

**TEMPORAL VARIATION IN SPOROPHYTE FERTILITY IN
DRYOPTERIS INTERMEDIA AND *POLYSTICHUM ACROSTICHOIDES*
(DRYOPTERIDACEAE: PTERIDOPHYTA)**

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ABSTRACT

A long-term demographic study to assess temporal variation in two common New England ferns, *Dryopteris intermedia* (Evergreen wood fern) and *Polystichum acrostichoides* (Christmas fern) focused on fertile leaf production by the reproductively mature sporophyte. Over an eight-year period only 29.9% of the leaves in a *D. intermedia* crown were fertile, while for *P. acrostichoides* significantly more (48.0%) of the leaves in the crown were fertile. Annual values of the percentage of plants with fertile leaves for *D. intermedia* ranged from 42% to 77% and for *P. acrostichoides* from 57% to 93% reflecting significant annual variation, possibly related to winter weather conditions. Only 16% of *D. intermedia* and 14% of *P. acrostichoides* sporophytes were fertile every year of the study. Transitions from fertile plant status to sterile plant status occurred in 15% of the *D. intermedia* observations and 14% of the *P. acrostichoides* observations. For both species, when a sterile year followed a fertile year the number of leaves in the crown decreased by approximately half a leaf. Determining the causes of such high levels of variability in plant fertility will be necessary before the role of ferns in any ecosystem can be fully understood.