Testing the ‘inherent superiority hypothesis’ in behavioural flexibility of grey squirrels.

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Abstract

Enhanced cognitive ability has been shown to impart fitness advantages to some species by facilitating establishment in new environments. Enhanced cognitive ability may be an adaptation driven during the establishment process in response to new environments or, alternatively, may reflect a species’ characteristic. We used an intraspecific-comparative paradigm to examine the cause of a successful mammalian invader and urban dweller, Eastern grey squirrels’ (Sciurus carolinensis) cognitive ability (novel problem solving, motor memory and spatial learning) using well-established tasks. Free-ranging squirrels residing in rural and urban habitats in native environments (US) were compared with their counterparts living in non-native environments (UK). The four groups of squirrels showed comparable performance in most measures, suggesting that the previously reported ‘enhanced’ performance is likely a general characteristic of this species. Despite this, some cognitive abilities such as solving novel problems in grey squirrels has undergone mild variation during the adaptive process in new environments.