

Family matters: Early social complexity and development of social behaviour

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Abstract

Social competence, i.e the ability of an individual to optimally adjust its social behaviour to the prevailing social information, is influenced by the early social environment in a wide range of vertebrates. Early life also influences other life-history traits like the propensities to provide alloparental care, to disperse or to reproduce. We investigated how rearing group size influences different components of social behaviour and life-history strategies in the cooperatively-breeding cichlid *Neolamprologus pulcher*. We raised the fish in large social groups of ten individuals or in small groups of three individuals. After 60 days of social experience, fish were kept under identical conditions in sibling groups. At the age of 120 days, we tested two individuals per experimental brood for social competence; we recorded the social behaviours expressed by a focal fish in response to a gradient of conspecific aggression in two tests: (i) towards video recordings of conspecifics and (ii) towards a larger live conspecific intruder. At one year of age, we tested the explorative, helping and dispersal behaviour of the same fish. Rearing group size did not affect aggressive behaviour in the video test, nor exploration, helping and dispersal behaviour later in life. Fish raised in large groups showed more submission per received aggression from a larger conspecific, they showed submission earlier and exhibited more flexibility in the expression of submissive behaviour compared to fish raised in small groups. Our results emphasize the importance of early-life social complexity for the expression of social behaviour.