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A persistent abnormal repetitive behaviour in a false water cobra (Hydrodynastes gigas)

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Abstract

Stereotypies (a subset of Abnormal Repetitive Behaviour [ARB]) are characterised by an unchanging pattern of behaviour and in captive animals can be associated with poor welfare. Although well known in certain taxa, little is known about both welfare and ARBs in reptiles, especially snakes. We document an instance of an ARB in a captive snake species (*Hydrodynastes gigas*), set it in the context of husbandry in zoos, and assess efforts to reduce it. The stereotypy consisted of a fixed pattern of movement against the enclosure's viewing window. Ethographic data were used to focally sample the animal's behaviour over several months in the context of different enrichment interventions. Modified Spread of Participation Indices (mSPIs) were also calculated to quantify the evenness of enclosure use. The snake spent considerable portions of time (47% of observations) performing a behaviour that fulfils the criteria for stereotypy. mSPI data suggested a possible welfare impact of the behaviour on the snake. Zoos holding this species globally were surveyed about observations of similar behaviour and one other institution reported similar behaviour. Standard husbandry practice (A) was used alternately in an ABAC format with prey scent trails (B) and modified feeding schedules (C), representing enrichment types based on species' natural history. Neither stereotyping frequency nor mSPI was found to be significantly affected by any of the enrichments. Our results, interpretation of which is limited by the paucity of data on snakes, uncover stereotypies in snakes and suggest that, as with other taxa, ARBs may be resistant to strategies employed to reduce them.

Keywords: abnormal repetitive behaviour, animal welfare, enrichment, false water cobra snake, reptile, stereotypic behaviour