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ON THE COVER

Selection by pollinators is an important factor in floral evolution and plant speciation. Hoballah et al. (pages 779–790) investigated genetic changes associated with the evolution of divergent pollination syndromes in two species of *Petunia*. The authors analyzed *ANTHOCYANIN2*, which encodes a *myb*-type transcription factor that is a major determinant of flower color variation in *Petunia*. Loss-of-function alleles of *AN2*, resulting in white or pale flower color, arose at least five times independently among wild *P. axillaris* accessions, whereas *P. integrifolia* contains a functional *AN2* gene that is associated with the production of magenta flowers. Functional assays for pollinator preference showed that hawk moths have a strong preference for *P. axillaris* flowers, whereas bumblebees prefer the highly colored *P. integrifolia* flowers. Transformation of *P. axillaris* with a functional *P. integrifolia*–type *AN2* cDNA restored AN2 function and resulted in a switch of pollinator preference to match that of *P. integrifolia*. Thus, adaptation of plant species to a new pollinator can involve a limited number of genes of large effect. The cover image shows an adult hawk moth (*Manduca sexta*) feeding on *P. axillaris*.

IN THIS ISSUE

IN BRIEF

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