

***Dasiphora floribunda* (Pursh) Kartesz, comb. nov. ined.**
ROSACEAE

shrubby cinquefoil

Synonyms: *Potentilla fruticosa* L.
Dasiphora fruticosa auct. non. (L.) Rydh.
Potentilla floribunda Pursh.
Potentilla fruticosa ssp. *floribunda* (Pursh) Elkington
Potentilla fruticosa var. *tenuifolia* Lehm.



Illustration source: USDA—Forest Service collection, Hunt Institute

General Description.—*Pentaphylloides floribunda* is commonly known as shrubby or bush cinquefoil, but local names also include golden hardback, prairie-weed, fivefinger, buckbrush, ninebark, widdy, and yellow rose. It is also frequently referred to by the most common synonym, *Potentilla fruticosa* (Kartesz 1994). This is a distinctive shrub and easily separable from the other *Potentilla* species that are all

herbaceous (Cronquist and others 1997). Recently it has been reported as *Dasiphora floribunda* (Pursh) Kartesz comb. nov. ined (ITIS 2002). The genus *Dasiphora* includes approximately 8 or 9 species that are all exclusively in Asia except for shrubby cinquefoil. The genus name “*Pentaphylloides*” is derived from the Greek and refers to the pinnate five-foliolate leaves. “Penta-” means “five-“and “*phylloides*” means “leaved.” “*Fruticosa*” is a Latin adjective that means “shrubby” or “bushy.” This shrub is usually from 10 cm to 1 m tall but may grow to a little over 1.5 m. The herbage of the current year is covered by soft hairs, but the stem becomes smooth on aging with, eventually, a red-brown shreddy bark. The leaves comprise usually five, but sometimes three to seven, elliptic-shaped leaflets. The flowers are solitary in the leaf axils along the stem but form three- to seven-flowered clusters (cymes) at the stem tips. Petal color is usually yellow, although it may be white, or even pink and red, in cultivated varieties, and there are 15 to 25 stamens per flower (Carter 1997, Cronquist and others 1997, Hitchcock and Cronquist 1973, Vines 1986). This is a wide-ranging species, but apparently chromosome number differs between new and old world material. North American plants have a chromosome number of $2n = 14$ while Asian and European plants have $2n = 28$ (Cronquist and others 1997).

Range.—Shrubby cinquefoil is a common, wide-ranging circumboreal shrub ranging from Greenland and Labrador, to Alaska and south to the mountains of California, Nevada, Arizona, Colorado, New Mexico, and through the northern states into Iowa, Indiana, Illinois, Ohio, Pennsylvania and New Jersey in North America. It also occurs in Europe, for example England, Ireland, Scandinavia and Bulgaria, and in Asia (Stace 1997, Gibbons and Davies 1994, Polunin 1997).

Ecology.—Shrubby cinquefoil grows in moist soils in mountain regions from lower foothills to sub alpine. The elevation tends to depend somewhat upon latitude, but generally plants are found between approximately 1,800 m and 3,400 m. It grows in open

woods, wet mountain meadows, calcareous bogs, limestone pavements, and along streams (Cronquist and others 1997, Gibbons and Davies 1994, Vines 1986, Welsh and others 1993). It has also been reported from relatively xeric habitats such as mountain shrub lands and rocky mountain slopes (McGregor and others 1986, Stace 1997, Thilenius 1972). The degree of permanent soil moisture required is likely to depend on average precipitation, temperature, and localized water collection sites or drainage channels. It is a frequent member of willow (*Salix*)-dominated communities, and in some parts of its range, for example New Mexico, it is a member of the Krummholz communities found at the lower tundra edge (Dick-Peddie 1993). Shrubby cinquefoil may be the dominant shrub in many situations and can also grow in fairly pure stands. For example, it may be the dominant shrub in aspen stands or other forest clearings where snow accumulation prevents tree establishment (Knight 1994, Thilenius 1972). In addition, it frequently attains dominance in limestone-derived soils (Thilenius 1972).

Reproduction.—Shrubby cinquefoil generally flowers in June through August, although flowers may be found until the first frost (Epple 1995, McGregor and others 1986, USDA FS 1988). The achenes mature in summer and fall. The bright yellow flowers are insect pollinated. The fruit is a densely hairy achene.

Growth and Management.—Shrubby cinquefoil increases in response to overgrazing and other disturbance. In the Western United States it does not appear to be an invasive species, but in New England it can be an aggressive invader of agricultural land and may be difficult to eradicate once established (USDA FS 1988). It has been used as an indicator species of past disturbance (Dick-Peddie 1993). Shrubby cinquefoil is widely used as an ornamental and in wild land seeding. It does best in full sun as it tends to flower poorly in shade conditions. Seed apparently does not require cold stratification for germination and will germinate immediately after harvesting (Bonde 1965, Tykač 1990). The highest germination rate was achieved at 18°C (Bonde 1965). However, it has been proposed that cold stratification may reduce the temperature requirements for seed germination (Baskin and Baskin 2001). A cold, moist stratification period of 2 months has been generally recommended for *Potentilla* species, including *Potentilla fruticosa*. (Phillips 1987). Shrubby cinquefoil can also be propagated from softwood cuttings in the spring or from suckers (Tykač 1990). Container grown plants, that are very popular within the landscape business, can be planted in spring and

fall. Even old plants are reported to tolerate transplanting (Tykač 1990).

Benefits.—Shrubby cinquefoil leaves are bitter tasting, and the forage and browse value varies depending upon the part of the world in which it grows. It is generally on summer range, although at lower elevations it may be valuable for fall browsing (Dayton 1931). It is likely that just as the shrubs' morphology varies, the levels of secondary plant products that impart the bitter taste differ between habitats and geographic range. Generally, it is considered inferior forage for livestock, but it is used by cattle in Arizona and Montana (Epple 1995, Vines 1986). It is also often an important browse for sheep and goats especially in the Southwestern United States and in southwestern Montana and contiguous portions of southeastern Idaho (Dayton 1931). In Montana it is rated 18th among the most important browse species. Similarly, it is reported unpalatable to deer (Thilenius 1972) but does provide browse for deer and elk in some regions (Epple 1995, Vines 1986). On some overgrazed range it is often grazed quite closely, and the shrubs assume a hedge-like appearance (USDA FS 1988). Such use indicates overstocking and a critical reduction, if not elimination, of other palatable plant species. It provides effective protection against soil erosion (Epple 1995, Vines 1986). Native Americans have used various parts of the plant for an assortment of purposes including as a medicine and in ceremonials (Moerman 1998). The Blackfoot peoples have used the leaves to fill pillows and the bark as tinder, while the Eskimos of Alaska and the Arctic have used dried leaves for tea (Moerman 1998). Leaves were also used for tea in Russia. The name "potentilla" is derived from the Latin "potens," which means powerful and may refer to the medicinal value of some species. A preparation made from the leaves was used by the Cheyenne for protection and was also considered a deadly arrow poison, only to be administered by holy people (Carter 1997, Moerman 1998). Shrubby cinquefoil has commercial value in the landscape and horticultural trade. It is a popular ornamental shrub, and many cultivars exist that have been chosen for the degree of leaf pubescence (hairiness), flower color, and growth form. A list of some of the recognized cultivars available can be found in Bailey and others (1976) and Tykač (1990).

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- Juanita A.R. Ladyman, Ph.D., Botanist, *JnJ Associates*, 6760 S. Kit Carson Cir. E., Centennial, CO 80122