DO PERSONALITY TRAITS DIVERGE IN DIFFERENT COMMUNALLY HOUSED CAPTIVE PENGUIN SPECIES?

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Research into animal personality has grown over the last decade as its relevance to animal health and welfare has become more apparent. Personality has been used also for aspects of captive management, including decreasing stress, increasing positive health outcomes, successful breeding also in terms of infant survival. For wildlife management, determining inter-species differences in the personality traits of communally housed animals could be of great help to optimize the use of resources, in order to improve animal welfare. In group-living species, integrated decisions made by individuals result in collective behaviours which may, in turn, influence interactions between individuals and shape the resulting social system. There are evidences that animal groups may exhibit coordinated behaviour and make collective decisions based on simple interaction rules. It has been described that in a flock or a colony, birds tend to exhibit behavioural synchrony, maintaining similar behaviour at approximately the same time throughout the group, and also wild penguins have exhibited within-group synchrony.

In this study we have considered three species of penguins, housed together at RZSS Edinburgh Zoo, Scotland, UK. The exhibit houses a colony of Gentoo penguins (*Pygoscelis papua*), a bachelor group of King penguins (*Aptenodytes patagonicus*) and a small colony of Northern rockhopper penguins (*Eudyptes moseleyi).* In a mixed species enclosure, animals are far more intermingled than they would be in the wild and have a limited area in which to maintain different territories.

A keeper questionnaire (coding method) was used to produce personality profiles for each penguin. A multivariate analysis (Multiple Factor Analysis) on the mean values of the variables was used to analyse the data. The quantitative variables were all the measured characteristics; gender and species were included as qualitative variables. Results outlined a distinct personality in each animal, distinguishing each species in personality traits. The three species are almost sharply separated in the multidimensional space. In Gentoo and in Northern rockhopper penguins the prevailing components include some aggressiveness, fear, and insecurity. King penguins seem to be the “mildest” species, with components related to activity, playfulness, friendliness, and curiosity. We advocate that deeper understanding of each animal’s personality and behaviour can offer practical help to zoological institutions to facilitate daily husbandry, animal welfare, tailor training or enrichment and ultimately increase reproductive success.