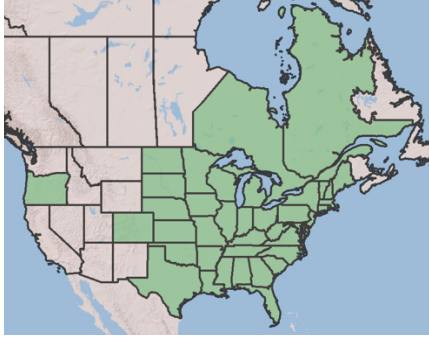



**Plant Propagation Protocol for *Juniperus virginiana* L., Eastern red cedar**  
ESRM 412 – Native Plant Production  
URL: <https://courses.washington.edu/esrm412/protocols/2021/USDAJUVI.pdf>



Robert H. Mohlenbrock  
USDA NRCS 1991  
Southern Wetland Flora  
@USDA NRCS PLANTS

TAXONOMY	
Plant Family	
Scientific Name	<i>Cupressaceae</i>
Common Name	Cypress family
Species Scientific Name	
Scientific Name	<i>Juniperus virginiana</i> L.
Varieties	
Sub-species (	
Cultivar	
Common Synonym(s)	<i>Sabina virginiana</i> (L.) Antoine
Common Name(s)	Eastern red cedar
Species Code (as per USDA Plants database)	
GENERAL INFORMATION	

Geographical range	 (10)  (10) <p>The distribution of red cedar is from Maine west through southern Ontario, south to the eastern half of South Dakota with an extension into the southwestern corner of North Dakota, south to eastern Nebraska, most of Kansas and Maine and found in the Oregon counties of Lane and Union(7, 10)</p>
Ecological distribution	Fence rows, Woodlands' edge, Opening, Prairie, Plains, Meadows, Pastures, Savannas(8)
Climate and elevation range	Ranges from sea level to 5,000 feet and grows under a variety of climatic conditions. Average precipitation 15-60 inches. Temperatures ranging -45-110 degrees Fahrenheit. (1)
Local habitat and abundance (may include commonly associated species)	<p>It is usually present in mixed stands with shortleaf pine (<i>Pinus echinata</i>), Virginia pine (<i>P. virginiana</i>), northern red oak (<i>Quercus rubra</i>), white oak (<i>Q. alba</i>), black oak (<i>Q. velutina</i>), blackjack oak (<i>Q. marilandica</i>), hickories (<i>Carya</i> spp.), and black walnut (<i>Juglans nigra</i>)</p> <p>In the northeastern United States it is on rocky ridgetops with shagbark hickory (<i>C. ovata</i>), eastern hophornbeam (<i>Ostrya virginiana</i>), downy serviceberry (<i>Amelanchier arborea</i>), little bluestem (<i>Schizachyrium scoparium</i>), bristleleaf sedge (<i>Carex eburnea</i>), and Parlin's pussytoes (<i>Antennaria parlinii</i>). (1)</p>

Plant strategy type / successional stage	It is both a pioneer and an invader. It does well on patches of eroded bare ground and does not do well with competition or later succession. (1)
Plant characteristics	It is an evergreen tree with an angled at the base and a narrow compact crown. That is sometimes broad or irregular. It is pyramidal when young but mature crowns vary. It usually grows 30-40ft but is known to get to 90ft. It has scale like foliage that is green gray to blue green, or light or dark green. A diecious plant pale blue fruits occur on female plants. It has sold silvery bark.(8)
<b>PROPAGATION DETAILS: Seeds</b>	
Ecotype	
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Plug
Stock Type	N/A
Time to Grow	N/A
Target Specifications	N/A
Propagule Collection Instructions	Gather fruits in the fall (September to November) as soon as berry like cones become ripe. Its important to only collect ripe cones to increase success. (7)
Propagule Processing/Propagule Characteristics	18,000 seeds per pound If immediate stratification or sowing is not planned, the cleaned seed should be dried to a moisture content of 7 percent and stored at 20" F. (46). (3)
Pre-Planting Propagule Treatments	Recover seeds by macerating the fruit in water and allowing seeds to float to the top. The addition of detergent helps separate seeds from resinous fruit. (last)  Use the freshest seeds available, soak seeds in citric acid (10,000 ppm) for 96-hours. Place seeds in fiberglass net in a peat filled five gallon bucket with drainage holes. Then put seeds in moist-warm (24°C) stratification for 6 weeks and then in moist-cool (5°C) stratification for 10 weeks for best seed germination results. (2, 5)
Growing Area Preparation / Annual Practices for Perennial Crops	
Establishment Phase Details	

Length of Establishment Phase	6 weeks warm moist stratification, 10 weeks warm cold stratification. 16 weeks stratification in total. (2)
Active Growth Phase	Sow seeds in a nursery in late summer or fall, drill in well prepared seed beds in rows 15-20cm apart and cover with 0.6cm of soil.(last) 6 months before planting seedlings in outdoor nursery prune the roots to encourage root growth. Do this by sliding a sharp spade under the plant on opposite sides and lifting the plant up in order to completely sever the plant from the rootsystem below. (9)
Length of Active Growth Phase	1 year and 6 months (9)
Hardening Phase	Plant seedlings in an outdoor nursery bed to prepare the plants for outplanting. (9)
Length of Hardening Phase	1-2 years (long)
Harvesting, Storage and Shipping	
Length of Storage	
Guidelines for Outplanting / Performance on Typical Sites	For outplanting they should have a stem diameter of at least 4.0 mm (0.16 in), but preferably 5.6 mm (0.22 in), at the ground line. The top greens should weigh no more than 3-4 times more than the roots. (6)
Other Comments	
<b>PROPAGATION DETAILS: Vegetative</b>	
Ecotype	
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Container
Stock Type	
Time to Grow	2-3 years to grow a tree that can be grafted(7)
Target Specifications	Tree large enough to take cuttings from(7)
Propagule Collection Instructions	Collect 15 cm straight cuttings of younger trees at least 2-3 years old in the winter. The older the tree the less likely it will root. (4, 7)
Propagule Processing/Propagule Characteristics	N/A
Pre-Planting Propagule Treatments	Dip cuttings in IBA (rooting hormone) to promote root growth. (4)
Growing Area Preparation / Annual Practices for Perennial Crops	Use a 10:1 peat:perlite media mix for rooting the cuttings or medium coarse sand. (last)
Establishment Phase Details	Bottom heat of 60-65°F (12°C) is critical the first six weeks of propagation to allow the basal wound of cuttings to callus. Keep cuttings in a humid environment. (7)
Length of Establishment Phase	No information found for the following sections
Active Growth Phase	
Length of Active Growth Phase	

Hardening Phase	
Length of Hardening Phase	
Harvesting, Storage and Shipping	
Length of Storage	
Guidelines for Outplanting / Performance on Typical Sites	
Other Comments	
<b>INFORMATION SOURCES</b>	
References	see below
Other Sources Consulted	
Protocol Author	Rachel Basangan
Date Protocol Created or Updated	05/26/2021

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