

DISTRIBUTION, DISPERSAL AND ABUNDANCE OF HAYSCENTED FERN SPORES IN MIXED HARDWOOD STANDS

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Abstract: A study was conducted in 1992 to assess the abundance and distribution of viable hayscented fern spores in the forest floor of central Pennsylvania hardwood stands before and after seasonal spore dispersal. Intact soil samples were collected at various distances and directions from established fern communities and placed in a greenhouse to effect spore germination. Spore abundance was estimated by counting the number of gametophytes which developed. Results indicate that a large viable sporebank exists in many central Pennsylvania hardwood forests. Viable spores were present in over 97% of pre- and post-dispersal samples with estimates of upward to 160,000 viable spores per square meter. Viable spores occurred at all distances within the 50 m from source zone sampled. The number of viable spores generally decreased with distance from the source with the highest abundance occurring within 10 m of the source. There was evidence of directional effects on spore abundance at some sampling locations, however, the effect was variable between sites. These data indicate the potential exists for the establishment of hayscented ferns from a viable sporebank in central Pennsylvania hardwood stands.

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