



New study calls for greater understanding of the needs of captive snakes

How much do we really know about snakes and what matters to their welfare? It would appear there is a need for more research to better understand these reptiles as highlighted by a recent study undertaken by researchers at ZSL (Zoological Society of London).

A case report which has just been published in the journal *Animal Welfare*, shows that snakes being cared for in a variety of environments may be susceptible to what are known as 'stereotypical behaviours', and that these may be resistant to reduction through enriching the snakes' environment. Stereotypies are characterised by an unchanging, repetitive pattern of behaviour, for example pacing back and forth, and in captive animals can be associated with the need for improved welfare. Although well known in certain species, little is known about abnormal repetitive behaviours (ARB) and their correlation with welfare in reptiles, especially snakes.

Globally, a broad range of animals live in zoos and similar environments for a variety of important reasons - from education and conservation to scientific study. The detection of stereotypical behaviours can enable animal care experts to recognise an issue and take steps to tackle it. Enriching the animals' environment is the most frequently used method and often results in either the elimination of or reduction in the proportion of time spent stereotyping. Zoos and similar organisations aim to maintain high standards of welfare and modern, evidence-based snake husbandry revolves around recreating the conditions in which animals live in the wild. Furthermore, the collection of data from individuals already in their care can allow husbandry experts to further hone the conditions provided so that snakes can fulfil important roles as ambassador animals to promote their conservation, while also experiencing good welfare.

For this case report, the team at ZSL looked at a captive snake, a male false water cobra (*Hydrodynastes gigas*), hatched at ZSL London Zoo in 2011 in which abnormal repetitive behaviour had been reported by staff since May 2017. The false water cobra is a large, active, rear-fanged snake from South America, so named because when the snake is threatened it 'hoods' as a true cobra does. The snake was frequently observed engaging in abnormal, repetitive undulatory movements in contact with the glass at the front of the enclosure, without changing either the pattern or location of the movements.

The project was challenging due to the lack of available information regarding 'normal' behaviour in both wild snakes and those living in zoos and similar environments. Although the report focused on one individual, the team also surveyed international organisations holding the species in order to better understand the prevalence of similar apparent stereotypies in other individuals, with one other establishment reporting similar behaviour. The study also looked at

various enrichment options, including prey scent trails and altered feeding schedules, which were designed with the known wild behaviour of the species in mind, but found these did not reduce the prevalence of the stereotypy. The results are important within the field of reptile welfare, as they indicate that stereotypies can exist in snakes, and that greater understanding of this behaviour is needed in order to improve their environment and raise welfare standards. More studies on the behaviour of both wild and captive snakes are sorely needed in order to best interpret these findings.

Co author of the study, Dr Christopher Michaels of ZSL said: *“The capacity of reptiles and especially of snakes to suffer, and the need to approach welfare for these animals, is frequently neglected. Our findings highlight that the behavioural and cognitive needs of snakes, and their impact on welfare, are poorly understood and in need of more research effort.*

Experts working with snakes should be vigilant in identifying problem behaviours that may indicate the need for welfare interventions, to use species’ biology to avoid or reduce these behaviours, and to consider the behavioural and psychological needs of snakes when considering which species to keep in order to avoid rather than treat stereotypies. We also strongly encourage the development of validated assessments of welfare for snakes in order to promote better understanding of behaviours and welfare strategies.”

The researchers also highlighted the importance of gathering more information on captive snakes, in order to have a much better understanding and knowledge of these animals, which would help inform future study, thereby improving welfare.

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Further information

You can learn more about this study [here](#): The study ***A persistent abnormal repetitive behaviour in a false water cobra (Hydrodynastes gigas)*** by CJ Michaels, BF Gini and L Clifforde was published in the UFAW journal *Animal Welfare* (*Animal Welfare* 2020, 29: 371-378, doi: 10.7120/09627286.29.4.371).

The Universities Federation for Animal Welfare (UFAW) is an internationally recognised, independent scientific and educational animal welfare charity. It works to improve knowledge and understanding of animals’ needs in order to achieve high standards of welfare for farm, companion, research, captive wild animals and those with which we interact in the wild.

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