

Topic Summary

Both captive and wild bears rely heavily on the conditions of their environment. In the wild, bears have sprawling home ranges and spend the majority of their day interacting with their environment particularly through foraging where they utilize various strategies to search for and obtain food (Wagman et al., 2016; Schneider et al., 2014). Captive enclosures should be reflective of their wild environments and stimulate the natural behaviours of bears (Law & Reid, 2010). However, captive enclosures often lack novelty, complexity, space, stimulation, and feeding variety causing captivity to be incompatible with the lifestyle of wild bears and a contributor to the presentation of stereotypic behaviours (Carlstead et al., 1991).

Stereotypic behaviours are defined as movements and/or actions that are repetitive in nature and have no apparent goal or achievement associated with their completion (Mason, 2006). Stereotypic behaviours are abnormal behaviours because they are not observed in the wild and are only performed in captivity where they serve as indicators of poor welfare (Mason et al., 2007; Wagman et al., 2016). Stereotypic behaviours present themselves in various forms (Mason, 2006). Stereotypic pacing is often performed by captive bears and prevalent in the literature.

The presentation of stereotypic behaviour in captive bears is largely dependent upon their environmental conditions (Fischbacher and Schmid, 1999). This requires researchers to study behaviour using an ecological approach in order to better understand the behaviour. Using an ecological approach allows the researchers to study how the bears interact with their environment and how their environment influences their behaviour. The researchers studied this by manipulating/enriching the bears' environments then observing and recording behaviour. The studies were conducted on bears in zoos and sanctuaries. The bears were observed at multiple intervals during the day in which behaviours are recorded live through direct observation and recorded for later viewing. To differentiate pacing from normal locomotory behaviours researchers characterize stereotypic pacing by the performance of walking back and forth in a straight line between the two same points for a minimum of three repetitions (Carlstead and Seidensticker, 1991; Anderson et al., 2010). Any subsequent changes or patterns in behaviour can help to understand the interaction between environment and behaviour.

More specifically, the researchers sought to understand how feeding ecology impacts stereotypic behaviour. This was studied by implementing feeding enrichment in which the bears are presented with alternative feeding methods and then assessing differences in behaviour. Carlstead et al. (1991) and Forthman et al. (1992) were interested in understanding the effect of manipulatable objects and food-hiding on stereotypic behaviours. Schneider et al. (2014) were interested in the enrichment strategy of spatial unpredictability combined with scent tracks. During enrichment, Carlstead et al. (1991), Anderson et al. (2010), and Schneider et al. (2014) observed a significant reduction in the frequency of stereotypic pacing performed by the captive bears. Anderson et al. (2010) and Wagman et al. (2016) were interested in the effect of variable presentation of enrichment on behaviour. During enrichment, Anderson et al. (2010) and Wagman et al. (2016) observed a reduction in stereotypic behaviour performed with no difference between the various methods of presentation.

These five studies observed an increase in the amount of natural and exploratory behaviours and found that feeding enrichment alleviates the tendency to perform stereotypic behaviours. This suggests feeding enrichment aids in mimicking natural conditions and accommodating the natural foraging tendencies of bears (Carlstead et al., 1991; Schneider et al.,

2014). This also suggests that the stereotypic behaviour performed by captive bears is often caused by the inhibited desire to forage and inadequate opportunities to perform wild-type behaviours such as those associated with foraging (Forthman et al., 1992; Carlstead & Seidensticker, 1991).

It remains unknown whether feeding enrichment is entirely eliminating the cause of the stereotypic behaviour which is an inadequate environment or whether the time spent engaging with enrichment is merely occupying time the bear would have spent performing stereotypic behaviours (Fischbacher & Schmid, 1999; Forthman et al., 1992). This gap in knowledge suggests further research is required to determine methods of differentiating between stereotypic behaviours that are reduced by elimination of the source of the behaviour or reduced by providing opportunities to engage in other behaviours (Fischbacher & Schmid, 1999; Forthman et al., 1992).

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