

**Scientific name:** *Apocynum androsaemifolium* L.

**Family:** *Apocynaceae*

**Common Names:** spreading dogbane, bitterroot, flytrap, Indian hemp

### Plant Description

Erect perennial herb, 20 to 100 cm high; well branched stems above; rhizomes up to 25 cm deep that can form extensive colonies; opposite, ovate to oblong, simple, mucronate leaves 2.5 to 8 cm long; short-petioled; fragrant, pink, bell-shaped flowers in loose, terminal, paniced cymes hanging from stem tips and leaf axils, petals 6 to 9 mm long (Moss 1983).

Stems when broken exude a milky sap (Budd and best 1969).



*Apocynum androsaemifolium* in flower.

**Fruit:** 8 to 12 cm long follicles and 5 mm thick, paired pods that split along one side to release the seeds (Moss 1983).

**Seed:** Numerous 2.5 to 3 mm long seeds each with long (1 to 2 cm) off-white tuft of hairs at tip.

### Habitat and Distribution

Shade tolerant. Common in sandy areas on well drained, open sites in woods, roadsides, open hillsides and ridges. Can also be found in riparian zones, moist areas with clayey soil (Hardy BBT 1989).

**Seral Stage:** It is a mid-seral species in multiple habitat types (Groen 2005).

**Soils:** Found on fine to medium soil textures and dry soils (Gerling et al. 1996). Found in soils with pH ranging from 5.0 to 7.7 (Groen 2005).

**Distribution:** Widespread across Alberta, north and west to Great Slave Lake and interior Alaska. Alaska, Yukon, southwestern District of Mackenzie to James Bay, southern Quebec, Newfoundland south to California, Arizona, Texas, Georgia (Moss 1983).

### Phenology

Flowers bloom in June and July. Seeds are ripe in late summer (September) (Shultz et al. 2001).

### Pollination

Spreading dogbane is insect pollinated (Bergweiller and Manning 1999) by bumble bees (*Bombus terricola* and *B. ternaries*) (Marden 1984). It is also self-pollinated (Groen 2005).

### Genetics

$2n=16$

### Symbiosis

Vesicular-arbuscular mycorrhizae were observed by Currah and Van Dyk (1986).

### Seed Processing

**Collection:** Collect whole capsules when rusty.

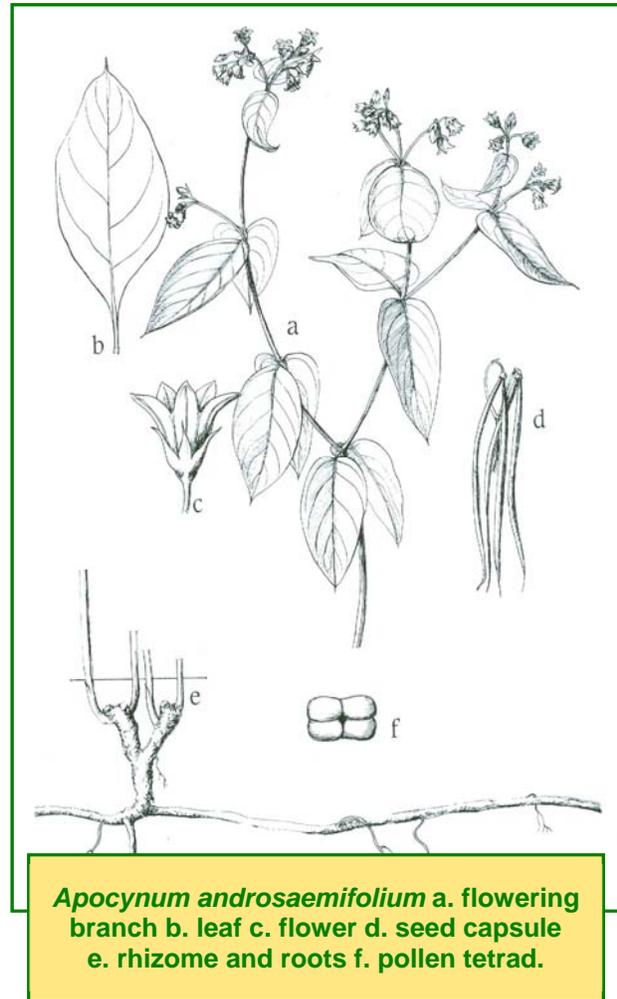
**Seed Weight:** 0.1459 g/1,000 seeds.

**Harvest Dates:** Mid to late August.

**Cleaning:** Pull seeds from seed heads by hand. Rub seeds with pappus between corrugated rubber in a box. Sieve to remove seeds from chaff using appropriate size screens. Small chaff and dust can be removed by winnowing.

Alternatively, pappus with attached seeds can be placed on a sieve with mesh size large enough to let seeds through and stacked on a sieve that will catch the seeds. Place a smaller sieve over the top sieve and direct a strong flow of air (such as that produced by a reversed vacuum) through the top sieve. Seeds will be removed from the pappus and lodge in the small mesh sieve.

**Storage Behaviour:** Orthodox; seeds can be dried, without damage, to low moisture contents, their longevity increases with reductions in both moisture content and temperature (Royal Botanic Gardens Kew 2008).



**Storage:** Store cold for up to three years (Schultz et al. 2001). No loss in viability in when stored in the open at room temperature after three years (Royal Botanic Gardens Kew 2008).

**Longevity:** Dried seeds kept in storage germinated after 5 years (Groen 2005).

### Propagation

**Natural Regeneration:** Prolific underground rhizomes (Bergweiler and Manning 1999) and seeds (Gerling et al. 1996).

**Germination:** In their germination requirements study, Drake and Ewing (1997) report 2% germination after 30 days with no stratification with three to six months old seeds. Over 90% of fresh seeds collected in northeastern Alberta germinated with no stratification.

**Pre-treatment:** In their propagation notes, Hudson and Carlson (1998) suggest soaking the seed for a period of 24 hours followed by 2 months stratification in a mesh bag between layers of peat at 2°C. Seed sowing should occur on May 1 in 100% peat at 24°C day/20°C night germination temperatures and 18 to 20°C growing temperatures. Adding 30 to 50 ppm N one to two times every week will help encourage healthy growth.

**Direct Seeding:** Seeds can be sown as soon as they are ripe (late summer) and over-wintered outdoors (Plants for a Future n.d.).

**Vegetative Propagation:** Division can be made either in the spring, just before active growth begins, or in the autumn (Plants for a Future n.d.).

### Aboriginal/Food Uses

**Food:** No known food uses (Plants for a Future n.d.). Can be mildly to severely toxic with internal and external symptoms (Hamel and Chiltoskey 1975).

**Medicinal:** The roots can be used as a cardiac stimulant and diuretic, for kidney ailments, asthma, arthritis, rheumatism, constipation, fever, to cure insomnia, and infusions to expel pinworms and threadworms and to prevent falling hair (Tannas 1997). By boiling the whole plant, a medicinal tea was made to increase lactation in nursing mothers (alternatively a decoction was applied directly to breasts – Royer and Dickinson 1996) and was also used, once cooled, as an eyewash to treat sore eyes.

**Other:** The tough, fibrous bark was used to make twine, fishing nets and thread (Marles et al. 2000). Cherokee used as a treatment for mange (Hamel and Chiltoskey 1975).

### Wildlife/Forage Usage

**Wildlife:** Eaten by ground squirrels; intermittently grazed by elk; used by bees for honey production; used as nest building sites by crab spiders and provides canopy cover (Groen 2005).

**Livestock:** Poor forage value, unpalatable, contains bitter, toxic steroid glycosides that discourage browsing (considered mildly toxic when consumed

in large quantities). Sheep occasionally browse it (Tannas 1997).

**Grazing Response:** Spreading dogbane is an increaser (Gerling et al. 1996).

### Reclamation Potential

Has potential in reclamation because of the rhizomes' effective soil stabilization properties, especially useful on exposed slopes (Tannas 1997).

Can sprout immediately on recently burned soil through rhizomes (Groen 2005).

Releases large numbers of wind-dispersed seeds (Bergweiler and Manning 1999).

Prosper after disturbances such as fire and clear cuts (Rook 2004).

Can be successfully transplanted, although change in elevation may cause a change in their development timeline (Groen 2005).

Has been found to successfully spread from topsoil islands to tailings (Winterhalder 2004).

Cunningham (1994) has declared the use of this plant for accumulation of lead from contaminated soils.

### Commercial Resources

**Availability:** Not commercially available in Alberta (ANPC 2010).

**Uses:** Incisions on the stem yield latex, a possible source of rubber (Royer and Dickinson 1996).

Spreading dogbane is an ornamental plant but can be invasive (Plants for a Future n.d.).

### Notes

*Apocynum androsaemifolium* is listed as 72% intact (less occurrences than expected) in the Alberta oil sands region (Alberta Biodiversity Monitoring Institute 2014).

Spreading dogbane has been recognized as a native bioindicator for ozone (Bergweiler and Manning 1999).

This species was considered a noxious weed in Alberta due to its toxic effects on livestock (Government of Alberta 2008), but has never been recorded as invasive in revegetation usage.



## Photo Credits

**Photo 1:** Glen Lee, Regina, Saskatchewan.

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

**Line Diagram:** John Maywood, used by permission of Bruce Peel Special Collections, University of Alberta.

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