

Book Reviews

Animal Personality: The Science Behind Individual Variation

JRD Mackay (2018). Published by 5M Publishing, 8 Smithy Wood Drive, Sheffield S35 1QN, UK. 224 pages Paperback (ISBN: 978-1912178384). Price £24.95.

The causes, consequences and nature of individual variation have recently received considerable growth in interest across a number of academic fields. From medicine, psychology and data analytics, to our own field of animal welfare, the stuff that makes an individual unique, which sets it apart from its peers in their actions, reactions and interactions, has become a subject of particular fascination. The new wave of developed and developing personalised approaches catering to an individual's needs allow everything from the essentials, such as healthcare, to the prosaic weekly food shopping experience, to be tailored to the bespoke requirements of the target, based on unique patterns in their data. In these cases, the data in question may be genetic, physiological, or behavioural in content, but the ultimate purpose is similar: a personalised service to optimise the human experience. To achieve this, many have sought to identify meaningful associations between physiological, behavioural and genetic parameters and some partition in the total variation within a sample that has previously been unaccounted for. As any individual is essentially a complex biological system, these searches have often proved fruitful, with multiple potential parameters offering up a proportional explanation of the previously unexplained variation within a sample. The science of individual variation has become a hotbed of activity and perhaps the hottest of these has been in the exploration of personality as a predictor of between-individual differences. Personality and individual differences is a relatively young field of research within the larger fields of animal behaviour, behavioural ecology and welfare. Early discussions included debate around terminology and definitions for terms such as coping style, behavioural syndrome and personality, which had been used interchangeably. This has largely been resolved with careful differentiation in definitions for these terms; Sih *et al's* (2004) definition of animal personality captures the essence of the matter succinctly as, “a set of consistent individual differences in behaviour across contexts and time”, and in the development of a new field of research focusing on the statistical appropriation of individual differences, in the behavioural ecology of variance components (Dingemanse & Dochtermann 2014; Westneat *et al* 2015). More recently, there was criticism and debate of personality research in the behavioural ecology literature over the methodologies and frameworks used and whether personality research offered any value to classic behavioural ecology (Beekman & Jordan 2017; Briffa 2017; Dingemanse 2017; and other responses within the same issue). The interface between personality research and ecological research has, to date, provided much of the

evidence to suggest that individual variation can influence a range of life history and population level traits, such as disease transmission patterns (Keiser *et al* 2016), population stability and extinction risk (Pruitt 2013) and foraging (Ioannou & Dall 2016).

In the field of animal welfare, the move to understand causes and consequences of individual variation in the welfare of animals in our charge recognises that animals may have high genetic similarity, they may live in the same environment, but they still show differences in how they process and respond to a stimulus — and, consequently, they may differ in welfare state. As such, understanding the causes of individual variation may allow us to adapt our environments and conditions so that they offer animals — with their varying wants and needs — a more tailored and optimised experience. Initial studies in this area suggest that personality can mediate or moderate the processing and response of an animal to a stimulus (Bolhuis *et al* 2003; Carere *et al* 2010; Ijichi *et al* 2013, 2014; Asher *et al* 2016; Friel *et al* 2016; Horback & Parsons 2016; Bushby *et al* 2019). There remains much to be investigated in this area and indeed much to be discussed as we move forward. As such, I welcomed the opportunity to read and review Dr Jill Mackay's book on animal personality.

Animal Personality: The Science Behind Individual Variation is a chatty, light-hearted introduction to the topic of animal personality as a source of non-random variation in behaviour. Mackay covers the history of personality research, the links between personality and animal welfare, and the measurement of personality traits through proxies and models. The author focuses on the nature, welfare implications and measurement of three particular traits — fearfulness, aggression, and sociability. This is followed by a chapter of ‘miscellaneous’ traits that are rather more contentious; this includes tactile sensitivity, conscientiousness, learning and coping styles.

Within the closing chapters, the author discusses what personality is, and its proximate and ultimate causes (Chapter 10). Whilst reading the preceding chapters I found myself repeatedly searching for an explicit definition of personality that the author was working from. Being unable to find one triggered something of a nervous tic in this particular reader, perhaps owing to many years of wading through personality literature where the terminology used and working definitions are nuanced and changeable. Surprisingly, (given the title), Chapter 10 refrained from providing a definition, but covered some of the biological mechanisms of personality as well as natural selection and the evolution of personality traits.

The examples provided throughout the book are broad-ranging and identifiable and would appeal to a general audience, though they lack the depth of scientific content that a more specialist audience might appreciate. *Animal Personality: The Science Behind Individual Variation* reads like a popular science book in tone, with personal pet

anecdotes, science humour, and examples from popular science fiction films and literature to enrich the examples being given. All this helps to make it easy to engage with for a non-specialist audience; it would, for example, make a highly accessible, light text to precede an animal behaviour or animal welfare undergraduate lecture series.

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Animal Ethics in Animal Research

H Röcklinsberg, M Gjerris and IAS Olsson (2017). Published by Cambridge University Press, Shaftesbury Road, Cambridge CB2 8BS, UK. 185 pages Paperback (ISBN: 978-1-108-43068-5). Price £27.99, Hardback (ISBN: 978-1-108-42061-7). Price £78.99.

This short easy-to-read book is aimed at technicians, students, researchers, veterinarians, teachers, members of ethics committees and policy-makers. It is meant to be a 'quick read' covering a considerable amount of ground at an accessible level, and each chapter is intended to be a stand-alone text with questions for reflection and discussion at the end of each chapter. The seven chapters address different aspects of animal use in research.

Chapter 1 introduces some of the ethical issues and arguments, including, the need for researcher integrity (referring principally to misconduct and fraud) with relevant examples provided in Table 1.1. The consideration of animal welfare, and some of the ethical challenges that research introduces, are summarised from a practical viewpoint. The role of animal ethics committees in raising awareness but including their limitations are also introduced. (Ethics committees are sometimes referred to as ethical committees — but I would hope that all ethics committees [EC] behave ethically). The authors examine the tension between animal welfare and data validity and the varying approaches of ECs, the tension between patient interests and animal interests, and the need for empathy and understanding of welfare. The authors point out the difficulties in balancing what is necessary to do to animals in research against the instrumental use of sentient animals.

Chapter 2 introduces some of the ethical issues and ethical theories that are commonly used in analysing animal research and provides a brief but reasonably comprehensive gallop