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RARE SPECIES FOUND
on the
SAN FRANCISCO WATERSHED LANDS
of
SAN MATEO COUNTY



A REPORT PREPARED FOR
SAN FRANCISCO WATER DEPARTMENT
by
THE NATURE CONSERVANCY
JUNE 1990

SUMMARY

RARE SPECIES FOUND on the SAN FRANCISCO WATERSHED LANDS of SAN MATEO COUNTY

ABSTRACT

Sixteen rare plant and animal species are known to occur within the San Francisco watershed lands of San Mateo County (SFWD). Of these sixteen, nine are vascular plant species, and seven are animal species (two vertebrates and five invertebrates). In addition, initial surveys of the Pilarcitos Creek drainage suggested evidence for two rare birds, native fish, and the remote possibility of a native crayfish thought to be extinct.

REPORT FORMAT

The following pages include reports on 13 rare species and one natural community known to occur on the watershed. For each species, pictures and a general summary is given, along with a summary of watershed sites for that species. Site summaries include comments on site condition, threats and management considerations. These have been compiled from recent survey information and reports from the California Department of Fish and Game's Natural Diversity Database (NDDB). All information included in this report is on file with NDDB. Site numbers indicate the tracking (occurrence) number used by NDDB. New sites (labeled with an 'N') have not yet been entered in the NDDB computer system, so the possibility exists that the number could change within the NDDB system. Map symbols represent the numbers used to locate the sites on the map overlays.

MANAGEMENT CONSIDERATIONS

Initial recommendations for management needs fall into three broad categories, 1) surveys, 2) monitoring and 3) habitat enhancement.

1) Surveys to update the status of species and determine the extent of their distribution on SFWD lands are needed for thirteen of the rare species known to occur within watershed boundaries. Information for these species is either outdated or considered incomplete. Surveys are also suggested to determine the presence of three other rare species and native fish diversity within the watershed drainages, as recommended by zoology staff of the Natural Diversity Database. These surveys will help determine current management needs for these species, and will aid future management considerations for watershed land use.

Preliminary Survey Recommendations

Species known to occur:

ANIMALS

bay checkerspot butterfly (Euphydryas editha bayensis)
saltmarsh yellowthroat (Geothlypis trichas sinuosa)
Ricksecker's water scavenger beetle (Hydrochara rickseckeri)
mission blue butterfly (Icaricia icarioides missionensis)
San Bruno elfin butterfly (Incisalia mossii bayensis)
Edgewood blind harvestman (Sitalcina minor)
San Francisco garter snake (Thamnophis sirtalis tetrataenia)

PLANTS

Montara manzanita (Arctostaphylos montaraensis)
fragrant fritillary (Fritillaria liliaceae)
Marin dwarf flax (Hesperolinon congestum)
San Francisco owl's clover (Orthocarpus floribundus)
white-rayed pentachaeta (Pentachaeta bellidiflora)
San Francisco campion (Silene verecunda ssp. verecunda)

Species expected to occur:

spotted owl (Strix occidentalis)-

Habitat within the SFWD land is reported to look suitable to support this species according to California Department of Fish and Game Zoologists.

marbled murrelet (Brachyramphus marmoratus)-

Recent studies have indicated that these oceanic birds nest at least as far inland as SFWD property, in mature old growth forest. Since this species is known to nest in some of the State Parks south of this area, SFWD land may also contain nesting areas.

native fish-

Since many of the creeks within the watershed have been maintained in a relatively pristine condition, with only small, hand-built dams on them and minimal visitation by people, healthy populations of nongame native fish may be present. This is a disappearing commodity; especially in the Bay Area, where streams suffered the onslaught of heavy logging in the 1800's and following development. In many other areas, the introduction of non-native game fish have fed upon, hybridized with, and out competed many of our native fish species. Three-spined stickleback, a 2-3 inch native fish, was observed at several locations along Pilarcitos Creek.

sooty crayfish (Pacifastacus nigrescens)-

One of only three native crayfish species found in California, the sooty crayfish is believed to be extinct. Its range included only streams in the San Francisco Bay Area and was known from Coyote Creek in Santa Clara County. If the drainages on the SFWD land have been isolated for many years, there is a remote possibility that the sooty crayfish may be present.

Delineation of sensitive habitats and rare plant communities would also be a useful management tool for the watershed. Because of the acreage involved, it is recommended that aerial photos be obtained to delineate these sensitive areas. Areas suggested for mapping include (but are not limited to) riparian woodlands, old growth forests, wetlands, native grasslands and serpentine communities.

2) For species where surveys are thought to be complete, periodic monitoring is needed to maintain the level of information necessary for management decisions. Baseline monitoring, followed by periodic monitoring, determined by specific needs of the species and site condition is recommended. Survey information is complete enough to begin monitoring for three plant species:

San Mateo thornmint (Acanthomintha obovata ssp. duttonii)

fountain thistle (Cirsium fontinale var. fontinale)

San Mateo woolly sunflower (Eriophyllum latilobum)

Sites where monitoring information is especially important, include; 1) areas where several rare species occur in an ensemble, 2) rare species whose population numbers are

very low, and 3) areas which are highly sensitive because of their proximity to areas of heavy public use, development, roadways, or other imminent threats.

3) Habitat enhancement through eradication of exotic, invasive species could be beneficial at several sites. These invasive species move into disturbed areas and can compete with the native vegetation for nutrients, space, light and moisture, sometimes crowding out other vegetation. . Before a program of this nature begins, careful examination of the site is important to determine if removal might cause an imbalance in the existing system. The eradication process must be done with care to avoid harming the native vegetation in the area. Element abstracts, explaining details on some of these exotic species, may be found in the appendix of this report. Several of the site summaries suggest where this form of management might be beneficial.

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Plant List for Mapped Grassland Areas

PARTIAL LIST OF PLANTS GROWING ON GRASSLAND AREAS WITHIN THE SAN FRANCISCO WATERSHED (compiled in 1989 by members of the Santa Clara Valley Chapter of the California Native Plant Society: Sally Casey, Zoe Chandik, Toni Corelli, Ken Himes, Don and Judy Mason, Paul Reedberg, Sara Timby.) Reference - A California Flora, Philip A. Munz, Flora of the Santa Cruz Mountains of California, John Hunter Thomas, and current botanical monographs.

** <i>Acanthomintha obovata</i>	San Mateo thornmint
ssp. <i>duttonii</i>	yarrow
<i>Achillea millefolium</i>	blow-wives
<i>Achyrachaena mollis</i>	small-leaved bentgrass
<i>Agrostis microphylla</i>	silvery hair grass
<i>Aira caryophyllea</i>	western lady's mantle
<i>Alchemilla occidentalis</i>	narrow-leaved onion
<i>Allium amplexans</i>	sickle leaf onion
<i>Allium falcifolium</i>	one-leaved onion
<i>Allium unifolium</i>	scarlet pimpernel
<i>Anagallis arvensis</i>	Douglas' sandwort
<i>Arenaria douglasii</i>	common California aster
<i>Aster chilensis</i>	Gambell's dwarf locoweed
<i>Astragalus gambellianus</i>	slender oats
<i>Avena barbata</i>	oat grass
<i>Avena fatua</i>	cultivated oats
<i>Avena sativa</i>	
<i>Baccharis douglasii</i>	winter cress
<i>Barbarea vulgaris</i>	bellardia
<i>Bellardia trixago</i>	big quaking grass
<i>Briza maxima</i>	small rattlesnake grass
<i>Briza minor</i>	harvest brodiaea
<i>Brodiaea elegans</i>	golden brodiaea
<i>Brodiaea lutea</i>	dwarf brodiaea
<i>Brodiaea terrestris</i>	California brome
<i>Bromus carinatus</i>	ripgut brome
<i>Bromus diandrus</i>	soft chess
<i>Bromus hordeaceus</i>	Spanish brome
<i>Bromus madritensis</i>	mountain brome
<i>Bromus marginatus</i>	soft brome
<i>Bromus mollis</i>	foxtail brome
<i>Bromus rubens</i>	redmaids
<i>Calandrinia ciliata</i>	yellow maraposa lily
<i>Calochortus luteus</i>	white maraposa lily
<i>Calochortus venustus</i>	morning glory
<i>Calystegia subacaulis</i>	sun cups
<i>Camissonia ovata</i>	few-seeded bitter cress
<i>Cardamine oligosperma</i>	italian thistle
<i>Carduus pycnocephalus</i>	leander-flowered thistle
<i>Carduus tenuiflorus</i>	bifid sedge
<i>Carex serratodens</i>	foothill sedge
<i>Carex tumulicola</i>	indian paintbrush
<i>Castilleja affinis</i>	Davy's centaury
<i>Centaureum davyi</i>	

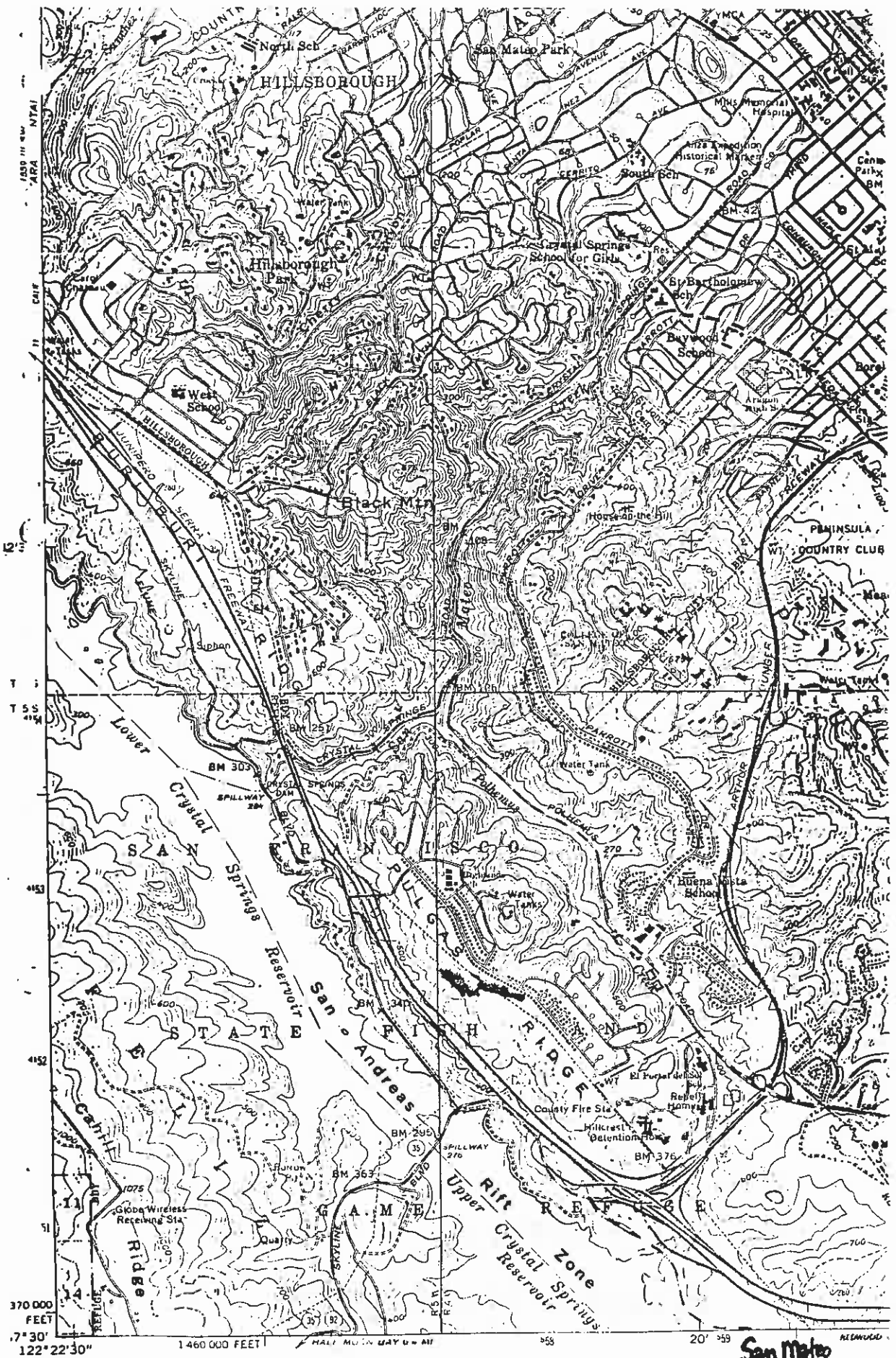
<i>Cerastium viscosum</i>	mouse-ear chickweed
<i>Chlorogalum pomeridianum</i>	soap plant
** <i>Cirsium fontinale</i>	
var. <i>fontinale</i>	fountain thistle
<i>Cirsium quercetorum</i>	brownie thistle
<i>Cirsium vulgare</i>	thistle
<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	four-spotted clarkia
<i>Clarkia rubicunda</i>	farewell-to-spring
<i>Claytonia perfoliata</i>	miners lettuce
<i>Claytonia spathulata</i>	linear-leaved claytonia
<i>Collinsia sparsiflora</i>	sparse flowered collinsia
<i>Corethrogyne californica</i>	California corethrogyne
<i>Cortaderia jubata</i>	pampas grass
<i>Cotula coronopifolia</i>	brass buttons
<i>Crassula erecta</i>	pigmy crassula
<i>Cryptantha flaccida</i>	flaccid cryptantha
<i>Cupressus</i> sp.	cypress
<i>Cynosurus echinatus</i>	hedgehog dogtail
<i>Cytisus monspessulanus</i>	
<i>Danthonia californica</i>	wild oat grass
<i>Daucus pusillus</i>	rattlesnake weed
<i>Delphinium hesperium</i>	western larkspur
<i>Delphinium variegatum</i>	royal larkspur
<i>Deschampsia caespitosa</i> ssp. <i>holciformis</i>	tufted hairgrass
<i>Deschampsia danthonioides</i>	annual hairgrass
<i>Deschampsia elongata</i>	slender hairgrass
<i>Dichelostemma pulchellum</i>	blue dick's
<i>Dipsacus fullonum</i>	fuller's teasel
<i>Dodecatheon clevelandii</i>	shooting star
<i>Dodecatheon hendersonii</i>	shooting star
<i>Dryopteris arguta</i>	wood fern
<i>Elymus glaucus</i>	blue wild rye
<i>Elymus triticoides</i>	alkali rye grass
<i>Epilobium minutum</i>	willow herb
<i>Epilobium paniculatum</i>	panicled willow herb
<i>Erigeron inornatus</i> var. <i>angustatus</i>	California rayless daisy
<i>Eriogonum nudum</i>	naked-stemmed Eriogonum
<i>Eriophyllum confertiflorum</i>	golden yarrow
<i>Erodium botrys</i>	long-beaked filaree
<i>Erodium cicutarium</i>	red-stemmed filaree
<i>Eryngium aristulatum</i>	coyote thistle
<i>Erysimum franciscanum franciscanum</i>	franciscan wallflower
<i>Eschscholzia californica</i>	California poppy
<i>Euphorbia crenulata</i>	
<i>Euphorbia spathulata</i>	reticulate-seeded spurge
<i>Evax sparsiflora</i>	erect evax
<i>Festuca elmeri</i>	Elmer's fescue
<i>Festuca idahoensis</i>	blue bunch grass
<i>Festuca megalura</i>	foxtail fescue
<i>Festuca pacifica</i>	pacific fescue
<i>Festuca rubra</i>	red fescue
<i>Filago gallica</i>	narrow-leaved filago
** <i>Fritillaria biflora</i>	mission bells
** <i>Fritillaria liliacea</i>	fragrant fritillaria
<i>Galium californicum</i>	bedstraw

<i>Galium nuttallii</i>	climbing bedstraw
<i>Gastroidium ventricosum</i>	nit grass
<i>Geranium dissectum</i>	cut-leaf geranium
<i>Geranium molle</i>	cranesbill
<i>Gilia clivorum</i>	
<i>Grindelia hirsutula</i>	hirsute grindelia
<i>Hemizonia luzulaefolia</i>	hayfield tarweed
** <i>Hesperolinon congestum</i>	dwarf flax
<i>Hesperolinon micranthum</i>	small flowered flax
<i>Heterotheca bolanderi</i>	
<i>Holcus lanatus</i>	velvet grass
<i>Hordeum brachyantherum</i>	meadow barley
<i>Hordeum californicum</i>	California barley
<i>Hordeum geniculatum</i>	mediterranean barley
<i>Hypochoeris glabra</i>	smooth cat's ear
<i>Hypochoeris radicata</i>	hairy cat's ears
<i>Iris douglasiana</i>	douglas iris
<i>Juncus bufonius</i>	toad rush
<i>Juncus occidentalis</i>	western rush
<i>Juncus patens</i>	spreading rush
<i>Juncus xiphioides</i>	iris-leaf rush
<i>Koeleria macrantha</i>	june grass
<i>Koeleria pyramidalata</i>	
<i>Lactuca</i> sp.	wild lettuce
<i>Lagophylla ramosissima</i>	common hareleaf
<i>Lasthenia californica</i>	goldfields
<i>Layia platyglossa</i>	tidy tips
<i>Lepidium nitidum</i>	shining pepper grass
<i>Lessingia hololeuca</i> var. <i>hololeuca</i>	lessingia
<i>Linanthus ambiguus</i>	serpentine linanthus
<i>Linanthus liniflorus</i>	flax flowered linanthus
<i>Linum bienne</i>	narrow leaved flax
<i>Lolium multiflorum</i>	ryegrass
<i>Lolium perenne</i>	perennial ryegrass
<i>Lolium temulentum</i>	darnel ryegrass
<i>Lomatium caruifolium</i>	caraway-leaved lomatium
<i>Lomatium dasycarpum</i>	wooly-fruited lomatium
<i>Lomatium macrocarpum</i>	large fruited lomatium
<i>Lotus subpinnatus</i>	chilian trefoil
<i>Lupinus bicolor</i>	miniature lupine
<i>Lupinus densiflorus</i>	dense flowered lupine
<i>Lupinus formosus</i>	summer lupine
<i>Lupinus succulentus</i>	succulent lupine
<i>Madia capitata</i>	headland tarweed
<i>Madia elegans densifolia</i>	tarweed
<i>Madia exigua</i>	small tarweed
<i>Madia gracilis</i>	slender tarweed
<i>Marah oreganus</i>	wild cucumber
<i>Medicago arabica</i>	spotted clover
<i>Medicago polymorpha vulgaris</i>	bur clover
<i>Melica californica</i>	western melica
<i>Melica torreyana</i>	Torrey's milica
<i>Melilotus indicus</i>	indian melilot
<i>Melilotus officinalis</i>	yellow melilot
<i>Microcala quadrangularis</i>	American microcala

<i>Micropus californicus</i>	slender cottonweed
<i>Microseris douglasii</i>	douglas' microseris
<i>Mimulus douglasii</i>	purple mouse ears
<i>Mimulus guttatus</i>	common monkey flower
<i>Monardella douglasii</i>	fenestra monardella
<i>Monardella villosa</i>	coyote mint
<i>Muilla maritima</i>	muilla
<i>Navarretia heterodoxa</i>	calistoga navarretia
<i>Orobanche fasciculata</i>	clustered broomrape
<i>Orthocarpus densiflorus</i>	owls clover
<i>Orthocarpus campestris</i>	flied orthocarpus
<i>Orthocarpus erianthus</i>	butter and eggs
<i>Orthocarpus lithospermoides</i>	cream sacs
<i>Orthocarpus purpurascens</i>	common owls clover
<i>**Pentachaeta bellidiflora</i>	white rayed pentachaeta
<i>Perideridia kelloggii</i>	yampah
<i>Phacelia californica</i>	california phacelia
<i>Phacelia distans</i>	common phacelia
<i>Phacelia divaricata</i>	divaricate phacelia
<i>Phalaris angusta</i>	canary grass
<i>Phalaris aquatica</i>	
<i>Phalaris tuberosa</i> var. <i>stenoptera</i>	
<i>Picris echioides</i>	ox tongue
<i>Pityrogramma triangularis</i>	goldenback fern
<i>Plagiobothrys nothofulvus</i>	popcorn flower
<i>Plantago erecta</i>	california plantain
<i>Plantago lanceolata</i>	english plantain
<i>Platystemon californicus</i>	cream cups
<i>Pleuropogon californicus</i>	annual semaphore grass
<i>Poa scabrella</i>	pine bluegrass
<i>Poa unilateralis</i>	
<i>Pogogyne serpylloides</i>	pogogyne
<i>Polygonum aviculare</i>	knotweed
<i>Prunella vulgaris</i> ssp. <i>lanceolata</i>	selfheal
<i>Psilocarphus brevissimus</i>	woolly heads
<i>Ranunculus californicus</i>	California buttercup
<i>Rigiopappus leptocladus</i>	rigiopappus
<i>Rumex acetosella</i>	sheep sorrel
<i>Rumex crispus</i>	curly dock
<i>Sanicula bipinnatifida</i>	satalite plant
<i>Satureja douglasii</i>	yerba buena
<i>Scrophularia californica</i>	California bee plant
<i>Sherardia arvensis</i>	blue field madder
<i>Sidalcea diploscypha</i>	fringed sildacea
<i>Sidalcea malvaeflora</i>	checker bloom
<i>Silene gallica</i>	windmill pink
<i>Silybum marianum</i>	milk thistle
<i>Sisyrinchium bellum</i>	blue-eyed grass
<i>Sitanion hystrix</i>	squirreltail grass
<i>Sitanion jubatum</i>	squirreltail grass
<i>Sonchus asper</i>	sow thistle
<i>Sonchus oleraceus</i>	common sow thistle
<i>Spergularia</i> sp.	sand spurry
<i>Stachys ajugoides</i>	bugle hedge nettle
<i>Stachys rigida quercetorum</i>	rigid hedge nettle

Stipa lepida	small flowered stipa
Stipa pulchra	purple needle grass
Thelypodium lasiophyllum	California mustard
Thermopsis macrophylla	false lupine
Torilis nodosa	knotted hedge parsley
Tragopogon porrifolius	salsify
Trifolium albopurpureum	indian clover
Trifolium amplexens	pale sack clover
Trifolium bifidum decipiens	deceptive clover
Trifolium dichotomum	branched indian clover
Trifolium dubium	shamrock
Trifolium fucatum	sour clover
Trifolium hirtum	
Trifolium microdon	Valparaiso clover
Trifolium tridentatum	tomcat clover
Trifolium variegatum	white-topped clover
Triteleia hyacinthina	wild hyacinth
Triteleia laxa	Ithuriel's spear
Triteleia peduncularis	
Typha sp.	
Vicia americana ssp. oregana	American vetch
Vicia angustifolia	common vetch
Vulpia pacifica	
Wyethia angustifolia	narrow-leaved mule ear
Wyethia glabra	green mule ears

** Plants of special interest. Rare and/or Endangered or range extensions. Rare plant survey forms and maps showing their location are included with this report.



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San Mateo
 Watershed
 Area Studied 1989

