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New Way to Dip for Honey is the First Observation of Tool-use in Wild Chimpanzees of Nyungwe National Park, Rwanda

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Honey dipping is well documented in wild chimpanzee populations across their range^{1,2}. Nyungwe National Park in the south-western region of Rwanda has an estimated chimpanzee (*Pan troglodytes schweinfurthii*) population of 340 individuals³, and this record is the first documented report of tool use from this site. There are unconfirmed reports from park field staff of chimpanzees dipping for honey with sticks and there have been several unconfirmed observations of discarded tools left protruding from tree hollows. These observations suggest honey-dipping is one type of tool-use practiced by this chimpanzee population. However I made a new observation of a novel way of manipulating a honey-probe tool by a wild chimpanzee, which expands the breadth of tool use of wild populations as a whole. I made a serendipitous observation of a tool-use episode in which an adult male chimpanzee probed for honey by manipulating the tool firstly with his hand and then by clamping the honey-probe stick between his teeth using his jaw muscles and manipulating it with his mouth. In October 2009, the individual ascended a tree with a long stick of approximately 80cm in length and then stripped the branch of bark and leaves with his teeth. Using his right hand, he forced the stick into a beehive (Possibly *Apis mellifera*), in a hollow in the trunk of the tree. However, he was unable to gain sufficient force to break into the hive, and so repositioned himself upside down and took the stick in his mouth. He gripped the stick with his molar and incisor teeth. It was positioned in such a way that it passed on the inside of his upper and lower right canines, and then extended backwards out of the side of his mouth past his right cheek and forwards from between his incisors (see Fig. 1). With the stick firmly gripped between his teeth, he used his arms, body weight and neck muscles to push his head towards the tree and at the same moment force the tool, gripped in his mouth, into the bee hive in order to break into it. After re-positioning himself and attempting for a further five attempts, he successfully broke into the hive. Once the probe had penetrated the hive, he released the stick from his mouth and manipulated it with his hand. He then removed the probe from the hole using his hand



Fig. 1. Chimpanzee probing for honey using a new technique, the jaw-clamp.

and wiped the visible honey from the tip with his lips. He repeated probing for *circa.* 35 minutes in this way by forcing probes into the hollow both by using the tool in his hand and also clamping the tool with his teeth when he required more leverage. When the first honey probe snapped, he replaced with another, using a total of four honey-probes during this single tool-using episode. All subsequent honey-probes were made by breaking off small branches of the tree in the vicinity of the bee hive before stripping them of bark and leaves with his teeth. All honey-probes were manipulated both by hand and by his mouth. This observation provides the first description of such a “jaw-clamp” manipulation in the handling of tools in free-ranging chimpanzees.

This observation expands the diversity in which tools are manipulated by chimpanzees and may provide an alternative method to pounding beehives using honey hammers / clubs which has been documented in other sites in Central Africa to access beehives, but has not yet been documented in Nyungwe⁴⁻⁶. There are records of wild orangutans using their mouths to manipulate tools, in which they clenched probes in their teeth to extract food from holes⁷ and placed leaves next to their mouth in order to amplify sounds that they make⁸.

This opportunistic observation provides both the first documentation of any tool-use in this chimpanzee population and also expands the diverse set of tool-use abilities in free-living chimpanzees. Preservation of distinct tool-using behaviours is an important consideration for conservation strategies and this

observation highlights the need for further research of the chimpanzee population living in Nyungwe National Park, Rwanda.

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