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Genetic evidence for multiple invasions of subterranean termites into Canada

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Social insects are among the world's most successful species at invading new environments. Their characteristic division of labor can influence their capacity to colonize new habitats, often with negative ecological or economic impact. The social Hymenoptera (i.e., ants, bees, and wasps), are well studied in this regard, but much less is known about the invasive biology of termites (Isoptera). In this study we use province-wide sampling and a population genetic analysis to infer the minimum number of eastern subterranean termite introductions into Ontario (Canada). Structure analysis of multilocus microsatellite genotypes grouped the 30 collection points into three genetic clusters, suggesting as many as three independent introductions into southern Ontario. Levels of genetic diversity were higher in termites from a remote, semi-natural region than in termites from Toronto and other Ontario cities, suggesting that these non-urban termite populations are potentially older and native to Ontario. A single origin scenario, in which all populations stem from a single source, therefore is not supported by the genetic data. Instead, our analysis suggests multiple independent introductions of this highly social, subterranean termite into Ontario, where the species is now well established as a structural pest of urban habitats.