Indian Valley Sedge Propagation
Progress Report
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Introduction

In 2006 the Aberdeen Plant Materials Center (PMC) accepted a request to propagate 300 plants of Indian Valley sedge (*Carex aboriginum* M.E. Jones) as part of a project to reestablish populations in its native habitat at the "Jewel Wetland" in southwestern Idaho. This unique species was first collected in the Weiser valley by Marcus E. Jones on July 12, 1899, at Indian Valley, ID and wasn't seen again for 100 years. The species was thought to be extinct, until 1999, when a population was discovered south of Council, in Adams County, ID. As a result, Indian Valley sedge was moved from the Idaho Native Plant Society's Taxa Believed to be Globally Extinct category to the Global Priority 1 category.

This project was coordinated by the NRCS Payette Field Office on a Wetland Reserve Program (WRP) site in cooperation with land owners Jon and Mary Trail, with support from the Land Trust of the Treasure Valley. The project involved several interested parties, including the U.S.D.A. Forest Service Rocky Mountain Research Station and Idaho Department of Fish and Game.

In May, 2007 the PMC delivered approximately 250 plants to Mike Raymond of the Payette Field Office who coordinated the planting at the site. Volunteers were used to transplant greenhouse grown materials (figure 1).

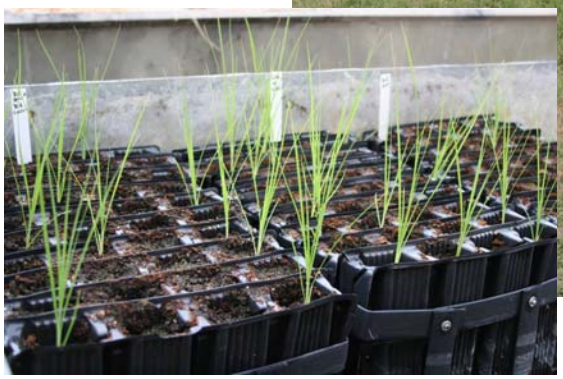


Figure 1. (Right) Volunteers planting Indian Valley sedge at Jewel wetland in western Idaho. (Below) flats of greenhouse grown sedges.

Stratification Trial

Because information regarding propagation of Indian Valley sedge was limited, the PMC initiated a seed germination trial investigating different methods of stratifying seed to develop a propagation protocol.

Seven treatments were compared (table 1). Prior to planting or treatment, peryginia were mechanically removed from all seed. Cold moist stratification in sphagnum moss was conducted at 4º C. Seed was placed into small cloth bags and inserted into 8 fl oz (237 ml) plastic ointment jars filled with 8.0 g green sphagnum moss and water. Cooler and outside treatments were seeded directly into flats with a 1:1:1 mixture of peat, vermiculite and sand. One set of flats was placed in the greenhouse cooler at 4º C, while the other set was placed outdoors from November through February for "natural" stratification as recommended by researchers in the Boise area. Outside temperatures at the PMC ranged from a high of over 70º F in November 2006 to -4 º F in January 2007. Following treatment, flats were moved into the PMC greenhouse where temperatures were maintained from 70 to 90 ºF and soil was kept moist for best germination conditions.

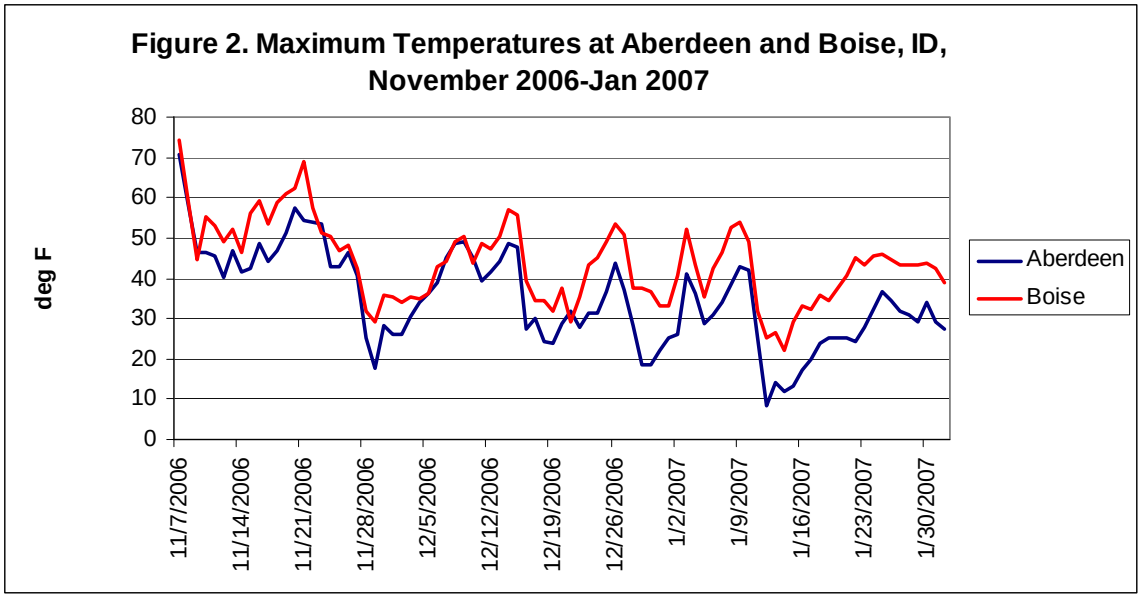
The trial was designed as a randomized complete block with four replications. Each rep consisted of a single flat of 20 cells, each cell planted with 1 seed. Data were analyzed with a one-way ANOVA and means separated with a Tukey's test.

Table 1. Treatments

Treatment	
1.	Seeded into flats and placed in cooler for 60 days
2.	30 day cold/moist stratification in moss
3.	60 day cold/moist stratification in moss
4.	30 days in moss followed by 30 days in cooler
5.	60 days in moss followed by 30 days in cooler
6.	Seeded into flats and left outside from Nov to Feb
7.	No treatment

Results

Although cooperators in the Boise, ID area have reported good germination rates from planting flats outside from November to February, outside stratification did not work in Aberdeen. This is most likely due to differences in temperatures between the two locations. Seed left outside in Boise would likely encounter temperatures above and below freezing on a regular basis subjecting the seed to freeze-thaw cycles, especially during the month of January (figure 2). With the cooler temperatures in Aberdeen, our seed was likely frozen for the duration of the trial and did not thaw until being brought into the greenhouse.



Best germination results (32.5 %) were obtained from the 60 day stratification in the PMC cooler (table 2). This treatment is likely the closest approximation to the conditions found in the sedge's natural habitat. The 30 day moss plus 30 day cooler treatment also had good results (25.0 %), but longer stratification in moss (60 d moss and 60 d + 30 d cool) decreased germination (0.0 and 5.0 % respectively). The non-stratified control treatment did not produce any germinants. From the results obtained here it seems that cold moist stratification is the best method for germinating seeds of Indian Valley sedge at Aberdeen.

Table 2. Mean germination from stratification treatments.

Treatment		**% germ**
60 day cool		32.5 a
30 d moss		5.0 bc
60 d moss		0.0 c
30 d moss + 30 d cool		25.0 ab
60 d moss + 30 d cool		5.0 bc
Outside		0.0 c
No treatment		0.0 c
Critical value (0.05)		23.5

Vegetative propagation

Despite poor germination numbers, the PMC was able to produce several more plants by vegetative division. Plants quickly produce offshoots via short rhizomes. These can be easily separated from the parent plant and transplanted to new cells. Separating plants is most easily done using Root Trainer cells that can be opened exposing the plant roots. Best results came from carefully splitting the plants so that roots remained on both the parent and the new plant. In many cases we were able to split numerous young plants from parents over time greatly increasing the total number of produced plants.