

The Herb Society of America's

Notable Native™ Shrub 2026

Ephedra viridis Cov., Green Ephedra



Ephedra viridis in "bloom"
©Katherine Schlosser

Family: Ephedraceae family

Latin Name: *Ephedra viridis*, Cov.

Common Names: Green Ephedra, jointfir, Mormon tea

Growth: Evergreen shrubby perennial, generally 2' to 5' tall

Hardiness: Native in OR, CA, NV, UT, WY, CO, AZ, NM (possibly ID, TX)

Light: Full sun to partial shade

Soil: Dry, well-drained; intolerant of wet, poorly draining areas

Water: average annual precipitation of 8 to 15 inches

Use: historic medicinal and beverage uses (see caution below)

Propagation: Seed

CONSERVATION STATUS:

Possibly extirpated: Wyoming

Apparently secure: Oregon

Secure: Nevada

Not Ranked: CA, UT, CO, AZ, NM

History

Ephedra is an interesting herb with a long history. The name is from Latin for horsetail (for its similar appearance), and Greek for "seat." More than five thousand years ago, the Chinese were using *Ephedra sinica* to treat respiratory illnesses. Shen Nung (c. 2,700 BC) compiled a list of herbs based on their bitterness; MaHuang, or Ephedra, was on the list. By the 16th century, Li Shih-Chen produced a book on plants and their uses which also included Ephedra as a circulatory stimulant and useful for coughs.



Ephedra pollen cone. ©Stan Shebs.
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Ephedra growing in Greece, Russia and India was used in religious and other ceremonies to produce exhilaration, and in medicinal situations to control part of the hypothalamus. In the Americas, indigenous people sought Ephedra to treat syphilis and gonorrhoea.¹

The efficacy of the chemical elements of Ephedra were in fact so strong that they could "cause severe life-threatening or disabling conditions in some people and they are linked to high blood pressure, heart attacks, muscle disorders, seizures, strokes, irregular heartbeat, loss of consciousness, and death."²

Three thousand years before Pliny (23-79 CE), the Chinese realized that species of Ephedra, especially the Chinese species, *Ephedra sinica*, had medicinal properties for treating respiratory ailments. We now know that Ephedra taken orally stimulates the body in a manner similar to injected adrenaline. For these reasons, the FDA banned all Ephedra products in 2004. They are also banned by the International Olympic Committee and sports associations.

However, in small doses in products such as Sudafed, pseudoephedrine provides one of the leading over-the-counter and prescription treatments for allergies, congestion, asthma, etc."³

Description

There are thirteen species of Ephedra native to the U.S., with an additional two that have been introduced: *E. altissima* and *E. distacha*, both found in CA.⁴

Green ephedra is a constituent in a variety of plant associations but is rarely referred to as a dominant or subdominant species. It has, however, been identified as a dominant on the upland bench of Chaco Canyon, New Mexico in the galleta/grass (*Hilaria jamesii*)-blue grama (*Bouteloua gracilis*)-fourwing saltbush (*Atriplex canescens*) vegetation type, and in a cold desert community of Wupatki National Monument in northern Arizona.^{5,6} It has also been identified as a dominant in some sagebrush (*Artemisia* spp.)-grasslands⁷ and pinyon-juniper (*Juniperus* spp.) woodlands^{8,9,10,11}

It is often present with low or moderate occurrence in Joshua tree

(*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*), desert shrub, sagebrush, desert grassland, and pinyon-juniper communities.

Uses

The earliest uses of *Ephedra* for specific illnesses dates to 5000 BC. The whole plant has been used to treat symptoms of bronchial asthma, colds, influenza, allergies, and hives in teas and tinctures. *Ephedra* use as a supplement by the public and by some athletes increased when it was promoted as an aid to weight loss and to increase energy, alertness, and athletic performance. However, scientific studies showed no evidence to support its effectiveness.

In fact, it was also associated with serious, even fatal, adverse events. In 2004, the U.S. FDA banned dietary supplements containing ephedrine alkaloids because of the serious safety risks. Even in low doses and short-term use, ephedra can be life-threatening or disabling in some individuals and has been linked to harmful effects like high blood pressure, heart attack, seizure, stroke, psychosis, and sudden death.

Most ephedra species contain the chemical ephedrine, an amphetamine-like compound closely related to adrenaline. The ephedrine in ephedra is responsible for its therapeutic effects and its serious safety concerns. It stimulates the heart, lung, and nervous system. The alkaloids of ephedra (ephedrine, and pseudoephedrine) can cause cardiovascular events, including arrhythmias, palpitations, tachycardia, and myocardial infarctions. Other side effects include anxiety, dizziness, dry mouth, headache, insomnia, irritability, nausea, personality changes and others.

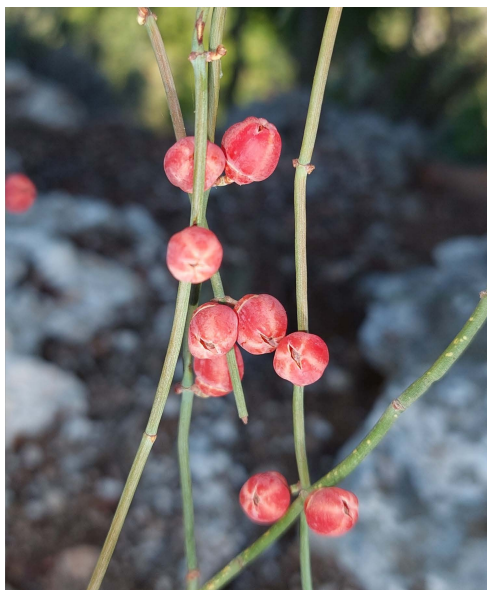
While ephedra is banned in dietary supplements, there are medicinal uses: The drug ephedrine is used to prevent low blood pressure during spinal anesthesia. It is also used for temporary relief of asthma symptoms, such as wheezing, chest tightness and shortness of breath. It may also be prescribed by physicians for other conditions.

Pollination



Ephedra viridis seeds.
Image USDA Public domain.

Ephedra viridis is anemophilous, wind-pollinated, as are most *Ephedra* species. At least one, *E. foeminea*, is entomophilous, insect pollinated, including nocturnal insects. Such pollination is also associated with a full moon. *E. foeminea* is not native to North America, but does grow in a small area of southern California.¹³ It is unique in that it grows to nearly 16' tall. It has yellow flowers sought by insects, and bright red seeds.



E. foeminea, Rak Gergo. cc-by-nc

There is “one possible means of attraction of pollinators to *E. foeminea*—the many pollination drops glitter like diamonds in the full-moonlight.”¹⁵

Ephedra viridis and many other species, lacking traditional flowers and, for the most part, fragrance, depend on wind pollination

Propagation *Ephedra viridis* can be propagated by seeds or by cuttings.

Starting seeds requires a lot of patience and a little bit of luck. They may be slow to germinate or germinate in small numbers.

Seeds should be pressed lightly into the surface of a well-draining starting mix. A mix of perlite, vermiculite, and compost works well. They need light for germination and regular misting of the soil surface, but overwatering can be fatal. *Ephedra* is a desert plant, and the seeds prefer warm days and cold nights even responding well to a one-month stratification. Once sown, they may take anywhere from a few weeks to a few months to germinate. Newly emerged seedlings need plenty of bright, indirect light.

Growing from stem cuttings taken in late spring or early summer is usually faster and more reliable than growing new plants from seeds.

To grow from cuttings: The lower leaves from healthy, semi-woody 4 to 6-inch stems should be removed (so the leaves don't rot in the potting soil). The cut ends may be dipped in rooting hormone in order to stimulate root development (optional). The cuttings should be placed in a well-draining soil mix similar to the one used for seeds. The soil should be kept consistently moist but not soggy. The cuttings need bright, indirect light, but should be well rooted before being placed in direct sunlight.

Once the seedlings or cuttings have developed robust roots and healthy new growth, they can be transplanted into containers or planted in the ground in full sun and well-draining soil. They need deep consistent water, but the plants should dry out between waterings.

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Lady Bird Johnson Wildflower Center https://www.wildflower.org/plants/result.php?id_plant=EPVI

SPECIES native in U. S.

E. antisiphilitica Berl. Ex C.A. Mey, clapp-weed. N in TX, OK

E. x arenicola Cutler [torreyana x viridis], sand jointfir, N in AZ

E. aspera Engelm, ex S. Watson, rough jointfir, N - CA, NV, UT, AZNM, TX

E. californica S. Watson, California jointfir, N - CA, AZ

E. coryi E. S. Reed, Cory's jointfir, N - NM, TX

Ephedra cutleri Pebbles, Cutler's jointfir, N - UT, CO, NM, AZ

E. funerea Coville & Morto, Death Valley jointfir N - CA, NV, AZ Vul/CA; IMP/NV; Crit Imp/AZ - primary threat is development. Status from Nature Serv website

E. xintermixta Cutler [torreyana x trifurca] mixed jointfir, N - NM

E. nevadensis S. Watson, Nevada jointfir, N-OR, CA NV, UT, AZ

E. pedunculata Engelm. Es C. Watson, vine jointfir - N - TX

E. torreyana S. Watson, Torrey's jointfir, N - NV, UT, CO, AZ, NM, TX

E. trifurca Torr. Ex S. Watson, longleaf jointfir, N CA AZ, NM TX

E. viridis Coville, Mormon tea, N- OR,CA, NV, UT, WY, CO, NM

Species Introduced to U.S.

Ephedra altissima Desf., high-climbing jointfir. Introduced in CA

E. distachya L. jointfir Introduced

Species listed, but no States listed, ie cultivated species in US

E. equisetina Bunge, ma huang, No states listed

E. fragilis Desf. No states listed

E. gerardiana Wall. Ex Stapf, Gerard jointfir No states listed

E. sinica Stapf, Chinese ephedra, No States listed.

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Additional Reference

USDA Plants Database. www.plants.usda.gov



Ephedra viridis in Arches National Park, Utah - K.S.

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