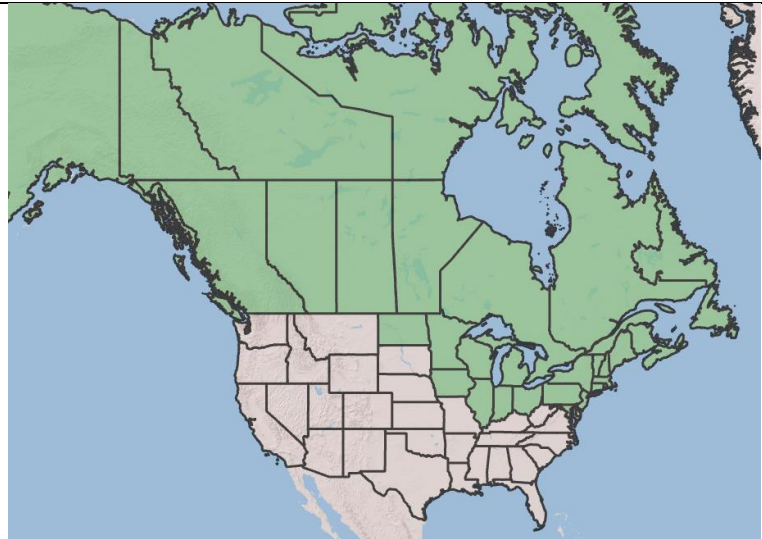


Plant Propagation Protocol for [*Calla palustris*]

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2022/CAPA>

TAXONOMY	
Plant Family	
Scientific Name	Araceae
Common Name	Arum family
Species Scientific Name	
Scientific Name	<i>Calla palustris</i> L.
Varieties	None recognized by USDA
Sub-species	None recognized by USDA
Cultivar	N/A
Common Synonyms	Previously known as: <i>Calla brevis</i> , <i>Calla cordifolia</i> , <i>Calla generalis</i> , <i>Callaion heterophylla</i> , <i>Calla ovatifolia</i> , <i>Provenzalia bispatha</i>
Common Names	Water Arum, Water-Dragon, Wild Calla
Species Code	CAPA
GENERAL INFORMATION	
Geographical range	 <p>USDA Plants Database 2014 Widespread in Northern Europe, Japan and Korea (North Carolina State n.d.). No county data available.</p>
Ecological distribution	Aquatic plant, occurs in marshes, swales, bogs and other stagnant shallow water (Lady Bird Johnson Wildflower Center 2012, Minnesota Wildflowers n.d.)
Climate and elevation range	<i>Calla palustris</i> can be found in Northern climates at up to 1270m elevation, in acidic water or soil (Lady Bird Johnson Wildflower Center 2012, Minnesota Wildflowers n.d., Frodin 2002)
Local habitat and abundance	Widespread in bogs, marshes and stagnant wetlands of many

	Northern climates. Additionally, <i>Calla palustris</i> has ornamental value for its attractive flowers and fruits (North Carolina State n.d.).
Plant strategy type / successional stage	Spreads rhizomatous and tolerates acidic substrate conditions (North Carolina State n.d.).
Plant characteristics	<i>Calla palustris</i> is a perennial, helophytic, rhizomatous herb standing up to 16 inches tall. Flowers occur on a 1 in spadix subtended by a white spathe. Their leaves are 2-4 inches long, glabrous, oblong and heart shaped. Fruits are bright red berries (Lady Bird Johnson Wildflower Center 2012, Minnesota Wildflowers n.d., Frodin 2002)
PROPAGATION DETAILS (seed)	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container
Stock Type	N/A
Time to Grow	One year (Toogood 1999).
Target Specifications	<i>Calla palustris</i> is slow growing, but mature plants can be up to 16 inches tall (Lady Bird Johnson Wildflower Center 2012)
Propagule Collection Instructions	Seeds (red berries) ripen and can be collected from August – September (PFAF Plant Database n.d.)
Propagule Processing/Propagule Characteristics	Fruits occur in dense masses on the spadix. Seeds do not store well (PFAF Plant Database n.d., Toogood 1999).
Pre-Planting Propagule Treatments	Sow seeds as soon as possible. The germination rate of stored seeds is low (PFAF Plant Database n.d.). If immediate sowing is not possible, store in vials of fresh water in a cool, dark place (Toogood 1999).
Growing Area Preparation / Annual Practices for Perennial Crops	Plant seedlings evenly on the surface in pots or deep trays with aquatic soil mix and cover with a thin layer (about as deep as the seed is wide) of fine grit. Sow seeds at 50F (Toogood 1999).
Establishment Phase Details	Place container so it is partially submerged in water. The seedlings require wet soil. Do not add fertilizer to minimize harmful algal growth. Place in bright light (Toogood 1999).
Length of Establishment Phase	No recorded length of time, but seedlings are considered established once they grow their first pair of true leaves (Toogood 1999).
Active Growth Phase	If seedlings are not already in individual pots, transplant when the first pair of true leaves appears. Immerse them in water so the stems can float freely (Toogood 1999).
Length of Active Growth Phase	No specific length of time specified.
Hardening Phase	Continue to add water as growth continues, so the stems can float freely. It is recommended to place the plants under glass

	tall enough to allow for air circulation. Do not allow water to freeze during the winter; protect from cold if necessary (Toogood 1999).
Length of Hardening Phase	No specific length of time specified.
Harvesting, Storage and Shipping	<i>Calla palustris</i> is sensitive to desiccation. Do not allow soil or propagules to dry out completely during transportation (Toogood 1999).
Length of Storage	None specified
Guidelines for Outplanting / Performance on Typical Sites	Most <i>Calla palustris</i> grown from seed take up to 3-4 years before flowering (Toogood 1999).
Other Comments	No collection restrictions.
PROPAGATION DETAILS (rhizome division)	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Container
Stock Type	N/A
Time to Grow	Propagules may be outplanted immediately after division, but they are likely to be more successful if they establish roots first.
Target Specifications	<i>Calla palustris</i> is slow growing, but mature plants can be up to 16 inches tall (Lady Bird Johnson Wildflower Center 2012)
Propagule Collection Instructions	Expose the roots and rhizomes of the plant. Cut the rhizome into sections, making sure each cutting has at least 1, but preferably 2-3, lateral buds (Hartmann 2010, Toogood 1999). It is best to divide plants in late spring, during the active growth months to promote quick healing (Toogood 1999).
Propagule Processing/Propagule Characteristics	See propagule treatments below.
Pre-Planting Propagule Treatments	Remove dead tissue and thoroughly wash propagules before planting to eliminate the potential presence of pathogenic algae (Toogood 1999).
Growing Area Preparation / Annual Practices for Perennial Crops	Plant divisions in fresh aquatic soil mix, just below the soil level. Keep soil moist (Toogood 1999)
Establishment Phase Details	N/A
Length of Establishment Phase	N/A
Active Growth Phase	N/A
Length of Active Growth Phase	N/A
Hardening Phase	After establishing roots in soil, <i>Calla palustris</i> can be transitioned into a mostly aquatic growth habit. Add enough water so the stems can float freely and raise the water level to accommodate new growth. Plants can be overwintered in the

	water, providing it remains frost-free (Toogood 1999).
Length of Hardening Phase	None specified. Propagules should be transitioned to overwintering conditions by late fall.
Harvesting, Storage and Shipping	<i>Calla palustris</i> is sensitive to desiccation. Do not allow soil or propagules to dry out completely during transportation (Toogood 1999).
Length of Storage	None specified
Guidelines for Outplanting / Performance on Typical Sites	Performance and elapsed time before flowering is dependent on how old the plant was at the time of rhizome division. Older plants will flower sooner than younger plants.
Other Comments	No collection restrictions.

INFORMATION SOURCES

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