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Gorilla Behavior Index revisited: Age, housing and behavior

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Abstract

While personality and temperament assessments are becoming more common in animal science as a means for predicting behavior patterns, they are virtually unstudied in exotic animals outside of chimpanzees. We assessed behavioral profiles of 119 male gorillas using the Gorilla Behavior Index (GBI) and paired this assessment with behavior data on 25 male gorillas from our ongoing analysis of multi-male gorilla groups in North America. This comparison was made to determine if the GBI could be predictive of behavior patterns, with the hope that this could eventually be utilized to aid in the management of multi-male gorilla groups. With few exceptions, GBI factor scores were not related to age of subjects or their current housing condition. Individuals scoring high on the Extroverted factor were more likely to initiate and receive affiliative behaviors, but they were also more likely to initiate contact aggression. Those gorillas who scored high on the Dominant factor were more likely to initiate displacements and less likely to receive them. Gorillas rated as more Fearful were less likely to initiate displacements and those rated as less Understanding were more likely to initiate non-contact aggression. Two facts are evident from these data: (1) further work needs to be done to verify that the GBI is indeed assessing traits and not current behavioral states and (2) any relationships with behavior frequency are relatively weak. In addition to further exploration of the GBI we recommend other assessments to compliment the GBI to establish stronger links between

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subjective assessments and objective behavior patterns. If established, these short-term assessments may be combined with other historical information on these animals, such as age, rearing history, the number of animals in the group, and the design of the exhibit, to aid in forming and maintaining multi-male gorilla groups in captivity.

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1. Introduction

The dominant theory of personality is trait theory, which predicts that an individual's behavior should exhibit some degree of consistency over time because personality is stable from situation to situation (Pervin, 1980). The Five-Factor Model of human personality has become the most widely accepted and complete map of personality in humans (John, 1990). This model includes five bipolar factors (Neuroticism, Agreeableness, Extraversion, Openness, and Conscientiousness), which describe most human behavior patterns and encompass a larger number of even more specific traits. It is important to note that the titles of the factors are chosen to express the totality of the traits that factor on them and should be considered a rough estimation of the personality trait. Since the landmark work of Stevenson-Hinde (Stevenson-Hinde and Zunz, 1978; Stevenson-Hinde et al., 1980) in animal personality, there has been an increase in studies attempting to uncover factors related to animal temperament, reactivity, and personality.

Gosling and John (1999) reviewed the animal personality literature and found that three of the factors common to human personality assessments (Extraversion, Neuroticism, and Agreeableness) were consistent across most animal studies. Additionally, a Dominant factor was found in many, but not all, studies, whereas there was little consistent evidence for an Openness factor. It should be noted here that the factor labels Extraversion, Dominant, and Neuroticism are simply what authors have chosen as the label that best describes the behavioral traits that load together during a Principle Components Analysis. Rating high on the Dominant factor, for instance, means only that the animal scored highly on the factors that load into what has been labeled as "Dominant". This could as easily, but less informatively, be called Factor 3. A "Dominant" animal in trait theory literature, then, is not necessarily dominant, in terms of displacements or victories in confrontations, over any other specific animal, but the implication is that it *could* be. Gosling and John (1999) argue the use of trait theory for non-human species is appropriate given the wide range of species in which observers agree on the relative ordering of individuals on a trait and the differences are a result of the individual being rated but not the rater or the particular items in the rating instrument.

Of particular interest to applied animal behaviorists is the possibility that personality or temperament ratings can be used as a short-duration, low cost alternative to extensive data collection and can be used to make informed animal management decisions. Often, these personality or temperament ratings are related to behavior patterns, as these are often the critical factors in managing captive animals. While it seems intuitive that personality ratings would be related to behavior patterns, this need not be the case. Indeed, qualitative

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