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Ecology and evolution of equine cognitive abilities

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The cognitive abilities of social ungulates, in particular horses, have widely been neglected. Preliminary results suggest that horses are capable of social cognition which they acquire through social learning. They gain information from the observation of the interaction of a conspecific and a human experimenter, and adjust their own behaviour towards the experimenter with respect to the observed horse's reaction and relative dominance status (Krueger and Heinze, 2007). Horses are a highly social species that still exists in different evolutionary stages: domestic horses, feral horses and wild horses (Przewalski horses). Additionally, domestic and wild horses differ in their individual social behaviour. For example, in social interactions Przewalski horses appear to act significantly more aggressively than domestic horses. Therefore studies on horses are particularly suitable to investigate whether convergent social evolution favours convergent cognitive evolution. By a comparative study concerning their reasoning abilities in a specific situation, we will attempt to determine the influence of domestication and feralisation on the evolution of social cognition and to investigate possible differences in their abilities to cope with stressful situations. We started to observe the behaviour of domestic and wild horses, in particular during the integration into new social groups, especially in relation with their knowledge of the social structure of new groups and their own relative social status. Selected agonistic interactions will be measured and statistically evaluated. Additionally, the stress level of the horses will be determined by an analysis of stress hormone levels, particularly cortisol metabolites, in plasma, saliva and faeces.
