

Quercus agrifolia Née var. *agrifolia*, COAST LIVE OAK, ENCINA. Tree, evergreen, sclerophyllous, with 1 thick trunk, canopy rounded, breadth \geq height, closed, main branches ascending, in range 6–20+ m tall; monoecious; shoots with stiff, \pm spinose, tough leaves; bark of trunk to small branches relatively tight and deeply furrowed, medium and dark gray. **Stems:** angular becoming cylindrical, densely with stellate-tomentose on young growth, hairs somewhat persistent on new periderm. **Leaves:** helically alternate, simple, petiolate, with stipules; stipules 2, at base of petiole and \pm axillary, oblanceolate-linear to linear, 4–7.7 mm long, tannish to reddish brown, villous-ciliate, densely pubescent at base, sparsely hairy on lower surface, soon abscising (caducous); petiole subcylindric, 4–15 mm long, tomentose with stellate hairs but less so on old leaves; blade oblong or broadly elliptic to roundish or ovate, (15–)25–75 \times (10–)15–45 mm, typically strongly cupped, truncate or broadly tapered to rounded at base and sometimes oblique, spinose-serrate on margins, acute with hard point at tip, pinnately veined with principal veins raised on lower surface, initially whitish stellate-pubescent and with numerous, minute, red hairs with beadlike cells, upper surface maturing dark green and glabrescent (sometimes scattered stellate hairs persisting), glossy or dull, lower surface \pm retaining stellate hairs along midrib or with hairy tufted in vein axils and along principal veins. **Staminate inflorescence:** catkin, spikelike (rarely with 1 side branch), 15–30-flowered, several or more catkins arising from winter buds at the lowest axils of new spring growth, interrupted with noticeable gaps between some flowers, typically 20–65 \times 4.5–7 mm, pendent on axis, flowers helically arranged, subsessile, bracteates or lacking bracts; bract subtending peduncle cupped to scoop-shaped, 3.5–5 \times 1–1.2 mm, tannish to brownish, stiff, ciliate on margins, lower surface puberulent to glabrescent, early-deciduous; peduncle typically $<$ 6 mm long; rachis flexible, light green, moderately to densely pubescent with whitish stellate hairs; bractlet subtending flower 0–1, acute-lanceolate to semicircular with a point at tip, \pm 3 mm long, membranous and green or reddish, ciliate on margins, early-deciduous. **Staminate flower:** \pm radial, 3–4 mm across; **calyx** unevenly 5–many-lobed, fused 1/2–2/3 length, bell-shaped to deeply cuplike but commonly splitting in 1 or more places to base; tube 0.6–1.5 mm long, green, generally with some hairs on inside; lobes acute, 0.5–1.3 mm long, dark red to pink, conspicuously villous-ciliate on margins, aging \pm scarious; **petals** absent; **stamens** (2–)4–12, free; filaments ascending, 1–2 mm long, greenish or whitish, with colorless hairs next to filaments at bases; anthers basifixed, dithecal, 1.3–2.2 mm long, greenish yellow with or without reddish sterile tip, longitudinally dehiscent; pollen light yellow, dry, windborne; **pistil** absent. **Pistillate inflorescence:** spike, axillary on leafy spring shoots on successive nodes above staminate catkins, 1–5-flowered, densely tomentose, bracteate; axis absent (1-flowered) or short and stout. **Involucre:** partially enclosing each flower (cupule) of numerous, helically alternate and overlapping bractlets, bractlets deltate awl-shaped, 1–1.5 mm long, hairy, persistent, at anthesis only the outer several bractlet developed. **Pistillate flower:** 2–3 mm long, below midpoint surrounded by cupule, with ascending hairs; **calyx** 4–6-lobed, 2–2.5 mm long (= length of flower), with ascending hairs on outside and inside; tube cylindric, 1–1.5 mm long, green becoming light at throat; lobes oblong to ovate or triangular, 0.5–1 mm long, light green at base to purplish red above, irregular minutely toothed on margins, long-ciliate on margins; **stamens** absent; **pistil** 1, 2–3 mm long; ovary inferior, columnar-ovoid, 2–2.5 mm long, with ascending long hairs, 1-chambered; styles 2–5, fused at base, branches ascending to

spreading, 1–1.4 mm long, usually expanded into stigmatic tip, yellowish green at base to reddish or dark red to dark purplish red above, with sparse, ascending hairs, persistent on immature fruit; stigmas ± terminal or slightly decurrent, dark red to purplish red. **Fruit:** acorn (glans), maturing and deciduous in late summer; involucre covering < basal 1/3 of fruit (= the widest fruit diameter), hemispheric to deeply bowl-shaped or inverted conic, 9–16 mm wide and deep, scales ± flat and thin often with short-ciliate margins; nut lanceoloid to ovoid, in range 25–41 × 8–15 mm (smaller if imperfect), light brown, acuminate with point at tip, the basal scar circular, typically 5–6 mm diameter, convex, gray; shell densely woolly inside. Late February–late April.

Native. Evergreen sclerophyllous tree commonly observed and the dominant species and namesake of southern oak woodland, inhabiting canyons and near creeks throughout the range, but also having scattered individuals on the shaded edges of any plant community. *Quercus agrifolia* can recover from fire by producing new growth on burned limbs. Coast live oak typically has cupped leaves with teeth that make the margin somewhat spinose. Like all oaks, the staminate flowers are produced first from winter buds, as the surface of the tree may be covered with these pendent catkins; the female flowers are formed on new vegetative shoots and are inconspicuous, in this species lacking conspicuous coloration. Acorns mature in late summer of the same year and are deciduous. Within our range, the shape of the nut is often lanceoloid, but from the many specimens, including cultivated ones, the entire range of nut shapes and sizes of the species can be observed.
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