

Ecological models provide the first evidence of increased costs for hybrids in a migratory divide

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Abstract

Ecological speciation predicts that the fitness of hybrids will be reduced if they exhibit intermediate phenotypes that fall between parental niches. Empirical support for this prediction is sparse and migratory divides may help fill this gap. Divides occur between populations with divergent migratory routes. Hybrids in divides are predicted to take intermediate routes over terrain avoided by pure forms, reducing their fitness. We test this prediction here in a well-characterized divide between Swainson's thrushes using niche models and models of landscape connectivity. These models predicted lower habitat suitability in the intermediate range between the migratory ranges of pure forms and optimal routes that circumvent this area. Birds that took intermediate routes used stopover sites of lower predicted suitability and overlapped less with optimal paths than birds migrating on either side of the divide. Our results have broad implications as migratory divides are common in nature and not limited to birds.

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