Evidence for ecological speciation via a host shift in the holly leaf miner, Phytomyza glabricola (Diptera: Agromyzidae)

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Abstract

Evolutionary radiations have been well documented in plants and insects, and natural selection may often underly these radiations. If radiations are adaptive, the diversity of species could be due to ecological speciation in these lineages. Agromyzid flies exhibit patterns of repeated host-associated radiations. We investigated whether host-associated population divergence and evidence of divergent selection exist in the leaf miner Phytomyza glabricola on its sympatric host plants, the holly species, Ilex coriacea and I. glabra. Using AFLPs and nuclear sequence data, we found substantial genetic divergence between host-associated populations of these flies throughout their geographic range. Genome scans using the AFLP data identified 13 loci under divergent selection, consistent with processes of ecological speciation. EF-1α data suggest that I. glabra is the original host of P. glabricola and that I. coriacea is the novel host, but the AFLP data are ambiguous with regard to directionality of the host shift.

Read the full article in *Ecology and Evolution.* [1]

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