

Individual non-invasive endocrine monitoring of captive Western lowland gorillas (*Gorilla gorilla gorilla*)

Introduction

Endocrine analyses have become increasingly common in the study of zoo populations. Although the integration of hormone analysis into wildlife conservation research is a prevailing and widely accepted approach, it can be difficult to implement when individual samples are not readily identifiable in animal groups.

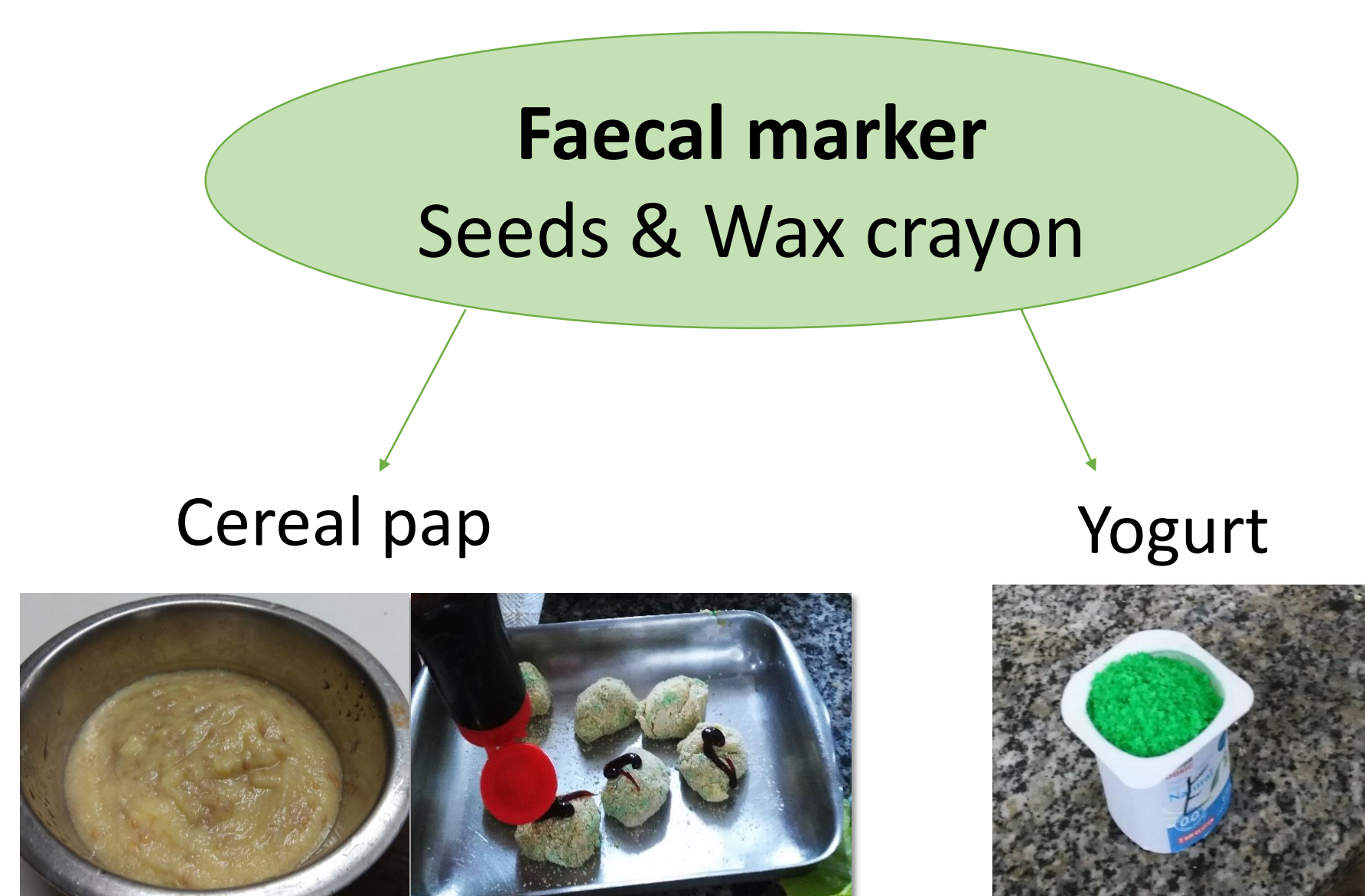
Objectives

Two studies were conducted in order to:

- Determine an efficient **faecal marker** to use in Western lowland gorillas.
- Assess if individual **non-invasive endocrine monitoring** enables the identification of some **variability between individuals** that otherwise might be unnoticed with randomized sampling.

Material & Methods

1st study



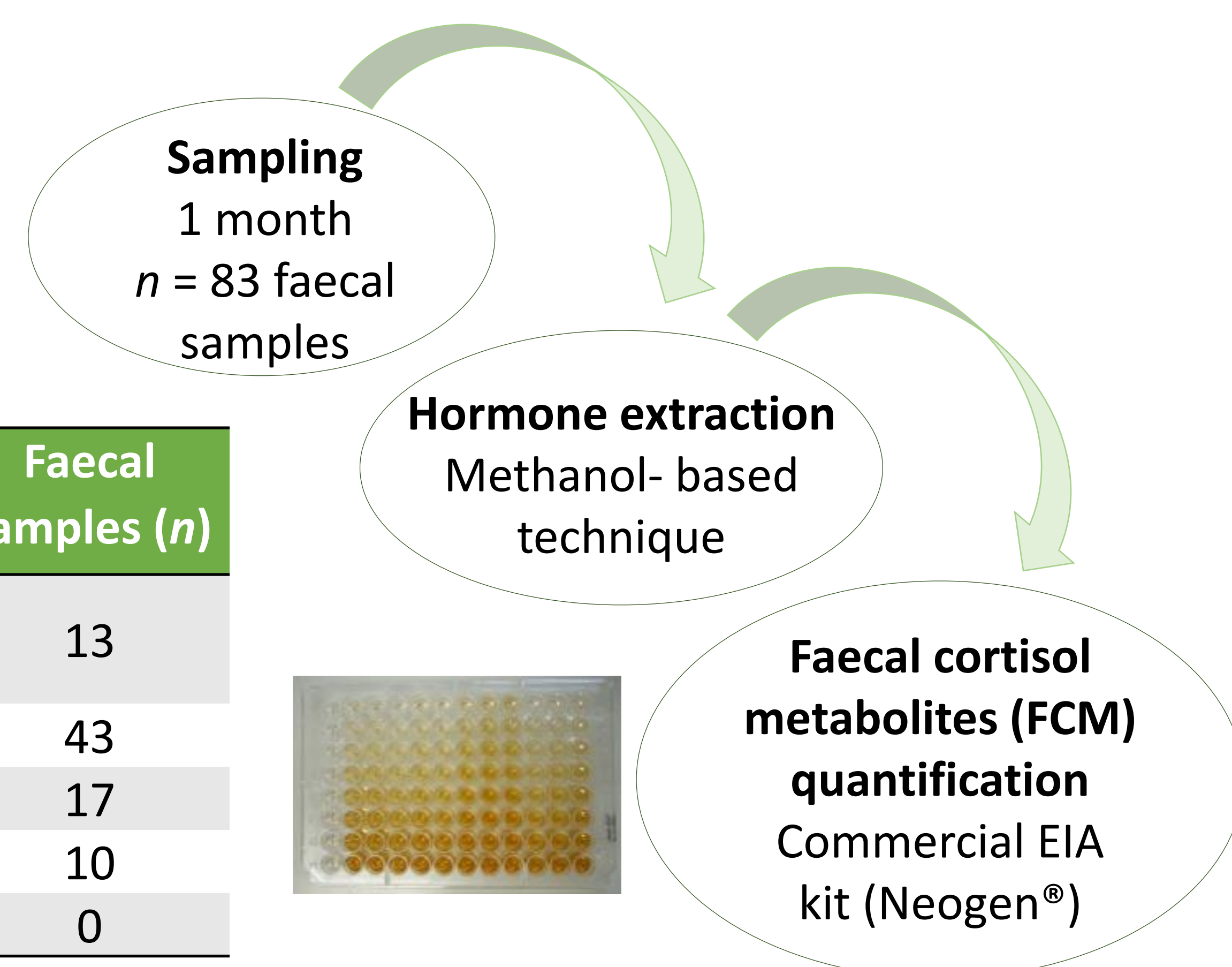
Species: *Macaca Sylvanus*, *Cercopithecus nictitans martini*, *Miopithecus ogouensis*, *Gorilla gorilla gorilla*

2nd study

= 8 (1 Male; 7 Females)

	Sex	Age category	Animals	Faecal samples (n)
Study group	Male	Full-grown silverback	1	13
		Adult	3	43
	Female	Young adult	1	17
		Juveniles	2	10
		Infant	1	0

Table 1. Number of faecal samples obtained for each category (sex, age).



Results

1st study

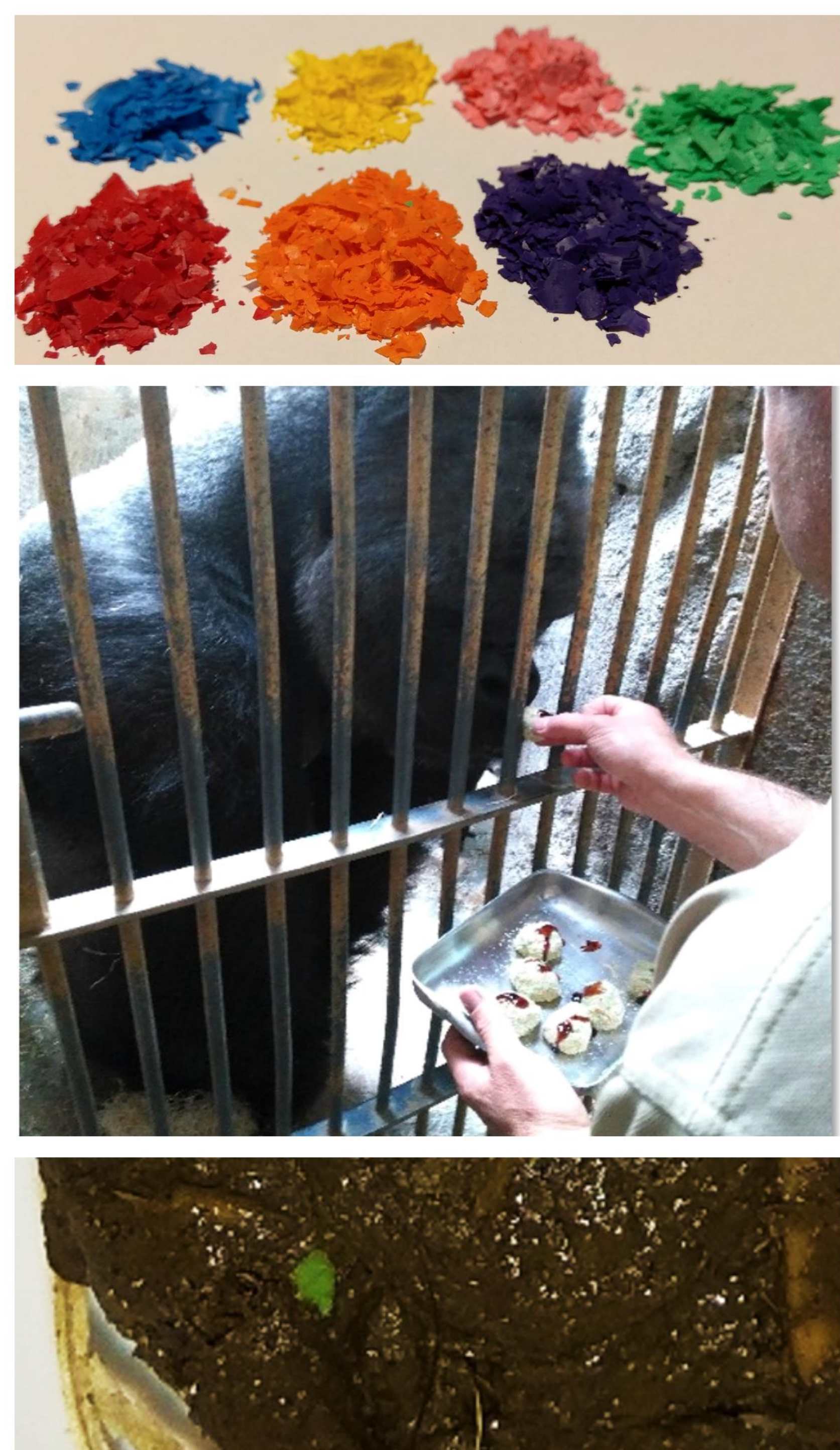


Fig. 1 Faecal sample identification after the individual administration of green wax crayon.

2nd study

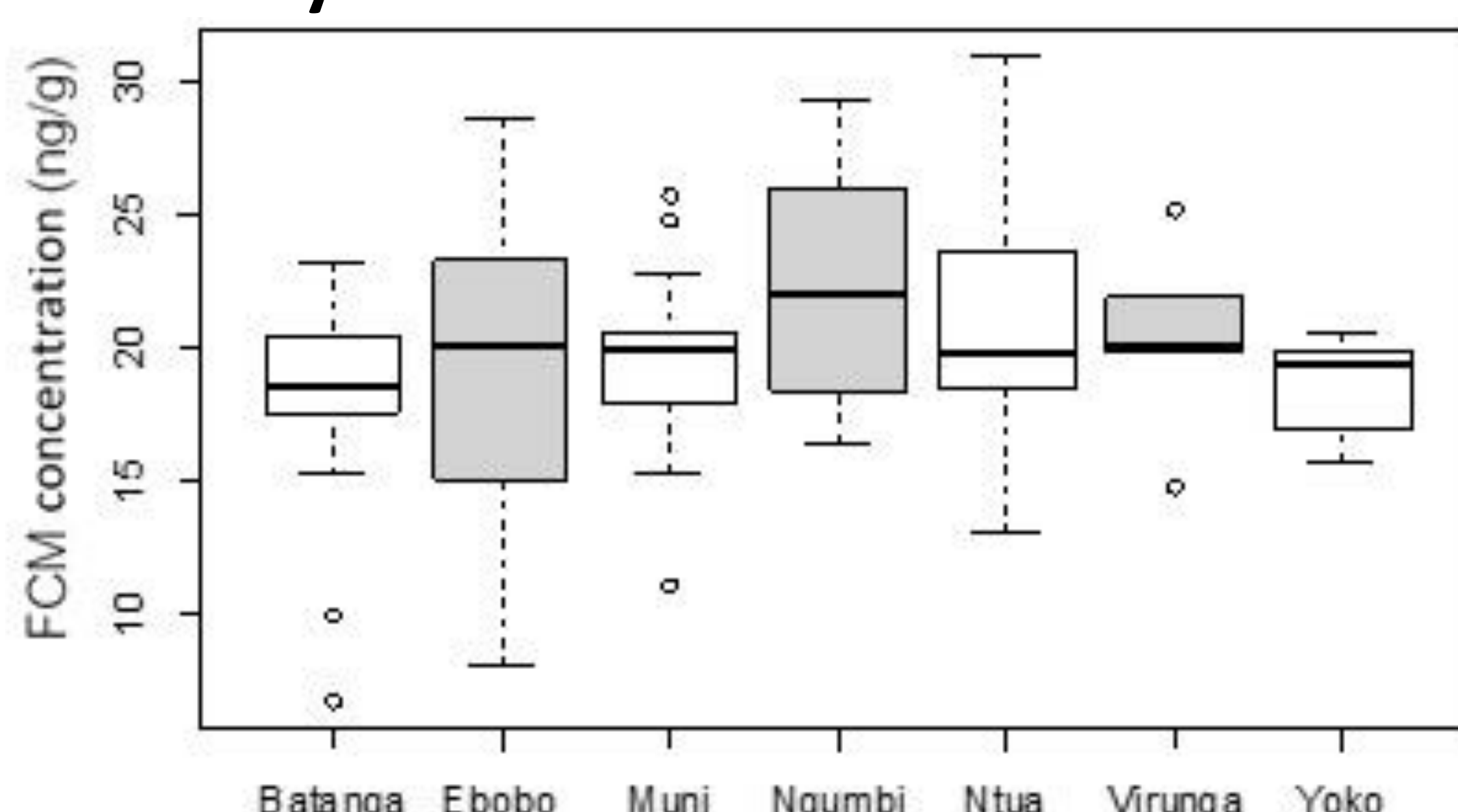


Fig. 2 Concentrations of FCM did not significantly differ ($p > 0.05$) between the seven individuals.

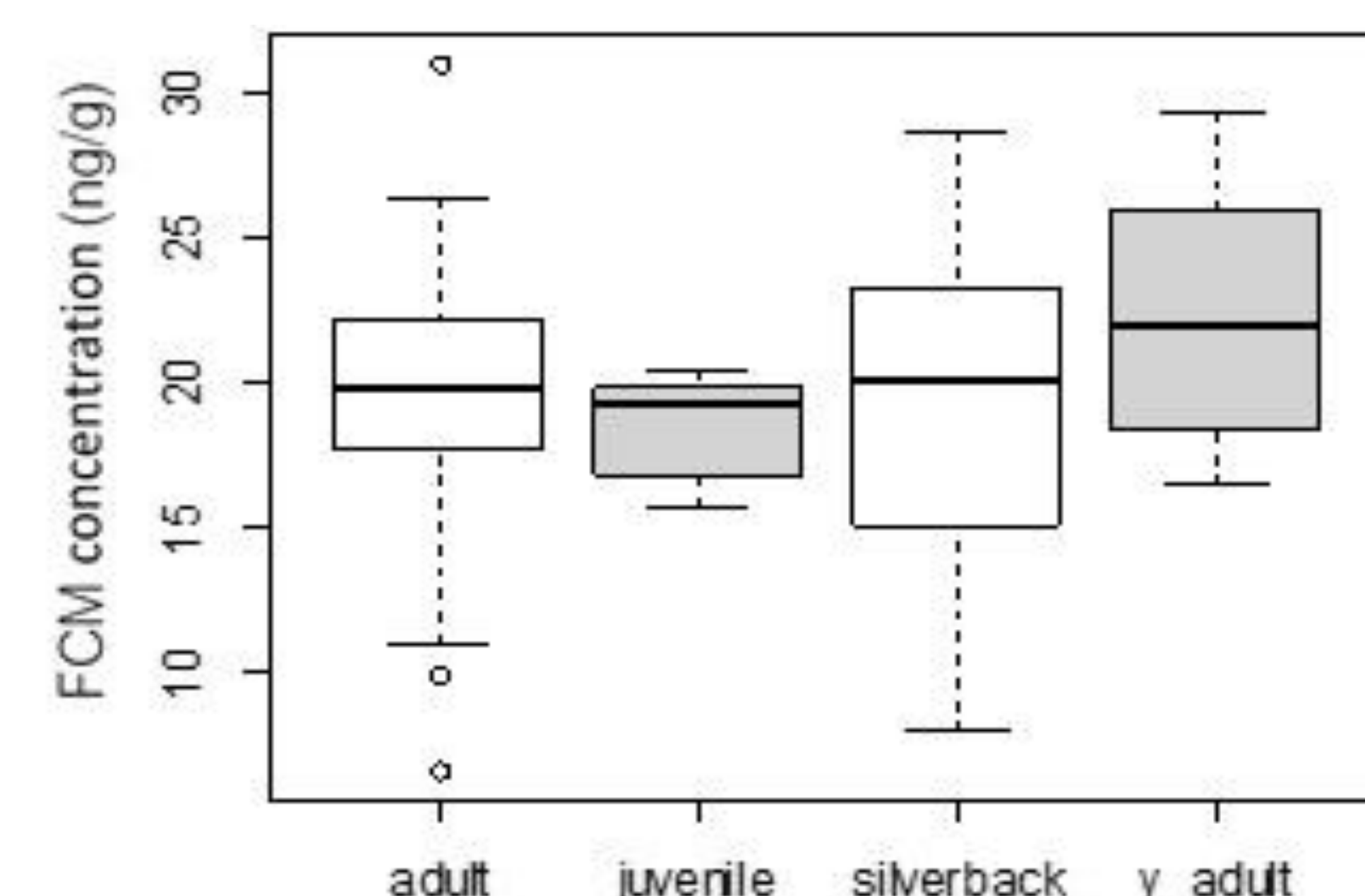


Fig. 4 Concentrations of FCM did not significantly differ ($p > 0.05$) in function of age category.

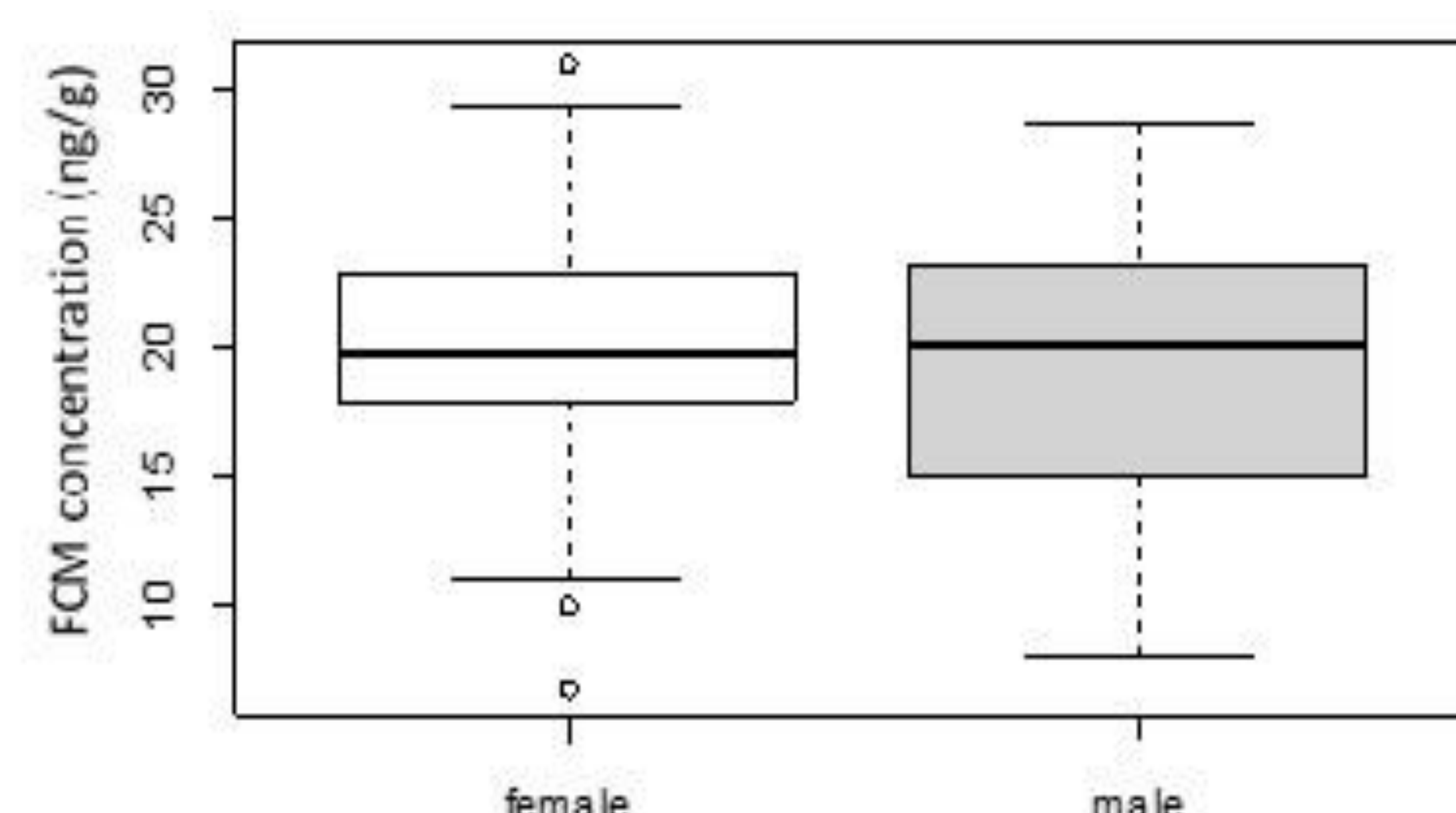


Fig. 3 Concentrations of FCM did not significantly differ ($p > 0.05$) between the male and the females.

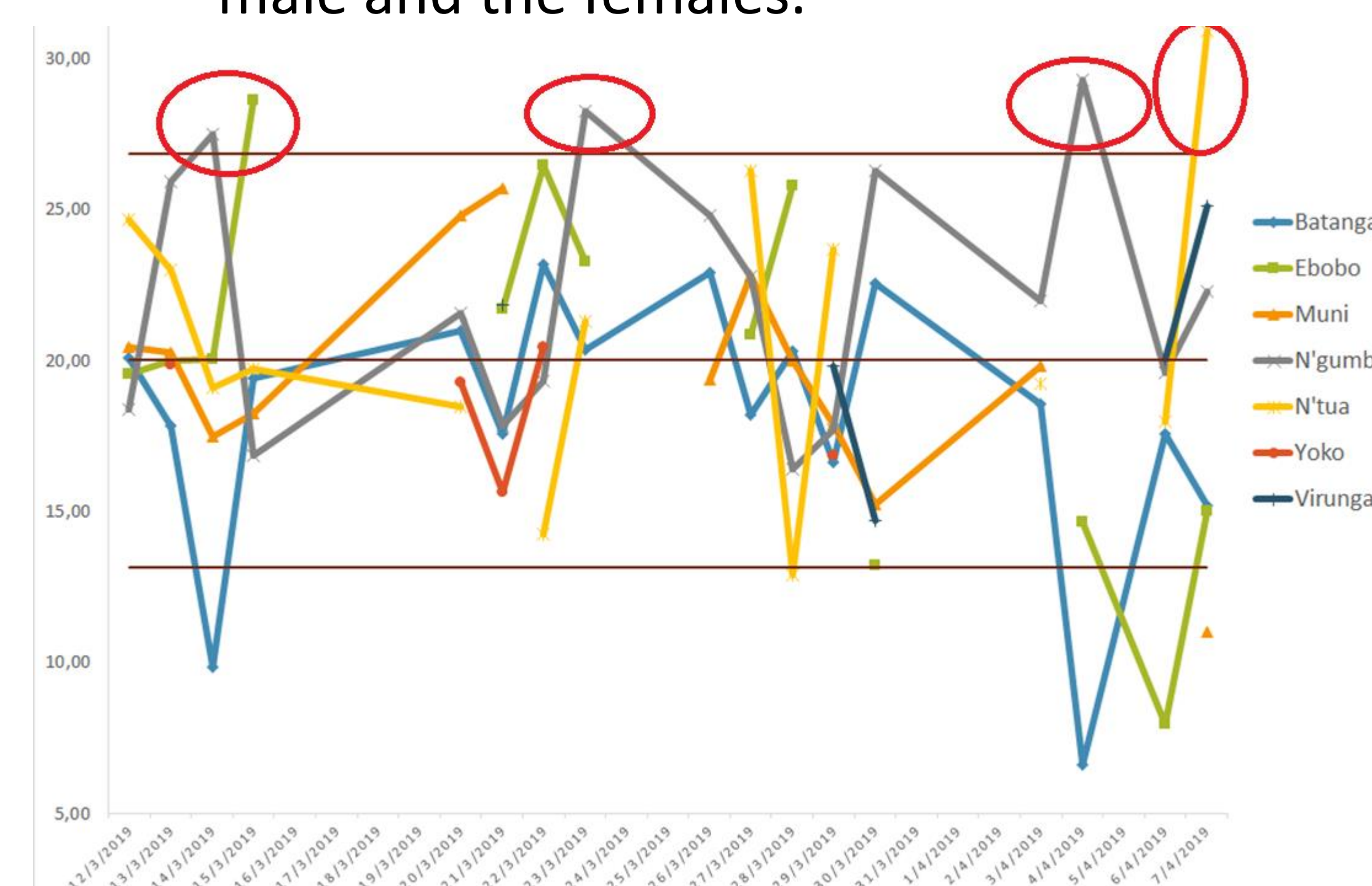


Fig. 5 Dynamics of FCM concentrations (ng/g) of the seven members of the group over time. Peaks were observed in three of the seven individuals although no behavioural changes were detected by keepers.

Conclusions

The use of wax crayon as a faecal marker is an efficient option for the individual identification of **large groups of primates** due to the availability of several colours, useful for **long periods of time** (one intake of the coloured food allows the follow up for at least 4 days) and its **easy detection** in samples.

Individual non-invasive endocrine monitoring is a useful tool that allows to **refine the follow up of an animal's physiological state**, that could be unnoticed relying only in randomized sampling of the group or standard behavioural observations.