



Congress of the European Society
for Evolutionary Biology

Congress Program & Information

August 10 - 14, 2015

Lausanne, Switzerland

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diversity. Behavioural consequences of ageing may be disadvantageous for older individuals and thus be a proximate mechanism of reproductive senescence.

Poster session B - POL 300

Genetic underpinning of a major evolutionary trait: eusociality in the facultative eusocial sweat bee *Halictus rubicundus* (52417)

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Eusociality is a major evolutionary innovation that has independently arisen multiple times in insects and has led to the ecological dominance of social species, but candidate genes that underpin this trait have not yet been identified. The application of advanced sequencing technologies to facultative eusocial species, in which some individuals are solitary and others are eusocial, is a powerful approach for the identification of such genes. Here, we perform a comparative transcriptome analysis of the facultative eusocial sweat bee *Halictus rubicundus*, chosen because of phylogeographic evidence for genetic differences between social phenotypes (solitary versus eusocial populations) in North America. Specifically, we analyze the transcriptomes of one solitary population and two eusocial populations of *H. rubicundus* using 454 and Illumina RNA-seq data, assemble a draft transcriptome of *H. rubicundus* comprising approximately 48,000 unigenes, and use it to map SNPs between the two eusocial populations and the one solitary population. We find marked genetic differentiation between the two social phenotypes of *H. rubicundus*, suggesting different demographic histories of the two forms, and point to putative candidate genes underpinning the 'eusocial transition' in this species.

Poster session B - POL 300

Social effects on parental care in the cooperatively breeding Seychelles warbler (52427)

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How and why social behaviours evolve is a central question in evolutionary biology. The expression of social behaviours may be affected by the behaviour of the interacting individuals, which can have both a genetic and environmental component. For example, in cooperatively breeding species, both dominants and subordinates can raise the offspring of the dominants. The additional care provided by helpers may allow dominants to reduce their

parental care, providing indirect fitness benefits through increased dominant survival. Dominants may also modify their behaviour dependent on the identity of their social partner, which may have a genetic component. We tested the load-lightening hypothesis in the Seychelles warbler, and investigated social (indirect) genetic effects on parental care. We detected load-lightening, with dominants reducing their provisioning rates when they have more helpers, and discuss the fitness benefits. There was little between-individual variance in the amount of provisioning by dominants, but the variance in dominant provisioning was influenced by the identity of their social mate. The social environment therefore plays a strong role in parental care levels in the Seychelles warbler. We discuss the genetic component of these social mate effects, and their role in the evolution of social behaviour in wild systems.

Poster session B - POL 300

Are dispersing and non-dispersing individuals on different life paths? Looking at telomere lengths in the Collared flycatcher. (52470)

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In natural populations, trade-offs set the range of possible life histories. Nevertheless, variation in individual strategies is frequently observed within populations. Our previous results in a patchy population of a small passerine, the Collared flycatcher, suggest dispersing and non-dispersing individuals manage differently the trade-off between reproduction and maintenance in the short-term. However the longer-term consequences of such variation need to be examined to test whether dispersing and non-dispersing individuals reach the same lifetime fitness outcome. Because assessing survival and future reproduction prospects in a spatially limited study site can be biased with respect to dispersal, an alternative is to use cumulative, long-term markers of fitness-related traits. As telomere dynamics depend on physiological condition and often predict survival, we first investigate whether telomere length is a good marker of survival and reproduction prospects in our study population. We then test whether dispersing and non-dispersing individuals differ in telomere length and whether such difference depends on reproductive constraints. Based on our previous results, we hypothesise that dispersing birds will invest more in maintenance and exhibit longer telomeres, especially under constrained conditions, than non-dispersing ones. Such differences would be consistent with the integration of dispersal behaviour into a pace-of-life syndrome.

Poster session B - POL 300

The role of the aggression neuropeptide tachykinin in caste differentiation of ants (52500)

Jack Howe, Morten Schiøtt, Jacobus J. Boomsma.