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first study at an individual level (on two sites of 72 km² and 40 km apart, in Southern France), the second at a population level at different localities throughout the Mediterranean Basin. Analyses are in progress and results will be provided during the congress.



Biology and ecology of *Arcyptera brevipennis vicheti* Brunner, 1861

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Arcyptera brevipennis vicheti Brunner, 1861 (Acrididae, Orthoptera) is a remarkable grasshopper, native of Mediterranean grassland habitats in Southern France and North-East Spain. Modifications in land use are endangering the survival of *A. b. vicheti*. In this study, we describe aspects of this species' life-cycle for the first time. Morphology and development were studied by rearing hoppers in the laboratory. Population ecology and dynamics were studied by bi-weekly population counts on two experimental sites on the Causse d'Aumelas in the Hérault department (France) during the spring season 2008. We recorded the temporal evolution of vegetation and habitat structure in order to establish relationships between environmental factors and the species' life-cycle. Feeding preferences were studied by analysing the faecal contents and reproductive capacity by examining the egg-pods and dissecting of female ovaries. Development of *A. b. vicheti* passes through five stages and is closely associated with the Mediterranean spring season. Hatchlings are prompted by the rise in temperature and humidity mid-April and may continue until mid-May. By mid-June, all individuals in the field are adult, resulting in a mean development time of 42 days. Females lay 16 eggs on average and deposit two clutches in their lifetime; the resulting population fecundity lies at approx. 7 eggs per imago. Our results revealed that *A. b. vicheti* is a true ecological specialist whose survival depends on the conservation of grassland habitats.



Are leader preferences in katydids the outcome of a sensory bias?

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Males of several *Neoconocephalus* species produce discontinuous calls with regularly repeated verses (or echemes). Durations of verses range from a few tens of ms (e.g. *N. spiza*) to longer than 1 s (*N. nebrascensis*) and verse repetition rates from 0.3 Hz to 5 Hz. Discontinuous calls are limited to one monophyletic clade of the *Neoconocephalus* phylogeny ('discontinuous clade'), which also includes several species with continuous calls. Males of these species synchronize their verses with those of neighboring males. In one species, (*N. spiza*) such call synchrony is the consequence of female preference for leading calls. Here we test the previously proposed hypothesis that this leader preference arises from a sensory bias of the katydid hearing system. This hypothesis predicts that species with continuous calls (the