

Plant Propagation Protocol for *Fremontodendron californicum*

ESRM 412 – Native Plant Production


URL: <https://courses.washington.edu/esrm412/protocols/2023/FRCA6.pdf>



Images of *Fremontodendron californicum* courtesy pfaf.org

TAXONOMY	
Plant Family	
Scientific Name	Sterculiaceae Vent. ¹ also found Malvaceae ¹³
Common Name	Cacao family ¹ also found Mallow family ¹³
Species Scientific Name	
Scientific Name	<i>Fremontodendron californicum</i> (Torr.) Coville ¹
Varieties	<i>Fremontia californica</i> Torr. var. <i>diegensis</i> M. Harv. (FRCAD2), <i>Fremontia californica</i> Torr. var. <i>integra</i> M. Harv. (FRCAI), <i>Fremontia californica</i> Torr. var. <i>napensis</i> (Eastw.) McMinn (FRCAN2), <i>Fremontia californica</i> Torr. var. <i>typica</i> M. Harv. (FRCAT), <i>Fremontia californica</i> Torr. var. <i>viridis</i> M. Harv. (FRCAV) ¹

Sub-species	<p><i>Fremontia californica</i> Torr. ssp. <i>crassifolia</i> (Eastw.) Abrams (FRCAC8), <i>Fremontodendron californicum</i> (Torr.) Coville ssp. <i>californicum</i> (FRCAC9), <i>Fremontedendron californicum</i> (Torr.) Coville ssp. <i>napense</i> (Eastw.) Munz (FRCAN), <i>Fremontia californica</i> Torr. ssp. <i>obispoensis</i> (Eastw.) Munz (FRCAO), <i>Fremontodendron californicum</i> (Torr.) Coville ssp. <i>obispoense</i> (Eastw.) Munz (FRCAO2)¹ (possibly outdated)⁷, <i>Fremontodendron californicum</i> ssp. <i>decumbens</i>⁶ (possibly outdated)⁷, <i>Fremontodendron mexicanum</i>, <i>Fremontodendron decumbens</i>⁷</p> <p>Subspecies are distinctive plants with varying size and growth habit but have very similar foliage, flowers, and fruits.⁶</p>
Cultivar	None Found
Common Synonym(s)	<p><i>Fremontia Californica</i> Torr. (FRCA9), <i>Fremontodendron californium</i> (Torr.) Coville tsp. <i>crassifolium</i> (East.) J.H. Thomas (FRCAC2), <i>Fremontia crassifolia</i> Eastw. (FRCR2), <i>Fremontia napensis</i> Eastw. (FRNA), <i>Fremontia obispoensis</i> Eastw. (FROB)¹</p>
Common Name(s)	California flannelbush, fremontia, flannelbush ¹ , Flannel flower, Common flannel bush ⁵
Species Code (as per USDA Plants database)	FRCA6 ¹
GENERAL INFORMATION	

Geographical range	 <p>Image Courtesy the USDA Website¹</p>
Ecological distribution	<p>Found in southwestern United States⁴ In California that is primarily in the foothills surrounding the Central Valley, the hills of the Central Coast and San Francisco Bay Area, and in the mountains of the Transverse and Peninsular Ranges³ as well as California chaparral and woodlands, Yellow Pine forests, and Pinyon-juniper woodlands along the eastern San Joaquin Valley.⁷ Can also be found on Arizona mountains in small, isolated populations, primarily in the Arizona transition zone-Mogollon Rim region, Mazatzal Mountains, and Superstition Mountains.⁷</p>
Climate and elevation range	<p>Natural Settings consist of: Annual Precipitation: 5.8” - 67.6”³ Summer Precipitation: 0.15” - 2.68”³ Cold Tolerance to 20°F³ Elevation: 1,300 - 6,500 feet⁷</p>
Local habitat and abundance	<p>Thrives in sandy washes near seasonal creeks, or in chalky well-drained mountain hillsides that get plenty of rainfall³ Reported to form dense thickets in poor rocky soils of foothills.⁵</p>

Plant strategy type / successional stage	Drought tolerant ⁷ , spreads by seed and root sprouting ⁸ in open environments ⁶ with nutrient poor, rocky, or coarse soils. ⁸ Plants can sprout from roots and root crown after being top-killed by fire or other disturbance. ⁸
Plant characteristics	<p>Plant is a fast growing evergreen³ arborescent shrub.⁴ Fruit is woolly or bristly, egg-shaped capsule⁴ with four to five 4.0mm, ovoid, dark brown smooth seeds inside.² Seeds can form on plants as young as 2 years old.⁸</p> <p>Leaves are round to elliptic-ovate, three-lobed, dark green⁶, fuzzy, flannel-like, and abundant.³</p> <p>Flowers are large yellow blossoms that bloom in the spring³ on short, lateral, spurlike branches.⁶</p> <p>Plants produce both male and female reproductive structures.⁵</p>

PROPAGATION DETAILS: SEED



Images of *Fremontodendron californicum* seed courtesy Rancho Santa Ana Botanic Garden “Processing Seeds of California Native Plants for Conservation, Storage, and Restoration” and fruit courtesy [inaturalist.org](https://www.inaturalist.org)

Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container(plug) ¹⁰ or Direct Seeding ⁹
Stock Type	Small container such as Ray Leach Cone-tainer™ Cells or 1020 flat or tray for transplanting after germination ¹¹
Time to Grow	Grow plants in a greenhouse for at least 1 year. ⁵

Target Specifications	None Found
Propagule Collection Instructions	<p>Collect capsules when they begin to split⁴, may be very challenging to open. Using a blender to agitate and wash fruits helps dislodge approximately 75% of seeds and control hairs.² Other methods include drying fruits at a warm temperature, around 90°F, for a prolonged period or bag fruits on plant to capture seeds when they naturally fall out.²</p> <p>Warning!! The stem and fruits² have irritating brown hairs that rub off easily.⁵ Using gloves and a dust mask is recommended.²</p> <p>Seeds have been stored almost 2 years in sealed containers at 41°F with no loss in viability.⁹</p>
Propagule Processing/Propagule Characteristics	27,000 seeds per pound ¹ or 15,000 - 25,000 cleaned seeds per pound ⁹
Pre-Planting Propagule Treatments	Seeds normally require fire to germinate. ³ Seeds require scarification in hot water followed by cold-moist stratification at 35°F for 12-16 weeks ⁴ or pre-soak for 48 hours in warm water before sowing seeds and placing in a cold frame in late winter. ⁵
Growing Area Preparation / Annual Practices for Perennial Crops	Well drained sandy soils with pH 7.0 - 7.5 ¹ An appropriate general purpose medium is composed of equal parts garden loam, builders sand or river sand (beach sand contains too many soluble salts), and moist peat moss. ¹⁰
Establishment Phase Details	Sow seeds individually into pots in a cold frame in late winter. ⁵
Length of Establishment Phase	Adapted from <i>Fremontodendron Mexicanum</i> : At room temperature, seeds take about a week to germinate. Germination slows with cooler temperatures (55°F and below). ¹²
Active Growth Phase	Once germinated, seedlings should be transplanted into small pots as soon as they are large enough to handle. Once the roots of young plants start to fill the soil mass in the container, they should be transplanted again into a larger pot, such as 4" x 14" plastic pot. Some protection from summer sun is recommended as well as a light application of fertilizer. ¹⁰

Length of Active Growth Phase	None Found
Hardening Phase	None Found
Length of Hardening Phase	None Found
Harvesting, Storage and Shipping	None Found
Length of Storage	None Found
Guidelines for Outplanting / Performance on Typical Sites	Plan outplanting for late spring or early summer after last expected frost. ⁵ Plants do best when planted in a sunny spot, with well-draining soil, approximately 10 feet from a creek or other moist area. Does not handle watering after becoming established. Direct watering after 1 year within a few feet of trunk in the summer will usually kill plant. Fatality could occur if roots are not able to reach a water source as well. ³
Other Comments	None
INFORMATION SOURCES	

References

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