THE UNIVERSITY OF ALASKA FAIRBANKS
GEORGESON BOTANICAL GARDEN

Department of High Latitude Agriculture
School of Natural Resources and Agricultural Sciences

Holloway, P. and D. Boyd. 1993. Spore viability and germination of the endangered Aleutian shield-fern, *Polystichum aleuticum*. HortScience 28(5):182. Abstr.

# Spore viability and germination of the endangered Aleutian shield-fern, *Polystichum aleuticum*.

by Patricia S. Holloway and David Boyd

(abstract from a poster presentation, American Society for Horticulural Science, July 24-29, 1993)

Research was initiated in 1990 to study spore viability, spore germination in vitro, and methods of controlled environment culture for the endangered Aleutian shield-fern, *Polystichum aleuticum*. Examination of spores using scanning electron microscopy revealed from 24% to 78% deformed [sunken, imploded appearance], and possibly non viable spores. Normal spores germinated in 30-45 days on both Knop's solution and Hoagland's No. 2 solution in aseptic culture. Germination was most rapid on cultures with less than 6 g/l agar. Cultures with no agar were susceptible to contamination by algae, and sporophyte losses during transfer to greenhouse media were high. Germination rate and subsequent appearance of the first leaf stage did not differ significantly within a medium pH range of 4.7 to 7.0. Spores exhibited a thermodormancy at 25C but germinated well at 18C and required light for germination. Sporophyte transfer from aseptic culture was most successful after true fronts beyond the first leaf stage had developed. A commercial bedding plant mix composed of Sphagnum sp. peat and perlite provided an optimum rooting medium for the ferns.