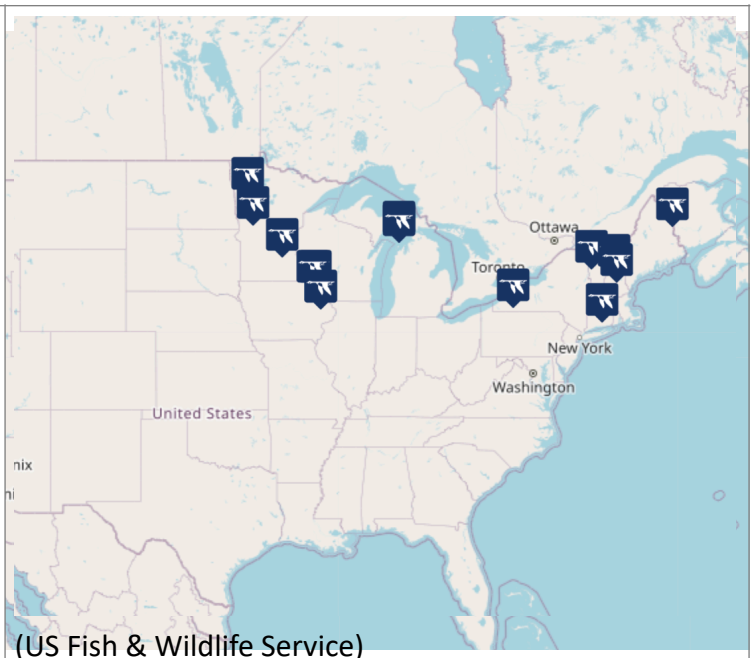
Plant Propagation Protocol for *Matteuccia Struthiopteris*

ESRM 412 – Native Plant Production

URL: https://courses.washington.edu/esrm412/protocols/*2026*/*MAST]*

TAXONOMY	
Plant Family	Dryopteridaceae, Onocleaceae (newer classification)
Scientific Name	*Matteuccia struthiopteris*
Common Name	Sensitive Fern Family
Species Scientific Name	*Matteuccia struthiopteris*
Scientific Name	*Matteuccia struthiopteris (L.) Todaro*
Varieties	*Matteuccia struthiopteris* var. *pensylvanica* *Matteuccia struthiopteris* var. *pubescens*
Sub-species	*Onoclea struthiopteris*, *Onoclea struthiopteris* var. *pensylvanica*, *Pteretis nodulosa*, *Pteretis pensylvanica*, *Matteuccia pensylvanica*
Common Synonym(s)	*Matteuccia pensylvanica*, *Matteuccia struthiopteris* var. *pensylvanica*, *Matteuccia struthiopteris* var. *pubescens*, *Onoclea struthiopteris*, *Onoclea struthiopteris* var. *pensylvanica*, *Pteretis nodulosa*, *Pteretis pensylvanica*
Common Name(s)	Ostrich fern, Fiddlehead fern
Species Code (as per USDA Plants database)	MAST
GENERAL INFORMATION	

Geographical range	 (US Fish & Wildlife Service)
Ecological distribution	Found in alluvial forests, riverbanks and sandbars; usually in thickets (2)
Climate and elevation range	Prefers temperate to colder climates, is found from 15m to 1050m (2)
Local habitat and abundance	Found mostly in shaded, moist wooded environments. Often associated with species like *Carex muskingumensis* (Palm Sedge), *Lobelia cardinals* (Cardinal Flower) and *Osumunda cinnamomea (*Cinnamon fern) (2)
Plant strategy type / successional stage	Can be early successor. Spreads by underground rhizomes to form dense colonies. Can spread very rapidly and be a weed if unwanted or grown near other more delicate plants (2)
Plant characteristics	It's a clumping, upright deciduous fern. It can grow from 2-3' tall in cultivation and up to 6' in the right conditions in nature. (2)
PROPAGATION DETAILS: VEGETATIVE	
Ecotype	Not clearly specified, likely wild and cultivated rhizomes as seed source.
Propagation Goal	Plants
Propagation Method	Vegetative

Product Type	Grown in plugs for a finished container plant. Propagules are rhizome pieces and spores (4)
Stock Type	Rhizome divisions and spore-derived plants (4)
Time to Grow	6-12 weeks in a container production, usually over a year for spore-derived plants (1)
Target Specifications	Fully rooted plug with multiple fronds and a healthy rhizome system. (4)
Propagule Collection Instructions	Collected rhizomes from established plants must include viable meristematic tissue. Best collected in early spring. Spores collected from fertile fronds, best during late season/winter. (4)
Propagule Processing/Propagule Characteristics	No seed density data; Spores are very small and have short viability unless stored under cold and dry conditions.
Pre-Planting Propagule Treatments	Cold dormancy required for rhizomes. Spores don't need stratification but often surface sown and require light and moist conditions (1)
Growing Area Preparation / Annual Practices for Perennial Crops	Need an organic rich substrate like peat, and constant water availability. pH typically 5.5-6.5 and at least partial shade. Optimal temperature is 15-21 celsius. (1)
Establishment Phase Details	The rhizomes will break chilled dormancy after warming to over 9 degrees celsius. The spores will germinate into gametophytes and require constant moisture (1)
Length of Establishment Phase	For rhizomes typically 1-3 weeks, and spores take a bit longer about a month (4)
Active Growth Phase	Typically requires cool temperatures, shaded condition and constant water which is usually the limiting growth factor.
Length of Active Growth Phase	6-12 weeks in total including finishing. In the field it's typically spring through early summer (1)
Hardening Phase	Hardening is triggered by a drop in temperature and light, typically in autumn. It requires cold exposure to enter the next cycle of development. (4)
Length of Hardening Phase	Not defined but typically autumn.
Harvesting, Storage and Shipping	Can be shipped as container plants or dormant rhizome divisions. Must maintain cool and moist conditions. (4)

Length of Storage	Short term cold storage but not quantified.
Guidelines for Outplanting / Performance on Typical Sites	No specific details on speed or success of out planting. Typically performs best in shaded environments with ample space for rhizomes to spread. Water is often the limiting growth factor.
INFORMATION SOURCES	
Protocol Author	Nathan Wolford
Date Protocol Created or Updated	06/08/2026

References Used:

(1) Brockett, Rosemary. (2023). *Ostrich Fern Fiddlehead (Matteuccia struthiopteris L. Todaro) Cultivation: Controlled Environment Requirements and Growth Cycle Compression*. University of Guelph Thesis

(2) E-Flora BC. *Matteuccia struthiopteris (L.) Todaro*. from E-Flora BC Atlas

(3) U.S. Fish and Wildlife Service. Ostrich fern (Matteuccia struthiopteris): Map. U.S. Department of the Interior. https://www.fws.gov/species/ostrich-fern-matteuccia-struthiopteris/map

(4) Prange, R. K. (1985). *Studies on the physiology and propagation of the ostrich fern, Matteuccia struthiopteris*. Proceedings of the Royal Society of Edinburgh Section B Biological Sciences, 86, 153–159.

Other sources Consulted:

von Aderkas, P., & Green, T. G. A. (1986). Growth and development of the ostrich fern (Matteuccia struthiopteris) in relation to environmental factors. Economic Botany, 40(2), 183–195

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Native Plants PNW. *Ostrich fern (Matteuccia struthiopteris)*. from https://nativeplantspnw.com/ostrich-fern-matteuccia-struthiopteris/

Lady Bird Johnson Wildflower Center. *Matteuccia struthiopteris (L.) Todaro*, from Wildflower Center plant database, University of Texas at Austin: Matteuccia struthiopteris (L.) Todaro

Thakur, R. C., Hosoi, Y., & Ishii, K. (1998). *Rapid in vitro propagation of Matteuccia struthiopteris (L.) Todaro—an edible fern*. *Plant Cell, Tissue and Organ Culture*, 52(1), 17–23.