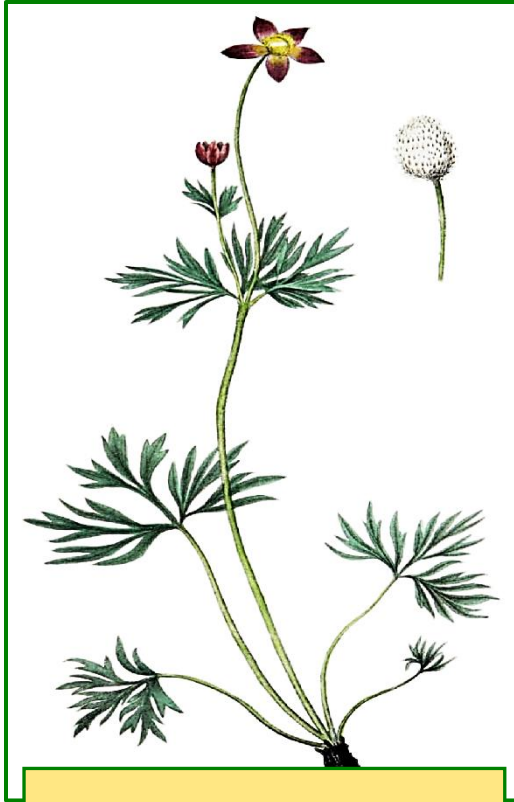## Scientific name: *Anemone multifida* Poir.   Family: *Ranunculaceae*

Common Names: cut-leaf anemone, globe anemone

Anemone multifida illustration showing the blooming flower and the seed head

Plant Description
Erect, herbaceous perennial from a branching taproot; 5 to 15 cm tall with basal and cauline leaves; basal leaves long-petioled, 3 to 7 cm wide, dark green, silky villose, deeply 3-parted, into linear oblong divisions; stem leaves three, sessile or sub-sessile, sub-tending the flowers; stem silky-pubescent from a stout caudex; flowers 1 to 4, 10 to 20 mm diameter, sepals white, creamy or deep pink (Moss 1983).
Fruit: A globose or ovoid head (1 cm wide) of woolly achenes.

Seed: Achene 2 to 3 mm long, surface brown covered in dense wooly hair.

Habitat and Distribution
This species grows in mesic to dry open woodlands and dry to mesic prairie grasslands.
Seral Stage: Early seral species (Tannas 2004).
Soils: Slatey or calcareous gravels, sandy and lighter soils (Currah et al. 1983). Has no salinity tolerance and a low tolerance to drought (USDA NCRS n.d.). In soil pH range of 6 to 7.5 preferred (USDA NCRS n.d.).

Anemone multifida in flower.

Colour variation in *Anemone multifida* flowers.

Distribution: Common on dry grasslands, open dry woodlands in the parkland, boreal, montane and sub-alpine regions of Alberta. Alaska, Yukon, southwest District of Mackenzie to Hudson Bay, Newfoundland south to California, Nevada, New Mexico, Minnesota, Maine (Moss 1983).

Phenology
Emerges in early May, flowers late May and June. Seed ripens in July or August. Plants die back in September.

Pollination
Insect pollinated (CYSIP: Botany 2012).

Seed Dispersal
Anemone sp. are dispersed by ants (Baskin and Baskin 2001).

Genetics
2n=32 (Moss 1983).

Symbiosis
Associated with vesicular–arbuscular mycorrhiza (Currah and Van Dyk 1986).

Seed Processing
Collection: Harvest by hand when seed is ripe, snip stems or pull off heads.
Seed Weight: 600 seeds/g (Gerling et al. 1996).
Harvest Dates: Late July to early August.
Cleaning: Seed hairs are difficult to remove from the achene; best to rub seeds on a corrugated rubber surface. Clean with hammermill (Luna et al. 2008).
Storage Behaviour: Orthodox; seeds can be dried, without damage, to low moisture contents, usually much lower than they would normally achieve in nature; their longevity increases with reductions in both moisture content and temperature (Royal Botanic Gardens Kew 2008).

***Anemone multifida* achene with pappus (left) and fully cleaned (right). Achenes 2 to 3 mm long.**

Storage: Store dry at cool temperatures. drying seed to low moisture content (3% to 7% fresh weight, depending on the species) and store them in hermetically-sealed containers at low temperature, preferably at -18°C or cooler (Fassil and Engels 1997).

Longevity: Seed viable for five years (Luna et al. 2008). Oldest collection is 18 years old, average age is 15 years with germination 91% to 100% (Royal Botanic Gardens Kew 2008).

Propagation

Germination: Not all seed lots are dormant, however, Smreciu et al. (1988) observed 74% to 92% germination with stratified seeds. 100% germination was observed at the Royal Botanic Gardens Kew (2008) on a 1% agar media in temperatures 15 to 26°C with varying light dark treatments.

Pre-treatment: One month cold stratification (Smreciu et al. 1988); seeds should be rinsed for 24 hours prior to a four month cold stratification (Luna et al. 2008).

Vegetative Propagation: By division of mature plants in spring. Rhizomatous reproduction (Wisconsin DNR 2013).

Aboriginal/Food Uses

Food: All parts are poisonous when fresh. Toxic if eaten in large quantities (Lady Bird Johnson Wildflower Center 2012).

Wildlife/Forage Usage

Wildlife: Fair forage value for wildlife (Gerling et al. 1996). It is common to see the flower heads browsed down.

Livestock: Poor forage value for livestock because it is somewhat toxic (Gerling et al. 1996, Tannas 2004).

Grazing Response: Increases with grazing (Tannas 2004).

Reclamation Potential

Although this species does not cover large areas in natural situations it is a significant component of drier habitats and contributes to increased diversity.

Commercial Resources

Availability: Seed and plants are commercially available in Alberta (ANPC 2010).

Cultivars: Are available including; 'Annabella', 'Major' (Benary n.d., Perennials.com n.d.), however these should not be used in reclamation.

Uses: *Anemone multifida* is occasionally grown as an ornamental.

Notes

Plants of this species are slightly poisonous due to the presence of protoanemonin in the foliage (Tannas 2004).

Photo Credits

Photo 1: Glen Lee, Regina, Saskatchewan.

Photo 2: Arden Nering, Wild About Flowers, Turner Valley, Alberta.

Photo 3: Wild Rose Consulting, Inc.

Illustration: John Torrey, M.D., F.L.S. @ Wikimedia commons 2012

References

ANPC (Alberta Native Plant Council), 2010. Native Plant Source List. http://www.anpc.ab.ca/assets/ANPC_2010_Native_Plant_Source_List.pdf [Last accessed June 14, 2013].

Baskin, C.C. and J.M. Baskin, 2001. Seeds – Ecology, Biogeography, and Evolution of Dormancy and Germination. Academic Press, San Diego, California, USA.

Benary, n.d. http://www.benary.com/en/products?psearch=anemone+multifidia&title=anemone+multifidia&field_genus_value=anemone+multifidia&field_species_value=anemone+multifidia&field_variety_colour_value=ane

mone+multifidia&field_variety_colour__de_value=a
nemone+multifidia&field_common_name_value=ane
mone+multifidia&field_common_name__de_value=
anemone+multifidia&field_primary_article_value=A
ll [Last accessed July 17, 2013].

Currah, R., A. Smreciu and M. Van Dyk, 1983.
Prairie Wildflowers. An illustrated manual of species
suitable for cultivation and grassland restoration.
The Friends of the Devonian Botanic Garden,
University of Alberta, Edmonton, Alberta. 300 pp.

Currah, R.S. and M. Van Dyk, 1986. A survey of
some perennial vascular plant species native to
Alberta for occurrence of mycorrhizal fungi.
Canadian Field Naturalist 100: 330-342.

CYSIP: Botany, n.d. *Anemone multifida*. Central
Yukon Species Inventory Project.
http://www.flora.dempstercountry.org/0.Site.Folder/S
pecies.Program/Species2.php?species_id=Ane.multi
[Last accessed July 18, 2013].

Fassil, H. and J. Engels, 1997. Seed Conservation
Research: IPGRI's Strategies and Activities. BGC
News 2(9).
http://www.bgci.org/worldwide/article/349/ [Last
accessed July 17, 2013].

Gerling, H.S., M.G. Willoughby, A. Schoepf,
K.E. Tannas and C.A Tannas, 1996. A Guide to
Using Native Plants on Disturbed Lands. Alberta
Agriculture, Food and Rural Development and
Alberta Environmental Protection, Edmonton,
Alberta. 247 pp.

Lady Bird Johnson Wildflower Center, 2012.
Anemone multifida Poir.
http://www.wildflower.org/plants/result.php?id_plant
=ANMU [Last accessed July 17, 2013].

Luna, T., D. Wick and J. Hosokawa, 2008.
Propagation protocol for production of container

Anemone multifida Poir plants (172 ml containers);
USDI NPS - Glacier National Park, West Glacier,
Montana. IN: Native Plant Network, University of
Idaho, College of Natural Resources, Forest Research
Nursery, Moscow, Idaho.
http://www.nativeplantnetwork.org/Network/ViewPr
otocols.aspx?ProtocolID=136 [Last accessed
July 18, 2013].

Moss, E.H., 1983. Flora of Alberta. A manual of
flowering plants, conifers, ferns, and fern allies found
growing without cultivation in the province of
Alberta, Canada. 2nd edition. University of Toronto
Press, Toronto Ontario. p. 275.

Perennials.com, n.d. *Anemone multifida*.
http://www.perennials.com/results.html?findplant=an
emone+multifida&searchbutton.x=-
975&searchbutton.y=-56 [Last accessed July 18,
2013].

Royal Botanic Gardens Kew, 2008. *Anemone
multifida* Poir. Seed Information Database.
http://data.kew.org/sid/SidServlet?ID=1777&Num=h
B1 [Last accessed June 14, 2013].

Smreciu, A., R. Currah and E. Toop, 1988. Viability
and germination of herbaceous perennial species
native to southern Alberta grasslands. Canadian
Field-Naturalist 102(1): 31-38.

Tannas, K., 2004. Common plants of the western
rangelands. Volume 3: Forbs. Olds College, Olds,
Alberta and Alberta Agriculture, Food and Rural
Development, Edmonton, Alberta. 505 pp.

USDA NRCS, n.d. *Anemone multifida* Poir. Pacific
anemone. The PLANTS Database. National Plant
Data Center, Baton Rouge, Louisiana.
http://plants.usda.gov/core/profile?symbol=ANMU
[Last accessed June 24, 2013].

Wisconsin DNR (Department of Natural Resource), 2013. Early Anemone (*Anemone multifida* var. *hudsoniana*). Endangered Resources Program Species Information. http://dnr.wi.gov/topic/EndangeredResources/Plants.asp?mode=detail&SpecCode=PDRAN040E1 [Last accessed July 18, 2013].