Plant Propagation Protocol for *Sagittaria latifolia*
ESRM 412 – Native Plant Production

| TAXONOMY |
|------------------|------------------|
| Family Names     |                  |
| Family Scientific Name: | Alismataceae     |
| Family Common Name:  | Water-plantain   |
| Scientific Names  |                  |
| Genus:            | *Sagittaria*     |
| Species:          | *latifolia*      |
| Species Authority:| Willd.           |
| Variety:          |                  |
| Sub-species:      |                  |
| Cultivar:         |                  |
| Authority for Variety/Sub-species: | |
| Common Synonyms:  | *Sagittaria latifolia* Willd. var. *obtusa* (Muhl. ex Willd.) Wiegand
                  | *Sagittaria latifolia* Willd. var. *pubescens* (Muhl. ex Nutt.) J.G. Sm
                  | *Sagittaria sagittifolia* var.*latifolia*  
<p>| Common Names:     | Wapato; broadleafed arrowhead, Indian potato, tule potato |</p>
<table>
<thead>
<tr>
<th>Species Code (as per USDA Plants database):</th>
<th>SALA2</th>
</tr>
</thead>
</table>

### GENERAL INFORMATION

- **Geographical range:** Low elevations from southern British Columbia, south to California and from the Pacific coast, east across much of North America to the Atlantic. Also found in Western South America, the West Indies, and Hawaii.  
  - [8, 9]
- **Ecological distribution:** Obligate wetlands including marshes, ponds, lakes, shorelines, and wet ditches  
  - [8]
- **Climate and elevation range:** Marine – temperate climates at low elevation <1500 m  
  - [7]
- **Local habitat and abundance; may include commonly associated species:** Thrives in fine to medium textured, silty wet soils. Associated with *Sagittaria cuneata*, *Camassia* (Camas), and *Schoenoplectus acutus* (hard stemmed bulrush)  
  - [6]
- **Plant strategy type / successional stage:** Freshwater with full sun exposure, tolerates part shade and anaerobic conditions. Has a high tolerance for CaCO₃ and pollutants. Tolerates pH levels between 4.7 and 8.9  
  - [6]
- **Plant characteristics:** Forb/Herb, emergent semiaquatic perennial with tuber-producing rhizomes. Basal leaves with arrowheads blades are either submerged in or floating on top of the water. Raceme inflorescence with whorls of white flowers. Flowers consist of 3 white petals and 3 green sepals. Can be monoecious or dioecious. Beaked, winged achenes are single seeded and located in a globular cluster  
  - [9]

### PROPAGATION DETAILS

- **Ecotype:**
- **Propagation Goal:** Plants
- **Propagation Method:** Seed
- **Product Type:** Bareroot or Container (plug)  
  - [7]
- **Stock Type:** Plant
- **Time to Grow:** 2 years  
  - [7]
- **Target Specifications:** 5 feet with leaves 4 – 12 inches long and acute  
  - [6]
- **Propagule Collection:** Seeds (achenes) are collected after the seed head turns tan from green. Usually collected through August and September  
  - [3]
- **Propagule Processing/Propagule Characteristics:** Seed density is 67,000.  
  - [7]
### Pre-Planting Propagule Treatments

Clean achenes by pressing together and they will separate after a few days of drying. May roll seeds between fingers to further clean or rub seeds on a screen.

Exhibits physiological double dormancy and need cold/warm/cold treatment.

Hunter-Cario refrigerated seeds at 41°F for 8 weeks and they remained viable for 3 years.

Baskin cold stratified seeds for 150 days. Seeds will germinate in the presence of light with alternating temperatures of 21°C /16°C.

### Growing Area Preparation / Annual Practices for Perennial Crops

Create a washboard in shallow water, with mudflat consistency. Scatter seeds on the surface of the soil since the seeds require sunlight to germinate.

Plant in peat pots or use a fine textured medium such as Redi-Earth Plug and Seeding Mix in 2 inch – 50 TLC Square Plugs Trays. Use 10 seeds per plug due to 55% germination rate.

### Establishment Phase

Length of Establishment Phase:

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: Moist soils to standing water is required for successful planting

## PROPAGATION DETAILS

<table>
<thead>
<tr>
<th>Ecotype:</th>
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</thead>
<tbody>
<tr>
<td>Propagation Goal:</td>
<td>Plant</td>
</tr>
<tr>
<td>Propagation Method:</td>
<td>Vegetative</td>
</tr>
<tr>
<td>Product Type:</td>
<td>Bareroot or Plant in stock box</td>
</tr>
<tr>
<td>Stock Type:</td>
<td>Tubers or Bare root</td>
</tr>
<tr>
<td>Time to Grow:</td>
<td>One growing season</td>
</tr>
<tr>
<td>Target Specifications:</td>
<td>5 feet with leaves 4 – 12 inches long and acute</td>
</tr>
</tbody>
</table>
Propagule Collection: Collect after the start of Spring and before the end of Autumn. Collect by hand digging in mud. Keep roots moist at all times, possibly in peat moss. Store in cool location.  

Propagule Processing/Propagule Characteristics: 

Pre-Planting Propagule Treatments: 

Growing Area Preparation / Annual Practices for Perennial Crops: 

Establishment Phase: 
Length of Establishment Phase: 
Active Growth Phase: 
Length of Active Growth Phase: 
Hardening Phase: 
Length of Hardening Phase: 

Harvesting, Storage and Shipping: Collect by digging in mud to 6 inch depth and collect only ¼ of plant population. Gently wash in freshwater and submerge in 5% bleach solution for 60 seconds. Store in water or moist container at 41°F. 

Length of Storage: 8 weeks or longer 

Guidelines for Outplanting / Performance on Typical Sites: 

Other Comments: Propagation of rhizomes is possible: however, no details were provided for propagation techniques. Major food source for aquatic birds and for Chinookan Native Americans near Columbia River in Washington state. Food staple for Lewis and Clark Expedition when they traveled in the Portland Basin. 

INFORMATION SOURCES 

References: Listed Below 
Other Sources Consulted: Listed Below 
Protocol Author: Julie Lefaive 
Date Protocol Created or Updated: 4/21/10 

References: 


**Additional Sources Consulted (no pertinent information):**


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