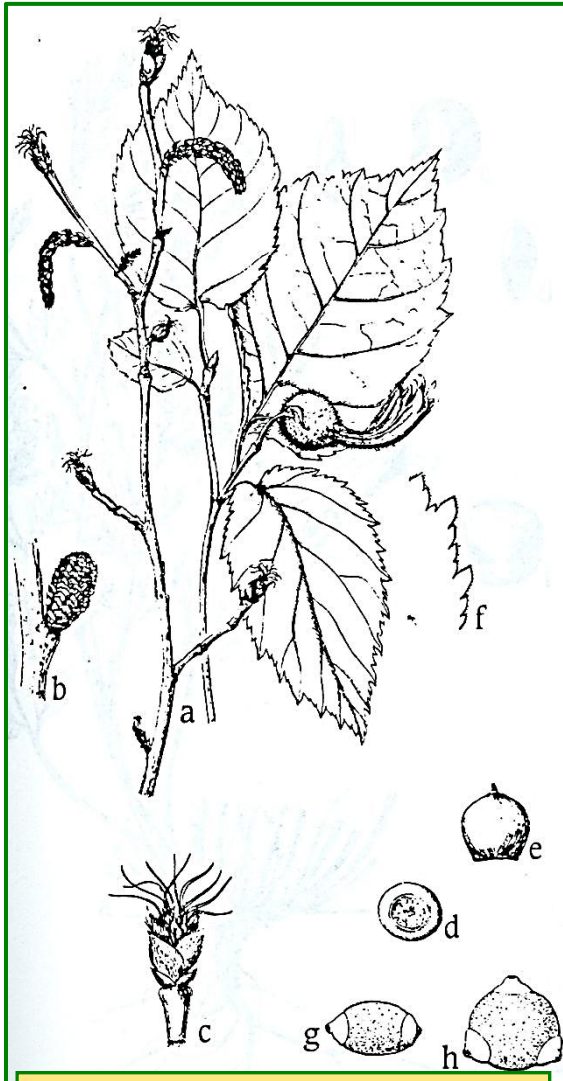


Scientific Name: *Corylus cornuta* Marsh.

Family: *Betulaceae*

Common Name: beaked hazel, beaked hazelnut, western hazel, wild filbert, beaked filbert

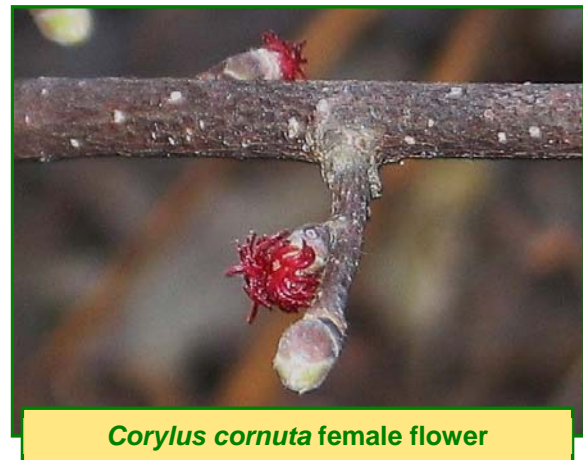


***Corylus cornuta* illustration**
a. branches with female and male flowers b. leaves and fruit c. female flower d-e. nut f. leaf margin g-h. pollen

Plant Description

Shrub up to 3 m tall, branches numerous and ascending; bark smooth, mottled brown and grey,

may have fine hairs on twigs (eFloras n.d.). Leaves are alternate, deciduous, pale beneath, oval, 5 to 10 cm long, 2.5 cm wide; flowers in catkins appearing before the leaves, base heart-shaped; stalks 8 to 18 mm long; margins coarsely toothed; male catkins are yellowish brown, 1 to 2; female catkins resembling a scaly bud with 2 to 5 reddish pink pistils; flowers of beaked hazelnut are predominantly monoecious, male flowers with 4 stamens; female flowers with one pistil (Royer and Dickson 2007). **Fruit:** Nuts borne in clusters of 2 to 6; bract flask-shaped, bristly, green which extend beyond nut to form a beak (Inkpen and Van Eyk n.d.). 1 to 5 cm long (Royer and Dickson 2007). **Seed:** Spherical brown nut, 1 to 2 cm diameter.



***Corylus cornuta* female flower**

Habitat and Distribution

Thickets, open woods and landscapes disturbed by fire and logging; moderately shade tolerant (Fryer 2007, Inkpen and Van Eyk n.d., Moss 1983).

Do not do well in open areas that get hot and dry.

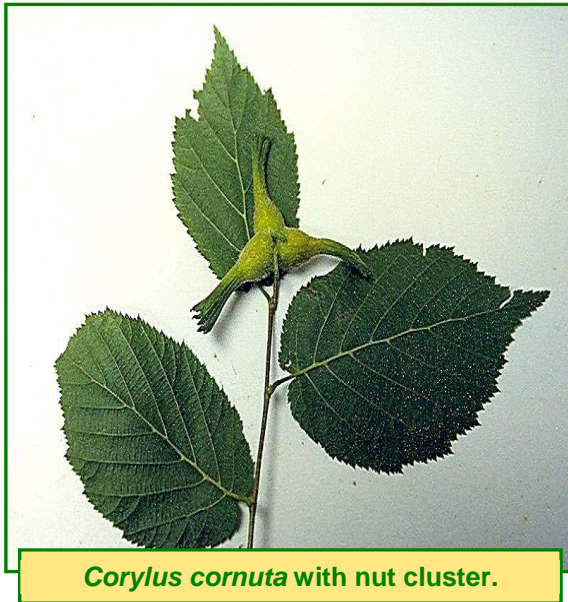
Seral Stage: Mainly early successional species, hazelnut can also be found in forests that are in later stages of succession (Fryer 2007). Populations



decline with the recruitment of more shade tolerant species as the canopy closes (Kurmis and Sucoff 1989).

Soils: Neutral to acidic (Fryer 2007, Lady Bird Johnson Wildflower Center 2010) with a pH range of 4.8 to 7.5 (USDA NRCS n.d.). Moisture regime is wet-mesic to dry-mesic and does not grow well on fine-textured clays or wet soils such as peats (Fryer 2007). *C. cornuta* has no salinity tolerance (USDA NRCS n.d.).

Distribution: British Columbia across southern Canada to Newfoundland south to California, Kansas, Ohio, Georgia (Moss 1983).



Phenology

Male and female flowers are borne on separate branches of the same plant, male and female flowers bloom from April to early May, before leaves appear (Barbour and Brinkman 2008, Royer and Dickson 2007). By late summer or early fall, the fertilized female flowers develop into fruits. These are round or egg-shaped, hard-shelled, brown or dark-tan nuts, seed crops are produced at irregular intervals, usually every two or three years (Barbour and Brinkman 2008).

Pollination

Wind pollinated, self-incompatible in laboratory study (Fryer 2007).

Seed Dispersal

Animal dispersed; squirrels, chipmunks, ruffed grouse, pheasant, hairy woodpecker and blue jay eat the nuts of the shrub (Lady Bird Johnson Wildflower Center 2010).

Genetics

2n=28 (Moss 1983).

Symbiosis

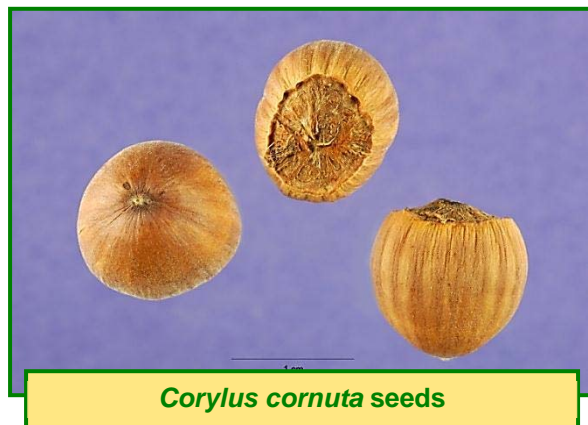
Corylus avellana is associated with ectomycorrhiza, such as *Tuber nigrum* (a truffle) (Pargney and Brimont 1995).

Seed Processing

Collection: Hand collect nuts promptly when husks start to turn brown to reduce losses due to wildlife browsing. Store nuts in a dry place for a few days and remove the husks (Rook 2002).

Seed Weight: 1.2 seeds/g or 833 g/1,000 seeds (Young and Young 1992).

Harvest Dates: August to September (Young and Young 1992).



Cleaning: Small lots seeds can be cleaned by rubbing the seeds together by hand using gloves removing the outer husk of the seed (Barner 2009).

Storage Behavior: Thought to be intermediate (Royal Botanic Gardens Kew 2008).

Storage: Seeds lose viability when stored in dry conditions; due to an onset of a deep dormancy which is difficult to break (Young and Young 1992); storing the seeds in moist conditions will prevent this (Barbour and Brinkman 2008, Young and Young 1992). Even partial drying reduces post chilling germination (Kowalski and Kowecki 1982). Seeds can be stored in hermetic storage at 5°C; no loss in viability after 14 months dry storage; dry and viable seeds were killed by cryostorage in liquid nitrogen (Royal Botanic Gardens Kew 2008).

Longevity: Not viable after 1 year (Fryer 2007).

Propagation

Natural Regeneration: By seed and vegetatively. Vegetative reproduction is more common (Haeussler et al. 1990) but seed production is important for establishment on new sites (Tapeiner 1971). Kurmis and Sucoff (1989) found that hazelnut distribution is maintained by recruiting new stems.

Germination: Germination rates are low even following pre-treatment (Rook 2002).

Pre-treatment: 2 to 6 months of cold stratification is required for germination (Rook 2002, Young and Young 1992).

Direct Seeding: Preferred method of *Corylus cornuta* propagation. Most nurseries plant in the fall. Seeds are planted 2.5 cm deep and covered with 2.5 to 3 cm of sawdust (Young and Young 1992).

Seeding Rate: Seedling densities are kept low; 42 to 63 per m² (Young and Young 1992).

Vegetative Propagation: Grow well from transplant root suckers from larger plants or layering (Lady Bird Johnson Wildflower Center 2010, Leigh 1999, Rook 2002).

Hardwood cuttings had a 60% success rate, hardwood cuttings are not recommended for direct placement and may be more successful with greenhouse assistance, more study required (Darris 2002).

Seed Dispersal

The seeds are rich in protein and a desirable food source to many birds and animals. *Corylus cornuta* plants rely on forgotten rodent and bird seed caches (e.g., blue jay and red squirrel) for dispersal and seeding establishment (Lady Bird Johnson Wildflower Center 2010).

Aboriginal/Food Uses

Food: Hazelnut seeds are edible once the persistent sheaths and shells are removed (Wilkinson 1990). BC Aboriginal peoples buried the nuts for 10 days to allow the husks to rot away (Turner 1997). A simpler method was to find nuts already de-husked in squirrels nests (Turner 1997).

They can be roasted, candied or added to other foods. They can also be made into oil (Mackinnon et al. 2009) or ground into flour (Wilkinson 1990).

At one time the Cree collected and stored these nuts which they call *pakan* (Royer and Dickinson 1996).

Medicinal: An infusion of *Corylus cornuta* branches was made as a blood purifier to treat heart problems and gastrointestinal disorders (Mackinnon et al. 2009).

Nut's milk is used to cure cough and colds, heal cuts (USDA NRCS n.d.).

Other: Used to fashion a bow, wood was used to make tools, fish traps and baby carriers (Mackinnon et al. 2009, NPSBC n.d.). Young, straight suckers used to make arrows, and peeled and twisted to make ropes (Wilkinson 1990).

The roots and inner bark produce a blue dye when steeped in water (Wilkinson 1990).

Wildlife/Forage Use

Wildlife: Squirrels, chipmunks, bear, ruffed grouse, pheasant, hairy woodpecker and blue jay eat the nuts of the shrub (Wilkinson 1990). Snowshoe hare browse on young shoots during the winter. The winter buds and spring catkins are a valuable protein source for ruffed grouse during the winter (Lady Bird Johnson Wildflower Center 2010). Elk, deer, moose and rabbits browse on the shrub in the winter (Fryer 2007, Royer and Dickinson 1996).



The dense branches provide cover and nesting sites for birds (Wilkinson 1990).

Grazing response: Tolerant to browsing (Fryer 2007).

Commercial Resources

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

Cultivars: Cultivars such as the variety “Alba” are available; however none are suitable for reclamation (Rook 2002).

Notes

Corylus cornuta is listed as 60% intact (less occurrences than expected) in the Alberta oil sands region (Alberta Biodiversity Monitoring Institute 2014).

Corylus cornuta is an important larval host for the Hairstreaks butterflies *Erora laeta*. The butterfly lays its eggs on the underside of the host’s leaves and the larvae eat the nuts and leaves of the host (Opler n.d.).

Also known as cobnut in British Columbia (Turner 1997).

Photo Credits

Photo 1: Fungus Guy, Wikimedia Commons 2004.

Photo 2: Jomegat, Wikimedia Commons 2008.

Photo 3: Steve Hurst, USDA. Public Domain. Wikimedia commons 2006.

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