Template - Plant Propagation Protocol
ESRM 412 – Native Plant Production
JD Bakker
Spring 2007
Updated by JD Bakker on 070418

This template is modified from that available at:
http://www.nativeplantnetwork.org/network/SampleBlankForm.asp

TAXONOMY	
Family Names	
Family Scientific Name:	Betulaceae
Family Common Name:	Birch
Scientific Names	
Genus:	Alnus
Species:	incana
Species Authority:	(L)Moench
Variety:	
Sub-species:	tenuifolia
Cultivar:	
Authority for Variety/Sub-species:	(Nutti) Breitung(2)
Common Synonym(s)	
Genus:	
Species:	
Species Authority:	
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Name(s):	Mountain alder, Thinleaf alder(2)
Species Code (as per USDA Plants database):	ALINT
GENERAL INFORMATION	
General Distribution (geographical range (states it occurs in), ecosystems, etc):	Central Alaska and the Yukon Territory, southeast to western Saskatchewan and British Columbia, and south to New Mexico and California (3).
Climate and elevation range	Near sea level to 3000m (3).
Local habitat and abundance; may include commonly associated species	Variety of sites. Rarely grows away from water and is typically found near streams, rivers, or springs on moist mountain slopes on poorly developed soils of cobbles, gravels, or sands which remain moist year round due to high water tables (4).
Plant strategy type / successional stage (stress-tolerator, competitor,	Has a high flood tolerance, shade tolerant. Early successional species that occupies denuded areas,

weedy/colonizer, seral, late successional)	stabilizes streambanks, and improves soil fertility with the ability to fix nitrogen (1).
PROPAGATION DETAILS	
Ecotype (this is meant primarily for experimentally derived protocols, and is a description of where the seed that was tested came from):	Idaho Panhandle National Forest, Fernan Ranger District, Fernan Lake, Coeur d' Alene, Idaho; 2140 ft elevation. (1)
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Seeds (1)
Propagation Method (Options: Seed or Vegetative):	Seeds (1)
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Propagules (seeds, cuttings, poles, etc.) (1)
Stock Type:	
Time to Grow (from seeding until plants are ready to be outplanted):	1 year
Target Specifications (size or characteristics of target plants to be produced):	Target trees should be less than 25 years of age and 20 meters in height (5).
Propagule Collection (how, when, etc):	Fruit ripens from September to November and should collected when bracts start to separate. Seed intervals of 1-4 years (5).
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	Bracts will open after being exposed in drying racks in well-ventilated room for several weeks at ambient air temperature. Air-dried seeds can be stored and will remain viable in sealed containers at 2 to 5C, up to 2 years (5). 589,090 seeds/lb. Purity: 87% (1)
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	Fresh seeds can be directly sown in spring without prechilling. Germination of dried seeds, after prechilling for 180 days at 5 C, was higher than that of fresh seed. Maximum germination, however, was obtained only when prechilling was followed by a 3-day period at –20 C (5).
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Spring sowing is preferred by nursery growers in Pennsylvania, Washington, and California, with a sowing depth of .25 to .5 cm (5).
Establishment Phase (from seeding to germination):	
Length of Establishment Phase:	

Active Growth Phase (from germination until plants are no longer actively growing):	
Length of Active Growth Phase:	
Hardening Phase (from end of active growth phase to end of growing season; primarily related to the development of cold-hardiness and preparation for winter):	
Length of Hardening Phase:	
Harvesting, Storage and Shipping (of seedlings):	Cold Storage, 33-38 Degrees Fahrenheit (5).
Length of Storage (of seedlings, between nursery and outplanting):	
Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):	
Other Comments:	
INFORMATION SOURCES	
References:	1.Barner, J. 2007. Propagation protocol for production of *Alnus incana* ssp. *tenuifolia* seeds; USDA Forest Service R6 Bend Seed Extractory, Bend, Oregon. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 8 May 2007). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery. 2.Plants Database [Internet]. Natural Resources Conservation Service; United States Department of Agriculture. 3.Rose, R., Chachulski C.E.C., Haase, D.L., Propagation of Pacific Northwest Native Plants. Corvalis: Oregon State University; 1998. 186-187p. 4. Uchytil, R.J., 1989.*Alnus incana* ssp. *tenuifolia.* In: Fischer, William C. (comp.) The Fire Effects Information System [Monograph Online]. Missoula, MT: USDA Forest Service, Intermountain Fire Sciences Laboratory. http://www.fs.fed.us/database/feis/plants/Tree/Alninc. 5.Young, J.A., Young, C.G., Seeds of Woody Plants in North America. Portland:Dioscorides Press;1992. 26-

	28p.
Other Sources Consulted (but that contained no pertinent information):	
First Name of Author:	Nathan
Last Name of Author:	Daggett
Date Entered or Updated (MM/DD/YY):	05/09/2007

Index

Plant Data Sheet

Species (common name, Latin name)
Mountain Alder, *Alnus Incana*

Range
From central Alaska and the Yukon Territory, southeast to western Saskatchewan and British Columbia, and south to New Mexico and California.

Climate, elevation
Near sea level to 3000 m.

Habitat preferences
typically found near streams, rivers, or springs on moist mountain slopes on poorly developed soils of cobbles, gravels, or sands which remain moist year round due to high water tables

Plant strategy type/successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)
Thinleaf alder is an early successional plant. It is a nitrogen fixer and has a high flood tolerance and thus improves soil fertility and stabilizes streambanks.

Associated species
Black cottonwood, Maple, and Willow

May be collected as: (seed, layered, divisions, etc.)
Seed - best sown in a cold frame as soon as it is ripe and only just covered.
Cuttings of mature wood can be taken as soon as the leaves fall in autumn, outdoors in sandy soil.

Seed germination (needs dormancy breaking?)
Requires cold stratification

Seed life (can be stored, short shelf-life, long shelf-life)
Seeds have a short shelf-life.

Propagation recommendations (plant seeds, vegetative parts, cuttings, etc.) Spring sown seed should germinate successfully so long as it is not covered. The seed should germinate in the spring as the weather warms up. When large enough to handle, prick the seedlings out into individual pots. The seedlings can either be planted out into their permanent positions in the autumn/winter, or they can be allowed to grow on in the seed bed for a further season before planting them

Soil or medium requirements (inoculum necessary?)
Poorly developed soils of cobbles, gravels, or sands which remain moist year round

Installation form (form, potential for successful outcomes, cost)
May be planted as seed, container, or bare root.

Recommended planting density
300-1200 per acre.

Care requirements after installed (water weekly, water once etc.)
Water daily for the first year.

Normal rate of growth or spread; lifespan
Rapid growth, thicket forming with short lifespan.

Sources cited

Propagation of Pacific Northwest Native Plants by Rose, Robin.; Chachulski, Caryn E. C.; Haase, Diane L., Corvallis Oregon State University Press, 1998.

Gardenbed.com, http://gardenbed.com/source/17/1654_gen.asp

Plants Database, http://plants.usda.gov/cgi_bin/topics.cgi

Data compiled by (student name and date)

Doug Schmitt 6-8-03