

Scientific Name: *Aquilegia brevistyla*

Common Names: Small Flower Columbine, Blue Flower Columbine



Above: *A. brevistyla*. Virginia Skilton.
<http://linnet.geog.ubc.ca/ShowDBImage/ShowStandard.aspx?index=7240>

Life Form: Forb

Site Preferences: Conifer forests, open woods, meadows, shores, rocky outcrops from 490-1280m in elevation (Cody, 2000).

Tolerances: Often found in moist habitat but can tolerate drier conditions (Ladyman, 2006)

Distribution: Found in Alaska, Yukon, Northwest Territories, Nunavut, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario and Quebec. Also found in Minnesota, Montana, Wyoming and South Dakota. (Ladyman, 2006)

Plant Identification: *A. brevistyla* is a perennial plant whose stem grows from 20-80 cm high. Most leaves grow at the base of the stem and are lobed with wavy edges. Fewer, less-lobed leaves grow from the stem. Each plant may have 1-4 flowers (Cody, 2000). The nodding flowers feature sepals ranging from blue to lavender and grow from 15-25mm. Hooked nectar spurs are blue to lavender in colour. The petals are white to yellow and 6-8mm long (Ladyman, 2006). The black seeds of *A. brevistyla* are 1.5mm in length and obovoid in shape (Ladyman, 2006).

Harvesting Considerations:

Some sources indicate that not all adult plants will flower each year and therefore seed production may vary annually (Ladyman, 2006). *A. brevistyla* may become ripe July-August in the southeast Yukon (Ladyman, 2006). This may vary in areas and maturity should be determined by forecasting earlier in the season (Banerjee et al., 2001). *Aquilegia* species commonly hybridize so collections from plants of unknown origin should be avoided (Ladyman, 2006). If a population is small, sample as randomly as possible. If the population is large and has little phenotypic variation, establish grids or transects to sample individuals. If large variations in environmental conditions exist in the landscape, record these differences and keep seeds from different areas separate (Way, 2003). The number of individuals sampled from the separate areas should be in proportion to the individuals in the subpopulation relative to the total population size (Way, 2003). Ensure that sampling methods do not remove more than 20% of available seeds (Way & Gold, 2014).



Top: *A. brevistyla* flower, note the hooked sepals. marla, some rights reserved (CC BY-NC). Cropped from original.

Bottom: *A. brevistyla* leaf. Allan Carson.
<http://linnet.geog.ubc.ca/ShowDBImage/ShowStandard.aspx?index=76792>

Aquilegia brevistyla

Seed Collection:

Assess the ripeness of seed pods. Mature follicles will dry and split open. Gently crush the pods by hand to collect the seeds remaining in the pods (Trindle & Flessner, 2003).

Post-Harvest Handling:

Seeds should be stored in cool dry conditions (Burton & Burton, 2003). Ensure seeds do not overheat in direct sunlight or in a parked car. Label all bags inside and out, and inspect collections from different collectors before combining (Way & Gold, 2014).

Seed Processing:

A screen may be used to separate seeds from the pods. The light, papery pod chaff is easily separated from seeds (Trindle & Flessner, 2003).

Seed Storage:

The seed behavior of *A. brevistyla* is likely orthodox and longevity may be improved by storing seeds frozen (Royal Botanic Gardens Kew, 2018). Longevity of orthodox seeds increases with low moisture content and low temperatures (Rao et al., 2006). Store seeds in freezer at $-18\text{ °C} \pm 3\text{ °C}$ for long-term conservation (FAO, 2014).

Germination Pre-Treatment:

It has been suggested that a cool and moist stratification period of 24 weeks improves germination of the closely related *A. formosa* (Trindle & Flessner, 2003). Yukon Research Centre indicate ~25% germination without stratification (YRC, 2019).

Seed Germination:

For germination testing, label germination containers with collection number, species, germination conditions, start date, and number of seeds. Place germination paper into petri dishes. Wet paper just enough so that paper is moist but there is no standing water. Place a representative sample of seeds into Petri dish and space in an even grid. Multiple dishes may be required depending on sample size. Place lids on Petri dishes and place in germination chamber (or area with stable temperature) (Davies et al., 2015). If appropriate humidity cannot be maintained in the germination chamber, seal dishes in a Ziploc bag. Seeds should not be in direct sunlight but exposed to daylight. Monitor seeds daily and record proportion of seeds having germinated. Moisten filter paper as necessary. Most viable seeds will germinate in 30-90 days (Powell, 2004). RGB Kew reported the highest germination rate of *A. formosa* when seeds were treated to a 12/12 light regimen with 26°C during daylight and 16°C during the dark period (RGB Kew, 2019). Plants do not recover well if allowed to become dry (Trindle &



Above: Mature follicles of the closely related *A. Formosa*. Carla Stanley, iNaturalist.org, [some rights reserved \(CC BY-NC\)](#).

Flessner, 2003).

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