

SPECIES: *Cupressus macrocarpa*

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ABBREVIATION :

CUPMAC

SYNONYMS :

NO-ENTRY

SCS PLANT CODE :

CUMA2

COMMON NAMES :

Monterey cypress

TAXONOMY :

The currently accepted scientific name of Monterey cypress is *Cupressus macrocarpa* Gordon [[12](#)]. It is a member of the Cupressaceae family. There are no recognized infrataxa.

In New Zealand, interspecific hybrids and backcrosses between Monterey cypress and Mexican cypress (*Cupressus lusitanica*), and Monterey cypress and Arizona cypress (*C. arizonica*), occur in cultivation. These species have also been crossed artificially [[22](#)].

LIFE FORM :

Tree

FEDERAL LEGAL STATUS :

Notice of Review, Category 2

OTHER STATUS :

The California Native Plant Society lists Monterey cypress in Category 1B: rare or endangered in California [[27](#)].

DISTRIBUTION AND OCCURRENCE

SPECIES: *Cupressus macrocarpa*

GENERAL DISTRIBUTION :

Monterey cypress occurs in two natural stands in Monterey County, California. One stand is between Point Cypress and Pescadero Point on the north side of Carmel Bay, Monterey Peninsula. A smaller one is near Point Lobos on the south side of Carmel Bay [[13](#),[33](#)]. Monterey cypress is widely planted and naturalized on the California coast [[13](#)]. It has been planted in Hawaii, Europe, South America, Australia, and New Zealand [[17](#)].

ECOSYSTEMS :

FRES34 Chaparral - mountain shrub

STATES :

CA HI

BLM PHYSIOGRAPHIC REGIONS :

3 Southern Pacific Border

KUCHLER PLANT ASSOCIATIONS :

K009 Pine - cypress forest
K033 Chaparral

SAF COVER TYPES :

NO-ENTRY

SRM (RANGELAND) COVER TYPES :

NO-ENTRY

HABITAT TYPES AND PLANT COMMUNITIES :

Monterey cypress is the dominant component of the Monterey cypress forest community [[13](#)]. This community is a moderately dense, fire-maintained forest up to 82 feet (25 m) tall in sheltered areas [[13](#),[31](#)]. Monterey cypress typically grows in pure stands with an understory of scattered dwarf shrubs and perennial herbs [[13](#)]. It intergrades with northern coastal bluff scrub on exposed seaward edges

and with Monterey pine (*Pinus radiata*) forest away from the ocean [13,33]. Monterey cypress is associated with closed-cone coniferous woodlands and closed-cone pine-cypress forests [23,27,33].

Publications naming Monterey cypress as a community dominant are listed below.

Preliminary descriptions of the terrestrial natural communities of California [13]

The vascular plant communities of California [31]

The closed-cone pines and cypress [33]

Species not previously mentioned but commonly associated with Monterey cypress include Gowen cypress (*Cupressus goveniana* ssp. *goveniana*), California sagebrush (*Artemisia californica*), chamise (*Adenostoma fasciculatum*), Hooker manzanita (*Arctostaphylos hookeri*), woolyleaf manzanita (*A. tomentosa*), chaparral broom (*Baccharis pilularis*), coyotebrush (*B. pilularis* var. *consanguinea*), blue blossom (*Ceanothus thyrsoiflorus*), liveforever (*Dudleya farinosa*), seaside daisy (*Erigeron glaucus*), golden-yarrow (*Eriophyllum confertiflorum*), lizard tail (*E. staechidifolium*), salal (*Gaultheria shallon*), Douglas iris (*Iris douglasiana*), bush monkeyflower (*Mimulus aurantiacus*), Pacific bayberry (*Myrica californica*), skunkweed (*Navarretia squarrosa*), poison-oak (*Toxicodendron diversiloba*), and California huckleberry (*Vaccinium ovatum*) [13,19,33].

MANAGEMENT CONSIDERATIONS

SPECIES: *Cupressus macrocarpa*

WOOD PRODUCTS VALUE :

Monterey cypress wood is durable [10,11,22]. Natural durability of heartwood of Monterey cypress is high, 10 to 15 years' ground life and over 15 years above ground [22]. It is suitable for a wide range of exterior uses including joinery, shingles, and boats. Possible interior uses include moulding and panelling [11,22]. Cypress shelterbelts provide good firewood. Most cypress species develop a large proportion of heartwood, which splits well, dries quickly, and is clean burning. Monterey cypress wood is moderately fast burning because of its low to medium density [11,22]. As cypress woods are prone to sparking, they are recommended only for enclosed fires [22].

Monterey cypress is planted in Africa and New Zealand for lumber and pulp production [[14](#)].

IMPORTANCE TO LIVESTOCK AND WILDLIFE :

Rodents and deer consume cypress seedlings. Cypress are considered undesirable forage for livestock, although young plants are occasionally browsed [[34](#)].

PALATABILITY :

NO-ENTRY

NUTRITIONAL VALUE :

NO-ENTRY

COVER VALUE :

NO-ENTRY

VALUE FOR REHABILITATION OF DISTURBED SITES :

NO-ENTRY

OTHER USES AND VALUES :

Monterey cypress has been planted widely for ornament, hedges, and windbreaks in the Pacific States, Europe, South America, Australia, New Zealand, and the Falkland Islands [[17,18,22](#)].

OTHER MANAGEMENT CONSIDERATIONS :

Monterey cypress is considered rare in its range. Portions of the Monterey cypress grove on Monterey Peninsula have been destroyed for housing developments and golf courses [[2,3](#)].

Grazing and trampling by livestock are detrimental to cypress seedlings [[2,3](#)].

In Tasmania, ingestion of foliage of Monterey cypress trees has been associated with abortion in cattle and cerebral leucomalacia of the aborted fetus [[26](#)].

Monterey cypress seedlings are susceptible to damping-off fungi [[2,33](#)]. Monterey cypress is highly susceptible to coryneum canker (*Coryneum cardinale*), which can kill trees. Coryneum canker (cypress canker) may spread naturally by rain, wind, birds, rodents, and bark beetles, which disseminate fungal spores [[7](#)]. Coryneum canker has eliminated some inland plantations of Monterey cypress [[14](#)]. Monterey cypress trees on the coast seem resistant to coryneum canker possibly because of the constant spray of salt, which decreases fungal spore viability [[33](#)].

One species of bark beetle (*Ernobius conicola*) infests green and dry cones of Monterey cypress and dead branches of the same host. It only

infests trees found in the two native populations on Monterey Peninsula.

Two moth species (*Laspeyresia cupressana* and *Henricus macrocarpa*) are associated with the bark beetle in 2-year-old Monterey cypress cones. The larvae of these insects can cause damage to the seeds [7,8].

In park plantings in San Francisco, Monterey cypress trees grow rapidly and are overmature by 70 years of age. Many have root rot, excessive lean, large dead branches, and a small proportion of live crown [5].

Methods for establishing Monterey cypress in New Zealand are described by Glass [10].

BOTANICAL AND ECOLOGICAL CHARACTERISTICS

SPECIES: *Cupressus macrocarpa*

GENERAL BOTANICAL CHARACTERISTICS :

Monterey cypress is a native, evergreen tree. In native groves, trees on the coastal fringe are severely sculptured and distorted. A short distance inland, an erect form and light branching are apparent, showing that this cypress, although capable of enduring wind and salt-blasting, responds well to shelter [22,34]. Monterey cypress grows to 82 feet (25 m) tall. Mature leaves are 0.08 inch (2 mm) long, although they can be up to 0.4 inch (10 mm) on vigorous shoots [2,23,34]. Ovulate cones are solitary, up to 1.4 inches (35 mm) long. Staminate cones are 0.24 (6 mm) long [12,23,34]. The bark is thick and fibrous, becoming furrowed with age [23,34]. A well-defined taproot and numerous laterals are formed the first year [14,34]. Naturalists at the Point Lobos State Reserve have estimated the maximum age of Monterey cypress at 200 to 300 years [33].

RAUNKIAER LIFE FORM :

Phanerophyte

REGENERATION PROCESSES :

Monterey cypress reproduces exclusively from seed. Cone production is

abundant. Staminate cone production begins on trees that are 6 to 7 years old [34]. Ovulate cone production begins on trees that are less than 10 years of age [5]. The cones require 2 years to mature [2,33] and can contain 140 seeds [14]. The cones of Monterey cypress remain closed for only a few years after maturity; seed dispersal is a continuous process and can occur without fire [20,35]. Seeds maintain viability for up to 4 years on trees [5]. Seed dispersal is primarily by wind and rain [8,33].

Cypress seeds require bare mineral soil for germination and establishment. Seedling mortality is high on shaded sites with abundant litter because of damping-off fungi [2,33]. Seedlings are sensitive to excessive moisture [34].

SITE CHARACTERISTICS :

In native stands, Monterey cypress is confined to rocky, granitic soils of coastal headlands and bluffs exposed to nearly constant onshore winds [13,35]. These acidic, sandy soils generally have a pH of 4.5 to 5.5 [33]. Monterey cypress occurs at elevations from sea level to 100 feet (30 m) [12,24].

SUCCESSIONAL STATUS :

Facultative Seral Species

Site requirements for cypress seedlings are typical of those for pioneer conifers. Seedlings are shade intolerant and survive best in full sunlight on bare mineral soil [2,33]. According to Armstrong [2], cypress trees of southern California are very sensitive to lack of light, losing their foliage when growing in shade.

Although chaparral species inhibit the establishment of cypress seedlings, few chaparral species are able to compete on infertile soils where Monterey cypress is found [2,3]. Pines may outcompete Monterey cypress where they are found together [34].

SEASONAL DEVELOPMENT :

In California, growth and development of Monterey cypress cones begins in January and extends to December of the same year. In the second year of development, cones are pollinated in February and March [8]. Seeds mature 15 to 18 months after pollination [14].

FIRE ECOLOGY

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FIRE ECOLOGY OR ADAPTATIONS :

Monterey cypress is a fire-adapted species with serotinous cones [33]. Serotiny is less pronounced in Monterey cypress than in other California cypress species, possibly due to reduced frequency of intense crown fires near the ocean [20,33]. Monterey cypress is capable of seedling establishment with or without crown fire, although fire provides optimum site conditions for regeneration [20]. Some Monterey cypress trees survive fire; "fire-hollowed" trees were reported on sites containing both Monterey cypress and pines [34].

When cones of the California cypress species are opened by the heat of a fire, the seeds fall on exposed mineral soil [16,34]. Most seed falls in the first few months following fire [35]. Fires that occur in late summer and fall and are followed by winter rains ensure seed dissemination on bare mineral substrates and moist conditions for germination [33]. No information was available on fire-free intervals for communities dominated by Monterey cypress. Tecate cypress (*Cupressus guadalupensis* var. *forbesii*), a cypress found in southern California, has an average interval between fires of 25 years, ranging from 15 to 63 years [2,33].

POSTFIRE REGENERATION STRATEGY :

Tree without adventitious-bud root crown
Crown residual colonizer (on-site, initial community)
Initial-offsite colonizer (off-site, initial community)

FIRE EFFECTS

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IMMEDIATE FIRE EFFECT ON PLANT :

Most fires probably kill Monterey cypress. Cypress thickets are conducive to crown fires, which usually kill most trees in the burned area. Some trees survive when fires are patchy [33]. Large trees might survive surface fires.

Cones of the California cypress species open as the resin melts and boils. Rapid charring of the thick cone scales extinguishes the flames, leaving seeds unburned [2].

DISCUSSION AND QUALIFICATION OF FIRE EFFECT :
NO-ENTRY

PLANT RESPONSE TO FIRE :
California cypress species trees release large quantities of seed after fire [34].

DISCUSSION AND QUALIFICATION OF PLANT RESPONSE :
NO-ENTRY

FIRE MANAGEMENT CONSIDERATIONS :
Fires occurring too frequently in groves of California cypress species may destroy them, as reproduction could be eliminated before trees have a chance to produce cones [2]. Fire followed by intensive grazing could eliminate a cypress grove [2,3].

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