

**ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM**

**Plant Abstract**

**Element Code:** PDSTE03010

**Data Sensitivity:** No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Fremontodendron californicum* (Torr.) Coville

**COMMON NAME:** Flannel bush, California flannelbush, California slippery elm, California fremontia

**SYNONYMS:** *Fremontia californica* Torr., *F. crassifolia* Eastw., *F. napensis* Eastw., *F. obispoensis* Eastw., and many others

**FAMILY:** Sterculiaceae

**AUTHOR, PLACE OF PUBLICATION:** *Fremontodendron californicum* (Torr.) Coville, Contributions from the United States National Herbarium 4: 74. 1893. *Fremontia californica* Torr., Smithsonian Contributions to Knowledge 6(2): 5, t. 2. 1853.

**TYPE LOCALITY:** California: Mariposa City: Source of Sacramento River.

**TYPE SPECIMEN:** HT: MO. John C. Fremont 470-1846, May 1846.

**TAXONOMIC UNIQUENESS:** A distinct species in a genus of 3 species, with at least 2 that are native to southwestern North America; only species in Arizona.

**DESCRIPTION:** Large spreading shrub or small tree up to 8 m (26.25 ft) tall, but more often 1-4 m (3.28-13.12 ft) tall, with roughish, dark gray bark and densely stellate-pubescent twigs. Young twigs are yellowish brown and densely covered in wooly hairs, while older twigs become smooth and gray brown. Leaves and flowers mostly on short, spurless branches. Leaves evergreen, alternate and simple. The leaf blades are ovate or broadly so, shallowly lobed or less commonly subentire, subcordate at base, usually acute but sometimes rounded at apex, margins often slightly undulate-crisped, larger ones 1-3 cm (0.39-1.18 in) long, green, with scattered stellate hairs above, densely stellate-pubescent and canescent beneath. Petioles usually one-half to as long as leaf blades (1-4 mm long); bractlets lance-subulate, 4-7 mm long. Flowers with 5 yellow petal-like sepals, 3-5 cm (1.18-1.97 in); sepals broadly ovate, mucronate, densely stellate-pubescent without, glabrous except for bristly or densely pubescent basal area around gland within. Capsule ovoid but pointed, 2-2.5 cm (0.8-1.0 in) long, densely hispid-bristly, golden brown, splitting into 4 or 5 sections when ripe. Seeds short-pubescent, dark, ovoid, 3-4 mm long. (Shreve and Wiggins, 1964; McDougall, 1973).

**AIDS TO IDENTIFICATION:** *Fremontodendron californicum* is most closely related to *F. mexicanum* which is known from Baja California and southern California. The later species is

distinguished by its black, glabrous seeds, yellow flowers with reddish bases, and glabrous basal glands. (Stallings, 1980).

**ILLUSTRATIONS:**

B&W line drawing (Jaeger, 1941: pl. 315).

B&W line drawing (Munz, 1974: pl. 87, fig. B).

B&W line drawing (Hickman, 1993: p. 1079).

Color photos of shrub, flowers (Saint Mary's College, 1995:

[http://elib.cs.Berkeley.edu/cgi/img\\_query](http://elib.cs.Berkeley.edu/cgi/img_query))

Color photo of flower (Carr, in [http://www.botany.hawaii.edu/faculty/carr/images/fre\\_cal.jpg](http://www.botany.hawaii.edu/faculty/carr/images/fre_cal.jpg))

Color photo of Holotype (in MBG, [http://mobot.mobot.org/cgi-bin/search\\_vast](http://mobot.mobot.org/cgi-bin/search_vast))

Color photos of Iso- Lecto- and Isolectotype (in NYBG,

<http://207.156.243.8/emu/vh/specimen.php?irn=707971> & 482051 & 408052)

Color photos of plant and flowers (in USDA, NRCS at

[http://plants.usda.gov/cgi\\_bin/plant\\_profile.cgi?symbol=FRCA6](http://plants.usda.gov/cgi_bin/plant_profile.cgi?symbol=FRCA6))

Line drawing of seed (in USDA, NRCS at

[http://plants.usda.gov/cgi\\_bin/plant\\_profile.cgi?symbol=FRCA6](http://plants.usda.gov/cgi_bin/plant_profile.cgi?symbol=FRCA6))

Color photos (Virginia Tech Forestry Department 2005-2006, in

<http://www.cnr.vt.edu/dendro/dendrology/Syllabus2/factsheet.cfm?ID=512>)

Color photo (<http://www.calflora.net/bloomingplants/flannelbush.html>)

Color photo (in SEINet at <http://seinet.asu.edu/collections>)

**TOTAL RANGE:** Central Arizona, California (western base of Sierra Nevadas from Shasta to Kern counties through the mountains to San Diego County), and Baja California, Mexico.

**RANGE WITHIN ARIZONA:** Gila County (Mazatzal Mountains); Maricopa Co. (Four Peaks – Mazatzal Mts. and Superstition Mts.), Mohave Co. (between Big Sandy and Burro Creek), Pinal Co. (Superstition Mountains), and Yavapai Co. (Black Hills, Peeples Valley, and Bradshaw, New River, and Weaver Mountains).

**SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Large spreading perennial shrub or small tree.

**PHENOLOGY:** Average month of flowering is May, but throughout its range, may flower from April to June. Fruit matures August – September.

**BIOLOGY:** The flowers are hermaphrodite (have both male and female organs). “Flannelbush is well adapted to recurring fires with its abundant seed production, prolific sprouting, and rapid growth. It reaches maturity relatively quickly; seeds can spread via animal or wind into fire-opened areas.” (Pavek, 1993).

**HABITAT:** Mainly well-drained rocky hillsides and ridges, in chaparral and oak/pine woodland. In Arizona, usually on dry, north slopes in canyons (McDougall, 1973). In California, on slopes in chaparral, yellow pine forest, and pinyon-juniper woodland.

**ELEVATION:** In Arizona, ranges from 3,500 to 6,500 feet (1068-1983 m). For the range, reported from around 1,312 - 6,562 ft (400–2000 m) (Hickman, 1993).

**EXPOSURE:** North slopes in Arizona.

**SUBSTRATE:** Poor, dry, rocky soils, and granite boulders.

**PLANT COMMUNITY:** Upper Sonoran Zone to Transition Zone, but entering edge of the Sonoran Desert in various localities in Arizona and along the western margin of the Colorado Desert in Imperial County, California, and northern Baja California (Shreve and Wiggins, 1964).

Associated species include: *Acacia greggii* (catclaw acacia), *Agave parryi* var. *couesii* (Coues agave), *Amelanchier utahensis* (Utah service berry), *Arctostaphylos pringlei* (pink-bracted manzanita), *A. pungens* (Mexican manzanita), *Arenaria* (sandwort), *Ceanothus greggii* (Mohave Desert whitethorn), *C. integerrimus* (deerbrush), *Cercocarpus montanus* (Colorado birch-leaved mountain-mahogany), *Cupressus arizonica* (Arizona cypress), *Dudleya* (live-forever), *Eriodictyon angustifolium* (narrowleaf Yerba Santa), *Fendlera rupicola* (cliff fendlerbush), *Fraxinus anomala* (single-leaf ash), *Garrya flavescens* (ashy silktassel), *G. wrightii* (Wright's silktassel), *Juniperus deppeana* (Alligator juniper), *Nolina microcarpa* (Sahauista bear-grass), *Pinus edulis* (two-needle pinyon pine), *Platanus wrightii* (Wright sycamore), *Prunus*, *Quercus dunnii* (Dunn's Oak), *Q. emoryi* (Emory Oak), *Q. gambellii* (Gambel Oak), *Q. turbinella* (shrub live oak), *Rhus ovata* (sugar sumac), *R. trilobata* (sumac), *Robinia neomexicana* (New Mexican locust), and *Yucca baccata* (Banana Yucca). (Stallings 1980, SEINet accessed 2005).

**POPULATION HISTORY AND TRENDS:** Widespread and common in California though "rare and local" in Arizona (Kearney & Peebles, 1960). (NatureServe 2005).

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None

**STATE STATUS:** Salvage Restricted (ARS, ANPL accessed 2011)  
[Salvage Restricted (ARS, ANPL 1993, 1999).]

**OTHER STATUS:**

Bureau of Land Management Sensitive (USDI, BLM AZ 2000, 2005, 2008, 2010).

**MANAGEMENT FACTORS:**

Subject to browsing by livestock, and large game animals. The stem is clothed with brown hairs, which rub off easily and can be a severe irritant. In California, it has been used for erosion control, by planting it on banks and levees of flood control channels (Pavek, 1993).

**PROTECTIVE MEASURES TAKEN:****SUGGESTED PROJECTS:**

**LAND MANAGEMENT/OWNERSHIP:** BIA – Tonto Apache Reservation; BLM – Kingman and Phoenix Field Offices; NPS – Tonto National Monument; USFS – Tonto National Forest; State Land Department; Private.

**SOURCES OF FURTHER INFORMATION****REFERENCES:**

- Arizona Revised Statutes. 1999. Arizona Native Plant Law. Chapter 7.  
Arizona Revised Statutes, Chapter 7. Arizona Native Plant Law. Accessed 2011, AZDA.  
<http://www.azda.gov/ESD/protplants.htm>.
- Hickman, J.C. Ed. 1993. The Jepson Manual, Higher Plants of California. University of California Press. Berkeley, California. Pp. 1078-1079.  
<Http://www.calflora.net/bloomingplants/flannelbush.html>.  
[Http://www.calflora.org/cgi-bin/species\\_query.cgi?](Http://www.calflora.org/cgi-bin/species_query.cgi?)  
<Http://www.cnr.vt.edu/dendro/dendrology/Syllabus2/factsheet.cfm?ID=512>  
[Http://www.desert-tropicals.com/Plants?sterculiaceae/Fremontod\\_californicum.html](Http://www.desert-tropicals.com/Plants?sterculiaceae/Fremontod_californicum.html).
- Integrated Taxonomic Information System (ITIS). Retrieved 5/10/2005 from ITIS,  
<http://www.itis.usda.gov>.
- Jaeger, E.C. 1941. Desert Wild Flowers. Revised Edition. Stanford University Press. Stanford, California. Pp. 145-146.
- Kearney, T.H., R.H. Peebles, with collaborators. 1951. Arizona flora. Second edition with supplement by J.T. Howell, E. McClintock and collaborators. 1960. University of California Press. Berkeley, California. p. 554.
- McDougall, W.B. 1973. Seed Plants of Northern Arizona: with keys and detailed descriptions for the identification of Families, Genera and Species. The Museum of Northern Arizona. Flagstaff, Arizona. P. 312.

- Missouri Botanical Garden, TROPICOS, Nomenclatural Data Base. *Fremontodendron californicum* (Torr.) Coville. [http://mobot.mobot.org/cgi-bin/search\\_vast](http://mobot.mobot.org/cgi-bin/search_vast). Accessed: 20 Mar 2002.
- Munz, P.A. 1974. A Flora of Southern California. University of California Press. Berkeley, California. Pp. 841-843.
- NatureServe. 2005. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.2. NatureServe, Arlington, Virginia. Available: <http://www.natureserve.org/explorer>. (Accessed: May 10, 2005).
- Pavek, D.D. 1993. *Fremontodendron californicum*. In: FEIS web site accessed 2002, <http://www.fs.fed.us/database/feis/plants/tree/frecal/all.html>.
- SEINet. Collections Search Result. Accessed 5/10/2005 at <http://seinet.asu.edu/collections/list.jsp>.
- Shreve, F., and I.L. Wiggins. Vegetation and Flora of the Sonoran Desert. Volume Two. Stanford University Press. Stanford, California. Pp. 919-920.
- Stallings, B.D. 1980. A Bureau of Land Management botanical section of the Unit Resource Analysis (URA) for the Lower Gila North Planning Area. In letter to Dr. Tom Van Devender. USDI, Bureau of Land Management, Phoenix District Office, Phoenix, AZ.
- The New York Botanical Garden. NYBG Specimens Detailed Report. <http://207.156.243.8/emu/vh/specimen.php?irn=14541>. Accessed: 5/10/2005.
- USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490.
- USDI, Bureau of Land Management. 2000. BLM Sensitive Species List for Arizona. Information Memorandum No. AZ-2000-018.
- USDI, Bureau of Land Management. 2005. BLM Sensitive Species List for Arizona.
- USDI, Bureau of Land management Region 2. 2008. Arizona BLM Sensitive Species List.
- USDI, Bureau of Land management Region 2. 2010. Arizona BLM Sensitive Species List.

**MAJOR KNOWLEDGEABLE INDIVIDUALS:****ADDITIONAL INFORMATION:**

From the outer bark, rope was sometimes made by the Indians (Jaeger, 1941). It has also been used as a poultice for wounds, and as a tea (from the bark) to relieve throat irritations (Pavek, 1993).

“Frequently planted in California as an ornamental.... The bark is said to have the same properties as that of the true slippery elm (*Ulmus fulva*) and to be used for the same purpose, that is, to relieve irritation of the throat. Cattle browse this plant.” (Kearney and Peebles, 1959).

**Revised:** 2002-04-04 (SMS)  
2005-05-13 (SMS)

To the user of this abstract: you may use the entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 20XX (= **year of last revision as indicated at end of abstract**). X...X (= **taxon of animal or plant**). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.