

Propagation Protocols for Plants from Apostle Islands National Lakeshore

The following are protocols for propagation of several plant species located on the Apostle Islands National Lakeshore. The protocols are based on research conducted by the USDA-NRCS Rose Lake Plant Materials Center on seeds or vegetative plant materials collected from the Apostle Islands National Lakeshore. These protocols can be used to propagate the plant species in this report, regardless of the plant material source.

Beachgrass (*Ammophila breviligulata*)

TYPE OF MATERIAL COLLECTED FOR PROPAGATION:

- Stems and rhizomes with as much root tissue as possible.
- Seed heads when seed becomes mature

SEED MATURITY DATE: September – October

SEED CLEANING METHODS:

- Seed separation from seed heads by hand, with brush huller or similar machine.
- Seed separation from inert material by hand screening or fanning mill.

STORAGE REQUIREMENTS:

- Seed stored at 4°C at 40% relative humidity.
- Vegetative material stored at 4°C with roots and rhizomes in moist paper until planted.

ESTIMATED PROPAGULE STORAGE POTENTIAL:

- 1 – 2 years for seed
- 4 – 7 days for vegetative material.

PROPAGATION METHODS:

- Vegetative propagation most effective. Plant vegetative material into pots so that roots and rhizomes are covered. Use peat based planting media. Plants can be separated and replanted when new shoots emerge and grow to at least six inches high. Keep in greenhouse until root system has filled the pot.
- Seed germination is low (3 – 7%). Plant seeds in pots at 0.125 – 0.25 inches deep. Use peat based planting media. No pre-treatment of seeds is required. Keep in greenhouse until root system has filled the pot.

RE-ESTABLISHMENT TECHNIQUES: Transplant rooted plugs or seedlings in May or June when there is minimal danger of frost damage.

Pennsylvania sedge (*Carex pensylvanica*)

TYPE OF MATERIAL COLLECTED FOR PROPAGATION:

- Seed heads when seed becomes mature

SEED MATURITY DATE:

- July - August

SEED CLEANING METHODS:

- Seed separation from seed heads by hand, with brush huller or similar machine.
- Seed separation from inert material by hand screening or fanning mill.

STORAGE REQUIREMENTS:

- Seed stored at 4°C at 40% relative humidity.

ESTIMATED PROPAGULE STORAGE POTENTIAL:

- 1 – 2 years for seed

PROPAGATION METHODS:

- Seed germination is moderate (34 – 45%). Stratify seeds by placing them in moist peat and store in cold (4°C) conditions for 90 days. Plant seeds in pots at 0.125 – 0.25 inches deep. Use peat based planting media. Keep in greenhouse until root system has filled the pot.

RE-ESTABLISHMENT TECHNIQUES: Transplant seedlings in May or June when there is minimal danger of frost damage.

Bearberry (*Arctostaphylos uvaursi*)

TYPE OF MATERIAL COLLECTED FOR PROPAGATION:

- Stems and rhizomes with as much root tissue as possible.
- Stem tip cuttings of at least 3 – 4 inches
- Seeds when fruit becomes mature and is red.

SEED MATURITY DATE: August - September

SEED CLEANING METHODS:

- Soak seeds in water until berries (stones) are soft. Separate seeds from stones by hand or in a blender.
- Seed separation from inert material by floating inert material away from seeds with water.

STORAGE REQUIREMENTS:

- Seed stored at 40°F at 40% relative humidity.
- Vegetative material stored at 40°F with roots and rhizomes in moist paper until planted.

ESTIMATED PROPAGULE STORAGE POTENTIAL:

- 1 – 2 years for seed
- 4 – 7 days for vegetative material.

PROPAGATION METHODS:

- Plant stem + root material into pots so that roots and rhizomes are covered. Use peat based planting media. Plants can be separated and replanted when new shoots emerge and grow to at least six inches high. Keep in greenhouse until root system has filled the pot.
- Strip the bottom leaves off of stem tip cuttings. Treat cut end with Hormonex #1® and insert treated area in planting media. Use peat based planting media. Plants can be separated and replanted when new shoots emerge and grow to at least six inches high. Keep in greenhouse until root system has filled the pot.
- Seed germination is low (5 - 8%). Scarify seeds by soaking them in concentrated sulfuric acid for 3 – 7 hours. Stratify seeds by placing them in moist peat and storing in warm (30°C) conditions for 90 days, followed by cold (4°C) for 120 days. Plant individual seeds or entire stones in pots at 0.125 – 0.25 inches deep. Use peat based planting media. Keep in greenhouse until root system has filled the pot.

RE-ESTABLISHMENT TECHNIQUES: Transplant rooted plugs or seedlings in May or June when there is minimal danger of frost damage. Plants propagated by seed or vegetative means exhibit slow growth and moderate mortality.

Crinkled hairgrass (*Deschamphis flexuosa*)

TYPE OF MATERIAL COLLECTED FOR PROPAGATION:

- Stems and rhizomes with as much root tissue as possible.
- Seed heads when seed becomes mature

SEED MATURITY DATE: September – October

SEED CLEANING METHODS:

- Seed separation from seed heads by hand, with brush huller or similar machine.
- Seed separation from inert material by hand screening or fanning mill.

STORAGE REQUIREMENTS:

- Seed stored at 40°F at 40% relative humidity.
- Vegetative material stored at 40°F with roots and rhizomes in moist paper until planted.

ESTIMATED PROPAGULE STORAGE POTENTIAL:

- 1 – 2 years for seed
- 4 – 7 days for vegetative material.

PROPAGATION METHODS:

- Plant vegetative material into pots so that roots and rhizomes are covered. Use peat based planting media. Plants can be separated and replanted when new shoots emerge and grow to at least six inches high. Keep in greenhouse until root system has filled the pot.
- Seed germination is high (72 – 83%). Plant seeds in pots at 0.125 – 0.25 inches deep. Use peat based planting media. No pre-treatment of seeds is required. Keep in greenhouse until root system as filled the pot.

RE-ESTABLISHMENT TECHNIQUES: Transplant rooted plugs or seedlings in May or June when there is minimal danger of frost damage.

Poverty oatgrass (*Danthonia spicata*)

TYPE OF MATERIAL COLLECTED FOR PROPAGATION:

- Seed heads when seed becomes mature. Collect seed from the upper and lower parts of the plant.

SEED MATURITY DATE: July - August

SEED CLEANING METHODS:

- Seed separation from seed heads by hand, with brush huller or similar machine.
- Seed separation from inert material by hand screening or fanning mill.

STORAGE REQUIREMENTS:

- Seed stored at 40°F at 40% relative humidity.

ESTIMATED PROPAGULE STORAGE POTENTIAL:

- 1 – 5 years for seed

PROPAGATION METHODS:

- Seed germination is low (28 - 35%). Plant seeds in pots at 0.125 – 0.25 inches deep. Use peat based planting media. No pre-treatment of seeds is required. Keep in greenhouse until root system has filled the pot.

RE-ESTABLISHMENT TECHNIQUES: Transplant rooted plugs or seedlings in May or June when there is minimal danger of frost damage.