

Excerpted from

CALIFORNIA NATURAL HISTORY GUIDES

TREES and SHRUBS OF CALIFORNIA

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DESCRIPTIONS OF GENERA AND SPECIES

ACACIA (ACACIA)

Acacia is a large genus with 1,200 tree and shrub species; 1 species is native to California. The genus is especially diverse in Australia.

CATCLAW ACACIA (Fig. 50)

Acacia greggii

DESCRIPTION: A shrub armed with prickles that often grows to be 3.5 m (12 ft) tall. The largest lives in Red Rock, New Mexico, and is 14.9 m (49 ft) tall and 62 cm (24 in.) in diameter. **LEAVES** are alternate and deciduous. Blades are compound, with several blade axes measuring from 2.5 cm (1 in.) to 5 cm (2 in.) long. Each axis has 8 to 12 leaflets that are about 6 mm (.25 in.) long. Blade axes lack terminal leaflets. **INFLORESCENCES** are elongated clusters of many small flowers. Each cluster is from 2 cm (.75 in.) to 5 cm (2 in.) long. **FLOWERS** are yellow and individually inconspicuous. The many yellow stamens provide the conspicuous color of the showy inflorescences. **FRUITS** are legumes with blunt tips and measure 5 cm (2 in.) to 15 cm (6 in.) long. **TWIGS** are gray with curved prickles about 6 mm (.25 in.) long.

HABITAT AND RANGE: Grows along washes below 600 m (2,000 ft) in the Mojave, Sonoran, and Colorado Deserts in California. It ranges east into Texas and south into Mexico.



REMARKS: Catclaw acacia is the only native acacia in the state; it is generally uncommon but locally abundant. Thirteen species of acacia have escaped from cultivation in California, some of which are noxious weeds. Another descriptive common name for this species is wait-a-minute.

ACER (MAPLE)

Acer has 124 species, nearly all of which grow in temperate climates in the Northern Hemisphere. Fourteen maple species are found in the United States, and 4 of these grow in California.



Figure 50
Catclaw acacia,
Acacia greggii

Most maples have deciduous, opposite leaves that are either simple or compound. A few evergreen maples grow in Southeast Asia. Simple maple leaves are palmately lobed and veined. The flowers are not showy and can be complete or pistil bearing only or stamen bearing only, on the same or on different plants. Fruits are double samaras that break into segments at maturity.

The California maples usually grow on lower slopes, where soil moisture is more abundant. Maples often provide the primary fall color in California's forests and woodlands. In the fall, bigleaf maple and box-elder are noted for yellow leaves, mountain maple for yellow to orange-yellow leaves, and vine maple for orange-red to red leaves. The genus is renowned as a source of syrups and sweets as well as timber. In California, bigleaf maple can be tapped for syrup if it grows in an environment that is sufficiently cold. Bigleaf maple furniture, cabinets, and flooring are manufactured in northern California. Recently, cancer chemotherapeutic drugs have been made from box-elder. Maples are widely planted as ornamentals in gardens

and on streets. The genus has great potential in urban forestry applications.

1. Leaves are simple and palmately lobed 2
1. Leaves are compound, with 3 to 7 leaflets 4
 2. Leaves are generally broader than 12.5 cm (5 in.) in diameter. Lobes are coarsely toothed but not serrated. The central lobe is narrow at its base and wide at its apex. Flowers and samaras form elongated clusters
. **bigleaf maple** (*A. macrophyllum*)
 2. Leaves are less than 12.5 cm (5 in.) in diameter. Lobes are serrated. Flowers and samaras form rounded clusters 3
3. Leaves have 5 to 9 major lobes. Lobe sinuses are less than 33% of the length of the lobe. Leaves are almost fanlike in outline. Lobe margins are singly serrated
. **vine maple** (*A. circinatum*)
3. Leaves have 3 major lobes. Lobe sinuses are 33% or more of the length of the lobe. Leaves are not almost fanlike in outline. Lobe margins are often doubly serrated
. **mountain maple** (*A. glabrum*)
4. Leaves have 3 to 7 pinnately compound leaflets. Leaflets are highly variable in shape. Leaflet margins are coarsely lobed or toothed. Trees are found at low elevations
. **box-elder** (*A. negundo*)
4. Leaves have 3 leaflets. Leaflets are somewhat uniform in shape. Leaflet margins are often doubly serrated. Shrubs are found at montane elevations
. **mountain maple** (*A. glabrum*)

VINE MAPLE (Fig. 51) ***Acer circinatum***

DESCRIPTION: A multistemmed, straggly shrub or small tree. Mature plants typically grow to be 10 m (35 ft) tall. The largest lives in Tillamook County, Oregon, and is 14 m (46 ft) tall and 53 cm (21 in.) in diameter. Stems are typically crooked and spreading, and they can root at the nodes. Crowns are uneven and broad to rounded. **LEAVES** are opposite, simple, and deciduous. Blades are pale green, thin, 5 cm (2 in.) to 12.5 cm (5 in.) wide, and palmate, with 5 to 9 lobes. Lobes are acute, with sharply serrated margins. Lobe sinuses are less than 25% of the length of the lobe. The leaf is almost round in outline. **INFLO-**

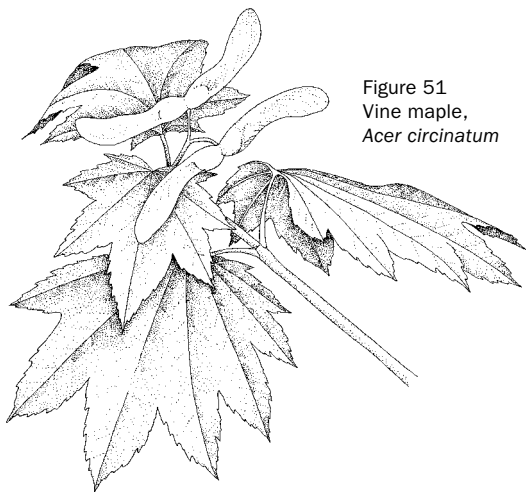
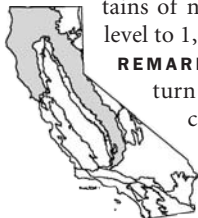


Figure 51
Vine maple,
Acer circinatum

RESCENCES form rounded clusters of 2 to 10 flowers. **FLOWERS** may be complete or may bear stamens only. Petals are greenish white. Plants bloom in April or May as new leaves appear. **FRUITS** are reddish double samaras. Fruit bodies lack hairs. Wings are widely divergent at a nearly 180° angle. Samaras are 1 cm (.4 in.) to 4 cm (1.5 in.) long. **TWIGS** are hairless; are brown, purple, or pale green; and often have white speckles. **HABITAT AND RANGE:** Grows in coastal and montane forests and woodlands, where it inhabits stream banks in deep shade. The species occurs from southern Alaska to the mountains of northern California, at elevations from sea level to 1,500 m (5,000 ft).



REMARKS: In the autumn, vine maple leaves turn yellow, orange, or red, bringing patches of color to dark forests. The species is ornamental and easily propagated from seed or cuttings. Leaves are palatable to cattle, deer, elk, and sheep.

MOUNTAIN MAPLE (Fig. 52)

Acer glabrum

DESCRIPTION: An erect, single-stemmed shrub or small tree. It commonly grows to be 4.5 m (15 ft) tall. The largest lives

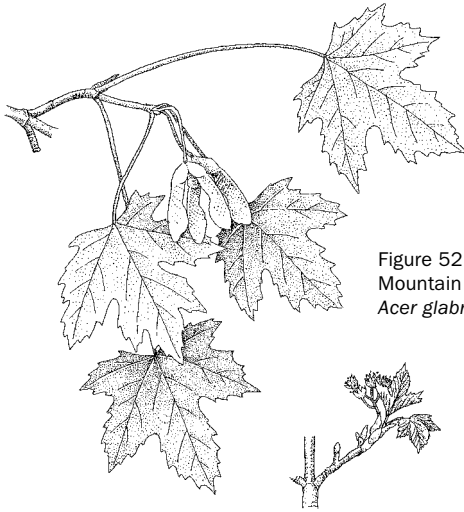
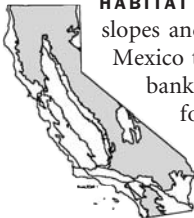


Figure 52
Mountain maple,
Acer glabrum

in Island City, Washington, and is 20.4 m (67 ft) tall and 86 cm (34 in.) in diameter. Crowns are rounded, with branches close to the ground. **LEAVES** are opposite, simple (rarely compound), 2 cm (.75 in.) to 4 cm (1.5 in.) wide, and deciduous. Blades are green on the upper surfaces and gray on the lower surfaces. They are thin and palmate, with 3 major and 2 supplementary lobes. Lobes are acute, with serrated margins. Lobe sinuses are more than 33% of the length of the lobe. **INFLORESCENCES** form rounded clusters of 2 to 10 flowers. **FLOWERS** may be complete or may bear only stamens or pistils. Petals are greenish yellow. Plants bloom in May or June after the new leaves appear. **FRUITS** are yellow or red double samaras. Fruit bodies lack hairs. Wings diverge at oblique angles. Samaras are 1 cm (.4 in.) to 2.5 cm (1 in.) long. **TWIGS** are red or white.



HABITAT AND RANGE: Grows on montane rocky slopes and canyons in western North America from Mexico to Alaska. In California it grows near riverbanks and occurs as undergrowth in montane forests, at elevations from 900 m (3,000 ft) to 2,700 m (9,000 ft).

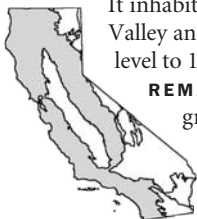
REMARKS: *A. glabrum* is a complex of forms that have been treated as sub-

species and varieties by different botanists. The typical form occurs in the Rocky Mountains. California types differ in leaf size and shape, color of twigs, and fruit characteristics. One variety, *A. g. var. diffusum*, has small leaves and white, rather than red, twigs. It grows in the San Jacinto Mountains, other desert mountains, and the eastern Sierra Nevada. The more extensive variety, *A. g. var. torreyi*, has 5-lobed leaves and samaras whose wings spread at an approximately 45° angle, whereas *A. g. var. greenii* has very small leaves and samaras with overlapping wings. It grows only in the southern Sierra Nevada.

BIGLEAF MAPLE (Fig. 53) *Acer macrophyllum*

DESCRIPTION: An erect, tall, single-stemmed tree that can grow to be around 30 m (100 ft) tall. The largest lives in Clatsop County, Oregon, and is 30 m (101 ft) tall and 3.4 m (133 in.) in diameter. When the species is open-grown, its crown is extensive and domed. **LEAVES** are opposite, simple, and deciduous. Blades are palmate, with 5 lobes, sometimes 3. Lobes have large coarse teeth. The central lobe is “narrow waisted,” i.e., narrow at the base and flared at the apex. Sinuses extend to at least 50% of the lobe length. Leaf size varies greatly, but leaves can be as large as 35 cm (14 in.) wide. Leaves are more pubescent on the lower surfaces than upper ones. Petioles are red and exude a milky sap. **INFLORESCENCES** form elongated clusters of flowers. **FLOWERS** may be complete or may bear stamens only. Petals are yellowish green. Plants bloom in April and May as the new leaves appear. **FRUITS** are tawny when mature. Samaras are covered with stiff hairs, and wings diverge at oblique angles. **TWIGS** are green when young. **BARK** of old trees is thick and deeply fissured.

HABITAT AND RANGE: Commonly grows along stream banks and in canyons, but it can occur in a variety of habitats, even on dry, rocky slopes. It is found from Alaska to California. It inhabits all regions of California except the Central Valley and the deserts. It grows at elevations from sea level to 1,500 m (5,000 ft).



REMARKS: Leaf size and hairiness vary greatly throughout the range of the species, enough so that at least 9 species have been proposed in the past, although only 1 is recognized today. Bigleaf maples of

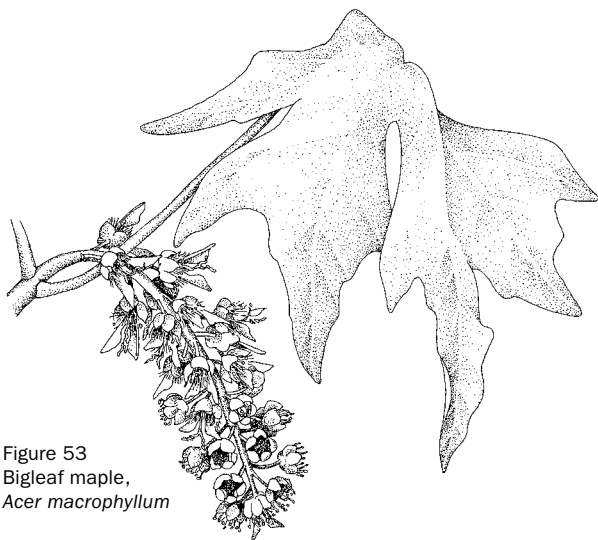


Figure 53
Bigleaf maple,
Acer macrophyllum

all ages support luxuriant epiphytic growth, especially when living in riparian zones. This species is the most abundant of the native maples growing in California.

BOX-ELDER (Fig. 54)

Acer negundo

DESCRIPTION: An erect, small- to medium-sized, single-stemmed tree that can grow to be around 24 m (80 ft) tall. The largest lives in Washtenaw County, Michigan, and is 33.5 m (110 ft) tall and 1.7 m (68 in.) in diameter. Crowns are broad and irregular, with branches close to the ground. **LEAVES** are pinnately compound, opposite, and deciduous. The 3 to 7 leaflets are each 5 cm (2 in.) to 11 cm (4.5 in.) long, with coarsely toothed margins. The lower surfaces are paler, with more hairs than on the upper ones. Juvenile leaves are quite hairy and adult leaves are covered with whitish hairs. Terminal leaflets are the largest. **INFLORESCENCES** form elongated, droopy clusters of flowers. **FLOWERS** are incomplete, bearing only stamens on some plants or pistils on others. Petals are absent. Plants bloom in April or May before the leaves appear. **FRUITS** are double samaras and are red when young and yellow when mature.

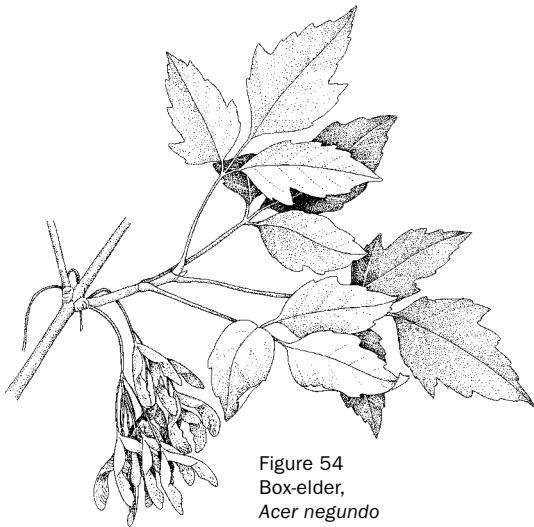


Figure 54
Box-elder,
Acer negundo

low at maturity. Fruit bodies are covered with fine hairs. Wings diverge at oblique angles. **TWIGS** are hairy and green.

HABITAT AND RANGE: Grows in forests and woodlands inhabiting streamsid es and bottomlands. It occurs throughout California, except in the deserts, from sea level to 1,800 m (6,000 ft), although it is usually found at relatively low elevations. While it may be locally abundant along a particular stream, it is not found on every stream in a region.



REMARKS: Heavy pubescence on the leaves distinguishes the California subspecies, *A. n. ssp. californicum*, from the 3 other recognized subspecies. It is widely planted as an ornamental in California, especially as a street tree in the Central Valley. Box-elder has many cultivars.

ADENOSTOMA (CHAMISE)

The genus *Adenostoma* is composed of 2 species native to California and Baja California.

Adenostoma is a collection of evergreen shrubs with clus-

tered, needlelike or linear leaves that are alternate in arrangement. Flowers are small, white, saucerlike blossoms with many stamens, massed in showy, terminal inflorescences. Fruits are dry, 1-seeded achenes embedded in a hardened calyx.

- 1. Leaves are clustered, and bark on old stems is dark gray
..... **chamise** (*A. fasciculatum*)
- 1. Leaves are individual, not clustered, and bark on old stems
is red **red shank** (*A. sparsifolium*)

CHAMISE (Fig. 55) ***Adenostoma fasciculatum***

DESCRIPTION: An erect, rigidly branched shrub that may grow to be 60 cm (2 ft) to 3.5 m (12 ft) tall. Fire-resistant burls can be found at the base of each shrub. **LEAVES** are evergreen, simple, linear or needlelike, sharp pointed, and about 6 mm (.25 in.) long. They are sticky and clustered along the stems. Seedlings and sprouts may have pinnately divided leaves. **INFLORESCENCES** consist of many flowers in terminal, pyramidal clusters that measure 4 cm (1.5 in.) to 10 cm (4 in.) long. **FLOWERS** are small and white. **FRUITS** are 1-seeded achenes. **HABITAT AND RANGE:** This species is one of the more common shrubs in the state's chaparrals. It also grows in coastal scrubs, open forests, and woodlands. Chamise occurs locally and extensively at low elevations in the state, where it graces foothills surrounding the Central Valley, in the central Coast Ranges, and throughout southern California, below 1,500 m (5,000 ft).

REMARKS: Chamise is most important as a stabilizer of watersheds, especially in southern California. In addition, it acts as forage and habitat for wildlife. Native Americans had several medicinal uses for the leaves.



The common name greasewood is sometimes used for this species, though this causes it to be confused with the common desert shrub *Sarcobatus vermiculatus*, found in alkali habitats.

RED SHANK ***Adenostoma sparsifolium***

DESCRIPTION: A large, multistemmed, open-branched shrub or small tree that can grow to be 2 m (6.5 ft) to 6 m (20 ft)

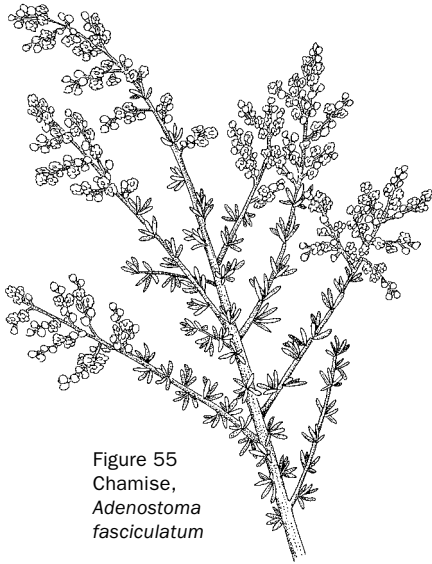
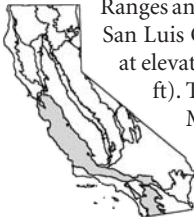


Figure 55
Chamise,
*Adenostoma
fasciculatum*

tall. The largest lives in North Warner Springs and is 7 m (23 ft) tall and 34 cm (13 in.) in diameter. Crowns are rounded, and foliage grows at the ends of long, bare stems. Some plants are more than 100 years old. **LEAVES** are alternate, simple, ever-green, linear, sticky, and 6 mm (.25 in.) to 20 mm (.75 in.) long. Blades are linear and sharp pointed. **INFLORESCENCES** are showy, branched, terminal flower clusters that measure 2 cm (.75 in.) to 6 cm (2.5 in.) long. **FLOWERS** are white to pink and about 2 mm (.1 in.) long. **FRUITS** are small 1-seeded achenes. **TWIGS** are light green and smooth. **BARK** on large stems is reddish brown and thin, and it peels in sheets.

HABITAT AND RANGE: Grows discontinuously in foothill and lower montane chaparrals in the interior southern Coast Ranges and the mountains of southern California from San Luis Obispo County to northern Baja California, at elevations from 500 m (1,600 ft) to 1,800 m (6,000 ft). The species is common in the San Bernardino Mountains and the Peninsular Ranges.



REMARKS: Red shank regenerates primarily from root and burl sprouts. Seedlings are rare. The species provides

browse for small mammals and helps protect watersheds. Native Americans used it to treat skin ailments, and early European settlers used red shank for colds and snakebites. This species is also called red shanks and ribbonwood. The term *red shank* also refers to drill bits.

AESCULUS (BUCKEYE)

The genus *Aesculus* has about 13 species of trees and large shrubs. Five are native to North America, and 1 of these is native to California.

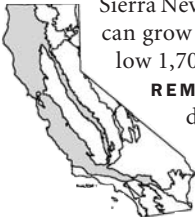
CALIFORNIA BUCKEYE

Aesculus californica

(Fig. 56; Pl. 12)

DESCRIPTION: An erect, single- or multistemmed large shrub or small tree. Mature plants are typically 3.5 m (12 ft) to 9 m (30 ft) tall and 10 cm (4 in.) to 15 cm (6 in.) in diameter. The largest grows in Walnut Creek and is 14.6 m (48 ft) tall and 1.4 m (55 in.) in diameter. Crowns are flat topped to rounded and very broad. Trunks are short, with numerous ascending branches. The species can live to be at least 200 years old. **LEAVES** are deciduous, opposite, and palmately compound. There are between 5 and 7 serrated, oblong to lance-shaped leaflets. Each leaflet is 7.5 cm (3 in.) to 15 cm (6 in.) long. Petioles are 1 cm (.4 in.) to 11 cm (4.5 in.) long. **INFLORESCENCES** form erect, showy clusters that measure 15 cm (6 in.) to 25 cm (10 in.) long. **FLOWERS** bloom from May to July and are pinkish white. **FRUITS** are pear shaped, pendant, and 4 cm (1.5 in.) to 5 cm (2 in.) long. Each leathery capsule contains 1 or 2 large, glossy brown seeds. **BARK** is smooth and grayish white.

HABITAT AND RANGE: A California endemic found in woodlands of the foothills and valleys of the Coast Ranges, Sierra Nevada, and Tehachapi Mountains. The species can grow in riparian zones or on dry, hot slopes below 1,700 m (5,500 ft).



REMARKS: California buckeye is summer-deciduous, losing its leaves in mid- to late summer. In September, California buckeyes can have myriad large, dangling, pear-shaped fruits. All parts of this tree are toxic

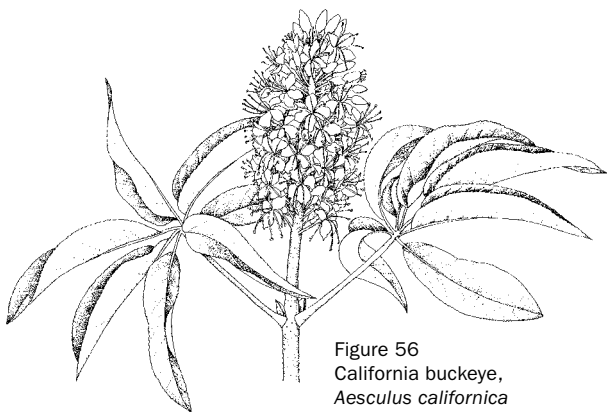


Figure 56
California buckeye,
Aesculus californica

to humans, wildlife, and livestock. They contain glycosidal compounds that affect red blood cells and the central nervous system. Native Americans used the ground seed to stun fish so that they would float to the surface, where they could be harvested. They also ate the mashed, roasted seeds after leaching away their toxins. California buckeye is planted as an ornamental because of its showy flowers and picturesque growth form. It sprouts from its base following injury.

AILANTHUS (*AILANTHUS*)

The genus *Ailanthus* has about 10 species of trees native to Australia and Asia. One species has become naturalized in California.

TREE-OF-HEAVEN (Fig. 57) ***Ailanthus altissima***

DESCRIPTION: A small- to medium-sized, single-stemmed tree. Mature trees are typically 12 m (40 ft) to 21 m (70 ft) tall and about 30 cm (1 ft) in diameter. The largest grows on Long Island, New York, and is 19.5 m (64 ft) tall and 1.9 m (76 in.) in diameter. Crowns are rounded and spreading, and the trees have slender trunks. **LEAVES** are deciduous, alternate, pinnately compound (usually 13 to 25 leaflets), and 30 cm (1 ft) to 90 cm (3 ft) long. Leaflets are egg shaped to lance shaped and 5 cm (2 in.) to



Figure 57
Tree-of-heaven,
Ailanthus altissima

15 cm (6 in.) long. Leaflet margins are entire, with 1 to 4 glandular teeth at their bases. Leaflet tips are sharp pointed and bases are horizontal. **INFLORESCENCES** are multibranched flower clusters that measure 15 cm (6 in.) to 30 cm (12 in.) long. **FLOWERS** are whitish or yellowish green. Pollen-bearing and seed-bearing flowers are on separate trees, or flowers are complete with pollen-bearing and seed-bearing parts. **FRUITS** are samaras about 4 cm (1.5 in.) long, with the seed in the middle of the papery, twisted wing. Samaras form in clusters.

HABITAT AND RANGE: A native to China that has become naturalized along streams in river canyons in California, except in the deserts. It is especially abundant in the Sierra Nevada and Klamath Mountains foothills. Remnant populations can be found near old Chinese and other early-settler living areas.

In California the species is found below 1,200 m (4,000 ft).



REMARKS: Tree-of-heaven grows rapidly on harsh sites. It can reproduce as seedlings, root suckers, and stump sprouts. It is an aggressive weed in disturbed areas. The foliage, flowers, and twigs of tree-of-heaven emit an unpleasant odor when bruised.

ALNUS (ALDER)

The genus *Alnus* has about 30 species; 10 are native to North America, and 4 of these are native to California. All but 1, found

in South America, are native to the Northern Hemisphere. The genus is made up of trees and shrubs.

Leaves are deciduous, alternate, simple, elliptical to egg shaped, and 2.5 cm (1 in.) to 15 cm (6 in.) long. Margins are serrated. Leaf tips are sharp pointed. Small pollen-bearing flowers are aggregated in droopy, slender catkins that measure 5 cm (2 in.) to 20 cm (8 in.) long. Catkins form clusters of 3 to 5. The small seed-bearing flowers form catkins 5 mm (.2 in.) to 20 mm (.8 in.) long. They occur in clusters of 2 or 3. Fruits are winged nutlets enclosed in a woody catkin that resembles a conifer cone. Male and female catkins are found on the same tree. Twigs are hairless to hairy and reddish gray; they usually have stalked lateral buds. Lenticels are evident. Bark is grayish and often mottled with grayish blue and tan patches.

Alders typically grow in cool, moist woodlands and forests, generally near streams. Nitrogen-fixing bacteria form root nodules in alders, adding considerable nitrogen to ecosystems via decaying plant parts. Alder wood is used in furniture and novelty items and to smoke fish and meat. Leaves and twigs provide important browse for ungulates, and birds eat alder buds and seeds.

1. Plants are trees more than 12 m (40 ft) tall at maturity and do not grow in thickets 2
1. Plants are shrubs or small trees less than 9 m (30 ft) tall at maturity; they grow in thickets 3
 2. Leaves are doubly serrated and have tightly rolled-under leaf margins red alder (*A. rubra*)
 2. Leaves are generally singly serrated and have flat leaf margins white alder (*A. rhombifolia*)
3. Lateral buds do not grow on stalks. "Cone" stalks are as long as or longer than the "cone" and usually have at least 1 basal leaf. Leaves are thin and more or less translucent Sitka alder (*A. viridis*)
3. Lateral buds grow on stalks. "Cone" stalks are shorter than the "cone" and are leafless. Leaves are thick and opaque mountain alder (*A. incana*)

MOUNTAIN ALDER *Alnus incana* ssp. *tenuifolia*

DESCRIPTION: A large, multistemmed shrub or small tree that often grows in thickets. Mature plants are typically 2 m (6.6

ft) to 9 m (30 ft) tall and 10 cm (4 in.) to 20 cm (8 in.) in diameter. The largest grows in Umatilla National Forest in Oregon and is 21.6 m (71 ft) tall and 76 cm (30 in.) in diameter. Crowns are broad and spreading. The species is short-lived. **LEAVES** are deciduous, alternate, simple, oval to egg shaped, 5 cm (2 in.) to 10 cm (4 in.) long, and 2.5 cm (1 in.) to 6 cm (2.5 in.) wide. Margins are doubly serrated. Leaf tips are round to sharp pointed, and bases are round to heart shaped. Upper surfaces are dark green and hairless. Lower surfaces are yellowish green and may be hairless. **FRUITS** occur in conelike catkins that measure 1 cm (.4 in.) to 1.5 cm (.6 in.) long and have many woody scales. Each scale has a small, round, narrow-winged nutlet. The “cone” stalks are shorter than the “cones” and are leafless. Flowers open before leaves appear. **TWIGS** are slender, light green, and hairy. Lateral buds are stalked. Lenticels are evident. **BARK** is thin, gray to reddish gray, and somewhat scaly on older plants.

HABITAT AND RANGE: Outside of California, mountain alder grows in moist forests and woodlands in the Rocky Mountains and the Cascades. In California it is found in the Klamath Mountains, the Cascades, and the Sierra Nevada, from 1,200 m (4,000 ft) to 2,400 m (8,000 ft). It is commonly found along streams and in and around montane to upper montane meadows.

REMARKS: Mountain alder is shade intolerant and is eventually overtopped by conifers on most sites that lack recurring disturbances. Seasonal flooding is the usual disturbance that permits mountain alder to reseed itself. The species' primary value lies in its ability to protect stream banks and watersheds, as well as provide wildlife habitat. Deer and elk eat its foliage, and small mammals eat the twigs and buds. Other subspecies of *A. incana* grow in Canada, Alaska, and Europe.



WHITE ALDER (Fig. 58)

Alnus rhombifolia

DESCRIPTION: A small- to medium-sized, single-stemmed tree. Mature trees are typically 15 m (50 ft) to 24 m (80 ft) tall and 30 cm (1 ft) to 60 cm (2 ft) in diameter and often have several stems arising from a clump. The largest grows in Camp Nelson, California, and is 24 m (79 ft) tall and 1.2 m (46 in.) in diameter. Crowns are broadly rounded on long, clear trunks. This species lives to be only about 100 year old. **LEAVES** are decid-

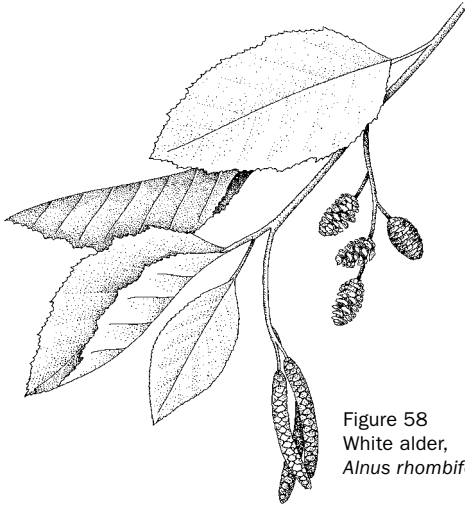


Figure 58
White alder,
Alnus rhombifolia

uous, alternate, simple, thick, egg shaped, oval to rhombic, and 4 cm (1.5 in.) to 8 cm (3.2 in.) long. Margins are usually singly serrated (sometimes doubly) and are not rolled under. Serrations are generally smaller than those of red alder. Leaf tips are round to sharp pointed, and bases are tapered to round. Upper surfaces are green and lower surfaces are yellowish green, with prominent parallel veins. **FRUITS** occur in conelike catkins that measure 6 mm (.25 in.) to 12 mm (.5 in.) long and have many scales. Each scale has a small, round, unwinged nutlet. The “cone” stalks are shorter than the “cones” and are leafless. Flowers open before leaves appear. **TWIGS** are slender and orange-red. Lenticels are evident. Lateral buds are stalked. **BARK** is thin and gray, with mottled, whitish gray patches. Older trees’ bark is furrowed and separated by grayish brown plates.



HABITAT AND RANGE: Grows in riparian woodlands and forests from southern British Columbia to California. In California it occurs from 90 m (300 ft) to 2,400 m (7,900 ft) along permanent streams and lakes. It is found on the Modoc Plateau but is considered uncommon.

REMARKS: White alder is shade intolerant. It needs a continual supply of

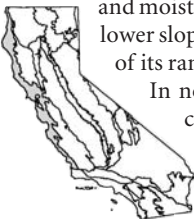
moisture and is a pioneering species in riparian areas. It is susceptible to fire but often escapes damage because of its moist habitat. White alder is used for firewood, somewhat as lumber, and as an ornamental. Native Americans extracted a red dye from the bark and made a sweat-inducing tea from it. White alder's greatest value lies in its ability to protect watersheds and provide wildlife habitat. These roles are especially critical in areas subject to development.

RED ALDER (Fig. 59)

Alnus rubra

DESCRIPTION: An erect, medium-sized, single-stemmed tree. Mature trees are typically 24 m (80 ft) to 30 m (100 ft) tall and 30 cm (1 ft) to 60 cm (2 ft) in diameter. The largest grows in Clatsop County, Oregon, and is 31.7 m (104 ft) tall and 2 m (78 in.) in diameter. Crowns are narrow to broad on long, clear trunks. The species lives to be only about 100 years old. **LEAVES** are deciduous, alternate, simple, thick, egg shaped to elliptical, and 7.5 cm (3 in.) to 15 cm (6 in.) long. Margins are doubly serrated and tightly rolled under. Serrations are generally larger than those of white alder. Leaf tips are sharp pointed and bases are tapered to round. Upper surfaces are dark green and hairless. Lower surfaces are pale green and have prominent, parallel, rust-colored veins. **FRUITS** occur in conelike catkins that measure 1 cm (.4 in.) to 3 cm (1.2 in.) long and have many scales. Each scale has a small, round, broad-winged nutlet. The "cone" stalks are shorter than the "cones" and are leafless. Flowers open before leaves appear. **TWIGS** are bright red to reddish brown. Lenticels are evident. Lateral buds are stalked. **BARK** is thin and gray, with bluish gray, tan, and grayish white mottling.

HABITAT AND RANGE: Grows in coastal and montane woodlands and forests from southeastern Alaska to San Luis Obispo County. It occurs below 900 m (3,000 ft) on riparian and moist upland slopes. The species usually grows on lower slopes on deep, fertile soils. In the southern part of its range, it is mostly confined to coastal habitats.



In northwestern California, it grows on moist, cool inland sites as well.

REMARKS: Red alder is shade intolerant. It often becomes established on disturbed sites, only to be overtopped by

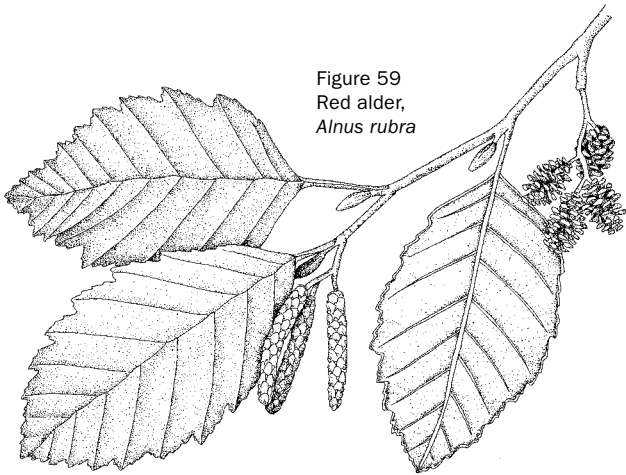


Figure 59
Red alder,
Alnus rubra

more shade-tolerant conifers. Although its bark is thin, mature red alders can survive light surface fires. The species' wood is used for furniture, novelty items, cabinets, firewood, and numerous other items. Deer and elk eat its foliage, and beavers eat its bark. Native Americans used the wood to smoke salmon and for medicinal purposes.

SITKA ALDER

Alnus viridis ssp. *sinuata*

(Fig. 60; Pl. 13)

DESCRIPTION: A tall, multistemmed shrub or small tree that grows in thickets. Mature plants range in height from 2 m (6.5 ft) to 4.5 m (15 ft). The largest grows on Maury Island, Washington, and is 11.3 m (37 ft) tall and 22 cm (8.5 in.) in diameter. Crowns are broadly rounded and spreading. The species is short-lived. **LEAVES** are deciduous, alternate, simple, thin, oval to egg shaped, 6 cm (2.5 in.) to 15 cm (6 in.) long, and 4 cm (1.5 in.) to 9 cm (3.5 in.) wide. Margins are doubly serrated. Leaf tips are sharp pointed and bases are round to tapered. Upper surfaces are yellowish green and shiny; lower surfaces are green, with hairs restricted to, or occurring more densely in, the major vein axils. **FRUITS** occur in conelike catkins about 13 mm (.5 in.) long and have many scales. Each scale has a small, round,

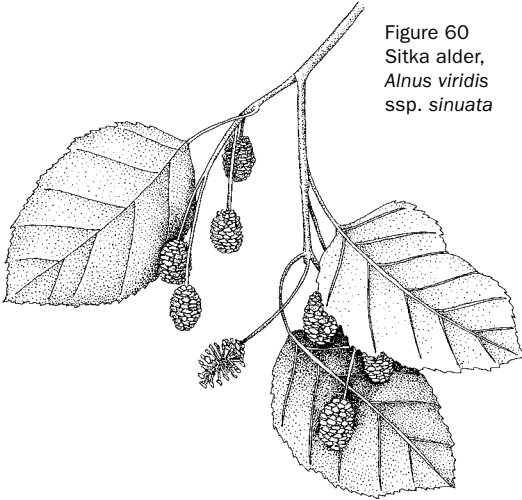


Figure 60
Sitka alder,
Alnus viridis
ssp. *sinuata*

broad-winged nutlet. The “cone” stalks are longer than the “cones” and usually have at least 1 leaf at the base. Flowers appear as leaves reach full size. **TWIGS** are slender, reddish to yellowish brown, and smooth. Lateral buds are not stalked. Lenticels are evident. **BARK** is thin and reddish to grayish brown; it has prominent lenticels.

HABITAT AND RANGE: Outside of California, Sitka alder grows in moist forests and woodlands from Alaska, western Canada, and the northern Rocky Mountains and into Washington and Oregon. In California it grows at elevations from 1,000 m (3,200 ft) to 2,700 m (8,800 ft) in the Klamath Mountains and at higher elevations in the northern Coast Ranges. The species occurs along streams, seeps, and meadow margins.

REMARKS: Sitka alder is shade intolerant and may eventually become overtopped by conifers on most sites that lack recurring disturbances. Usual disturbances that permit this species to reseed itself include flooding, avalanches, and landslides. It quickly invades habitats disturbed by these events. Sitka alder’s greatest value lies in its ability to protect watersheds and stabilize slopes. It is an indicator of high water tables. The other subspecies of *A. viridis* grow in Canada, Alaska, and Eurasia.

