

**Lip licking behavior in captive Malayan tapirs (*Tapirus indicus*):  
manifestation of astereotypic or stress related response?**

ABSTRACT

Malayan tapirs are highly endangered and wild populations are fast declining. Thus, captive breeding programs in zoos and governmental breeding centers are the most promising conservation strategy for this species. Despite being common, lip licking, a type of oral behavior, has received little attention in the past, and impacts on the welfare of captive Malayan tapirs have not been quantified. Here, we videoed the behavior of seven captive tapirs for eight hours per diem (0900 - 1700) using instantaneous sampling for six months to investigate which stressors in captivity (enclosure type, enclosure size, humidity, visitors) cause increased lip licking behavior. We show that lip licking is induced by unsuitable humidity whereby dry humidity below 65% caused a significant increase in this behavior. We found lip licking behavior in tapirs is not a stereotypic behavior, but it may indicate a stress response towards heat. Hence, we suggest that breeding centers re-evaluate their exhibit design and behavioral enrichments, implementing simple design changes that would help to reduce lip licking and consequently increase the welfare of captive Malayan tapirs.

**Keyword:** Malayan tapir; Lip lick behaviour; Oral stereotypic; Humidity; Heat stress