

**Nate Hough-Snee**  
**ESRM 412**  
**Plant Propagation Protocol One**  
**11 APR 2007**

Family Names	
Family Scientific Name:	Rosaceae
Family Common Name:	Rose
Scientific Names	
Genus:	<i>Malus</i> (formerly <i>Pyrus</i> )
Species:	<i>Fusca</i>
Species Authority:	USDA plants database
Common Synonym	
Genus:	Apple
Species:	Pacific crabapple; Western Crabapple
Species Authority:	USDA plants database
General Information	
Common Name:	Pacific crabapple
Species Code (as per USDA Plants database):	MAFU <a href="#">[i]</a>
Ecotype:	Mixed coniferous/deciduous forests; riparian areas, moist clearings/logged areas.
General Distribution (elevation range, ecosystems, etc):	Occurs from low to mid-elevations; spans from California up through southern Alaska; often along swamps, riparian areas and estuaries <a href="#">[ii]</a>
Propagation Details	
Propagation Goal:	Container plant—roughly 15-20cm in height
Propagation Method:	Seed, cuttings of mature wood
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Container—roughly 15-20cm in height before outplanting
Stock Type:	Container
Time to Grow:	Varied: as little as 6 months; two years for layered plants <a href="#">[iii]</a> <a href="#">[iv]</a>
Target Specifications:	Ideal growing in fall.

Propagule Collection:	Collect crabapples in late summer through fall
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	Plant immediately; seeds not planted directly after harvesting will require 3 months of cold-stratification at 1 degree C <a href="#">[v]</a> <a href="#">[vi]</a> Density: 1.2kg/100kg <a href="#">[vii]</a>
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	Treat seeds by separating from fruits and cold storing; plant as soon as possible or cold stratify as detailed above <a href="#">[viii]</a> Partial fermentation in water is acceptable to separate fruit from seeds as well <a href="#">[ix]</a>
Growing Area Preparation / Annual Practices for Perennial Crops:	Plant into soil that drains well yet retains moisture—some combination of peat and vermiculite.
Establishment Phase:	
Length of Storage:	Cold-stratify seeds not planted after collection for 30 months
Guidelines for Outplanting / Performance on Typical Sites:	Keep well-watered through first year
Other Comments:	Very little peer-reviewed literature is available on this species under either it's current or former name ( <i>P. fusca</i> ). Most information is from agricultural/horticultural professionals, but very little is available with much more than anecdotal “what works best in my experience...” evidence
References:	See below
Propagator (Author) That Developed This Protocol	
First Name:	Nate
Last Name:	Hough-Snee

[\[i\]](#) USDA Natural Resources Conservation Service: Native Plants Database. Accessed 9 APR 2007.  
<http://plants.usda.gov/java/profile?symbol=MAFU>

[\[ii\]](#) Pojar, J. and A. MacKinnon (1994). *Plants of the Pacific Northwest Coast Washington, Oregon British Columbia & Alaska*. Forest Service of British Columbia and Lone Pine Press; Vancouver, BC.

[\[iii\]](#) Leigh, M. (1999). *Grow You Own Native Landscape*. Native Plant Salvage Project: WSU Cooperative Extension—Thurston County.

- [iv] Hill, L. (1985). *Secrets of Plant Propagation: Starting Your Own Flowers, Vegetables, Fruits, Berries, Shrubs, Trees and Houseplants*. Storey Communications; Pownal, VT.
- [v] USDA, Forest Service. (1974). *Seeds of Woody Plants in the United States*. USDA Agriculture Handbook No. 450; Washington D.C.
- [vi] Huxley, A. (1992). *The New RHS Dictionary of Gardening*. MacMillan Press; London.
- [vii] P.D. Anderson and J. Crossley. *Malus* Mill. Accessed 9 APR 2007.  
<http://www.nsl.fs.fed.us/wpsm/Malus.pdf>
- [viii] Huxley, A. (1992). *The New RHS Dictionary of Gardening*. MacMillan Press; London.
- [ix] P.D. Anderson and J. Crossley. *Malus* Mill. Research contribution to the USFS. Accessed 9 APR 2007.  
<http://www.nsl.fs.fed.us/wpsm/Malus.pdf>

Appendix I: Plant Information Sheet from M. Cooksey, 2003.

*Malus fusca* Pacific Crabapple, Oregon crab apple  
(Also known as *Pyrus fusca*, Western crabapple)

### Range

Southern Alaska to NW California near coast.

### Climate, elevation

Low to middle elevations.

### Local occurrence (where, how common)

Common but minor component in western Washington swamps.

### Habitat preferences

Swamps, marshes, moist sites near streams and estuaries; full sun to partial shade.

### Plant strategy type/successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)

Early seral; Does well near salt water, sloughs and estuaries; Tolerant of prolonged soil saturation; Helps stabilize streambanks.

### Associated species

Red alder, Nootka rose, Sitka willow

### May be collected as: (seed, layered, divisions, etc.)

Seed, layering

**Collection restrictions or guidelines**

Collect seeds as soon as ripe, as they are a favorite food source of birds.

**Seed germination (needs dormancy breaking?)**

Seed not sown in fall needs to be cold-stratified for three months.

**Seed life (can be stored, short shelf-life, long shelf-life)**

Short shelf-life

**Recommended seed storage conditions**

Seeds do not store well; plant immediately after separating from fruit.

**Propagation recommendations (plant seeds, vegetative parts, cuttings, etc.)**

Plants can be layered to produce new offshoots, but it may take two years for sufficient roots to develop.

**Soil or medium requirements (inoculum necessary?)**

Keep soil moist.

**Installation form (form, potential for successful outcomes, cost)**

1 gallon: \$3.00 (Sound Native Plants); Transplants are tolerant of a relatively wide range of soil and light conditions. Transplanting success: high.

**Recommended planting density**

5-8' on center

**Care requirements after installed (water weekly, water once etc.)**

Water regularly to keep soil moist.

**Normal rate of growth or spread; lifespan**

Growth rate: moderate to rapid; Grows up to 40 feet tall; crown spread up to 40 feet.

**Sources cited**

0. Leigh, M. 1999. Grow Your Own Native Landscape. Native Plant Salvage Project ; WSU Cooperative Extension—Thurston County.
0. Pojar, J. and A. MacKinnon. 1994. Plants of the Pacific Northwest Coast Washington, Oregon British Columbia & Alaska. BC Ministry of Forests and Lone
0. Stevens, M. and R. Vanbianchi. 1993. Restoring Wetlands in Washington: A Guidebook for Wetland Restoration, Planning and Implementation. Washington State Department of Ecology Publication 93-17, 110 p and Appendices.
0. <http://www.wsdot.wa.gov/environment/eao/culres/ethbot/m-p/MalusFusca.htm>

0. [www.arbolesornamentales.com/Malusfusca.htm](http://www.arbolesornamentales.com/Malusfusca.htm)
0. <http://www.soundnativeplants.com/catalogtrees.htm>

Data compiled by Mike Cooksey, 18 May 2003.