

**Scientific name:** *Dasiphora fruticosa* (L.) Rybd., comb. nov. ined.  
**Family:** *Rosaceae*  
**Common Names:** shrubby cinquefoil

#### Plant Description

Freely branched shrub, spreading to erect, 20 to 100 cm high, reddish-brown stems with shredded outer bark; short-petioles, pinnate leaves with mostly five linear-oblong, entire, slightly hairy leaflets; yellow flowers 2 to 3 cm across, solitary or cymose; thin woody roots and adventitious stems (Elkington and Woodell 1963).

**Fruit:** Achenes, densely hairy in compact clusters.

**Seed:** 1 to 1.5 mm long, tear-shaped, green-yellow to brown, smooth to rough textured. 18 to 70 per flower (Elkington and Woodell 1963).

#### Habitat and Distribution

Found on moist to dry plains and in open woods to subalpine elevations. Found along stream banks and swamps in the boreal forests of northern Alberta and are somewhat shade tolerant (Hardy BBT 1989).

**Seral Stage:** Early to late (Gerling et al. 1996).

**Soils:** Adapted to a wide range of soil conditions from fine to coarse, can tolerate a wide pH range 5 to 8 (USDA NRCS 2012). Grows well on sandy and loamy soils. High acid tolerance, including pH lower than 4.5 (Hardy BBT 1989).

*D. fruticosa* is moderately tolerant to saline soil conditions (USDA NRCS n.d.).

**Distribution:** Widespread from Alaska across Canada and the western and northern USA. Circumpolar with large gaps (Johnson et al. 1995).

Circumpolar; Alaska, Yukon, District of Mackenzie to Hudson Bay, Newfoundland south to California, Nevada, Utah, New Mexico, South Dakota, Minnesota, Indiana, Pennsylvania, New Jersey (Moss 1983).

#### Phenology

Germination normally occurs in spring. Maximum root growth occurs late spring and summer (Elkington and Woodell 1963). Flower buds appear May to June. Shrubby cinquefoil flowers from June to September. The fruit matures in late summer and early fall.

Plants have been found to live up to 36 years (Anderson 2001).



*Dasiphora fruticosa* flower.





### Pollination

Diptera, Cleoptera and Hymenoptera have been observed as shrubby cinquefoil pollinators (Elkington and Woodell 1963).

### Seed Dispersal

Wind dispersed (Anderson 2001).

### Genetics

2n=14, 28 (Moss 1983).

### Symbiosis

In their study, Van Hoewyk et al. (2001) found a high endomycorrhizal colonization rate (average 78% of all root segments) of *D. fruticosa* on eight different calcareous wetlands in eastern New York. Colonized by arbuscular mycorrhizal fungi (Bohrer et al. 2004).

### Seed Processing

**Collection:** Cut flowering branches and place in paper bags or shake branches into bags or onto tarps.

**Seed Weight:** 0.1808 g/1,000 seeds.

**Harvest Dates:** Late August.

**Cleaning:** Air-dry fruits in paper or Tyvek bags at 15 to 25°C. Crush material or remove large chaff and crush remaining material. Sieve to remove seeds from chaff using appropriate size screens. Small chaff and dust can be removed by winnowing. If capsules are intact merely open capsules and empty seeds; sieve or winnow to remove chaff and dust.

**Storage:** Keep in a well-ventilated drying shed prior to cleaning.

**Longevity:** Stored at -18°C, seeds can germinate after up to seven years in storage (Walsh et al. 2003).

When stored dry at 1 to 5°C, seeds can remain viable for up to 5 years (Rose et al. 1998).

### Propagation

**Natural Regeneration:** Creeping stems but predominantly seed (Elkington and Woodell 1963).

**Germination:** 53% from fresh seeds after 30 days and 61% from one-year-old seeds after 30 days with seeds collected in northeastern Alberta.

Seeds germinated at 18°C (Baskin and Baskin 2001).

**Pre-treatment:** Requires no stratification (Baskin and Baskin 2001).

**Direct Seeding:** Seeds should be planted as soon as ripe on moist soil (Hardy BBT 1989).

**Vegetative Propagation:** 75% to 80% rooting using hardwood cuttings treated with Seradix<sup>®</sup> #3 and placed in a mixture of 1 peat: 1 sand: 1 reground styrofoam chips with 16°C bench heat. 80% to 90% rooting using softwood cutting treated with Seradix<sup>®</sup> #2 with periodic misting until rooting takes place (McTavish and Shopik 1983). Softwood cuttings taken in July, dipped in 1,000 ppm IBA and planted in peat: perlite or sand medium and misted will root in about three weeks (Rose et al. 1998).

**Micro-propagation:** Is commercially micro-propagated for ornamental purposes.



**Greenhouse Timeline:** 0 to 30 days cold stratification. 16 weeks in the greenhouse before out-planting. Plants may be over wintered for a spring or fall plant (Wood pers. comm.).

### Aboriginal/Food Uses

**Food:** Dried or fresh leaves can be brewed into a golden coloured tea (Johnson et al. 1995) that is high in calcium (Kindscher 1987).

**Medicinal:** A tea from the leaves, stems and roots has been used to treat congestion such as tuberculosis (Johnson et al. 1995).

**Other:** The dried bark peels off the stem and can be used as tinder for starting fires (Johnson et al. 1995).

### Wildlife/Forage Usage

**Wildlife:** Good forage value for wildlife (Gerling et al. 1996).

**Livestock:** Poor forage value for livestock (Gerling et al. 1996).

**Grazing Response:** This species increases with increased grazing (Tannas 1997).

### Reclamation Potential

Proven successful in revegetating mining disturbed lands. Good potential for growth and survival on amended mine tailings. Rapid growth, easy establishment from transplants and excellent soil stabilizing properties makes this species well adapted for revegetation of disturbed stream banks and moist meadow areas. High potential for biomass production, moderate potential for erosion control, moderate to high potential for long term revegetation (Anderson 2001).

### Commercial Resources

**Availability:** Available at numerous nurseries in Alberta.

Seeds have been collected by the Oil Sands Vegetation Cooperative for use in the Athabasca oil sands region.

**Cultivars:** Many ornamental cultivars are available for horticultural uses but these are not suitable for reclamation purposes.

**Uses:** This plant is widely used as an ornamental shrub in gardens and public places (Elkington and Woodell 1963) as well as an erosion control along highways (Johnson et al. 1995).

### Notes

Once established, the seedlings are durable and persistent. Shrubby cinquefoil is tolerant to poor soils, wet conditions, flooding and calcareous substrates (Anderson 2001).

Synonyms include: *Potentilla fruticosa* auct. non L. and *Dasiphora floribunda* (Pursh) Kartesz (ITIS n.d.).

### Photo Credits

**Photo 1:** Walter Sigmund

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**Photo 2:** Wild Rose Consulting, Inc.

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