Zoology

Phenotypic plasticity of mating calls in the katydid *Neconocephalus triops*

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Phenotypic plasticity is the capacity of a genotype to exhibit different phenotypes in response to changes in the environment. The ability to produce alternative phenotypes is a trait that can evolve, effectively increasing or decreasing the degree of plasticity. If environmental conditions are not present to trigger the expression of one of the alternative phenotypes, this phenotype can be lost. The katydid *Neoconocephalus triops* (Linnaeus, 1758) ranges from South America as far North as Kentucky, U.S.A. In northern Florida, it has two breeding generations and the male mating call differs substantially between generations (spring & fall) as the result of phenotypic plasticity related to the photoperiod experienced during development. In Kentucky, *N. triops* has only one reproductive generation (spring) because the colder climate shortens the breeding season. I investigated if *N. triops* males in Kentucky have lost the ability to express both call phenotypes as the result of the shortened breeding season. First, I describe the call phenotype of the KY population and compare it to the call phenotypes of the two Florida generations. Second, I used differential rearing with varying photoperiods to test if the KY population still has the capacity to express both call phenotypes. The results of these experiments are discussed in the context of the evolution of the communication system.