

the limelight of current research efforts (e.g. Bergmüller and Taborsky 2010).

Several personality traits have been described in vertebrates and invertebrates, but most studies have focused on only a few. Boldness, curiosity (or exploration tendency), activity and aggressiveness have attracted the most theoretical and empirical research. These personality traits occur in species from invertebrates to birds, reptiles, fish and mammals (Réale et al. 2007; Sih and Bell 2008). Furthermore, these traits may co-vary as syndromes, i.e. exhibit consistent correlations across different traits (Sih and Bell 2008; Dingemanse et al. 2010a), which suggests that they share proximate mechanisms. For example, boldness, activity and aggressiveness are correlated in many species (Dingemanse et al. 2010a; Sih and Bell 2008; Sih et al. 2004).

Personality variation in social behaviour other than aggression has received little research attention, so we know little about how inter-individual variation in social behaviour is attributable to personality (Bergmüller and Taborsky 2010; Krause et al. 2010; Schürch et al. 2010; cf. Virgin and Sapolsky 1997). However, personality in a social setting is gaining more attention for at least three reasons. First, in theoretical models that include “social environment” as an explanatory variable, it appears to maintain inter-individual variation in continuous behavioural traits (McNamara et al. 2009), thus shedding light on the evolutionary puzzles of personality. Second, personality influences how individuals interact in competitive, affiliative and cooperative social networks (Krause et al. 2010). For example, bold three-spined sticklebacks (*Gasterosteus aculeatus*) overall have fewer but more evenly distributed interactions with others, whilst shy individuals have more frequent but strongly skewed interactions with others (Pike et al. 2008). In a cooperatively breeding cichlid (*Neolamprologus pulcher*), curiosity, boldness and aggressiveness correlate positively as a syndrome, which also correlates with helping behaviour (Bergmüller and Taborsky 2007; Schürch and Heg 2010) and influences the number and quality of interactions in social networks (Schürch et al. 2010). Individuals also associate selectively according to personality; guppies (*Poecilia reticulata*) that leave the shoal to inspect predators prefer to associate with others of the same behavioural type (Croft et al. 2009). Third, sociability as a personality trait is likely to be an important factor in social interactions. Sociability, defined as an individual's reaction to the presence versus the absence of conspecifics and tendency to seek their proximity, has received only limited research attention. In common lizards (*Lacerta vivipara*), high social tolerance increases survival at high population density and dispersal at low density, whilst low social tolerance increases survival at low density and dispersal at high density (Cote and Clobert 2007; Cote et al. 2008, 2010). Sociability is likely to be especially relevant

in group-living species, in which individuals repeatedly interact within a network of relationships, and to have important repercussions on individual fitness and on population-level phenomena.

Altogether these studies suggest that personality affects the various aspects of social life, such as group composition (Croft et al. 2005), networking (Krause et al. 2010), dispersal (Cote et al. 2010), niche specialisation (Bergmüller and Taborsky 2010), social learning (Reader 2003), cooperation (Bergmüller et al. 2010; Fishman et al. 2001), group stability (Flack et al. 2006) and disease and parasite spread (Barber and Dingemanse 2010; Capitanio et al. 1999).

However, we know little of which types of social behaviour are personality traits in various species. Sociability is a broad trait category that encompasses a range of behaviours, from tolerance to the presence of an unfamiliar conspecific (lizards; Cote and Clobert 2007) to the tendency to actively seek proximity with others (guppies; Budaev 1997) and to form close bonds with frequent interactions across contexts and over the years (baboons, *Papio* sp.; Silk et al. 2009). Consistent variation may exist at all these levels of sociability and correlate with other personality traits as syndromes. For example, affiliative network size may correlate with the frequency of other kinds of affiliative behaviour (van Hooff 1973), boldness (Pike et al. 2008), calmness (Weinstein and Capitanio 2008) or activity (Konečná et al. 2008).

Addressing sociability in species with cohesive, individualised social networks, such as diurnal primates, should be informative. Primate social relationships form networks of qualitatively and quantitatively different histories of interactions that can be categorised in various ways (e.g. dominance, kinship and ‘friendship’: Cords and Aureli 2000; Silk 2002). Social relationships may last for years or even decades (Silk et al. 2010; Mitani 2009). Longevity and differential qualities of social relationships make primate social networks complex, and so personality can have substantial effects on behaviour and, potentially, on fitness.

The importance of sociability is suggested by several primate studies (Freeman and Gosling 2010). In chacma and yellow baboons (*Papio hamadryas ursinus* and *P. h. cynocephalus*), the quality of social relationships increases the survival of the females and their offspring (Silk et al. 2009, 2010). In rhesus macaques (*Macaca mulatta*), sociability influences the immune function (Capitanio et al. 1999). In chimpanzees (*Pan troglodytes*), alpha males have consistent individual differences in grooming and aggression patterns (Foster et al. 2009). Finally, in humans (*Homo sapiens*), sociability and its higher-level personality construct extraversion (Costa and McCrae 1992) predict the likelihood of having children (Jokela et al. 2009), initiation of social contacts (Buchanan et al. 2005), size of social networks (Swickert et al. 2002) and sexual activity (Nettle 2005; Schmitt 2004). Taken together, sociability figures