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Social genotype distribution and discrimination in a socially polymorphic ant

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In ants, the number of reproductive queens per nest varies greatly among and within species. The mechanisms maintaining this variation remain little understood. In the fire ant Solenopsis invicta, social organization is under strong genetic control, being determined by the genotypes of queens and workers at a 'social chromosome'. We have recently discovered an equivalent chromosome in *Formica selysi*, present in two haplotypes, sM and sP. In polygynous colonies, each individual bears at least one sP haplotype. Given that heterozygous queens in polygynous colonies may mate with either sP or sM male, the lack of sM/sM females and sM males in polygynous colonies is unexpected. Here, we investigate why these genotypes are absent from polygynous colonies. We tested for a selective elimination of brood by workers and for an intrinsic incompatibility in sM/sM eggs. We collected mature queens from polygynous colonies and maintained them in separate containers either with or without workers. We compared the presence and proportion of sM/sM eggs produced by those queens in the two conditions. Overall, the results suggest that the workers in polygynous colonies discriminate and selectively eliminate individuals that are not bearing the sP haplotype. These results contribute to the understanding of the genomic mechanisms underlying the two types of social organization.