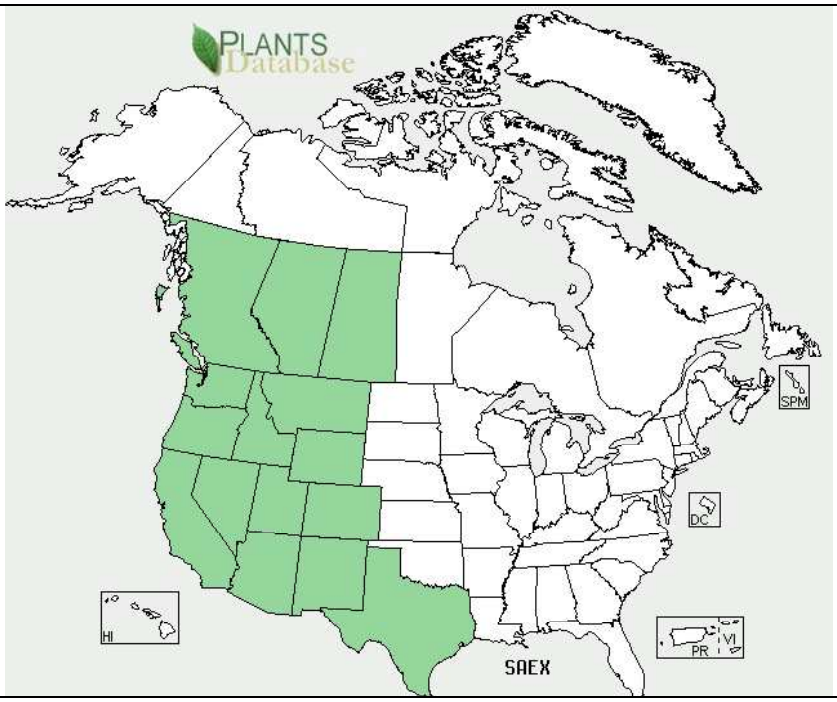
Plant Propagation Protocol for Salix exigua
ESRM 412 – Native Plant Production
Spring 2008

TAXONOMY	
Family Names	
Family Scientific Name:	Salicaceae
Family Common Name:	Willow
Scientific Names	
Genus:	Salix
Species:	Exigua
Species Authority:	Nutt.
Sub-species:	
Cultivar:	Silvar (NRCS)
Authority for Variety/Sub-species:	Not Found
Common Synonym(s)	Narrowleaf willow, gray willow, coyote willow, dusky willow, pussywillow
Common Name(s):	Narrowleaf Willow
Species Cod:	SAEX
GENERAL INFORMATION	

Geographical range:	
Ecological distribution (ecosystems it occurs in, etc):	Narrowleaf willow is commonly found near water and in areas Native Americans lived because the leaves were used to make baskets (USDA.) Found on stream banks in riparian ecosystems with gravelly or sandy soil for good drainage (USDA.) Will grow on wet sites, can grow various dry shrub sites as well, as long as roots can reach moist soil (Forest Service.)
Climate and elevation range	Occurs at elevations lower than 2700 m (USDA.) Can grow in wide range of temperatures, but is not as successful in late frost. The best conditions are at about 70F degrees (Forest Service.)
Plant strategy type / successional stage	Pioneer successional stage takes over in alluvial deposits. Has high tolerance to disturbances, droughts, and low nutrients (Forest Service.)
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	Shrub no taller than 7m, elongated leaves 50-124 mm long and serrated. Catkins appear in the spring.
PROPAGATION DETAILS	
Ecotype:	Not found. Narrowleaf willow is very successful shrub and occurs in many places in many environments.
Propagation Method:	Both (Forest Service.)
Product Type:	Container (Evans, Luna.)
Stock Type:	Live stakes, seeds, propagules (Forest Service.)
Time to Plant:	Seed must be planted in late spring because of small range of viability (Ibiblio.) Mature cuttings should be planted from November to February in sheltered outdoor bed or directly into soil.
Propagule Collection	Cuttings should be from the current year and should be mature or half ripe

(how, when, etc):	wood. Specific times to plant each of these indicated above (Ibiblio.)
Propagule Processing/Propagule Characteristics:	Propagules kept in moist refrigerated envionment before pre treatment (Evans, Luna.)
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	Two minute fungicide bath and treated with IBA, stick in soil with 2 nodes underneath soil to sprout roots (Luna, Evans.)
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Plant directly in soil at the appropriate time of year, indicated above. Mature cuttings planted outside in soil should be given weed suppressing mulch (Ibiblio.) For container plants use frequent misting, shade cloth, and bottom heart in outdoor shade house (Evans, Luna.)
Establishment Phase (from seeding to germination):	2-4 weeks for container plants (Evans, Luna.)
Length of Establishment Phase:	1 month after rooting in the spring (Zeidler, Justin.)
Length of active growth:	Apply fertilization, lasts 4 months (Zeidler, Justin.)
Length of hardening phase:	Hardening begins late August or when dormancy is induced, lasts 2 weeks (Zeidler, Justin.)
Harvesting, Storage and Shipping (of seedlings):	1 year for container plants, should be sent out in June (Evans, Luna.)
Guidelines for Outplanting / Performance on Typical Sites:	Direct planting of cuttings proved 75% success in the first year, second year 70%. Larger diameter of cuttings may be more successful. Willow cuttings generally have very high success rate of rooting. Unrooted cuttings can be used on low elevation sites and rooted cuttings can be used in sites where water amount changes Successfully grows in wide range of environments and climates (Forest Service.)
Other Comments:	Live willow stakes commonly used in restoration ecology to quickly establish vegetation. Can hybridize with other members of the genus freely (Ibiblio.)
INFORMATION SOURCES	
References :	• "Salix exigua". University of Texas Wildflower Center. June 3, 2008. <http://www.wildflower.org/plants/result .php?id_plant=SAEX>. • "Salix exigua". USDA. June 3, 2008 <http://plants.usda.gov/java/profile?symbol=SAEX>. • "Salix exigua". Plants for a Future. June 3, 2008 <http://www.ibiblio.org/pfaf/cgibin/arr_html?Salix+exigua>.

	• Anderson, Michelle. 2006. Salix exigua. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/. 2008, June 3. • "Salix exigua". Dave's Garden. June 3, 2008 <http://davesgarden.com/guides/pf/go/54458/>. • Fenchel, Greg. "Salix exigua Propagation Protocol". Native Plants Network. June 3, 2008 <http://nativeplants.for.uidaho.edu/network/view.asp?protocol_id=2381>. • Zeidler, Scott; Justin, John. 2003. Propagation protocol for vegetative production of field-grown Salix exigua Nutt. plants (1+0); Utah Division of Forestry, Fire and State Land - Lone Peak Nursery, Draper, Utah. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 3 June 2008). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery. • "Salix exigua ". Bluestem Nursery. June 3, 2008 <http://www.bluestem.ca/salix-exigua.htm>. • "Plants for Water". Washington State University. June 3, 2008 <http://www.wsu.edu/~lohr/wcl/>
Other Sources Consulted:	• "Aquatic and Wetland Vascular plants". USGS. June 3, 2008 <http://www.npwrc.usgs.gov/resource/plants/vascplnt/species/sexi.htm>.
Protocol Author:	Malloree Weinheimer
Date Protocol Created or Updated:	June 3, 2008

Note: This template was modified by J.D. Bakker from that available at: http://www.nativeplantnetwork.org/network/SampleBlankForm.asp