

Does the stereotypic behaviour in a male Eurasian brown bear (*Ursus arctos arctos*) in captivity is influenced by various stimuli?



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The performing of stereotypic behaviour in wild animals kept in zoos is one of the major problems for their captive housing and welfare. Stereotypies are repetitive behaviours, invariant in form, and have no apparent functional consequences. Members of the family Ursidae often exhibit stereotypic behavior in captivity. In this study we present the results of observations on the occurrences of stereotypic behaviour in a male specimen of the Eurasian brown bear (*Ursus arctos arctos*), kept in Sofia Zoo. He manifests persistent stereotypic behaviour "pacing" combined with "head-tossing". In order to reduce the duration and frequency of this behavior, were proposed olfactory and visual stimuli, as well as nutritional environmental enrichment. The influence of the presence and number of zoo visitors on the manifestations of stereotypic behaviour was also studied.



Materials and methods

- An adult male Eurasian brown bear (*Ursus arctos arctos*), born at Stara Zagora Zoo on 17.01. 2006 was studied (name Anton, 12 yrs. old). Anton arrived at Sofia Zoo on 15.08.2006 and inhabits an enclosure with an area of 2 ha, where he lives alone.
- The studied individual was offered olfactory, visual and nutritional stimuli in order to establish the most effective approach to minimize the stereotypic behaviour. The duration of the stereotypic behaviour without the presence of stimuli and with the presence of stimuli was recorded.
- Observations of the bear's behaviour in the presence and absence of visitors to the zoo were made to determine the influence of visitors on the duration of the stereotypic behaviour.
- The observations were made in the period March - July 2020 within 10 days. Observations were conducted every day for 2 hours (from 9:30 to 11:30). Manifestations of stereotypic behaviour and behavioural responses of the bear to the various stimuli were recorded with video cameras.



Stimulus 1- Visual stimulus
„Inflatable shark“



Stimulus 2 - Olfactory stimulus – cumin
spice



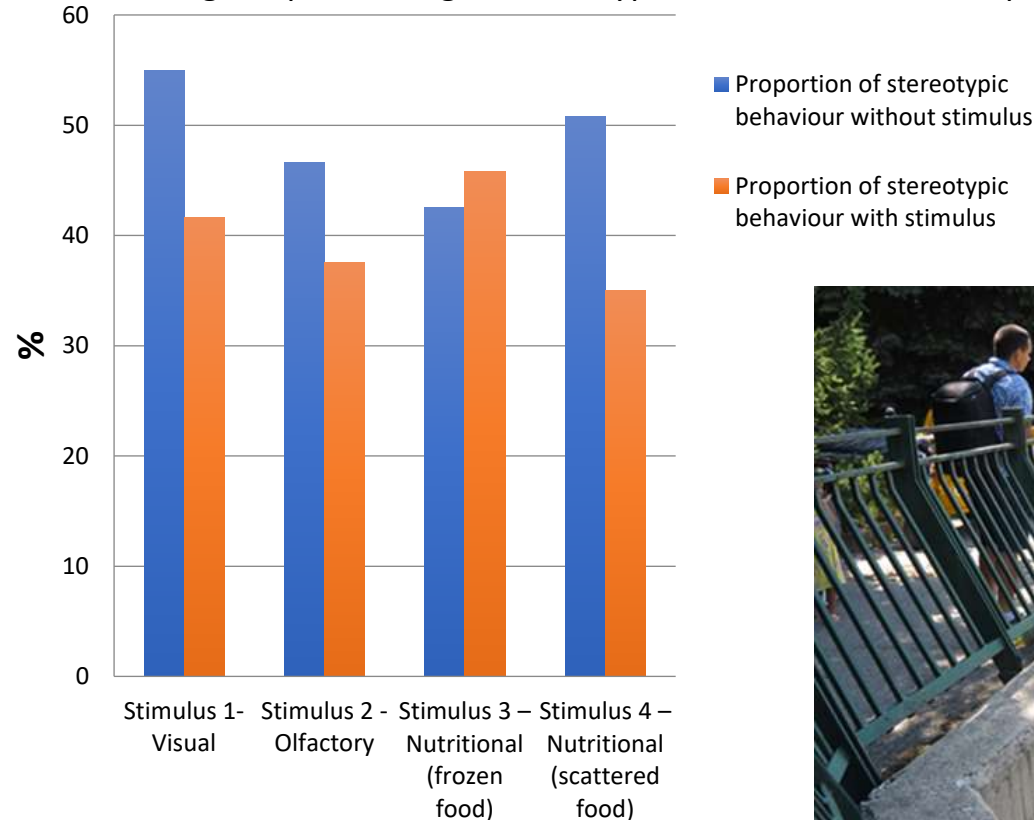
Stimulus 3 - Nutritional stimulus (frozen fruits and
meat)



Stimulus 4 - Nutritional stimulus - 1 kg.
granulated dog food scattered evenly in the
enclosure

Results

- The proposed nutritional enrichment is of greatest importance for minimizing the manifestations of stereotypic behaviour in the studied specimen. The scatter - feeding might be an important part of the enrichment programs for the brown bears in captivity.
- The presence of the visitors in the zoo can not be distinguished as a significant factor for the manifestations of stereotypic behaviour. A further and more detailed research had to be done on the influence of the visitors on behaviour of bears in zoos.
- Minimizing the performing of stereotypies in wild animals in captivity is important for their welfare.

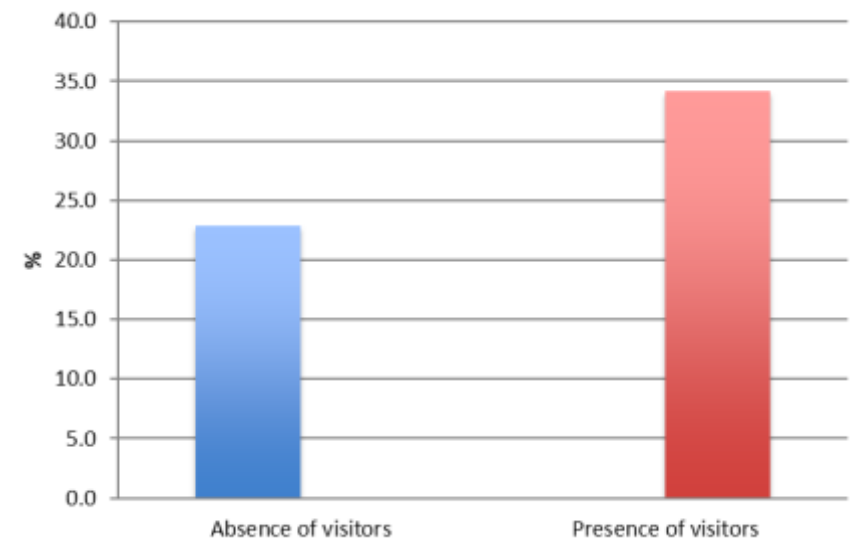
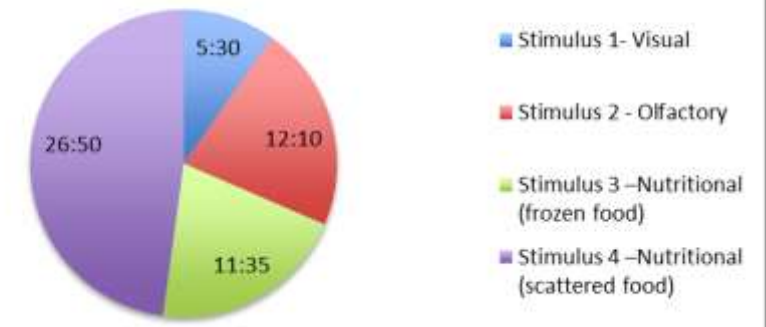


This chart indicates what proportion of Anton's activity was spent performing stereotypic behaviour in conditions with and without stimulus.



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Duration of activity with the stimulus, in min.



Proportion of manifestation of stereotypic behaviour in the absence and presence of visitors to the zoo.