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Evaluating black ash decline in Minnesota at the stand-scale.

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Black ash (*Fraxinus nigra*) is an important component of wetland forests in northern Minnesota, the upper Midwest, and the northeastern USA. It is valued for paneling, veneer, furniture, and Native American basketmaking. Decline of black ash has been noted with increasing frequency in the region. For instance, over 27,000 acres were affected in Minnesota in 2004. To date, there have been no detailed stand-level examinations of decline in Minnesota. We examined 40 black ash sites in northern Minnesota to characterize the decline phenomenon in greater detail. Our objectives included: 1) quantifying amount of decline and mortality; 2) assessing relationships between decline and stand and site characteristics, such as tree age, site hydrology, and adjacency to roads, and 3) determining likely successional trajectories for declining stands. Decline severity appears unrelated to tree age or road proximity. There has been significantly more decline in stands rated as wet (versus moderately wet or mesic) and having a greater depth to a restrictive layer. These findings suggest that hydrologic factors are influencing decline occurrence. In general, there is limited tree regeneration of any species in declining black ash stands, suggesting that successional degradation to open conditions may be occurring.