NOTES

Mammalogy Notes ISSN 2382-3704
https://doi.org/10.47603/mano.v8n1.319

Natural History

‘Tail-dipping’ to drink from an open water source in *Cebus imitator* (Primates: Cebidae) in a protected area of Costa Rica

Sophie Collier[1]*, Roger Auster[2]

1 Independent researcher. 2 University of Exeter, College of Life and Environmental Sciences, Amory Building, University of Exeter, Exeter, UK.
***Correspondence:** sophiecollier2@hotmail.com

Resumen

Las especies de primates demuestran altos niveles de inteligencia, innovación y aprendizaje social. Estos caracteristicas dan lugar a una alta probabilidad de que ocurran nuevos comportamientos y se transmitan socialmente a otros individuos dentro de un grupo. Los monos capuchinos viven en grupo y comúnmente se los considera entre los primates más inteligentes. Exhiben un amplio repertorio de comportamientos complejos y han demostrado ser capaces de innovar para resolver problemas. A pesar de esto, las observaciones de nuevos comportamientos en poblaciones silvestres son raras en comparación con las poblaciones cautivas. Aquí describimos capuchinos cariblancos panameños (*Cebus imitator*) llevando a cabo un comportamiento que no ha sido documentado previamente en especies de capuchinos y puede estar relacionado con evitar a los depredadores. Este comportamiento se grabó en video y, hasta donde sabemos, es el primer registro publicado de una especie de capuchino que usa el comportamiento de sumergir la cola para acceder a una fuente de agua abierta en la naturaleza.

Palabras clave: Capuchino, Beber, Innovación, Manglar

Abstract

Primate species demonstrate high levels of intelligence, innovation, and social learning. These characteristics give rise to a high likelihood of new behaviours occurring and being socially transmitted to other individuals within a group. Capuchin monkeys are group-living and are commonly considered to be among the most intelligent non-ape primates. They exhibit a large repertoire of complex behaviours and have been shown to be capable of innovating to problem solve. However, observations of new behaviours in wild populations are rare in comparison to captive populations. Here we describe Panamanian white-faced capuchins (*Cebus imitator)* carrying out a behaviour which has not been previously documented in capuchin species and may be related to predator avoidance. This behaviour was video-recorded and to our knowledge is the first record of a capuchin species using tail-dipping behaviour to access an open water source in the wild.

Key words: Capuchin, Drinking, Innovation, Mangrove

High cognitive ability and behavioural variation has been widely recorded across primate species (Whiten 2000). Behavioural techniques to access resources can be innovated by individuals and then socially transmitted from one individual to another in a social group (Koops, Visalberghi and Schaik 2014; Hirata, Watanabe and Masao 2008; Leca et al. 2008; Perry 2011). Capuchin monkeys have been shown to be capable of innovating behaviours when presented with a novel problem and a variety of cultural behaviours have been recorded in these species (Fedigan 1990; Falotico et al. 2016; Melin et al. 2014; Mannu & Ottoni 2009; Perry et al. 2017). Here we present an example of a previously unrecorded drinking technique in Panamanian White-faced Capuchins (*Cebus imitator*). This behaviour was video-recorded ad hoc by author Roger Auster (RA) and to our knowledge is the first recorded evidence of a Capuchin species using tail-dipping behaviour to access an open water source.

Rio Platanares, Preciosa Platanares Wildlife Refuge, at Puntarenas Province is a 558-acre protected coastal-marine area. It protects forested and beach areas on the Oso Peninsula and Golfo Dulce on the Pacific coast of Costa Rica. It is a popular tourist destination and Capuchins are tolerant to the presence of kayaks. The behaviour was observed at approximately 8°31'43.1N, 83°17'18.9W in the wildlife refuge. At this point, the river had a width of approximately 10m and was still within the tidal zone. At the time of the observation, the tide was low, and the mangrove roots were exposed. The temperature was approximately 30°C and no cloud cover or precipitation was present. On 16th February 2019, a Capuchin group was encountered exhibiting 'tail-dipping' drinking behaviour. The behaviour occurred for approximately eight minutes until the troop retreated at a relaxed pace. In the spontaneous event, RA obtained both photographic and video evidence of the observed behaviour from aboard a kayak on the opposite side of the river. All images were recorded using a Canon 2000D camera with Canon EFS 55-250mm lens, between 10.48am and 10.56am CST.

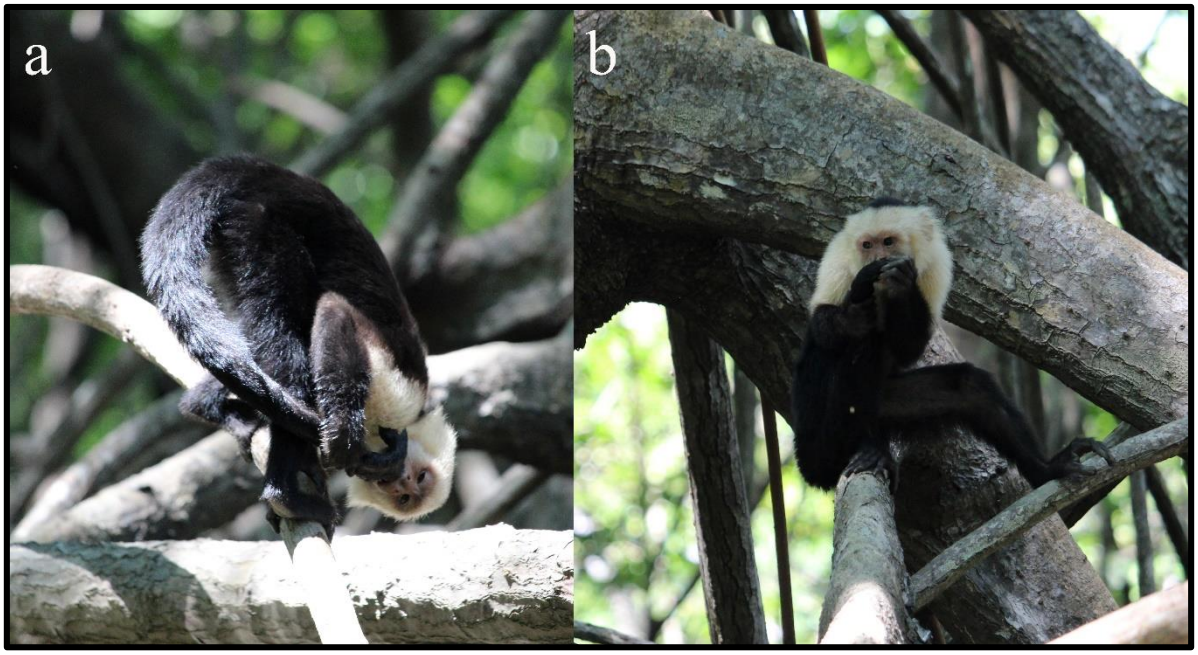

FIGURE 1. White-faced Capuchin sucking moisture from their tails after dipping in the open water source from a) a position of leaning over and b) a seated position.

The 'tail-dipping' behaviour was observed in at least three members of the capuchin group (with at least two exhibiting the behaviour at least twice). Each time, the behaviour was the same. An individual Capuchin began from a point higher in the mangrove roots, approximately two metres above the water's surface. The Capuchin then climbed down the root to dip the tip of its tail in the water, before retreating to its original height. This would occur quickly and in a matter of seconds (video1 in the Supplementary Files), this is observed within the space of three seconds (between 0:00:00 and 0:00:03 of the clip). When back at height, the Capuchin sucked on the moisture in its tail; this was observed from both a position of leaning over forwards (Figure 1a video1 in the Supplementary Files) and from a seated position (Figure 1b).

This sequence of behaviour was depicted in a photographic sequence in Figure 2; this sequence is from a separate occurrence to that observed in the video and are not still frames from the video.

FIGURE 2. Photographic sequence of a White-faced Capuchin dipping its tail and then proceeding to drink from it at height.

To our knowledge, this is the first published evidence of a white-faced Capuchin demonstrating tail-drinking behaviour in this manner from an open water source. Previous 'tail-dipping' behaviour has only been recorded at locations where access to water was not accessible by the hands or mouth (Perry et al. 2017, do Nascimento Castro et al. 2017). In our observations, the water source is easily accessible and therefore the reason behind this behaviour is unclear. We suggest it may have been innovated to allow the Capuchins to better avoid predators. The upright body position adopted when tail-dipping allows for greater vigilance as the individual can remain upright and scan a larger area for potential predators, as seen in Samango Monkeys (*Cercopithecus mitus*) and Yellow Baboons (*Papio cynocephalus*) who remain upright and continue to scan their surroundings while feeding (Cowlishaw et al. 2004; Cowlishaw 1998).

This video provides a valuable contribution to the knowledge of the behavioural repertoire of wild capuchin monkeys. As the behaviour we observed has not been previously recorded in this species, we suggest the possibility that it may be a behaviour innovated by the observed Capuchin group though further study will be required to confirm this.

ACKNOWLEDGMENTS

William Elliott who was present at the time of observation and supported this work; the local tour guide from 'Aventuras Tropicales Golfo Dulce' in Puerto Jiménez; Prof. Charlie Sox and Philip Guy for their support.

REFERENCES

Bandini, E., Harrison, RA. 2020. Innovation in chimpanzees. Biological Review. 95(5):1167-1197. https://doi.org/10.1111/brv.12604

Cowlishaw, G. 1998. The role of vigilance in the survival and reproductive strategies of desert baboons. Behaviour 431-452. https://doi.org/10.1163/156853998793066203

Cowlishaw, G, Lawes, MJ, Lightbody, M, Martin, A, Pettifor, R, Rowcliffe, JM. 2004. A simple rule for the costs of vigilance: empirical evidence from a social forager. Proceedings of the Royal Society of London. Series B: Biological Sciences 271(1534):27-33. https://doi.org/10.1098/rspb.2003.2522

Falótico, T, Luncz, LV, Svensson, MS, Haslam, M. 2016. Cashew nut positioning during stone tool use by wild bearded capuchin monkeys (*Sapajus libidinosus*). Folia Primatologica 87(6):392-397. https://doi.org/10.1159/000459621

Fedigan, LM. 1990. Vertebrate predation in *Cebus capucinus*: meat eating in a neotropical monkey. Folia primatologica 54(3-4):196-205. https://doi.org/10.1159/000156444

Hirata, S, Watanabe, K, Masao, K. 2008. "Sweet-potato washing" revisited. Primate origins of human cognition and behavior. Springer, Tokyo. https://doi.org/10.1007/978-4-431-09423-4_24

Koops, K, Visalberghi, E, Van Schaik, CP. 2014. The ecology of primate material culture. Biology Letters 10:11. https://doi.org/10.1098/rsbl.2014.0508

Leca, JB, Gunst, N, Huffman, MA. 2008. Food provisioning and stone handling tradition in Japanese macaques: a comparative study of ten troops. American Journal of Primatology: Official Journal of the American Society of Primatologists 70(8):803-813. https://doi.org/10.1002/ajp.20551

Mannu, M, Ottoni, EB. 2009. The enhanced tool- kit of two groups of wild bearded capuchin monkeys in the Caatinga: tool making, associative use, and secondary tools. American Journal of Primatology: Official Journal of the American Society of Primatologists 71(3):242-251. https://doi.org/10.1002/ajp.20642

Melin, Ad, Young, HC, Mosdossy, KN, Fedigan, LM. 2014. Seasonality, extractive foraging and the evolution of primate sensorimotor intelligence. Journal of Human Evolution 71:77-86 https://doi.org/10.1016/j.jhevol.2014.02.009

Do Nascimento Castro, SC, Da Silva Souto, A, Schiel, N, Biondi, LM, Caselli, CB. 2017. Techniques used by bearded capuchin monkeys (*Sapajus libidinosus*) to access water in a semi-arid environment of North-Eastern Brazil. Folia Primatologica, 88(3):267-273. https://doi.org/10.1159/000479106

Noordwijk MA, Schaik CP, Wich SA. 2006. Innovation in wild Bornean orangutans (*Pongo pygmaeus wurmbii*). Behaviour. 1:143(7):839-76. https://doi.org/10.1163/156853906778017944

Perry, S. 2011. Social traditions and social learning in capuchin monkeys (*Cebus*). Philosophical Transactions of the Royal Society B: Biological Sciences 366(1567):988-996. https://doi.org/10.1098/rstb.2010.0317

Perry, SE, Barrett BJ, Godoy I. 2017. Older, sociable capuchins (*Cebus capucinus*) invent more social behaviors, but younger monkeys innovate more in other contexts. Proceedings of the National Academy of Sciences 114(30):7806-7813. https://doi.org/10.1073/pnas.1620739114

Whiten, A. 2000. Primate culture and social learning. Cognitive Science 24(3):477-508. https://doi.org/10.1207/s15516709cog2403_6

Supplementary Files

Video1

Editor: Diego J. Lizcano
Received: 2022-06-29
Revised: 2022-07-10
Accepted: 2022-11-01
Published: 2022-11-01