USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

Plant Guide

GRAY EPHEDRA

Ephedra nevadensis S. Watson

Plant Symbol = EPNE

Contributed By: USDA NRCS National Plant Data Center & Tucson Plant Materials Center

Warning: Ephedra is considered toxic and should be used with caution.

Alfred Brousseau @ Brother Eric Vogel, St. Mary's College @ CalPhotos

Alternative Names
Mormon tea, jointfir

Use
Ethnobotanic: Some tribes steeped the twigs and drank the tea as a general beverage including the Kawaiisu in California, the Zuni in New Mexico, and the White Mountain Apache of Arizona. The plant is still prepared as a beverage and drank today. The Panamint and Owens Valley Paiute of California ate the seeds. The Moapa Paiute and Shoshone in the Great Basin brewed a tea from the twigs to treat venereal diseases. The Shoshone also imbibed a tea to stimulate urination and made the powdered twigs into poultices for sores. The Kawaiisu steeped a tea of the twigs for backache. The Cahuilla in southern California made a tea to cure stomach and kidney ailments and to cleanse their system. The Zuni prepared and drunk a tea from the plant, minus the root, to treat the first stage of syphilis.

Ephedra's unique and attractive evergreen or gray foliage makes it a desirable species for environmental plantings. It is also used in preparation of herbal teas (Keeler 1989).

Wildlife and livestock: Mountain quail eat Ephedra seeds. Deer, bison, and antelope browse the plant. Gray ephedra is usually grazed heavily and seems to be perfectly safe for grazing livestock since it induces neither toxicity in ewes or cows, nor congenital deformities in lambs (Keeler 1989). New seedlings should be protected from grazing based on the key species in the mix. Proper use is based on one-half the current year's growth (USDA 1983).

Status
Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status and wetland indicator values.

Description
General: Ephedra Family (Ephedraceae). Gray ephedra is a dioecious, xerophytic shrub with jointed or fluted stems and scale-like leaves. Leaf scales are in twos, 2-6mm long, sheathing to about the middle, and obtuse to acute at the apex. The inflorescence is conelike and the staminate flowers have united filaments. The ovulate spikes are distinctly stalked and the seeds are usually paired.

Distribution
Gray ephedra occurs naturally on flats and slopes in all the creosote bush deserts at mostly 1,000 to 4,000 ft (305-1,220 m) elevation and sometimes it is found in the desert grassland up to 5,000 ft. (1,524 m). It inhabits California in the eastern Mojave and Colorado deserts, southern Nevada in Clark and Lincoln counties, southwestern Utah, Arizona in the Grand Canyon area and in the Mojave. It also occurs in Arizona and Colorado deserts, New Mexico along the Gila and Pecos river drainage, TransPecos Texas, the Edwards Plateau, and at scattered locations on the Rio Grande Plain, Baja California to Coahuila and Central Mexico (Benson and Darrow 1981). Characteristic species are creosotebush, white bursage, Joshua tree, blackbrush, catclaw, burrobush, big galleta, Indian ricegrass, black grama, bush muhly, and desert needlegrass.

For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Establishment
On good seed years abundant collections of ephedra seeds can be obtained by flailing the fruiting branches over an open tray (Young 1986). Seed is harvested by hand from native stands. No seed fields have been established and no work has been done to determine the best method of mechanically harvesting the seed. The plants' response to clipping for harvest is also undetermined (USDA 1983). Collected seed was cleaned with ease to a high purity with a fanning mill equipped with a No. 12 top screen and a No. 1/12 bottom screen (Kay 1975a).

The seeds germinate best at alternating temperature requirements with quite cold nighttime temperatures. Seedlings grow rapidly and can be easily transplanted (Young 1986). Germination of gray ephedra seed was optimal when the temperature alternated between 20 C (16 hours) and 25 C (2 hours). It germinates well in the range of 10 and 20 C, but is highest at 20 C (Kay 1977).

Gray ephedra should perform best on limy sites, most textures, excluding clay and silty clay textures. According to Young, Evans, and Kay (1977), Ephedra nevadensis appears to have an adaptation for seed germination under osmotic potentials as low as -12 bars and thus could be seeded in salt-desert conditions. Depth-of-planting studies resulted in the emergence of 30% (42% on a viable-seed basis, with insect damaged seed removed) from a depth of 1 cm over a 10-day period with temperatures averaging about 10 C. Total emergence was similar at 2 cm, though slightly delayed. Roughly 13% (18% viable seed) emergence, delayed further, was recorded for 4 cm (Kay 1975). Seed storage at room temperature for 12 months after maturity reduced germinability (Young 1977).

Cultivars, Improved and Selected Materials (and area of origin)

EPNE is available through native plant nurseries and seed companies within its range. Seeds and plants of selected *Ephedra* cultivars are available from many nurseries. It is best to plant species from your local area, adapted to the specific site conditions where the plants are to be grown. Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government." The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

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Edited 05dec00 jsp; 19may03 ahv; 05jun06 jsp

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