

**Plant Propagation Protocol for
Adiantum aleuticum (maidenhair fern)**

ESRM 412 – Native Plant Production
University of Washington
Spring 2008

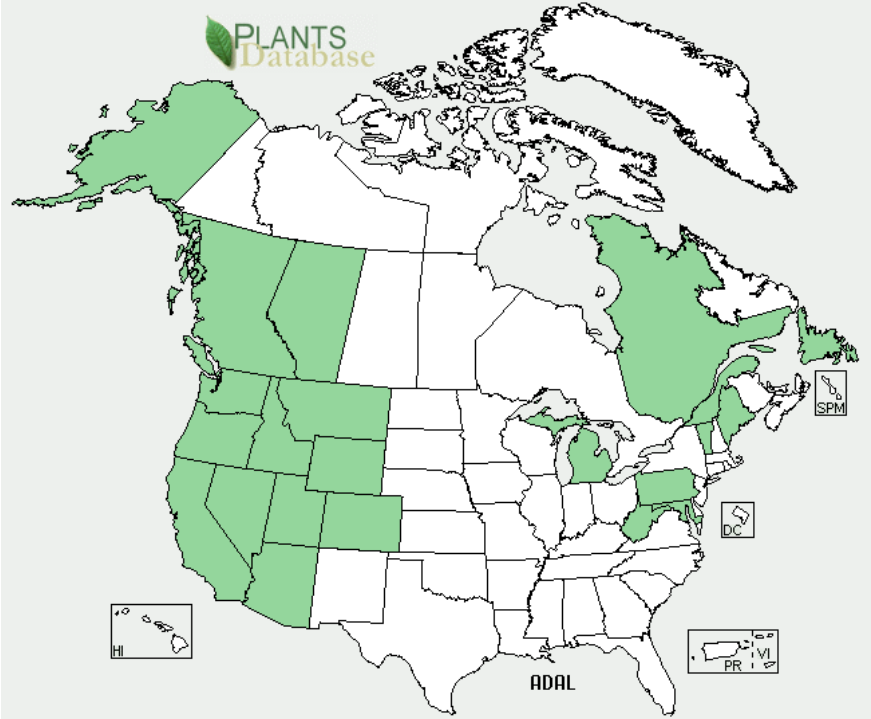


(4)

TAXONOMY	
Family Names	
Family Scientific Name:	Pteridaceae
Family Common Name:	Maiden hair
Scientific Names	
Genus:	Adiantum L.
Species:	Adiantum aleuticum
Species Authority:	(Rupr.) Paris
Variety:	n/a
Sub-species:	japonium, imbricatum, laciniatum, subpumulum, tasselatum (7)
Cultivar:	
Authority for Variety/Sub-	n/a

species:	
Common synonym	<i>Adiantum pedantum</i>
Common Name:	Maidenhair fern
Species Code as per USDA Plants database:	ADAL

GENERAL INFORMATION

Geographical range:	 <p>(10)</p>
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Ecological distribution:	Shady, moist woods, seeps, streambanks and waterfall splash zones.
Climate and elevation range	Full to partial shade or dappled light. requires very moist or wet soil. It is described as being "not fussy about soil quality" but does require much organic material. Low to mid elevation along the coast from Alaska to California. From the coast, occurs as far east as Montana. Occurs but not common in New England. (8) Occasionally found in subalpine elevations. (3) (6)
Local habitat and abundance:	Associated species include: <i>Adiantum pendatum</i> , <i>Adiantum subumilum</i> , <i>Adiantum anceps</i> , <i>Adiantum bellum</i> , <i>Adiantum capillus-veneris</i> , <i>Adiantum caudatum</i> , <i>Adiantum concinnum</i> , <i>Adiantum diaphanum</i> . (1)
Plant strategy type / successional stage:	Late successional, requires established overstory. (6)
Plant characteristics	fern, with annual foliage. It sprouts from the rhizome, usually forming

	solitary leaves, but it is capable for forming colonies. (5)
PROPAGATION DETAILS	
Ecotype:	n/a
Propagation Goal:	plants
Propagation Method:	spore
Product Type:	container (plug)
Stock Type:	n/a
Time to Grow:	several months
Target Specifications:	Small juvenile individuals
Propagule Collection:	<p>In midsummer observe sori under leaflets. Look for signs of ripe sporangia: exposed, glossy, dark brown or black. If they look rough and shaggy, the spores have already been released and all that is left is the sporangia walls. Green or pale brown sporangia are not ripe yet.</p> <p>Often sori ripen in sequence from the base of a frond. Oftentimes, an individual leaf may have a full spectrum of sporangia, from empty to ripe to pre-ripe. (8)</p> <p>Take leaflets and store in a dry envelope for a week. Tap the envelope a few times to help release spores. Poor spores into a dry envelope.</p>
Propagule Processing/Propagule Characteristic:	Spores should be used soon and should not be stored for more than a couple weeks. (2) (7)
Pre-Planting Propagule Treatments:	n/a
Growing Area Preparation:	<p>Various planting mediums can be used: 2/3 peat moss, 1/3 perlite, or half ground leaf mold, half sand and loam. (8)</p> <p>Sterilize soil with boiling water and put soil sterilized flat. Sterilization is necessary to prevent the growth of fungi, bacteria, mosses, or liverworts. (7)</p>
Establishment Phase:	In a windless room, scatter spores over flat. Soil must be very moist. Cover with glass or plastic. Over time, a green film may form on soil. (7)
Length of Establishment Phase:	A few months
Active Growth Phase (from germination until plants are no longer actively growing):	After small fronds have begun to develop, you may need to transplant fronds to a larger container. Young plants may be too fragile to be planted individually, so transplant them in clumps. Great care must be taken to ensure that they are kept in a moist environment, and they should continue to be covered in their new container because sudden exposure to dry air is fatal. (7)
Length of Active	Several months

Growth Phase:	
Hardening Phase:	Once the transplanted ferns have established their root systems, they should be able to handle exposure to dry air. Slowly harden them by uncovering the container a little bit at a time, allowing a day or two for the plants to adjust each time. (8)
Length of Hardening Phase:	One week
Harvesting, Storage and Shipping:	Transplant immediately into shady moist environment.
Length of Storage:	n/a
Guidelines for Outplanting / Performance on Typical Sites:	Full grown plants can be more than 30cm in radius. They are capable of growing 30-80cm tall (3) (6). Larger plants may be propagated by division of rhizome. (8)
Other Comments (including collection restrictions or guidelines, if available):	<i>A. aleuticum</i> is very difficult to distinguish from its eastern counterpart, <i>A. pendatum</i> , and for a long time it was simply classified under that species. Some defining characteristics of <i>A. aleuticum</i> include: green new growth (versus the redder color of the eastern variety), and the rounder outer blade outline does not form a continuous semi-circle, because it is interrupted by the middle pinnae, which are longer by as much as 25%. It is slower growing than <i>pedatum</i> , but remains green longer into the fall. (5) It is more "glaucous" than <i>pedatum</i> . (9)

INFORMATION SOURCES

References:	<p>1) Everett, Thomas H. <i>The New York Botanical Garden Illustrated Encyclopedia of Horticulture</i>. Garland Publishing: New York, New York, 1980.</p> <p>2) Jones, David L. <i>Encyclopaedia of Ferns</i>. Timber Press: Portland, Oregon, 1987.</p> <p>3) Kruckeberg, Arthur R. <i>Gardening with Native Plants of the Pacific Northwest: An Illustrated Guide</i>. University of Washington Press: Seattle, Washington, 1982.</p> <p>4) Linda Crews. Boston West Photographic Society. http://www.bwps.org/images/Competitions/Digital/2005-2006/Apr06/A_MaidenhairFerns_LCrews.jpg</p> <p>5) Olsen, Sue. <i>Encyclopedia of Garden Ferns</i>. Timber Press: Portland, Oregon, 2007.</p> <p>6) Pojar, Jim. <i>Lone Pine</i>: Vancouver, British Columbia, 1994.</p>
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	<p>7) Rickard, Martin. Garden Ferns. Timber Press: Portland, Oregon, 2000.</p> <p>8) Robson, Kathleen. Encyclopedia of Northwest Native Plants for Gardens and Landscapes. Timber Press: Portland, Oregon, 2008.</p> <p>9) Taylor, Thomas. Pacific Northwest Ferns and Their Allies. University of Toronto Press: Toronto, Canada, 1970.</p> <p>10) USDA. Plants Database. http://plants.usda.gov/java/profile?symbol=ADAL. Last access: 06.03.08</p>
Other Sources Consulted:	Frye, Theodore. Ferns of the Northwest. Metropolitan Press: Portland Oregon, 1934.
Protocol Author:	Dylan Mendenhall
Protocol Updated:	06.03.08

Revised from earlier protocol below.



Plant Data Sheet: By Sarah Short

Maidenhair Fern (*Adiantum aleuticum*)

Range

Pacific Northwest, Alaska, and Canada. (5)

Climate, elevation

2-3 pinnate temperate, sea level to mid-montane. (2)

Local occurrence

Found in moist, shady sites throughout our region, especially on wet cliffs, near waterfalls, and on stream-banks. (2)

Habitat preferences

Woodland, Dappled Shade, Shady Edge, Ground Cover. The plant prefers light (sandy), medium (loamy) and heavy (clay) soils and requires well-drained soil. The plant prefers acid, neutral and basic (alkaline) soils. It can grow in semi-shade (light woodland). It requires moist soil. (1)

Plant strategy type/ successional stage

Information not available.

Associated species

Adiantum pendatum, *Adiantum subumilum*, *Adiantum anceps*, *Adiantum bellum*, *Adiantum capillus-veneris*, *Adiantum caudatum*, *Adiantum concinnum*, *Adiantum diaphanum*. (3)

May be collected as: (seed, layered, divisions,ect)

The most satisfactory method of propagation is by spores, but division in spring or autumn is also practicable. (3)

Collection restrictions or guidelines

Should not be removed from natural areas unless they are a bona fide salvage sites. (4)

Seed germination

Information not available.

Seed life

Short life, best if sown within a few hours of collection. Can be stored for 2-4 weeks. (5)

Recommended seed storage conditions

Store in an airtight plastic container in the non-freezing compartment of a refrigerator at about 40 degree F. (5)

Propagation recommendations

Relatively easy to produce from spores. Spores best sown as soon as ripe on the surface of a humus-rich sterilized soil. Keep the compost moist, preferably by putting a plastic bag over the pot. Pot on small clumps of plantlets as soon as they are large enough to handle and keep them humid until they are well established. Do not plant outside until the ferns are at least 2 years old and then only in a very well sheltered position. (1)

Soil or medium requirements

Greenhouse maidenhair ferns may be planted in rockeries or grown in pots or hanging baskets in a mixture of one-half peat moss or leaf mold, one-quarter loamy topsoil, one-quarter coarse and or perlite, with scatterings of chopped charcoal and perhaps some dried cow manure added. Container must be well drained. (3)

Installation form

They like shady conditions (3)

Recommended planting density

Information not available.

Care requirements after installed

Misting on dry days does much to prevent desiccation of the foliage. (3)

Normal rate of growth or spread: lifespan

This deciduous fern grows 1-2 feet tall. (2)

Sources cited

- (1) http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Adiantum+pedatum
- (2) Kruckeberg, Arthur R. 1982. Gardening with Native Plants of the Pacific Northwest: An Illustrated Guide. University of Washington Press, Seattle, Washington.
- (3) Everett, Thomas H. 1980. The New York Botanical Garden Illustrated Encyclopedia of Horticulture. Garland Publishing, New York, New York.
- (4) Leigh, Michael. 1999. Grow Your Own Native Landscape. Washington State University Press, Olympia, Washington.
- (5) Jones, David L. 1987. Encyclopaedia of Ferns. Timber Press, Portland, Oregon.