

MITOCHONDRIAL DNA VARIATION IN THE EASTERN POND MUSSEL, *LIGUMIA NASUTA* (BIVALVIA: UNIONOIDA), IN THE GREAT LAKES REGION

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ABSTRACT

Most freshwater mussel species in the Great Lakes colonized the region from the Mississippi River basin and few appear to have colonized from Atlantic coast rivers. The Eastern Pondmussel, *Ligumia nasuta*, is widespread along the Atlantic coast but occurs elsewhere only in the Great Lakes, suggesting that it is one of the few Great Lakes species of Atlantic origin. Great Lakes populations are now imperiled following invasion of the lakes by dreissenid mussels. We examined patterns of diversity in the mitochondrial CO1 and ND1 genes in *L. nasuta* populations in the Great Lakes and in Atlantic coast rivers. Genetic diversity was low in Great Lakes populations and included only one CO1 and two ND1 haplotypes, all of which were also found in Atlantic coast populations. Genetic diversity was higher in Atlantic coast populations and included four CO1 and six ND1 haplotypes. Pairwise Φ_{ST} revealed significant genetic differentiation for both genes between Atlantic coast and Great Lakes populations but not within Great Lakes populations. These results suggest that all populations of *L. nasuta* in the Great Lakes are derived from a single, small founder group that colonized from an Atlantic coast river. As such, Great Lakes populations may be considered a single management unit and conservation efforts based on propagation or translocation should be limited to use of Great Lakes source stock to prevent introduction of non-native haplotypes.

KEY WORDS Endangered mussels, genetic variation, Laurentian Great Lakes, phylogeography, glaciation, Atlantic coast