Effects of housing conditions on behaviour and physiology in the \textit{Finnraccoon (Nyctereutes procyonoides ussuriensis)}

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Abstract

The welfare of juvenile Finnraccoons (Nyctereutes procyonoides ussuriensis) was compared between various housing conditions through the measurement of day-time behaviour and physiological variables. For the small control treatment (SC), Finnraccoons were raised in pairs in small cages; in the large area treatment (LA), in pairs in large cages; in the large control treatment (LC), in groups of four in large cages and in the large enrichment treatment (LE), in groups of four in large cages with access to a nest-box and a large tube, from weaning to pelting time. Study subjects consisted of a total of 152 Finnraccoons. As autumn progressed, day-time resting increased, especially allohuddling; while active behaviours decreased. Allohuddling was the most common type of resting; apart from in the LE treatment, resting shelters were used effectively alongside allohuddling. Locomotion was observed more frequently in LA and LC treatments, ie in large cages without shelters. The nest-box roof was preferred to the platform as an elevated location, and the nest-box to the tube as a resting shelter. Agonistic interactions were not observed. Males grew heavier than females and had heavier organs. No systematic differences in haematological and other physiological parameters were found between the treatments. Catching time was shortest in the SC treatment. The LE treatment compromised animals’ cleanliness. Based on the intensive positive social interactions and regular shelter use, group housing and access to resting shelters are recommended for juvenile Finnraccoons.

Keywords: animal welfare, cage, fur farming, nest-box, raccoon dog, resting

Introduction

Housing condition greatly influences the welfare of farm animals and the principle factors are the availability of the area and the social and physical complexity of the environment. The European Convention (1999) set minimum requirements for these variables in fur animals by stipulating a minimum area available and an obligatory activity object as well as discouraging farmers from single housing of juveniles. These minimum requirements provide a certain level of welfare for the Finnraccoon (Nyctereutes procyonoides ussuriensis), a medium-sized canid raised for fur since the 1970s. However, in the case of this particular species, research into housing condition has been limited, and therefore there is a lack of information on how various housing conditions affect Finnraccoon welfare (Koistinen 2016).

The behaviour of wild conspecifics has been used as a guide in developing housing for captive animals (Broom & Fraser 2015). Adoption of environmental features utilised by wild conspecifics allows the design of the captive housing environment to meet the possible behavioural needs of captive individuals. The wild conspecific of the Finnraccoon, ie the raccoon dog, mates for life (Drygala et al 2008a) as paternal behaviour plays a significant role in the nursing of young (Kauhala et al 1998; Drygala et al 2008b). Offspring disperse from the natal denning area in late summer or autumn (Sutor 2008; Drygala et al 2010). Raccoon dogs do not actively defend a territory but instead show tolerance towards the neighbouring conspecifics (Drygala et al 2008c; Sutor & Schwarz 2012). Various habitats are utilised opportunistically, in particular those with dense vegetation (Drygala et al 2008c; Sutor & Schwarz 2013) and water sides (Süld et al 2017). Though crossing a lake through ice cover has been reported, for example, they typically avoid moving in open areas (Mustonen et al 2012). Virtually their entire resting time is spent in natural shelters (Kowalczyk & Zalewski 2011). Opportunistic foraging behaviour is readily practiced as this omnivorous species seeks out small food items which are manipulated using the mouth and paws (Rudert 2008; Sidorovich et al 2008; Sutor et al 2010). It can thus be extrapolated that housing of juvenile Finnraccoons should include social companionship, sufficient area for locomotion, complexity, a shelter for resting and objects for manipulation.