1; FE; CaE. Footprint & Mesa: 80 m, 4 May 1980, *Moran 28431* (SD).
- YABEA MICROCARPA (Hook. & Arn.) Koso-Pol. Buffer: 60 m, 4 Apr 1982, *Moran 30212* (SD).
- APOCYNACEAE
- ASCLEPIAS SUBULATA Decne. Buffer: 150 m, 31 May 1977, *Moran 24216* (SD).
- ASTERACEAE
- ADENOTHAMNUS VALIDUS (Brandege) D.D.Keck. Peninsula endemic. Buffer: 4 Jun 1893, *Brandege s.n.* (DS).
- AMBLYOPAPPUS PUSILLUS Hook. & Arn. Footprint & Mesa: 15–30 m, 5 Jun 1988, *Boyd 2391* (RSA).
- AMBROSIA CHAMISSONIS (Less.) Greene. Mesa & Buffer: 5 m, 1 Jun 1980, *Moran 28652* (SD).
- AMBROSIA CHENOPODIIFOLIA (Benth.) W.W.Payne. CNPS list 2.1. All areas: 24 Aug 1993, *Howe 323* (SD).
- AMBROSIA CONFERTIFLORA DC. Buffer: 35 m, 10 Jun 1979, *Moran 27630* (SD).
- AMBROSIA PUMILA (Nutt.) A.Gray. Near-state endemic; CNPS list 1B.1; FE. Mesa: 80 m, 9 Jun 1979, *Moran 27615* (SD).
- ARTEMISIA CALIFORNICA Less. Mesa: 100 m, 29 May 1965, *Moran 12146* (SD).
- ARTEMISIA DRACUNCULUS L. Buffer: 80 m, 12 Oct 1977, *Moran 25089* (SD).
- ARTEMISIA TRIDENTATA Nutt. Buffer: 70 m, 5 Sep 1978, *Moran 26274* (SD).
- BACCHARIS SALICIFOLIA (Ruiz & Pav.) Pers. Mesa: 21 Jun 2008, *Vanderplank C27* (RSA).
- BACCHARIS SALICINA Torrey & A.Gray. Synonym: *Baccharis emoryi*. Buffer: 8 Sep 1930, *Wiggins 4758* (DS).
- BACCHARIS SAROTHOIDES A.Gray. Mesa & Buffer: 80 m, 12 Oct 1977, *Moran 25088* (SD).
- BAHIOPSIS LACINIATA (A.Gray) E.E.Schilling & Panero. CNPS list 4.2. Synonym: *Viguiera laciniata*. All areas: 21 Jun 2008, *Vanderplank C11* (RSA).
- *CENTAUREA MELITENSIS L. Footprint & Mesa: 15–30 m, 5 Jun 1988, *Boyd 2384* (RSA).
- CENTROMADIA PERENNIS Greene. Local endemic; vernal pool. Synonym: *Hemizonia perennis*. Mesa: 80 m, 19 Jun 1985, *Thorne 60779* (RSA).
- CHAENACTIS ARTEMISIFOLIA (Harv. & A.Gray) A.Gray. Buffer: 175 m, 21 Apr 1973, *Moran 20596* (SD).
- CHAENACTIS GLABRIUSCULA DC. var. GLABRIUSCULA. Mesa: 15 Apr 1925, *Jones s.n.* (POM).
- CONYZA CANADENSIS (L.) Cronquist. Buffer: 70 m, 5 Sep 1978, *Moran 26270* (SD).
- COREOPSIS CALIFORNICA (Nutt.) H.Sharsm. Synonym: *Leptosyne californica*. Mesa & Buffer: 80 m, 5 Mar 1979, *Moran 26813* (SD).
- COREOPSIS MARITIMA (Nutt.) Hook.f. CNPS list 2.2. Synonym: *Leptosyne maritima*. Mesa & Buffer: 60 m, 4 Apr 1982, *Moran 30231* (SD).
- *COTULA CORONOPIFOLIA L. Mesa: 7 Apr 1994, *Rebman 2513* (SD).
- DEINANDRA FASCICULATA (DC.) Greene. Synonym: *Hemizonia fasciculata*. Mesa & Buffer: 24 Aug 1993, *Howe 321* (SD).
- DEINANDRA FLORIBUNDA (A.Gray) Davidson & Moxley. Near-state endemic; CNPS list 1B.2. Synonym: *Hemizonia floribunda*. Buffer: 105 m, 19 Oct 1980, *Moran 29424* (SD).
- DIETERIA ASTEROIDES Torr. var. ASTEROIDES. Synonyms: *Aster canescens* var. *tephrodes*; *Aster tephrodes*; *Machaeranthera tephrodes*. Buffer: 200 m, 15 Mar 1986, *Delgadillo s.n.* (BCMEX).
- ENCELIA CALIFORNICA Nutt. All areas: 200 m, 20 Mar 2003, *Vinton s.n.* (SD).
- ERICAMERIA BRACHYLEPIS (A.Gray) H.M.Hall. Synonym: *Haplopappus propinquus*. Buffer: 150 m, 16 Jul 1967, *Moran 14050* (SD).
- ERICAMERIA LINEARIFOLIA (DC.) Urbatsch & Wussow. Buffer: 18 Jun 1963, *Bostic s.n.* (SDSU).
- ERIGERON DIVERGENS Torr. & A.Gray. Mesa & Buffer: 20 m, 21 Mar 1982, *Moran 30058* (SD).
- ERIOPHYLLUM CONFERTIFLORUM (DC.) A.Gray. Mesa & Buffer: 21 Jun 2008, *Vanderplank CO8* (RSA).
- GNAPHALIUM PALUSTRE Nutt. All areas: 80 m, 3 Jun 1979, *Moran 27596* (SD).
- GUTIERREZIA CALIFORNICA (DC.) Torr. & A.Gray. Buffer: 200 m, 15 Mar 1986, *Delgadillo s.n.* (BCMEX).
- GUTIERREZIA SAROTHRAE (Pursh) Britton & Rusby. Mesa & Buffer: 30 m, 15 Jun 1976, *Moran 23552* (SD).
- HAZARDIA BERBERIDIS (A.Gray) Greene. Peninsula endemic. Synonym: *Haplopappus berberidis*. Buffer: 50 m, 16 Jul 1967, *Moran 14069* (SD).
- HAZARDIA FERRISIAE (S.F.Blake) W.D.Clark. Local endemic. Synonym: *Haplopappus ferrisiae*. All areas: 40 m, 6 Mar 1982, *Bauml 822* (HNT).
- HAZARDIA FERRISIAE × BERBERIDIS. Buffer: 50 m, 16 Jul 1967, *Moran 14070* (SD).
- HAZARDIA ORCUTTII (A.Gray) Greene. Near-state endemic; CNPS list 1B.1; FC; CaT. Footprint & Buffer: 19 Jun 1985, *Thorne 60770* (RSA).
- HAZARDIA ORCUTTII × FERRISIAE. Buffer: 50 m, 16 Jul 1967, *Moran 14067* (SD).
- HAZARDIA SQUARROSA (Hook. & Arn.) Greene var. GRINDELIOIDES (DC.) W.D.Clark. Synonym: *Haplopappus squarrosa* var. *grindeloides*. Buffer: 1 Jan 1925, *Jones s.n.* (POM).
- HAZARDIA VERNICOSA (Brandege) W.D.Clark. Peninsula endemic. Buffer: 150 m, 22 Jul 1968, *Moran 15345* (SD).
- HELENIUM PUBERULUM DC. Buffer: 7 Apr 1994, *Rebman 2530* (BCMEX).
- HELIANTHUS NIVEUS (Benth.) Brandege. Mesa: 5 m, 3 Jun 1979, *Moran 27587* (SD).
- HETEROTHECA GRANDIFLORA Nutt. Footprint & Buffer: 70 m, 12 Aug 1977, *Moran 24507* (SD).
- *HYPOCHAERIS GLABRA L. Mesa: 7 Apr 1994, *Rebman 2510* (RSA).
- ISOCOMA MENZIESII (Hook. & Arn.) G.L.Nesom var. MENZIESII. Mesa & Buffer: 24 Aug 1993, *Howe 322* (SD).
- ISOCOMA MENZIESII (Hook. & Arn.) G.L.Nesom var. VERNONIOIDES (Nutt.) G.L.Nesom. Mesa & Buffer: 21 Jun 2008, *Vanderplank C6* (RSA).
- IVA HAYESIANA A.Gray. CNPS list 2.2. All areas: 21 Jun 2008, *Vanderplank CO26* (RSA).
- JAUMEA CARNOSA (Less.) A.Gray. Footprint: 24 Mar 1973, *Mudie 1010* (SD).
- LASTHENIA CORONARIA (Nutt.) Ornduff. Mesa & Buffer: 60 m, 4 Apr 1982, *Moran 30219* (SD).
- LASTHENIA GRACILIS (DC.) Greene. Synonym: *Lasthenia californica*. Mesa & Buffer: 7 Apr 1994, *Rebman 2516* (RSA).
- LAYIA PLATYGLOSSA (Fisch. & C.A.Mey.) A.Gray. Mesa & Buffer: 21 Jun 2008, *Vanderplank C59* (RSA).
- LOGFIA ARIZONICA (A.Gray) Holub. Synonym: *Filago arizonica*. Mesa: 80 m, 25 Feb 1973, *Moran 20292* (SD).
- MALACOTHRIX SIMILIS W.S.Davis & P.H.Raven. Near-state endemic; CNPS list 1A. Buffer: 225 m, 12 May 1978, *Moran 26002* (SD).
- MICROSERIS DOUGLASII (DC.) Sch. Bip. subsp. PLATYCARPHA (A.Gray) K.L.Chambers. CNPS list 4.2. Buffer: 9 Apr 1936, *Epling s.n.* (DS).
- OSMADENIA TENELLA Nutt. Synonym: *Calycadenia tenella*. Mesa: 80 m, 31 May 1980, *Moran 28647* (SD).
- PERITYLE EMORYI Torr. Mesa: 21 Jun 2008, *Vanderplank CO17* (RSA).
- PLUCHEA ODORATA (L.) Cass. Buffer: 105 m, 19 Oct 1980, *Moran 29425* (SD).
- PLUCHEA SERICEA (Nutt.) Coville. All areas: 15 m, 12 Aug 1977, *Moran 24504* (SD).

- POROPHYLLUM GRACILE Benth. Buffer: 4 May 1939, *Gander 7362* (SD).
- PSEUDOGNAPHALIUM BENEOLENS (Davidson) Anderb. Synonym: *Gnaphalium beneolens*. Buffer: 80 m, 12 Oct 1977, *Moran 25090* (SD).
- PSEUDOGNAPHALIUM BIOLETTII Anderb. Synonym: *Gnaphalium bicolor*. Mesa & Buffer: 90 m, 24 May 1980, *Moran 28638* (SD).
- PSEUDOGNAPHALIUM CALIFORNICUM (DC.) Anderb. Synonym: *Gnaphalium californicum*. Buffer: 10 m, 4 Mar 1979, *Moran 26594* (SD).
- PSEUDOGNAPHALIUM STRAMINEUM (Kunth) Anderb. Synonyms: *Gnaphalium stramineum*; *Gnaphalium chilense*. Mesa: 80 m, 3 Jun 1979, *Moran 27598* (SD).
- PSILOCARPHUS BREVISSIMUS Nutt. Vernal pool. Footprint & Mesa: 50–70 m, 1 Apr 1985, *Thorne 58823* (RSA).
- PSILOCARPHUS TENELLUS Nutt. Vernal pool. All areas: 80 m, 1 Apr 1985, *Thorne 58870* (RSA).
- RAFINESQUIA CALIFORNICA Nutt. Buffer: 60 m, 4 Apr 1982, *Moran 30229* (SD).
- SENECIO APHANACTIS Greene. CNPS list 2.2. Mesa & Buffer: 80 m, 25 Feb 1973, *Moran 20290* (SD).
- SENECIO CALIFORNICUS DC. Mesa & Buffer: 31 Mar 1985, *Thorne 58780* (RSA).
- SENECIO LYONII A.Gray. Buffer: 5 m, 4 Mar 1979, *Moran 26561* (SD).
- *SENECIO VULGARIS L. Mesa: 31 Mar 1985, *Thorne 58779* (RSA).
- *SONCHUS OLERACEUS L. Footprint: 22 Jun 1971, *Wiggins 21537* (DS).
- STEPHANOMERIA DIEGENSIS Gottlieb. Mesa & Buffer: 6 Oct 1979, *Moran 28029* (SD).
- STEPHANOMERIA EXIGUA Nutt. Footprint & Mesa: 22 Jun 1971, *Wiggins 21542* (DS).
- STEPHANOMERIA PAUCIFLORA (Torr.) A.Nelson. Buffer: 10 m, 4 Mar 1979, *Moran 26592* (SD).
- STYLOCLINE GNAPHALOIDES Nutt. Buffer: 60 m, 4 Apr 1982, *Moran 30244* (SD).
- TRIXIS CALIFORNICA Kellogg. Buffer: 200 m, 15 Mar 1986, *Delgadillo s.n.* (BCMEX).
- VERBESINA DISSITA A.Gray. CNPS list 1B.1; FT; CaT. Buffer: 35 m, 10 Jun 1979, *Moran 27627* (SD).
- XANTHISMA GRACILE (Nutt.) D.R.Morgan & R.L.Hartm. CNPS list 4.3. Footprint: 70 m, 12 Aug 1977, *Moran 24509* (SD).
- XANTHISMA JUNCEUM (Greene) D.R.Morgan & R.L.Hartm. CNPS list 4.3. Synonym: *Machaeranthera juncea*. Buffer: 150 m, 4 Apr 1982, *Moran 30248* (SD).
- XANTHIUM STRUMARIUM L. Mesa & Buffer: 25 m, 3 Jun 1979, *Moran 27564* (SD).

BERBERIDACEAE

- BERBERIS CLAIREAE Moran. Local endemic. Mesa & Buffer: 21 Jun 2008, *Vanderplank CO18* (RSA).

BORAGINACEAE

- AMSINCKIA MENZIESII (Lehm.) A.Nelson & J.F.Macbr. var. *INTERMEDIA* (Fisch. & C.A.Mey.) Ganders. Synonym: *Amsinckia intermedia*. Buffer: 225 m, 12 May 1978, *Moran 25997* (SD).
- AMSINCKIA MENZIESII (Lehm.) A.Nelson & J.F.Macbr. var. *MENZIESII*. Buffer: 200 m, 20 Mar 2003, *Vinton s.n.* (SD).
- CRYPTANTHA CLEVELANDII Greene var. *CLEVELANDII*. Buffer: 60 m, 4 Apr 1982, *Moran 30215* (SD).
- CRYPTANTHA INTERMEDIA (A.Gray) Greene. All areas: 200 m, 20 Mar 2003, *Vinton s.n.* (SD).
- CRYPTANTHA MARITIMA Greene. All areas: 20 Mar 1992, *Marsden 20III92B* (SDSU).
- CRYPTANTHA MICROMERES (A.Gray) Greene. Buffer: 25 m, 21 Mar 1982, *Moran 30050* (SD).
- HARPAGONELLA PALMERI A.Gray. CNPS list 4.2. Synonym: *Pectocarya palmeri*. Mesa: 80 m, 25 Feb 1973, *Moran 20284* (SD).

- PECTOCARYA LINEARIS (Ruiz & Pav.) DC. subsp. *FEROCULA* (I.M.Johnst.) Thorne. Mesa & Buffer: 150 m, 4 Apr 1982, *Moran 30249* (SD).
- PECTOCARYA RECURVATA I.M.Johnst. Mesa: 80 m, 25 Feb 1973, *Moran 20286* (SD).
- PLAGIOBOTHRYIS ACANTHOCARPUS (Piper) I.M.Johnst. Vernal pool. Mesa: 50–70 m, 1 Apr 1985, *Thorne 58825* (RSA).
- PLAGIOBOTHRYIS BRACTEATUS (Howell) I.M.Johnst. Vernal pool. Mesa: 50–70 m, 1 Apr 1985, *Thorne 58824* (RSA).
- PLAGIOBOTHRYIS COLLINUS (Phil.) I.M.Johnst. var. *GRACILIS* (I.M.Johnst.) Higgins. Buffer: 60 m, 4 Apr 1982, *Moran 30238* (SD).
- PLAGIOBOTHRYIS LEPTOCLADUS (Greene) I.M.Johnst. Vernal pool. Mesa: 75 m, 24 May 1980, *Moran 28633* (SD).

BRASSICACEAE

- *BRASSICA NAPUS L. Buffer: 140 m, 3 Apr 1982, *Moran 30205* (SD).
- *BRASSICA NIGRA (L.) W.D.J.Koch. Mesa & Buffer: 21 Jun 2008, *Vanderplank C65* (RSA).
- *CAKILE MARITIMA Scop. Mesa & Buffer: 21 Jun 2008, *Vanderplank C41* (RSA).
- *CAPSELLA BURSA-PASTORIS (L.) Medik. Mesa & Buffer: 60 m, 4 Apr 1982, *Moran 30226* (SD).
- CARDAMINE CALIFORNICA (Nutt.) Greene var. *INTEGRIFOLIA* (Nutt.) Rollins. Synonym: *Dentaria californica* var. *integrifolia*. Buffer: 30 m, 21 Mar 1982, *Moran 30054* (SD).
- DRABA CUNEIFOLIA Nutt. ex Torr. & A.Gray var. *INTEGRIFOLIA* S.Watson. Footprint: 40 m, 25 Mar 1979, *Moran 26830* (SD).
- GUILLENIA LASIOPHYLLA (Hook. & Arn.) Greene. Buffer: 60 m, 4 Apr 1982, *Moran 30225* (SD).
- *HIRSCHFELDIA INCANA (L.) Lagr.-Fossat. Synonym: *Brassica geniculata*. Buffer: 70 m, 5 Sep 1978, *Moran 26272* (SD).
- HUTCHINSIA PROCUMBENS (L.) Desv. Buffer: 75 m, 10 May 1978, *Moran 25842* (SD).
- LEPIDIUM LASIOCARPUM Nutt. var. *LASIOCARPUM*. Mesa: 80 m, 3 Jun 1979, *Moran 27597* (SD).
- LEPIDIUM LASIOCARPUM Nutt. var. *LATIFOLIUM* C.L.Hitchc. Buffer: 5 m, 4 Mar 1979, *Moran 26562* (SD).
- LEPIDIUM NITIDUM Nutt. Mesa & Buffer: 80 m, 1 Apr 1985, *Thorne 58878* (RSA).
- LEPIDIUM VIRGINICUM L. var. *PUBESCENS* (Greene) Thell. Buffer: 75 m, 10 May 1978, *Moran 25841* (SD).
- *SISYMBRIUM ORIENTALE L. Footprint & Buffer: 350 m, 15 Feb 1988, *Sanders 7664* (SD).
- TROPIDOCARPUM GRACILE Hook. Buffer: 60 m, 4 Apr 1982, *Moran 30223* (SD).

CACTACEAE

- BERGEROACTUS EMORYI (Engelm.) Britton & Rose. CNPS list 2.2. Mesa & Buffer: 21 Jun 2008, *Vanderplank CO4* (RSA).
- CYLINDROPUNTIA CALIFORNICA (Torr. & A.Gray) F.M.Knuth var. *CALIFORNICA*. Near-state endemic. Buffer: 90 m, 1 Jun 1980, *Moran 28661* (SD).
- CYLINDROPUNTIA CALIFORNICA (Torr. & A.Gray) F.M.Knuth var. *ROSARICA* (G.E.Linds.) Rebman. Peninsula endemic; Pr. Buffer: 2 Jun 1991, *Rebman 1227* (BCMEX).
- CYLINDROPUNTIA PROLIFERA (Engelm.) F.M.Knuth. Synonym: *Opuntia prolifera*. Mesa: 13 Mar 1994, *Rebman 2407* (SD).
- ECHINOCEREUS MARITIMUS (M.E.Jones) K.Schum. var. *MARITIMUS*. Peninsula endemic. Mesa & Buffer: 80 m, 1 Apr 1985, *Thorne 58851* (RSA).
- FEROACTUS VIRIDESCENS (Torr. & A.Gray) Britton & Rose var. *VIRIDESCENS*. Near-state endemic; A; CNPS list 2.1. Mesa: 60 m, 24 May 1980, *Moran 28636* (SD).
- MAMMILLARIA BRANDEGEEI (J.M.Coult.) K.Brandegee. Peninsula endemic. All areas: 21 Jun 2008, *Vanderplank CO5* (RSA).

MAMMILLARIA DIOICA K.Brandege. Mesa: 21 Jun 2008, *Vanderplank CO2* (RSA).

MAMMILLARIA HUTCHISONIANA (H.E.Gates) Boed. Peninsula endemic. Mesa: 17 Feb 2010, *Vanderplank 100217-3* (RSA).

MAMMILLARIA LOUISAE G.E.Linds. Peninsula endemic. Synonym: *Mammillaria hutchisoniana* subsp. *louisae*. Footprint: 10 m, 14 May 1960, *Moran 8261* (SD).

MYRTILLOCACTUS COCHAL (Orcutt) Britton & Rose. Peninsula endemic. Buffer: 90 m, 1 Jun 1980, *Moran 28664* (SD).

*OPUNTIA FICUS-INDICA (L.) Mill. Buffer: 120 m, 10 Jun 1998, *Rebman 5355* (SD).

OPUNTIA LITTORALIS (Engelm.) Cockerell. Mesa & Buffer: 150 m, 4 Jun 1998, *Rebman 5327* (SD).

OPUNTIA ORICOLA Philbrick. Buffer: 120 m, 10 Jun 1998, *Rebman 5356* (SD).

OPUNTIA ORICOLA × LITTORALIS. Mesa: 21 Jun 2008, *Vanderplank C21* (RSA).

STENOCEREUS GUMMOSUS (Engelm.) A.Gibson & K.E.Horak. Synonym: *Machaerocereus gummosus*. Mesa: 13 Mar 1994, *Rebman 2412* (SD).

CAMPANULACEAE

TRIODANIS BIFLORA (Ruiz & Pav.) Greene. Buffer: 60 m, 4 Apr 1982, *Moran 30202* (SD).

CAPPARACEAE

PERITOMA ARBOREA (Nutt.) H.H.Iltis var. *ANGUSTATA* (Parish) H.H.Iltis. Synonyms: *Isomeris arborea* subsp. *angustata*; *Cleome isomeris*. Mesa: 3 May 1939, *Gander 7346* (SD).

PERITOMA ARBOREA (Nutt.) H.H.Iltis subsp. *ARBOREA*. Synonyms: *Isomeris arborea* subsp. *arborea*; *Cleome isomeris*. Buffer: 3 Mar 1979, *Moran 26558* (SD).

CARYOPHYLLACEAE

CARDIONEMA RAMOSISSIMA (Weinm.) A.Nelson & J.F.Macbr. Mesa & Buffer: 7 Apr 1994, *Rebman 2506* (RSA).

POLYCARPON DEPRESSUM Nutt. Buffer: 10 m, 4 Mar 1979, *Moran 26599* (SD).

SAGINA DECUMBENS (Elliott) Torr. & A.Gray subsp. *OCCIDENTALIS* (S.Watson) G.E.Crow. Mesa & Buffer: 80 m, 4 May 1980, *Moran 28442* (SD).

SILENE ANTIRRHINA L. Buffer: 60 m, 4 Apr 1982, *Moran 30242* (SD).

*SILENE GALLICA L. Mesa & Buffer: 80 m, 10 May 1978, *Moran 25814* (SD).

SILENE LACINIATA Cav. subsp. *LACINIATA*. Buffer: 35 m, 10 Jun 1979, *Moran 27620* (SD).

SPERGULARIA MACROTHECA (Hornem. ex Cham. & Schltl.) Heynh. var. *MACROTHECA*. Mesa & Buffer: 60 m, 4 Apr 1982, *Moran 30233* (SD).

*SPERGULARIA PLATENSIS (Cambess.) Fenzl var. *PLATENSIS*. Mesa: 80 m, 24 May 1980, *Moran 28635* (SD).

*SPERGULARIA RUBRA (L.) J.Presl & C.Presl. Mesa: 21 Jun 2008, *Vanderplank C36* (RSA).

SPERGULARIA SALINA J.Presl & C.Presl. Synonym: *Spergularia marina*. Footprint & Mesa: 5 m, 1 Jun 1980, *Moran 28659* (SD).

*SPERGULARIA VILLOSA (Pers.) Cambess. Buffer: 1 Jun 1980, *Moran 28662* (SD).

STELLARIA NITENS Nutt. Buffer: 80 m, 25 Mar 1979, *Moran 26808* (SD).

CISTACEAE

HELIANTHEMUM SCOPARIUM Nutt. ex Torr. & A.Gray. Mesa: 90 m, 24 May 1980, *Moran 28642* (SD).

CONVOLVULACEAE

CALYSTEGIA MACROSTEGIA (Greene) Brummitt subsp. *TENUIFOLIA* (Abrams) Brummitt. Buffer: 35 m, 10 Jun 1979, *Moran 27623* (SD).

CRESSA TRUXILLENIS Kunth. Footprint & Mesa: 21 Jun 2008, *Vanderplank C43* (RSA).

CUSCUTA CALIFORNICA Hook. & Arn. var. *CALIFORNICA*. Footprint: 75 m, 29 May 1976, *Moran 23289* (SD).

DICHONDRA OCCIDENTALIS House. CNPS list 4.2. Mesa & Buffer: 80 m, 31 May 1980, *Moran 28646* (SD).

CRASSULACEAE

CRASSULA AQUATICA (L.) Schönland. Vernal pool. Mesa: 80 m, 1 Apr 1985, *Thorne 58885* (RSA).

CRASSULA CONNATA (Ruiz & Pav.) A.Berger. Synonyms: *Tillaea erecta*; *Tillaea erecta* var. *eremica*. Mesa & Buffer: 31 Mar 1985, *Thorne 58790* (RSA).

DUDLEYA ATTENUATA (S.Watson) Moran subsp. *ATTENUATA*. Synonym: *Dudleya attenuata* subsp. *orcuttiana*. All areas: 21 Jun 2008, *Vanderplank C30* (RSA).

DUDLEYA BLOCHMANIAE (Eastw.) Moran. CNPS list 1B.1. Mesa: 21 Jun 2008, *Vanderplank C51* (RSA).

DUDLEYA CULTRATA Rose. Peninsula endemic. Mesa: 100 m, 9 Jun 1985, *Faulkner s.n.* (SD).

DUDLEYA INGENS Rose. Peninsula endemic. All areas: 5 m, 6 May 1979, *Moran 27173* (SD).

DUDLEYA SPECIES 1. Local endemic. Mesa: 21 Jun 2008, *Vanderplank C66* (RSA).

DUDLEYA SPECIES 2. Local endemic. Mesa: 21 Jun 2008, *Vanderplank CO1* (RSA).

CUCURBITACEAE

MARAH MACROCARPUS (Greene) Greene var. *MACROCARPUS*. Mesa & Buffer: 21 Jun 2008, *Vanderplank CO11* (RSA).

ELATINACEAE

BERGIA TEXANA (Hook.) Seub. ex Walp. Vernal pool. Mesa: 80 m, 12 Aug 1979, *Moran 27989* (SD).

ELATINE BRACHYSPERMA A.Gray. Vernal pool. Mesa: 80 m, 1 Apr 1985, *Thorne 58882* (RSA).

ERICACEAE

ARCTOSTAPHYLOS AUSTRALIS Eastw. Peninsula endemic. Buffer: 245 m, 24 Jul 1992, *Keeley 17859* (BCMEX).

ARCTOSTAPHYLOS GLANDULOSA Eastw. subsp. *GLANDULOSA*. Buffer: 95 m, 24 Jul 1992, *Keeley 17290* (RSA).

XYLOCOCCUS BICOLOR Nutt. Mesa & Buffer: 50 m, 10 Jun 1979, *Moran 27636* (SD).

EUPHORBIACEAE

ACALYPHA CALIFORNICA Benth. Near-state endemic. Buffer: 200 m, 14 Oct 1991, *Levin 2133* (SD).

CHAMAESYCE MICROMERA (Boiss. ex Engelm.) Wootton & Standl. Mesa: 21 Jun 2008, *Vanderplank C18* (RSA).

CHAMAESYCE POLYCARPA (Benth.) Millsp. Footprint & Buffer: 75 m, 29 May 1976, *Moran 23290* (SD).

CROTON SETIGERUS Hook. Synonym: *Eremocarpus setigerus*. Mesa: 80 m, 19 Jun 1985, *Thorne 60791* (RSA).

EUPHORBIA MISERA Benth. CNPS list 2.2. All areas: 19 Mar 1992, *Rebman 1333* (SD).

EUPHORBIA SPATHULATA Lam. Buffer: 110 m, 25 Mar 1979, *Moran 26825* (SD).

FABACEAE

*ACACIA FARNESIANA (L.) Willd. Synonyms: *Acacia farnesiana* subsp. *minuta*; *Acacia minuta*. Buffer: 60 m, 1 Jul 1972, *Moran 19167* (SD).

ASTRAGALUS DIDYMOCARPUS Hook. & Arn. var. DIDYMOCARPUS.
Footprint: 50 m, 10 May 1978, *Moran 25850* (SD).

ASTRAGALUS GAMBELIANUS E.Sheld. Mesa: 80 m, 1 Apr 1985, *Thorne 58876* (RSA).

ASTRAGALUS TRICHOPODUS (Nutt.) A.Gray var. LONCHUS (M.E.Jones)
Barneby. Mesa & Buffer: 7 Apr 1994, *Rebman 2526* (SD).

DALEA BICOLOR Humb. & Bonpl. ex Willd. var. ORCUTTIANA Barneby.
Peninsula endemic. Buffer: 90 m, 1 Jun 1980, *Moran 28663* (SD).

LOTUS ARGOPHYLLUS (A.Gray) Greene. Mesa: 21 Jun 2008, *Vanderplank C44* (RSA).

LOTUS DISTICHUS (Greene) Greene. Peninsula endemic. Mesa: 31 Mar
1985, *Thorne 58784* (RSA).

LOTUS HAMATUS Greene. Mesa & Buffer: 15–30 m, 5 Jun 1988, *Boyd 2394* (RSA).

LOTUS NUTTALLIANUS Greene. CNPS list 1B.1. Mesa: 31 Mar 1985,
Thorne 38786 (RSA).

LOTUS SALSUGINOSUS Greene var. SALSUGINOSUS. Mesa & Buffer: 21 Jun
2008, *Vanderplank CO9* (RSA).

LOTUS SCOPARIUS (Torr. & A.Gray) Ottley var. BREVIOLATUS Ottley.
Buffer: 200 m, 20 Mar 2003, *Vinton s.n.* (SD).

LOTUS SCOPARIUS (Torr. & A.Gray) Ottley var. SCOPARIUS. Mesa: 15–
30 m, 5 Jun 1988, *Boyd 2379* (RSA).

LOTUS WATSONII (Vasey & Rose) Greene. Peninsula endemic. Buffer:
40 m, 6 Mar 1982, *Bauml 823* (HNT).

LUPINUS CONCINNUS J.Agardh. Synonyms: *Lupinus pallidus*; *Lupinus*
concinus var. *pallidus*. Mesa: 5 m, 1 Jun 1980, *Moran 28648* (SD).

LUPINUS HIRSUTISSIMUS Benth. Buffer: 185 m, 30 Mar 1985, *Sanders*
5610 (UCR).

LUPINUS SPARSIFLORUS Benth. Buffer: 185 m, 30 Mar 1985, *Sanders*
5605 (UCR).

LUPINUS SUCCULENTUS Douglas ex K.Koch. Mesa & Buffer: 1 Apr 1985,
Thorne 58813 (RSA).

LUPINUS TRUNCATUS Nutt. ex Hook. & Arn. All areas: 350 m, 15 Feb
1988, *Sanders 7663* (SD).

*MEDICAGO POLYMORPHA L. Buffer: 5 m, 4 Mar 1979, *Moran 26574*
(SD).

*MELILOTUS ALBUS Medik. Mesa: 31 Mar 1985, *Thorne 58801* (RSA).

*MELILOTUS INDICUS (L.) All. Buffer: 80 m, 10 May 1978, *Moran 25815*
(SD).

PARKINSONIA ACULEATA L. Buffer: 17 Dec 1953, *Harbison s.n.* (SD).

TRIFOLIUM AMPLECTENS Torr. & A.Gray. Synonym: *Trifolium depau-*
peratum var. *amplectens*. Mesa: 80 m, 1 Apr 1985, *Thorne 58888*
(RSA).

TRIFOLIUM GRACILENTUM Torr. & A.Gray. Buffer: 80 m, 10 May 1978,
Moran 25828 (SD).

VICIA HASSEI S.Watson. Mesa & Buffer: 60 m, 4 Apr 1982, *Moran*
30221 (SD).

VICIA LUDOVICIANA Nutt. ex Torr. & A.Gray. Buffer: 120 m, 6 May
1979, *Moran 27184* (SD).

FAGACEAE

QUERCUS DUMOSA Nutt. CNPS list 1B.1. Mesa: 150 m, 16 Jun 1967,
Moran 14051 (SD).

FRANKENIACEAE

FRANKENIA PALMERI S.Watson. Near-state endemic; CNPS list 2.1.
Footprint & Mesa: 24 Mar 1973, *Mudie 1009* (SD).

FRANKENIA SALINA (Molina) I.M.Johnst. Synonyms: *Frankenia grandifolia*;
Frankenia grandifolia var. *campestris*. All areas: 5 m, 1 Jun
1980, *Moran 28660* (SD).

GENTIANACEAE

ZELTNERA VENUSTA (A.Gray) G.Mans. Synonym: *Centaurium venus-*
tum. Mesa & Buffer: 25 m, 3 Jun 1979, *Moran 27567* (SD).

GERANIACEAE

*ERODIUM CICUTARIUM (L.) L'Hér. ex Aiton. Mesa & Buffer: 80 m, 15
Mar 1981, *Moran 29487* (SD).

GROSSULARIACEAE

RIBES SPECIOSUM Pursh. Buffer: 60 m, 4 Apr 1982, *Moran 30210* (SD).

RIBES TORTUOSUM Benth. Peninsula endemic. Buffer: 6 Feb 1929, *Reed*
6263 (POM).

RIBES VIBURNIFOLIUM A.Gray. CNPS list 1B.2. Footprint & Buffer:
40 m, 25 Mar 1979, *Moran 26829* (SD).

HELIOTROPACEAE

HELIOTROPIUM CURASSAVICUM L. All areas: 21 Jun 2008, *Vanderplank*
C23 (RSA).

HYDROPHYLLACEAE

EMMENANTHE PENDULIFLORA Benth. var. PENDULIFLORA. Buffer: 175 m,
21 Apr 1973, *Moran 20595* (SD).

ERIODICTYON SESSILIFOLIUM Greene. Peninsula endemic. Buffer: 100 m,
14 May 1960, *Moran 8263* (SD).

EUCRYPTA CHRYSANTHEMIFOLIA (Benth.) Greene var. CHRYSANTHEMIFO-
LIA. Buffer: 225 m, 12 May 1978, *Moran 25993* (SD).

NAMA STENOCARPUM A.Gray. CNPS list 2.2. Mesa: 80 m, 19 Jun 1985,
Thorne 60786 (RSA).

PHACELIA CICUTARIA Greene var. HISPIDA (A.Gray) J.T.Howell. Buffer:
5 Feb 1947, *Constance 3112* (DS).

PHACELIA DISTANS Benth. Mesa & Buffer: 5 m, 6 May 1979, *Moran*
27174 (RSA).

PHACELIA HIRTUOSA A.Gray. Near-state endemic. Footprint: 75 m, 29
May 1976, *Moran 23288* (SD).

PHACELIA IXODES Kellogg. Peninsula endemic. Mesa & Buffer: 21 Jun
2008, *Vanderplank CO16* (RSA).

PHACELIA PARRYI Torr. Buffer: 225 m, 12 May 1978, *Moran 26007* (SD).

PHOLISTOMA AURITUM (Lindl.) Lilja ex Lindbl. Buffer: 110 m, 25 Mar
1979, *Moran 26824* (SD).

PHOLISTOMA RACEMOSUM (Nutt. ex A.Gray) Constance. Buffer: 60 m, 4
Apr 1982, *Moran 30222* (SD).

LAMIACEAE

ACANTHOMINTHA ILICIFOLIA A.Gray. CNPS list 1B.1; FT; CaE. Buffer:
100 m, 18 May 1979, *Moran 21979* (SD).

*MENTHA × PIPERITA L. Synonym: *Mentha citrata*. Footprint: 25 m,
1972, *Forsberg 17* (SD).

SALVIA BRANDEGEEI Munz. Near-state endemic; CNPS list 1B.2. Mesa
& Buffer: 7 Apr 1994, *Rebman 2519* (SD).

SALVIA BRANDEGEEI × MUNZII. Buffer: 25 m, 4 Mar 1979, *Moran 26596*
(SD).

SALVIA CLEVELANDII (A.Gray) Greene. Buffer: 30 m, 15 Jun 1976,
Moran 23542 (SD).

SALVICOLUMBARIAE Benth. Buffer: 175 m, 21 Apr 1973, *Moran 20598* (SD).

SALVIA MUNZII Epling. CNPS list 2.2. All areas: 21 Jun 2008,
Vanderplank CO7 (RSA).

SATUREJA GANDERI Epling. Peninsula endemic. Buffer: 23 Apr 1972,
Moran 19092 (RSA).

LENNOACEAE

PHOLISMA ARENARIUM Nutt. ex Hook. Buffer: May 1965, *Voss 580* (SD).

LYTHRACEAE

*LYTHRUM HYSSOPIFOLIA L. Mesa: 80 m, 1 Apr 1985, *Thorne 58879*
(RSA).

MALVACEAE

- FREMONTODENDRON MEXICANUM Davidson. Near-state endemic; CNPS list 1B.1; FE; CaR. Buffer: 5 Apr 1931, *Wiggins 5184* (POM).
- MALACOTHAMNUS DENSIFLORUS (S.Watson) Greene. Synonym: *Malacothamnus densiflorus* var. *viscidus*. Buffer: 13 Mar 1956, *Howell 30952* (SD).
- MALACOTHAMNUS FASCICULATUS (Nutt. ex Torr. & A.Gray) Greene. Mesa: 15–30 m, 5 Jun 1988, *Boyd 2399* (RSA).
- MALVELLA LEPROSA (Ortega) Krapov. Vernal pool. Mesa: 80 m, 19 Jun 1985, *Thorne 60777* (RSA).
- SPHAERALCEA AMBIGUA A.Gray. Mesa: 21 Jun 2008, *Vanderplank C22* (RSA).
- SPHAERALCEA AXILLARIS S.Watson. Peninsula endemic. Mesa: 21 Jun 2008, *Vanderplank C37* (RSA).
- SPHAERALCEA FULVA Greene. Peninsula endemic. Footprint & Mesa: 5 m, 1 Jun 1980, *Moran 28657* (RSA).

MYRSINACEAE

- *ANAGALLIS ARVENSIS L. Mesa & Buffer: 7 Apr 1994, *Rebman 2508* (RSA).
- ANAGALLIS MINIMA (L.) E.H.L.Krause. Vernal pool. Synonym: *Centunculus minimus*. Mesa: 1 Apr 1985, *Thorne 58857* (RSA).

NYCTAGINACEAE

- ABRONIA MARITIMA S.Watson var. MARITIMA. CNPS list 4.2. Mesa: 5 m, 3 Jun 1979, *Moran 27589* (SD).
- ABRONIA UMBELLATA Lam. var. UMBELLATA. Mesa: 27 Jul 1955, *Chambers 703* (SD).
- MIRABILIS LAEVIS (Benth.) Curran var. CRASSIFOLIA (Choisy) Spellenb. Synonym: *Mirabilis californica*. Mesa & Buffer: 200 m, 20 Mar 2003, *Vinton s.n.* (SD).

OLEACEAE

- FRAXINUS PARRYI Moran. Near-state endemic; CNPS list 2.2. Synonym: *Fraxinus trifoliata*. Buffer: 4 May 1939, *Gander 7373* (SD).

ONAGRACEAE

- CAMISSONIA BISTORTA (Nutt. ex Torr. & A.Gray) P.H.Raven. Mesa: 21 Jun 2008, *Vanderplank C46* (RSA).
- CAMISSONIA CHEIRANTHIFOLIA (Hornem. ex Spreng.) Raim. subsp. SUFFRUTICOSA (S.Watson) P.H.Raven. Mesa: 31 Mar 1985, *Thorne 58772* (SD).
- CAMISSONIA LEWISII P.H.Raven. CNPS list 3. All areas: 1 m, 27 Mar 1988, *Pitzer 720* (SD).
- CAMISSONIOPSIS PROAVITA (P.H.Raven) W.L.Wagner & Hoch. Peninsula endemic. Synonym: *Camissonia proavita*. Buffer: 60 m, 4 Apr 1982, *Moran 30240* (SD).
- CLARKIA EPILOBIOIDES (Nutt. ex Torr. & A.Gray) A.Nelson & J.F.Macbr. Buffer: 60 m, 4 Apr 1982, *Moran 30217* (SD).
- EPILOBIUM CANUM (Greene) P.H.Raven. Buffer: 30 m, 15 Jun 1976, *Moran 23555* (SD).
- EPILOBIUM PYGMAEUM (Speg.) Hoch & P.H.Raven. Vernal pool. Synonym: *Boisduvalia glabella*. All areas: 21 Jun 2008, *Vanderplank C53* (RSA).

OROBANCHACEAE

- CASTILLEJA AFFINIS Hook. & Arn. Mesa & Buffer: 7 Apr 1994, *Rebman 2520* (BCMEX).
- CASTILLEJA EXSERTA (A.Heller) T.I.Chuang & Heckard subsp. EXSERTA. Buffer: 60 m, 4 Apr 1982, *Moran 30246* (SD).

CASTILLEJA FOLIOLOSA Hook. & Arn. Buffer: 30 m, 15 Jun 1976, *Moran 23556* (CAS).

CASTILLEJA SUBINCLUSA Greene var. JEPSONII (Bacig. & Heckard) J.M.Egger. Peninsula endemic. Synonym: *Castilleja jepsonii*. Buffer: 15 Jun 1976, *Moran 23548* (SD).

CORDYLANTHUS MARITIMUS Benth. subsp. MARITIMUS. CNPS list 1B.2; FE; CaE. Footprint: 4 Jun 1973, *Johnston IV24* (SD).

CORDYLANTHUS ORCUTTIANUS A.Gray. CNPS list 2.1. All areas: 21 Jun 2008, *Vanderplank C9* (RSA).

OROBANCHE CALIFORNICA Cham. & Schltdl. Buffer: 70 m, 5 Sep 1978, *Moran 26253* (SD).

OROBANCHE PARISHII (Jeps.) Heckard subsp. BRACHYLOBA Heckard. CNPS list 4.2. Buffer: 50 m, 5 May 1979, *Moran 27165* (SD).

OXALIDACEAE

OXALIS CALIFORNICA (Abrams) R.Knuth. Synonym: *Oxalis albicans* subsp. *californica*. Mesa & Buffer: 35 m, 10 Jun 1979, *Moran 27624* (SD).

PAPAVERACEAE

ESCHSCHOLZIA CALIFORNICA Cham. subsp. PENINSULARIS (Greene) Munz. Peninsula endemic. Mesa: 7 Apr 1994, *Rebman 2504* (RSA).

PLATYSTEMON CALIFORNICUS Benth. Mesa & Buffer: 7 Apr 1994, *Rebman 2505* (RSA).

STYLOMECON HETEROPHYLLA (Benth.) G.Taylor. Synonyms: *Meconopsis heterophylla*; *Papaver heterophyllum*. Buffer: 60 m, 4 Apr 1982, *Moran 30227* (SD).

PHRYMACEAE

MIMULUS AURANTIACUS Curtis var. PUNICEUS (Nutt.) D.M.Thomps. Synonym: *Mimulus puniceus*. Buffer: 35 m, 10 Jun 1979, *Moran 27628* (SD).

MIMULUS BREVIPES Benth. Buffer: 225 m, 12 May 1978, *Moran 26005* (SD).

MIMULUS LATIDENS (A.Gray) Greene. Vernal pool. Synonym: *Mimulus inconspicuus* var. *latidens*. Mesa: 25 m, 4 May 1980, *Moran 28448* (SD).

MIMULUS PILOSUS (Benth.) S.Watson. Footprint & Mesa: 25 m, 3 Jun 1979, *Moran 27560* (SD).

PLANTAGINACEAE

ANTIRRHINUM NUTTALLIANUM Benth. ex A.DC. subsp. SUBSESSILE (A.Gray) D.M.Thomps. Mesa: 6 Apr 1931, *Wiggins 5187* (CAS).

GAMBELIA JUNCEA (Benth.) D.A.Sutton. Synonym: *Galvezia juncea*. Mesa & Buffer: 21 Jun 2008, *Vanderplank C68* (RSA).

GAMBELIA SPECIOSA Nutt. Synonym: *Galvezia speciosa*. Mesa: 21 Jun 2008, *Vanderplank CO23* (RSA).

LINARIA CANADENSIS (L.) Chaz. Footprint & Mesa: 100 m, 6 Apr 1991, *Boyd 6020* (RSA).

PLANTAGO ELONGATA Pursh. Synonym: *Plantago bigelovii*. Mesa: 21 Jun 2008, *Vanderplank C1* (RSA).

PLANTAGO ERECTA E.Morris. Synonym: *Plantago erecta* subsp. *rigidior*. Mesa: 7 Apr 1994, *Rebman 2503* (RSA).

PLANTAGO OVATA Forssk. Buffer: 5 m, 4 Mar 1979, *Moran 26563* (SD).

PLANTAGO RHODOSPERMA Decne. Synonym: *Plantago virginica*. Mesa: 80 m, 4 May 1980, *Moran 28438* (SD).

PLUMBAGINACEAE

LIMONIUM CALIFORNICUM (Boiss.) A.Heller. Buffer: 50 m, 25 Apr 1984, *Thorne 58132* (RSA).

POLEMONIACEAE

- ERIASTRUM FILIFOLIUM (Nutt.) Wooton & Standl. Mesa & Buffer: 60 m, 4 Apr 1982, *Moran 30243* (SD).
 GILIA ANGELENSIS V.E.Grant. Buffer: 12 May 1979, *Moran 26003* (SD).
 LEPTOSIPHON PARVIFLORUS Benth. Synonym: *Linanthus parviflorus*. Buffer: 60 m, 4 Apr 1982, *Moran 30224* (SD).
 LEPTOSIPHON PYGMAEUS (Brand) J.M.Porter & L.A.Johnson subsp. CONTINENTALIS (P.H.Raven) J.M.Porter & L.A.Johnson. Synonym: *Linanthus pygmaeus*. Buffer: 225 m, 12 May 1978, *Moran 25984* (SD).
 LINANTHUS DIANTHIFLORUS (Benth.) Greene. Mesa & Buffer: 50–70 m, 1 Apr 1985, *Thorne 58840* (RSA).
 NAVARRETIA FOSSALIS Moran. Vernal pool; CNPS list 1B.1; FT. Footprint & Mesa: 21 Jun 2008, *Vanderplank C62* (RSA).
 NAVARRETIA HAMATA Greene subsp. LEPTANTHA (Greene) H.Mason. All areas: 5 Jun 1988, *Boyd 2396* (RSA).
 SALTUGILIA AUSTRALIS (H.Mason & A.D.Grant) L.A.Johnson. Mesa & Buffer: 7 Apr 1994, *Rebman 2525* (BCMEX).

POLYGONACEAE

- CHORIZANTHE FIMBRIATA Nutt. var. FIMBRIATA. Footprint & Buffer: 105 m, 24 Mar 1988, *Reveal 6768* (CAS).
 CHORIZANTHE INEQUALIS Stokes. Peninsula endemic. Footprint & Mesa: 25 m, 3 Jun 1979, *Moran 27566* (SD).
 CHORIZANTHE INTERPOSITA Goodman. Peninsula endemic. Mesa & Buffer: 75 m, 19 May 1975, *Moran 22010* (CAS).
 CHORIZANTHE PROCUMBENS Nutt. Mesa & Buffer: 90 m, 24 May 1980, *Moran 28641* (SD).
 ERIOGONUM DAVIDSONII Greene. Buffer: 80 m, 3 Jul 1982, *Moran 30999* (SD).
 ERIOGONUM FASCICULATUM Benth. var. FASCICULATUM. Mesa & Buffer: 80 m, 25 Feb 1973, *Moran 20289* (SD).
 ERIOGONUM FASTIGIATUM Parry. Peninsula endemic. All areas: 21 Jun 2008, *Vanderplank C8* (RSA).
 ERIOGONUM GRACILE Benth. Synonym: *Eriogonum vimineum* subsp. *gracile*. Buffer: 100 m, 4 Sep 1976, *Latting s.n.* (UCR).
 ERIOGONUM THURBERI Torr. Buffer: 2 Apr 1950, *Wylie s.n.* (SD).
 HARFORDIA MACROPTERA (Benth.) Greene & Parry var. GALIODES (Greene) Reveal. Peninsula endemic. Mesa & Buffer: 50–70 m, 1 Apr 1985, *Thorne 58817* (RSA).
 LASTARRIAEA CORIACEA (Goodman) Hoover. Synonym: *Chorizanthe coriacea*. Mesa: 21 Jun 2008, *Vanderplank C31* (RSA).
 NEMACAULIS DENUDATA Nutt. var. DENUDATA. CNPS list 1B.2. Mesa: 31 Mar 1985, *Thorne 58788* (RSA).
 NEMACAULIS DENUDATA Nutt. var. GRACILIS Goodman & L.D.Benson. CNPS list 2.2. Mesa: 15 Apr 1925, *Jones s.n.* (POM).
 PTEROSTEGIA DRYMARIOIDES Fisch. & C.A.Mey. Buffer: 5 m, 4 Mar 1979, *Moran 26568* (SD).
 *RUMEX CRISPUS L. Buffer: 100 m, 6 May 1979, *Moran 27178* (SD).
 RUMEX SALICIFOLIUS Weinm. Buffer: 30 m, 15 Jun 1976, *Moran 23558* (SD).

PORTULACACEAE

- CALYPTRIDIMUM MONANDRUM Nutt. Footprint: 18 Mar 1936, *Wiggins 8193* (DS).
 CLAYTONIA PERFOLIATA Willd. subsp. MEXICANA (Rydb.) John M. Miller & K.L.Chambers. Buffer: 4 Mar 1979, *Moran 26588* (SD).

RANUNCULACEAE

- CLEMATIS PAUCIFLORA Nutt. Mesa & Buffer: 20 m, 4 Mar 1979, *Moran 26582* (SD).
 DELPHINIUM CARDINALE Hook. Footprint: 11 May 1941, *Cronemiller 3019* (RSA).

DELPHINIUM PARRYI A.Gray. Mesa & Buffer: 50–70 m, 1 Apr 1985, *Thorne 58844* (RSA).

MYOSURUS MINIMUS L. subsp. APUS (Greene) G.R.Campb. Vernal pool; CNPS list 3.1. Mesa: 80 m, 1 Apr 1985, *Thorne 58885* (RSA).

MYOSURUS MINIMUS L. var. FILIFORMIS Greene. Vernal pool. Footprint & Mesa: 50–70 m, 1 Apr 1985, *Thorne 58826* (RSA).

RESEDACEAE

OLIGOMERIS LINIFOLIA (Vahl) J.F.Macbr. All areas: 21 Jun 2008, *Vanderplank C15* (RSA).

RHAMNACEAE

ADOLPHIA CALIFORNICA S.Watson. CNPS list 2.1. Mesa: 50–70 m, 1 Apr 1985, *Thorne 58846* (RSA).

CEANOTHUS VERRUCOSUS Nutt. CNPS list 2.2. Mesa & Buffer: 7 Apr 1994, *Rebman 2522* (SD).

RHAMNUS INSULA Kellogg. Near-state endemic. Synonym: *Rhamnus crocea* subsp. *insula*. Footprint & Buffer: 19 Jun 1985, *Thorne 60776* (RSA).

ROSACEAE

ADENOSTOMA FASCICULATUM Hook. & Arn. var. OBTUSIFOLIUM S.Watson. Mesa & Buffer: 21 Jun 2008, *Vanderplank C67* (RSA).

APHANES OCCIDENTALIS (Nutt.) Rydb. Buffer: 60 m, 4 Apr 1982, *Moran 30211* (SD).

HETEROMELES ARBUTIFOLIA (Lindl.) M.Roem. Mesa: 21 Jun 2008, *Vanderplank C14* (RSA).

ROSA MINUTIFOLIA Engelm. Near-state endemic; CNPS list 2.1; CaE. All areas: 19 Jun 1985, *Thorne 60772* (RSA).

RUBIACEAE

GALIUM ANGUSTIFOLIUM A.Gray subsp. ANGUSTIFOLIUM. Buffer: 11 Apr 1936, *Epling s.n.* (DS).

GALIUM APARINE L. Buffer: 60 m, 4 Apr 1982, *Moran 30213* (SD).

GALIUM NUTTALLII A.Gray subsp. NUTTALLII. Buffer: 30 m, 15 Jun 1976, *Moran 23551* (SD).

RUTACEAE

CNEORIDIUM DUMOSUM (Nutt. ex Torr. & A.Gray) Hook.f. ex Baill. Mesa & Buffer: 15 Apr 1925, *Jones s.n.* (POM).

SALICACEAE

POPULUS FREMONTII S.Watson subsp. FREMONTII. Mesa: 30 m, 15 Jun 1976, *Moran 23561* (SD).

SALIX EXIGUA Nutt. var. HINDSIANA (Benth.) Dorn. Synonym: *Salix hindsiana*. Buffer: 50 m, 21 Sep 1983, *Thorne 57345* (BCMEX).

SALIX LASIOLEPIS Benth. Mesa & Buffer: 21 Jun 2008, *Vanderplank C28* (RSA).

SAPINDACEAE

AESCULUS PARRYI A.Gray. Peninsula endemic. All areas: 30 m, 5 Jun 1984, *Dice 457* (SD).

SAXIFRAGACEAE

JEPSONIA PARRYI (Torr.) Small. Buffer: 21 Sep 1946, *Wiggins 11281* (DS).

LITHOPHRAGMA AFFINE A.Gray. Buffer: 80 m, 25 Mar 1979, *Moran 26812* (SD).

SIMMONDSIACEAE

SIMMONDSIA CHINENSIS (Link) C.K.Schneid. Mesa & Buffer: 21 Jun 2008, *Vanderplank C7* (RSA).

SOLANACEAE

LYCIUM BREVIPES Benth. Mesa: 21 Jun 2008, *Vanderplank CO12* (RSA).

LYCIUM CALIFORNICUM A.Gray. CNPS list 4.2. Mesa: 21 Jun 2008, *Vanderplank C26* (RSA).

*LYCOPERSICON ESCULENTUM Mill. Buffer: 21 Sep 1983, *Thorne 57366* (BCMEX).

NICOTIANA ATTENUATA Steud. Buffer: 70 m, 5 Sep 1978, *Moran 26257* (SD).

SOLANUM AMERICANUM Mill. Synonym: *Solanum nodiflorum*. Buffer: 70 m, 5 Sep 1978, *Moran 26258* (SD).

*SOLANUM ROSTRATUM Dunal. Mesa: 21 Jun 2008, *Vanderplank C58* (RSA).

SOLANUM UMBELLIFERUM Eschsch. Mesa & Buffer: 21 Jun 2008, *Vanderplank C35* (RSA).

SOLANUM XANTI A.Gray. Buffer: 19 Mar 1992, *Rebman 1332* (BCMEX).

TAMARICACEAE

*TAMARIX RAMOSISSIMA Ledeb. Buffer: 7 Oct 1979, *Moran 28031* (SD).

URTICACEAE

HESPEROCNIDE TENELLA Torr. Buffer: 60 m, 4 Apr 1982, *Moran 30214* (SD).

VERBENACEAE

VERBENA BRACTEATA Lag. & Rodr. Vernal pool. Mesa: 80 m, 19 Jun 1985, *Thorne 60783* (RSA).

VERBENA MENTHIFOLIA Benth. Mesa & Buffer: 50–70 m, 1 Apr 1985, *Thorne 58841* (RSA).

VISCACEAE

PHORADENDRON VILLOSUM (Nutt.) Nutt. ex Engelm. Synonym: *Phoradendron serotinum* subsp. *tomentosum*. Buffer: 50 m, 30 Jul 1967, *Moran 14101* (SD).