

Natural Communities and Sensitive Plants of the Corte Madera Creek Watershed

Prepared by Friends of Corte Madera Creek Watershed May 2004

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Natural Communities and Other Habitats

Corte Madera Creek watershed reaches from San Francisco Bay into the foothills of Mount Tamalpais, in the Coast Range. The natural communities reflect the variety of soil types, hydrologic regimes, elevation, and aspect as well as topography and climate. There is substantial urban and suburban development within the watershed, so the list of habitats includes plant communities that are not natural. Based on general knowledge of the watershed and limited vegetation surveys, the following plant communities are known or expected to be found in the watershed. This information, including the descriptions of the communities and associations, is taken from Shuford and Timossi (1989), modified by the natural community groupings used in the California Natural Diversity Data Base (CNDDDB), maintained by the Natural Heritage Division of the Department of Fish and Game; additional information is drawn from Natural Communities of the Corte Madera Creek Watershed, Marin County, a manuscript by Kathy Cuneo, dated April 19, 1997. There are also substantial impervious areas that have no vegetation and have virtually no habitat value.

Northern Coastal Scrub

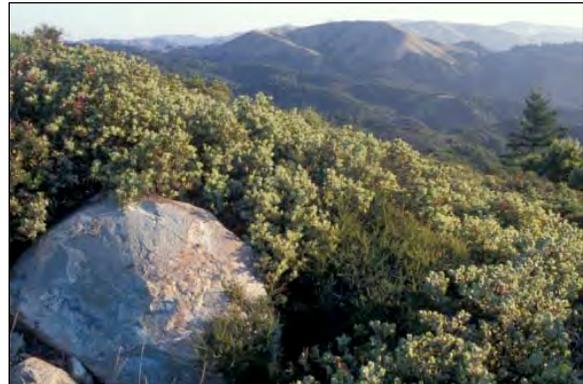
Within the Corte Madera Creek watershed, this community is represented by coastal sage-coyote brush scrub. It is an association dominated by coastal sage scrub with lesser amounts of coyote brush, poison oak, sticky monkey-flower, California blackberry, western bracken fern, grasses, and forbs.

Chaparral

Chaparral is a dense scrub community found on poor, rocky soils in drier areas. There are four chaparral associations in Marin County that will likely require site-specific surveys to identify. These are mixed chaparral, chamise chaparral, manzanita chaparral, and serpentine chaparral. Serpentine chaparral is dependent on serpentine soils. Chamise chaparral is found on the south flanks of White Hill and Bald Hill. Manzanita chaparral is found at Happersberger Point and on the upper ridges of Mt. Tamalpais. Serpentine chaparral occurs on the southeast flank of White's Hill.

Grasslands

Grasslands within the watershed are mostly non-native and dominated by introduced forbs and grasses, such as wild oats (*Avena fatua* and *A. barbata*), soft chess (*Bromus mollis*), ripgut grass (*B. diandrus*) fescues (*Festuca* sp.), and filaree (*Erodium* spp.). In areas that have experienced only limited disturbance, patches of native grasses such as purple needlegrass (*Nassella pulchra*) and California brome (*Bromus carinatus*). Associated plant species are blue dicks (*Dicholostemma capitata*), soap root (*Chlorogalum pomeridianum*), California poppy (*Eschscholzia californica*), and mule ears (*Wyethia glabra*). Open grassland is home to many small rodents such as California



Chaparral on Carson Ridge



Grassland in Sorich Park, San Anselmo

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voles and pocket gophers that in turn are preyed upon by raptors and mammalian predators such as coyote, bobcat and gray fox. Many seeds are gleaned by birds such as brown towhee. Grasslands are found on White Hill west of Fairfax, on Bald Hill west of Ross, and at Sorich Park in San Anselmo.

Coastal Salt Marsh

This low-growing marsh community is restricted to the upper intertidal zone of protected shallow bays and estuaries. In typical salt marshes in Marin, the mudflats are bordered by open stands of cordgrass (*Spartina foliosa*). Moving landward, cordgrass is replaced at the mean highwater level by thick mats of pickleweed (*Salicornia virginica*). Other characteristic plants of the pickleweed zone are alkali heath (*Frankenia grandifolia*), marsh rosemary (*Limonium californicum*), jaumea (*Jaumea carnosa*), plantain (*Plantago maritime*), and saltgrass (*Distichlis spicata*). Marin knotweed (*Polygonum marinense*) is known to occur in Larkspur near the Creekside housing development. The salt marshes near the mouth of Corte Madera Creek (starting at Creekside Park in Kentfield and reaching to Corte Madera marsh near the ferry terminal) reflect the high salinity levels of the waters in that part of San Francisco Bay and have plants similar to marshes found along the ocean. Mud flats and the salt marshes and adjacent to them are the habitat of numerous polychaete and spirochaete worms, mollusks and clams and arthropods such as crabs, shrimps and crustaceans which are fed upon by thousands of migratory and resident shorebirds. Open marshland is home to small rodents such as California voles and the endangered salt marsh harvest mouse that are in turn preyed upon by raptors and mammalian predators such as the northern harrier and gray fox.



Coastal salt marsh, Corte Madera

Freshwater Marsh

The association of this natural community found in Corte Madera Creek watershed is the bulrush-cattail marsh. A typical bulrush-cattail marsh develops in shallow standing or slow-moving water where streams overflow or meander through flat valleys and on gradual inclines bordering lakes and ponds. Cattail and California bulrush border open water and are often the only species in mixed association. Other species that may be found in these environments are rush (*Juncus* spp.), sedges (*Cyperus eragrostis* and *Carex* spp.), spike rush (*Eleocharis* spp.), curly dock (*Rumex crispus*), sheep sorrel (*R. acetosella*), water parsley (*Oenanthe sarmentosa*), and bur-reed (*Sparganium eurycarpum*). Bulrush-cattail marshes are found at the Shaver Grade end of Phoenix Lake and at two locations near Larkspur Landing.

Vernal Marsh (Seasonal Wetland)

The vegetation of the vernal marsh, or seasonal wetland, consists of annual and perennial species of small plants adapted to growing in sediments that are inundated or saturated for the winter and spring but dry out each summer. Vernal marshes often occur in swales. Many vernal marshes become more saline/alkaline late in the season due to evaporation of water.

Coastal Riparian Forest

In natural coastal riparian forests, typical overstory trees are red alder (*Alnus oregona*), white alder (*A. rhombifolia*), arroyo willow (*Salix lasiolepis*), red willow (*S. laevigata*), yellow willow (*S. lucida* ssp. *lasiandra*), big-leaf maple (*Acer macrophyllum*), and box elder (*A. negundo* ssp. *californicum*). Willow or alder usually dominate. Red alder is more common along the coast, with white alder more common in inland areas. The arroyo willow is by far the



The headwaters of San Anselmo Creek in the Elliot Nature Preserve, Fairfax

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most common willow in Marin County.

The riparian understory may include saplings of the overstory trees, twinberry (*Lonicera involucra* var. *ledebeurii*), creek dogwood (*Cornus californicus*), California blackberry (*Rubus ursinus*) and Himalaya-berry (*R. procerus*). Ground cover may include rush (*Juncus* spp.), sedges (*Carex* spp.), horsetail (*Equisetum arvense*), stinging nettle (*Urtica californica*), and a variety of other herbs. Riparian vegetation may grade into a number of other communities. Where it grades into mixed evergreen forest, California bay usually mixes with alder and may dominate.

This community is found on the south fork of Cascade Creek as well as in the upper reaches of Sorich Creek, where it is dominated by willows. In the urban areas along Corte Madera Creek, no substantial stretches of undisturbed native riparian vegetation remain; they have been lost to development.

Valley Oak Woodland and Oak Savannah

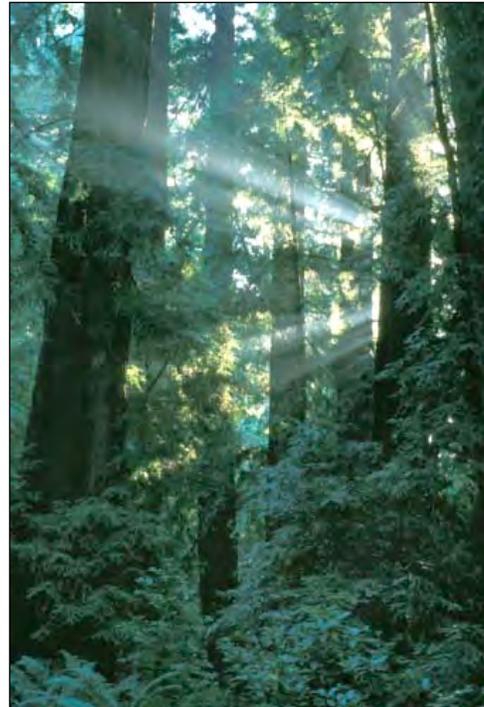
Typical valley oak (*Quercus lobata*) woodlands and oak savannahs have open canopies, grassy ground cover, and a predominance of deciduous oaks. Valley oak woodland has tree cover of 30% or greater and oak savannah has coverage of less than 30%. In earlier times these plant communities were predominant on the valley floor, but now only fragments remain. Near moist drainages and on shaded slopes valley oak woodland grades into mixed evergreen forest as the elevation rises. Associated plant species are poison oak (*Toxicodendron diversilobum*), coffeeberry (*Rhamnus californica*), and creeping wild rye (*Leymus triticoides*). Acorns are a major food source for many species of birds and mammals. Large trunks and branches with cavities are used by hole nesting birds.



Mixed woodland in the fall, Elliot Nature Preserve

Broadleaved Upland Forest

The predominant forest type in Marin county is a mixed evergreen forest characterized by closed-canopy stands of broad-leaved evergreen hardwoods. There are several associations commonly found in this forest type: oak-bay-madrone; coast live oak; and California bay. Mixed evergreen forest is found on King Mountain and elsewhere on the western slopes of the Ross Valley. Associated plant species are poison oak, snowberry (*Symphoricarpos albus* var. *laevigatus*), toyon (*Heteromeles arbutifolia*), coffeeberry, and yerba buena (*Satureja douglasii*). Acorns produced by coast live oaks supply food for many species of birds and mammals.



Redwoods, tan bark oaks and ferns

Mixed Evergreen Forest

This community is part of the broader north coast coniferous forest, and includes Douglas-fir (*Pseudotsuga menziesii*), coast redwood (*Sequoia sempervirens*), tanoak (*Lithocarpus densiflorus*), coast live oak and California bay (*Umbellularia californica*). Redwoods usually occur in dense stands on well drained, moist sites within the reach of summer fogs. Stands are found near Phoenix Lake and at the foot of White's Hill. Associated plant species include toyon, coffeeberry, and hazel (*Corylus cornuta*). The multistoried canopy provides a complexity that supports a diversity of wildlife.

Urban/Suburban Vegetation

Development has had varying impacts on natural habitats, from total destruction in areas of filled salt marsh, to minor impacts in the case of wooded slopes with very low-density housing. Creeks constitute a

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valuable corridor of largely native trees (82% of the trees lining the three creeks in the community of San Anselmo are native species). Irrigated ornamental plantings are an important component of valley floor development, and are often sources of nectar and berries for wildlife.

Impervious Surfaces

Structures, large paved areas, and ornamental vegetation dominate valley floor development and some parts of the watershed are fully covered with paving, structures, or other impervious surfaces. Although buildings can provide nest sites for the Pacific Slope flycatcher, black phoebe, swallow, robin, starling, house finch, and house sparrow, such areas have very limited habitat value. In addition to the habitat loss their presence represents, their negative effects include increased peak flows from rainfall events and diminished groundwater supplies. This occurs both because water falling on impervious surfaces cannot infiltrate the soil, leading to a larger volume of runoff and because the time required for the runoff to reach the creeks is reduced.

Listed and Other Special Status Plant Species in the Watershed

The watershed is either known to provide habitat for, or may provide habitat for, the special status species described below. Special status species include: all species listed as threatened or endangered by the USFWS or by the State of California; all candidates for listing; California species of special concern; federal species of concern; and, for plants, those species on CNPS Lists 1, 2, 3 and 4. Table 1 lists the special status plant species and provides information on the status of each.

Amorpha californica ssp. *napensis*

Habitat: Mixed evergreen woodland

Life Form: Shrub, small tree

Blooming: May-June

This species is found on Mt. Tamalpais above San Anselmo Canyon (Smith 1997).

Arcostaphylos hookeri ssp. *montana* Mt. Tamalpais manzanita

Habitat: Chaparral, foothill grasslands/serpentine

Life Form: Shrub (evergreen)

Blooming: February-April

This species is known from fewer than twenty occurrences in the Mt. Tamalpais area (Skinner and Pavlik 1994). Howell (1970) reports that this species is found on Carson Ridge. MMWD (1990) documents its occurrence along Pine Mountain Ridge.

Boschniakia hookeri small groundcone

Habitat: Understory of open coniferous forest

Life Form: Parasitic perennial herb on huckleberry

Blooming: April-May

This difficult-to-find species occurs on Mt. Tamalpais (Smith 1997).

Calamagrostis ophiditis serpentine reedgrass

Habitat: Serpentine areas

Life Form: Perennial grass

Blooming: April-June

This species occurs on Carson Ridge (Smith 1997).

Calandrinia breweri Brewer's calandrinia

Habitat: Burned or disturbed chaparral

Life Form: Annual herb

Blooming: April-May

This species is found on Mt. Tamalpais (Smith 1997).



Mount Tamalpais jewel-flower

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Table 1: Preliminary list of special status plant species in Corte Madera Creek watershed

Scientific Name	Common Name	Fed.	Status State	CNPS
<i>Amorpha californica</i> ssp. <i>napensis</i>				3
<i>Arctostaphylos hookeri</i> ssp. <i>montana</i>	Mt. Tamalpais manzanita	SPOC		1B
<i>Boschniakia hookeri</i>	small groundcone			2
<i>Calamagrostis ophitidis</i>	serpentine reedgrass			4
<i>Calandrinia breweri</i>	Brewer's calandrinia			4
<i>Calochortus umbellatus</i>	Oakland star tulip			4
<i>Cirsium hydrophilum</i> var. <i>vaseyi</i>	Mt. Tamalpais thistle	SPOC		1B
<i>Elymus californicus</i>	California bottle-brush grass			4
<i>Erigeron luteolum</i> var. <i>caninum</i>	Tiburon buckwheat			3
<i>Grindelia stricta</i> var. <i>augustifolia</i>	marsh gumplant			4
<i>Helianthella castanea</i>	Diablo helianthella	SPOC		1B
<i>Holocarpus macradenia</i>	Santa Cruz tarplant	C	E	1B
<i>Horkelia tenuiloba</i>	thin-lobed horkelia	SPOC		1B
<i>Lessingia micradenia</i> var. <i>micradenia</i>	Tamalpais lessingia	SPOC		1B
<i>Micropus amphibolus</i>	Mt. Diablo cotton weed			4
<i>Microseris paludosa</i>				3
<i>Navarretia rosulata</i>	Marin County navarretia	SPOC		1B
<i>Pentachaeta bellidiflora</i>	White-rayed pentachaeta	E	E	1B
<i>Pleuropogon hooverianus</i>	North Coast sempahore grass	SPOC	R	1B
<i>Polygonum marinense</i>	Marin knotweed	SPOC		3
<i>Quercus parvula</i> var. <i>shrevei</i>				3
<i>Quercus parvula</i> var. <i>tamalpaisensis</i>				3
<i>Streptanthus batrachopus</i>	Tamalpais jewel-flower			1B
<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i>	Mt. Tamalpais jewel-flower			1B
<i>Zigadenus micranthus</i> var. <i>fontanus</i>				3

STATUS

Federal: C = candidate for listing; i.e., species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support listing; E = endangered; PE = proposed endangered; SPOC = species of concern; T = threatened.

State: E = endangered; R = rare; SSC = species of special concern; T = threatened.

CNPS: California Native Plant Society
1B = plants rare and endangered in California and elsewhere;
2 = plants that are rare in California but more common elsewhere;
3 = plants for which more information is needed to evaluate status;
4 = plants of limited distribution: a watch list.

Notes: Species are listed in alphabetical order by scientific name, within taxonomic groups.

Calochortus umbellatus Oakland star tulip
Habitat: Serpentine areas
Life Form: Perennial bulb
Blooming: March-April
This species occurs on Mt. Tamalpais (Smith 1997).

Cirsium hydrophilum var. *vaseyi* *Mt. Tamalpais thistle*
Habitat: Broad-leaved upland forest; Chaparral / serpentinite seeps
Life Form: Shrub (evergreen)
Blooming: January-March
Known from fewer than ten occurrences on Mt. Tamalpais. Threatened by road construction and non-native plants

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(Skinner and Pavlik 1994). Howell (1970) reports that this species is found on Carson Ridge; accordingly, it may occur in the upper reaches of the watershed on MMWD lands.

Elymus californicus California bottle-brush grass

Habitat: North coast conifer forest

Life Form: Perennial herb

Blooming: June-August

This grass grows in association with redwood, Douglas-fir, and Bishop pine, plus coyote brush, blackberry, and sword fern. A historic occurrence has been reported at Pilot Knob (MMWD 1990).

Erigeron luteolum var. *caninum* Tiburon buckwheat

Habitat: Serpentine areas

Life Form: Annual herb

Blooming: June-September

This species occurs in openings in chaparral on Mt. Tamalpais (Smith 1997). MMWD (1990) reports that it occurs at several sites on Carson Ridge.

Grindelia stricta var. *angustifolia* marsh gumplant

Habitat: Bay salt marshes

Life Form: Perennial herb

Blooming: June-September

This species occurs in the marsh north of the Village Shopping Center, west of Highway 101 in Corte Madera (Smith 1997).

Helianthella castanea Diablo helianthella

Habitat: Openings in chaparral

Life Form: Perennial herb

Blooming: May

This species is from Mt. Tamalpais, although it has not been observed recently (Smith 1997).

Holocarpha macradenia Santa Cruz tarplant

Habitat: Coastal prairie; foothill grassland / often clay

Life Form: Annual herb

Blooming: June-October

This species is presumed extirpated in Marin County (Skinner and Pavlik 1994). Howell (1970) reports that it is known in Marin County only from a collection made in the Ross Valley in 1883.

Horkelia tenuiloba thin-lobed horkelia

Habitat: Chaparral (openings in moist areas)

Life Form: Perennial herb

Blooming: May-July

This species is known from four locations on MMWD land, including one on Carson Ridge west of Happersberger Point within the Corte Madera Creek watershed (MMWD 1990).

Lessingia micradenia var. *micradenia* Tamalpais lessingia

Habitat: Chaparral; foothill grassland / usually serpentine, often roadsides

Life Form: Annual herb

Blooming: June-September

This species is known only from Marin County (Skinner and Pavlik 1994). According to Howell (1970), it has been collected at Phoenix Lake and the type locality is the north side of Mt. Tamalpais, on water district lands in the watershed.

Micropus amphibolus Mt. Diablo cotton weed

Habitat: Grassland

Life Form: Annual herb

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Blooming: April-May

This species, difficult to distinguish from *M. californicus*, occurs on Mt. Tamalpais (Smith 1997).

Microseris paludosa

Habitat: Coastal grassland

Life Form: Perennial herb

Blooming: May-June

This species may occur in Corte Madera (Smith 1997).

Navarretia rosulata Marin County navarretia

Habitat: Closed-cone conifer forest; chaparral/serpentine

Life Form: Annual herb

Blooming: June-July

The type locality for this species is near San Anselmo; it has also been observed on Carson Ridge (Howell 1970) and on Pam's Blue Ridge, Fairfax (Smith 1997).

Pentachaeta bellidiflora White-rayed pentachaeta

Habitat: Foothill grasslands / may occur on serpentine

Life Form: Annual herb

Blooming: March-May

According to CNPS, the Marin County and Santa Cruz populations have been extirpated by development; the only known populations as of 1994 were in San Mateo County along Highway 280 (Skinner and Pavlik 1994). The type locality is in Corte Madera, with historical occurrences in Larkspur and the Greenbrae hills (Howell 1970).

Pleuropogon hooverianus North Coast semaphore grass

Habitat: Broad-leaved upland forest, meadows and seeps, north coast conifer forest

Life Form: Perennial herb (rhizomatous)

Blooming: May-August

This plant has been observed on Corte Madera Ridge, along the Northside Trail, at Phoenix Lake, and in San Anselmo Canyon above Fairfax (Howell 1970).

Polygonum marinense Marin knotweed

Habitat: Coastal saltmarsh

Life Form: Annual herb

Blooming: June-August

Two populations were observed near Creekside housing development in Larkspur during surveys conducted in 1987 (ESA 1987). These species are in an area fenced from the public and signed for the protection of sensitive resources.

Quercus parvula var. *shrevei*

Habitat: Mixed evergreen forest

Life Form: Small tree

Blooming: March

This species is found on Mt. Tamalpais (Smith 1997).

Quercus parvula var. *tamalpaisensis*

Habitat: Shaded places

Life Form: Small tree

Blooming: March

This species is found on Mt. Tamalpais (Smith 1997).

Streptanthus batrachopus Tamalpais jewel-flower

Habitat: Broad-leaved upland forest, Meadows and seeps, North Coast conifer forest

Life Form: Annual herb

Blooming: May-June

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This species is known from fewer than ten occurrences on Mount Tamalpais (Skinner and Pavlik 1994). Howell (1970) identifies Carson Ridge as one of the known sites.

Streptanthus glandulosus ssp. *pulchellus* Mt. Tamalpais jewel-flower

Habitat: Chaparral, foothill grassland / usually serpentine

Life Form: Annual herb

Blooming: May-July

This species is endemic to Mount Tamalpais (Skinner and Pavlik 1994). It is known from the East Peak of Tamalpais and Carson Ridge (Howell 1970).

Zigadenus micranthus var. *fontanus*

Habitat: Moist serpentine areas

Life Form: Perennial herb

Blooming: May-June

This species is found on Mt. Tamalpais and Carson Ridge (Smith 1997).

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