<NOTE>Lonoa: The Establishment of a Permanent Field Site for Behavioural Research on Bonobos in the Kokolopori Bonobo Reserve

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<NOTE>

Lonoa: The Establishment of a Permanent Field Site for Behavioural Research on Bonobos in the Kokolopori Bonobo Reserve

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The Kokolopori Bonobo Reserve was officially established by the Democratic Republic of the Congo (DRC) government in May 2009 as a community-based nature reserve encompassing over 4,850 km² (Almquist *et al.* 2010; Figures 1 and 2). Locally initiated and managed, it harbors a large population of bonobos, who are and have been traditionally protected by a taboo of the local Bongando people against hunting them (Lingomo & Kimura 2009). The management of the reserve is conducted by the local population and the conservation initiative "Vie Sauvage" (VS), supported by the Bonobo Conservation Initiative (BCI).

Efforts to follow bonobos in the northern part of the reserve, near the village of Yetee, were initiated in 2005 by VS and BCI, which had been committed to establishing longitudinal research on bonobos and had commenced ongoing support of local people to track the Ekalakala bonobo community (Figure 2). In 2010, the tracking extended to a second, neighboring bonobo community, Nkokoalongo. Until 2016, both communities had been followed on a more or less regular schedule, but were subject to only a limited amount of formal scientific work. Dr. Alex Georgiev did some work in the ranging area of the Ekalakala community, collecting fecal samples during 2006 and 2007. These samples were included in a number of publications on malaria and micro biome (Liu *et al.* 2010; Liu *et al.* 2014; Ahuka-Mundeke *et al.* 2016; Moeller *et al.* 2016; Wroblewski *et al.* 2017). Dr. Deborah Moore commenced behavioural ecological research at the site in 2014 with the intention of establishing a longitudinal study, but unfortunately was curtailed after 4 months. During her stay, she reorganized the habituation procedure for both communities and made some initial behavioural observations, including an incidence of maternal cannibalism (Tokuyama *et al.* 2017).

After MS's reconnaissance trip in 2015, he established a permanent research camp named after the nearby river, Lonoa (N0.41716°, E22.97552°), in the beginning of 2016 with the help of the Max Plank Institute, VS and BCI. The camp is situated approximately 4 km from the nearest village, Yetee (Figure 1). A network of existing paths and standardized transects allows access to an area of 50 km², which comprises large parts of the ranges of the two habituated bonobo communities. The study area consists mainly of primary heterogeneous forest with very few swampy areas. The bonobos of the Ekalakala community also range occasionally in secondary forests close to the local settlements. An initial botanical survey to describe the forest types and composition has been con-

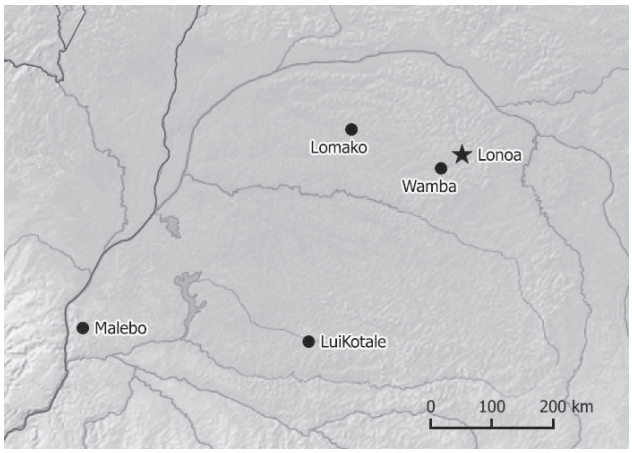

Figure 1. Active bonobo research sites with at least semi-habituated bonobo communities.

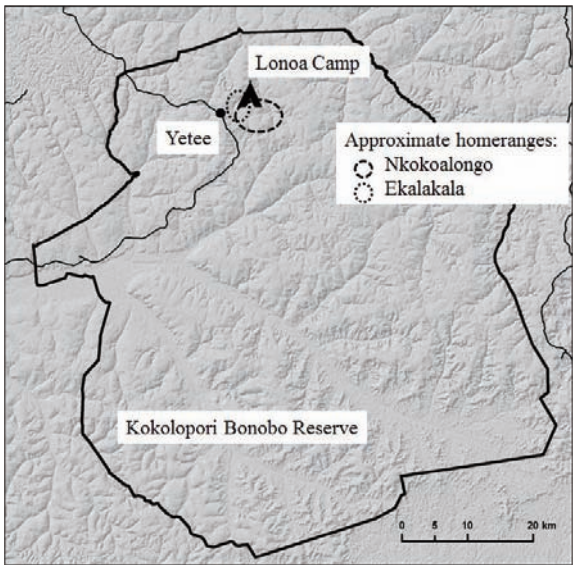

Figure 2. Kokolopori Bonobo Reserve. Approximate home ranges of the two study communities are shown in dotted circles.

ducted in collaboration with the University of Kisangani, and a floristic comparison with other bonobo study sites is part of an ongoing study.

While hunting is not allowed in large parts of the study area, the use of the forest is shared with the local people, whose primary activities there are collecting caterpillars and mushrooms in their respective seasons. Due to the close proximity of human settlements, animal densities are rather low compared, for example, to the LuiKotale bonobo study site at the border of Salonga National Park (Hohmann & Fruth 2003). However, initial results of camera-trapping indicate the occurrence of several species of duikers including blue duiker (*Cephalophus monticula*), black-fronted duiker (*Cephalophus nigrifrons*), bay duiker (*Cephalophus dorsalis*) and Peter's duiker (*Cephalophus callipygus*), and monkeys including red-tailed monkeys (*Cercopithecus ascanius*), Wolf's monkey (*Cercopithecus wolfi*) and De Brazza's monkey (*Cercopithecus neglectus*). Furthermore, there are rare sightings via camera traps of red riverhog (*Potamochoerus porcus*), sitatunga (*Traelaphus spekei*), aardvark (*Orycteropus afer*), tree pangolin (*Phataginus tricuspis*), and golden cat (*Felis aurata*). Combining the results from the ongoing camera trap survey with the sightings made during an US Fish and Wildlife Service funded survey conducted in 2011–2012 will facilitate better estimates of wildlife diversity, abundance and its changes.

After fieldwork began in 2016, a team of at least two people has followed each of the two neighboring communities daily from nest to nest. From March 2016 to July 2017, the average number of monthly nest-to-nest follows was 28 for Ekalakala, and 27 for Nkokoalongo. At this stage, the individuals of both bonobo communities are well habituated to the presence of observers, allowing for behavioural studies that require close range observations of focal individuals. All individuals in both communities were identified and named by the end of 2016. The Ekalakala community consisted of 3 adult and subadult males, 5 parous and 1 nulliparous females, and 5 immature individuals. The Nkokoalongo community consisted of 10 adult and subadult males, 15 parous and 1 nulliparous female, and 15 immature individuals.

While research on bonobos at Kokolopori is still in an early phase, the site has great potential not only to explore behavioural variations within the species due to a different habitat as compared to the long-term research sites of Wamba (Furuichi *et al.* 2012) and LuiKotale (Hohmann & Fruth 2003), but also to address questions concerning relationships between communities with largely overlapping areas. Given the well-established positive impact of long-term research sites on conservation efforts (*e.g.*, Pusey *et al.* 2007, Campbell *et al.* 2011), the presence of a long-term research project in the protected site gives added hope that the bonobo population is relatively safe from poaching for bush-meat and timber exploitation. However, due to the proximity to human settlements, there is a need for constant vigilance.

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<NOTE>

Termite Fishing by Mahale Chimpanzees: Revisited, Decades Later

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INTRODUCTION

Jane Goodall's discovery in 1960 that wild chimpanzees at Gombe Stream National Park in Tanzania regularly make and use tools to fish for termites was of great importance, as scientists thought at the time that humans were the only species to make and use tools (Goodall 1964). On hearing of Goodall's observation, her mentor, the paleoanthropologist Louis Leakey, famously remarked: "Now we must redefine 'tool', redefine 'man', or accept chimpanzees as 'humans'". But did only Gombe chimpanzees do this?

Since then, evidence of termite fishing has been described in many wild populations of chimpanzees, and is now recognized as one of the most widespread forms of chimpanzee technology (McGrew 1992). The first evidence of termite fishing by the chimpanzees of Bilenge (B group) that inhabit Mahale Mountains National Park in Tanzania dates to 1975. At that time, a local field assistant to the Japanese team of primate researchers by chance discovered recently abandoned plant tools close to a termite mound (Nishida & Uehara 1980). In the following years, more *ad libitum* records followed. These findings suggested that chimpanzees of B group habitually fish for termites, using 16 plant species to manufacture implements made (mostly) from bark, but also from sedges, vines, twigs and leaves (Nishida & Uehara 1980; McGrew & Collins 1985).

Over the last three decades, termite fishing of B group has remained unstudied, as research focus shifted to the habituated neighboring Mimikire (M) group (Nakamura *et al.* 2013).

However, my recent research provides evidence that the Bilenge chimpanzees have continued with their termite fishing tradition, providing yet another example of the long-term maintenance of material culture traditions in our closest living relatives.

METHODS

The unhabituated chimpanzees (*Pan troglodytes schweinfurthii*) of B group live around Bilenge (S 6°2′, E 29°44′; 772–1550 m altitude) in the Mahale Mountains National Park, western Tanzania (Nishida 1968; McGrew & Collins 1985). Bilenge is open grassy woodland, mostly miombo, with narrow strips of vine tangle and valley forests with broad hilltops rising from the coastal plain (Collins & McGrew 1988).

Earlier studies indicated that termite fishing at Bilenge is seasonal, with the most productive months in November and December coinciding with the annual reproductive and dispersal cycles of the termites (McGrew & Collins 1985). My fieldwork, aided by Tanzanian field assistants, thus encompassed three such periods (25 Nov–14 Dec 2014; 20 Oct–8 Nov 2015; 21 Nov–8 Dec 2016). During reconnaissance surveys, we first searched for mounds that had been targeted previously by chim-

Table 1. Plant species used by chimpanzees of B group at Mahale Mountains National Park to source termite fishing tools.

Species	Tools (n)	Individual plants (n)	Parts sourced* (n)
Uvaria angolensis	–	24	33
Uvaria sp. A of FTEA	8	9	10
Monanthotaxis buchananii	2	3	6
Maerua holstii	2	1	1
Garcinia buchananii	1	1	1
Allophylus congolanus	–	3	3
Paullinia pinnata	–	1	1
Mimusops kummel	–	1	1
Grewia stolzii	4	3	4
Saba comorensis	–	1	1
Unidentified	8	–	–
Total	25	47	61

* Individual plants sometimes provided more than one sourced part.