Institution: University College London

Unit of Assessment: 24 – Anthropology and Development Studies

Title of case study: The Gashaka Primate Project: Conserving the world's rarest chimpanzee

1. Summary of the impact (indicative maximum 100 words)

Volker Sommer's research focuses on behavioural ecology of non-human primates. Field studies of the Gashaka Primate Project in Nigeria highlighted the importance of saving the world's most endangered chimpanzee from extinction and facilitated sponsors in Europe and Africa to invest and engage in joint protection measures. These include providing educational, economic and infrastructural benefits to local communities, and significant support for national park rangers and their policing activities in this secluded highland region.

2. Underpinning research (indicative maximum 500 words)

Research by Volker Sommer (Professor of Evolutionary Anthropology at UCL since 1999) centres on long-term studies of wild monkeys and apes. A recurring theme is his recognition that considerable intra-specific variation in behaviour and social organisation characterises not only humans, but also other animals. Accordingly, Sommer's work demonstrates the considerable flexibility with which non-human primates cope with ecological constraints – thus making them suitable models for the pathways of human evolution and cultural variation. Among non-human animals, chimpanzees show the greatest degree of behavioural diversity, and Sommer's research has corroborated the view that their communities are characterised by unique combinations of social customs and tool-based techniques of subsistence [a], [b], [c].

In 1999, Sommer founded the Gashaka Primate Project (GPP) in Nigeria's Gashaka–Gumti National Park, a multi-national biodiversity research initiative that combines field and laboratory studies to stimulate efforts to conserve the fauna and flora of one of West Africa's last remaining wildernesses (www.ucl.ac.uk/gashaka) [d]. Sommer's fieldwork has established that the remote Gashaka highlands hold the largest remaining population of the Nigeria-Cameroonian chimpanzee (*Pan troglodytes ellioti* [aka *vellerosus*]), constituting perhaps 1,000 individuals [e]. This ape is the least known and genetically most distinct – and by far the most endangered – subspecies of chimpanzee. Extinction would not only mean losing genetic diversity amongst our closest living relatives, but also cultural diversity, given specific local customs. At most 3,500 animals remain, largely in small pockets; foot surveys showed that all population fragments face severe anthropogenic pressures through illegal cattle grazing, conversion of forest and hunting. This led to the recognition that conservation efforts based on law enforcement and community development need to be incorporated into research planning.

As with other African apes, the bush-meat trade is thought to be the biggest threat to the survival of chimpanzees. However, assessments of the reduction of wild populations are notoriously unreliable since they are mostly based on indirect evidence such as market surveys and interviews with hunters. Sommer's team instead measured annual loss from the wild through intake rates of chimpanzee orphans into sanctuaries. Population loss was calculated by relating arrivals into sanctuaries to the proportions of infants in wild groups, hunting strategies, and the likelihood that captured babies make it to a sanctuary [f]. The results indicate that hunting is far above sustainability, and that the Nigeria-Cameroonian chimpanzee will become extinct in 20–30 years, if protection measures are not dramatically improved. Accordingly, conservation planning and resource deployment became an intrinsic part of GPP's research trajectory.

3. References to the research (indicative maximum of six references)

Peer-reviewed articles in top-rated journals:

[a] Pascual-Garrido, A.; U. Buba, G. Nodza & **V. Sommer** (2012). Obtaining raw material: Plants as tool sources for Nigerian chimpanzees. *Folia Primatologica* 83: 24–44 (DOI: 10.1159/000338898).

[b] **Sommer, V.**, U. Buba, G. Jesus & A. Pascual-Garrido (2012). Till the last drop. Honey gathering in Nigerian chimpanzees. *Ecotropica* 18: 55–64

(http://gtoe.de/PDF/Ecotropica_2012/Sommer2012a-Ecotropica18_1.pdf).

[c] Allon, Oliver; Alejandra Pascual-Garrido & **V. Sommer** (2012). Army ant defensive behaviour and chimpanzee predation success. *Journal of Zoology* 288: 237–244 (DOI: 10.1111/j.1469-7998.2012.00946.x).

[d] **Sommer, V.**; J. Adanu, I. Faucher & A. Fowler (2004). The Nigerian chimpanzee (*Pan troglodytes vellerosus*) at Gashaka. *Folia Primatologica* 75: 295–316 (DOI: 10.1159/000080208).

Contributions to pioneering edited volume:

[e] Adanu, J.; V**. Sommer** & A, Fowler (2011). Hunters, fire, cattle. Conservation challenges in eastern Nigeria, with special reference to chimpanzees. Pp 55–100 (Ch. 03): in V. Sommer & Caroline Ross (eds.), *Primates of Gashaka. Socioecology and Conservation in Nigeria's Biodiversity Hotspot.* New York: Springer (DOI: 10.1007/978-1-4419-7403-7_3).

[f] Hughes, N.; N. Rosen, N. Gretsky & **V. Sommer** (2011). Will the Nigeria-Cameroon chimpanzee go extinct? Models derived from intake rates of ape sanctuaries. Pp 493–523 (Ch. 14) in V. Sommer & Caroline Ross (eds), *Primates of Gashaka. Socioecology and Conservation in Nigeria's Biodiversity Hotspot.* New York: Springer (DOI: 10.1007/978-1-4419-7403-7_14).

4. Details of the impact (indicative maximum 750 words)

UCL-led research on chimpanzees has facilitated conservation practice within Nigeria's 7,000 km^2 Gashaka-Gumti National Park and the surrounding region by developing enhanced infrastructure and skills. Fieldwork demonstrated the necessity for integrating conservation into research planning if the park's unique ape population was to survive. Research findings were then used to create public support for this approach, and thus secure a steady stream of funding for conservation activities. These were designed to support park officials in preserving indigenous fauna and flora and develop vital infrastructure for the 15,000+ people living in the park and its environs. Since the start of the project, the chimpanzee population in the central regions of the park has remained stable, particularly compared to other West African sites where decline has been as high as 90% in 15 years. Whilst this cannot be linked exclusively to Sommer's research, a recent survey of 109 areas hosting great apes showed that the Gashaka Primate Project (GPP) model – engaging local communities and supporting desperately under-resourced law enforcement while maintaining a permanent research presence – is the most effective conservation method [1].

Increasing public engagement with and understanding of conservation issues

The GPP's design centres on the use of research outcomes to support conservation activities tied to capacity building, particularly among the 214 rangers employed by the park. On the basis of his discovery that Gashaka-Gumti holds the largest remaining population of the world's most endangered chimpanzee subspecies, Sommer used public and media engagement activities to create widespread awareness about the importance of conserving this iconic but fragile wilderness and its flagship species. Between 2008 and mid-2013 these included [2]:

- 27 interviews and 8 articles in national and international media outlets, including extensive coverage on TV, radio, and in major German-speaking newspapers (Berliner Zeitung, Frankfurter Rundschau, Welt am Sonntag), as well as in GEO, Europe's principal non-English nature magazine (circulation 285k in Germany alone), plus a cover article in the German edition of *National Geographic* (circulation 227k).
- 77 talks in 7 European countries and in Nigeria. These included keynotes at prestigious industry events (e.g. Petersberger Forum, 2010 / Verlag für die Deutsche Wirtschaft); high-profile talks at universities, museums and public forums.
- 2 popular books. *Schimpansenland* (2008) is used by Julius-Berger-Nigeria (JBN), one of the largest construction companies in sub-Saharan Africa, as a corporate gift. The company also invited Sommer to deliver talks to senior management, employees and their families. 2,000 copies of a coffee-table volume titled *Apes Like Us* (2010) were distributed in 2010 by Germany's largest private science-supporting organisation, the VolkswagenStiftung, as its annual gift for supporters.

- In 2011, French-German TV culture channel ARTE produced *"Ich bin ein Menschenaffe / Je suis un singe" / "I am an ape"*, a 45 minute documentary on Sommer's life, research and conservation approach which, by May 2013, had been viewed 15,000 times via YouTube.

Through these and other engagement activities, Sommer has inspired sponsors and stakeholders to support the systematic improvement of protection measures in the Gashaka forests as the principle remaining refugium of the world's rarest chimpanzee. That support (about £527k), administered through UCL, improved infrastructure to the benefit both of the wildlife whose protection it helps to ensure, as well as of human communities residing in the park's enclaves and buffer zone [2].

Supporting law enforcement and land management within the national park

One of the GPP's first major projects was the demarcation of the vast reserve's hitherto "unvisible" border – using beacons and motorable tracks to improve ranger patrolling. Funded by Chester Zoo, the initial demarcation of several hundred kilometres of park border was completed in late 2009; a rigorous programme of on-going maintenance and improvement since then has included its extension in 2013 to the 6 grazing enclaves that lie within the park. Marking the boundaries has removed legal ambiguities and significantly improved law enforcement, providing incontrovertible evidence to support charges against illegal activities such as poaching, cattle grazing and forest cutting; 200 such incidents have been authoritatively reported since 2009 [4].

Since 2008, park management has been further improved by an additional GPP initiative facilitating the identification of hotspots in which unusual rates of plant cover loss require special attention. Supported by funding from the US Fish and Wildlife Service, GPP began a satellite-based vegetation mapping of the park as part of its biodiversity research. Several park officials were trained to interpret remote sensing imagery through GIS, and a complete set of related soft- and hardware was handed over to the park management in 2010 [4]. The research project also initiated seed programmes to improve park ranger efficiency and motivation to patrol their areas fully and conscientiously. Regular donations to the ranger clinic helped to build up a sustainable stock of drugs. From 2006–09, GPP provided gear and rations as an incentive to guard remote forests; this was so successful that the scheme was adopted by the National Park Service in 2010. A prime poaching spot was identified by the project team and further funding obtained from Chester Zoo to erect a permanent 'rotary camp' shelter for rangers in 2010 [4].

Supporting communities and learning

As well as aiding park management and conservation efforts, hybridising support for research and law enforcement has also benefited those living in this remote region, as GPP has led on the development of several important infrastructural improvements. For example, in 2005, the project established an extensive radio communication system across the park and its buffer zone. This was facilitated by Sommer's long-standing relationship with Julius-Berger-Nigeria (JBN), who sponsored the installation and maintenance of the network covering 10,000 km^2 across the park and its buffer zones. In a project spanning several years, a repeater station was erected on a mountaintop in the park's heart and hand-held radios distributed (2005), land rover-radios were acquired (2008), and ranger stations fitted with solar-powered stationary radios (2009) [5]. This not only enabled researchers to coordinate across vast tracts of forest but, crucially, enhanced the capabilities of rangers to protect this unique biotope. Moreover, in a region where messages normally travel at walking speed and mobile phones don't work, reliable radio coverage has allowed notice of medical emergencies to be provided and transportation arranged from the edge of the forest to the nearest health facilities; locals and rangers cite examples of victims of snake bites and women in childbirth receiving urgent medical care during the census period [6].

Since its inception, GPP has encouraged knowledge transfer leading to the recruitment and training of a new generation of park management and conservation experts in Nigeria. Since 2008, 30 African students have received bursaries sponsored by industry and donations and administered through GPP. Ten later entered conservation or park management careers, while 13 proceeded to higher education [8].

GPP also initiated German-Nigerian cooperation in the field of solar engineering. Students of the Oskar-von-Miller Schule, an engineering polytechnic in Kassel, Germany, designed a sustainable

'power-island' ensuring a clean, uninterrupted electricity supply to the research station [7]. Supported by JBN and German industries, the facility was installed in 2005, and expanded or reset four times during 2008–2013. 11 German students have received accreditation as solar engineers and several Nigerian park personnel were trained in renewable energy techniques [7].

Supporting conservation

GPP has contributed to wider conservation goals in West Africa through the development of the *Regional Action Plan for the Conservation of the Nigeria-Cameroon Chimpanzee* (2011) [9]. Professor Sommer, twice elected member of the IUCN / SSC Primate Specialist Group on Great Apes, was a main contributor to the plan, which was endorsed by the wildlife and environment ministers of Cameroon and Nigeria. The plan cites Sommer's research to show the cultural uniqueness of this ape subspecies and to argue for urgent measures to protect its remaining members. Using UCL-led population mapping data, the plan declares Gashaka an 'exceptional site', identified key threats, and recommended a five-year conservation plan [9]. Professor Sommer's conservation vision was always tied to the challenge of creating sustainable long-term support for one of West Africa's last chimpanzee havens. This plan came to fruition in 2012, when Chester Zoo agreed to permanently fund conservation activities through a newly created Gashaka Biodiversity Project (GBP), now registered as an international NGO in Nigeria [10]. Sommer was appointed director with oversight of research activities, and awarded the North of England Zoological Society's highest honour, the Gold Medal. The laudatio stated: "Before the project was established, gunshots rang out daily in the very heart of the park; now, tranquillity reigns – except when the chimpanzees are calling...."

5. Sources to corroborate the impact (indicative maximum of 10 references)

All items which are not online are available on request.

[1] Tranquilli, S. et al. (2012), Lack of conservation effort rapidly increases African great ape extinction risk. *Conservation Letters*, 5: 48–55. DOI: 10.1111/j.1755-263X.2011.00211.x.

[2] Indicative list of public engagement (interviews, publications, talks, books, documentaries, talk shows) at http://www.ucl.ac.uk/anthropology/people/academic_staff/v_sommer/#media_presence. Examples include: 'Wie Du und Ich', *National Geographic (*July 2012); http://www.nationalgeographic.de/reportagen/grundrechte-fuer-menschenaffen; GEOkompakt 'Was Tiere wissen' (Animal Cognition), centrefold and 8-page interview (December 2012); http://www.youtube.com/watch?v=3KdwQltR6PU indicates views of the ARTE documentary 'Ich bin ein Menschenaffe'. List of projects funded through UCL available on request.

[3] Chester Zoo Nigeria Conservation Plan: http://bit.ly/18du7LP; Map at http://www.ucl.ac.uk/gashaka/gallery/image_70a.htm; Border Demarcation Phase I-III progress report (March 2008); Enclave demarcation expedition documents (January 2013). See also 'The Gashaka Primate Project in Context.' DOI: 10.1007/978-1-4419-7403-7_1.

[4] GGNP/101/S/103/VOL.VII/311, Conservator of Parks, Gashaka-Gumti National Park (January 2013); Report on GIS training of park officials (2010); documentation relating to ranger clinic (2010, 2012); Examples of field reports from ranger patrols with GPP incentives (2006–2009).

[5] Project support and timeline in statement from Julius Berger Nigeria Plc (January 2013).

[6] Dossier of statements from local people and park rangers describing use of radio communications for medical emergencies (January 2013).

[7] Statement from Oskar-von-Miller-Schule, Kassel (April 2013).

[8] Student lists 2000–2013 and letters from recipients of bursaries describing their career paths.

[9] *Regional Action Plan for the Conservation of the Nigeria-Cameroon Chimpanzee* (2011). Gland: IUCN/SSC Primate Specialist Group. pp. 48– http://www.ellioti.org/actionplan.shtml.

[10] Announcement of North of England Zoological Society's Gold Medal (2012); Statement from Chester Zoo describing the long partnership with GPP, and the transition to the Gashaka Biodiversity Project (February 2013); BBC coverage of Chester Zoo's evolving relationship with GPP in 2013: http://www.bbc.co.uk/news/science-environment-21741911.