

### Affidavit of Christophe Boesch sworn to November 19, 2013

STATE OF NEW YORK  
SUPREME COURT COUNTY OF NIAGARA

In the Matter of a Proceeding under Article 70 of  
the CPLR for a Writ of Habeas Corpus,

THE NONHUMAN RIGHTS PROJECT, INC.,  
on behalf of KIKO,

Petitioners,

v.

CARMEN PRESTL, individually and as an officer  
and director of The Primate Sanctuary, Inc.,  
CHRISTIE E. PRESTL, individually and as an  
officer and director of The Primate Sanctuary,  
Inc., and THE PRIMATE SANCTUARY, INC.,

Respondents.

**AFFIDAVIT OF  
CHRISTOPHE BOESCH**

Index No.:

FEDERAL REPUBLIC OF GERMANY )

FREE STATE OF SAXONY )

CITY OF LEIPZIG )

) ss :

Christophe Boesch being duly sworn, deposes and says:

**Introduction and Qualifications**

1. My name is Christophe Boesch. I received a Maturite scientifique from College Calvin, Geneve in 1970, a Diplome de biologiste from the University of Geneva, Switzerland in 1975, and a Ph.D. from the University of Zurich, Switzerland in 1984. I work and reside in Leipzig, Germany.

2. I submit this affidavit in support of Petitioners The Nonhuman Rights Project, Inc. ("NhRP"), on behalf of Kiko, for a writ of habeas corpus. I am a non-party to this proceeding.

3. I am currently an Honorary Professor in the Department of Zoology at the University of Leipzig, Germany where I have been a member of the faculty for 14 years. I am also the Director of the Max Planck Institute of Evolutionary Anthropology, and Founder and President of the Wild Chimpanzee Foundation. I have directed 16 diploma theses, 24 Ph.D. theses for both European and American students, and the post-doctoral work for 8 students. I have also regularly taught classes in Behavioural Ecology, Evolutionary Biology, and Population Biology in the 22 years that I have been teaching.

4. I have twice been awarded the Great Apes Fellowship of the Leakey Foundation in Pasadena, California. In addition, I received the Prix Cortailod for talented Swiss scientists under 35 years old from the University of Neuchâtel, Switzerland, and was awarded the Medal "Officier de l'Ordre National" by the president of Côte d'Ivoire Alassane Ouattara in 2013.

5. I have been a member of the International Primate Protection League, the IUCN/SSC Primate Specialist Group, and the International Primatological Society since 1986. I am also currently a member of: (1) the Behavior and Brain Sciences Associates (since 1991); (2) the Pan Africa News Editorial Board (since 1997); (3) Steering Committee of the World Heritage Species Status Taskforce (since 2002); and (4) the IUCN/SSC/ Section of the Great Apes (since 2003). Additionally, I am the Co-chairman of the Scientific Committee of the Great Apes Survival project of the UNEP/UNESCO (since 2003). I previously served as a: (1) scientific board member of the Fyssen Foundation, Paris (1985-1989); (2) consultant to the World Wide Fund for Nature International (1987-1988); (3) Project Coordinator for the World Wide Fund for Nature International in the Taï National Park, Ivory Coast (1988-1992); (4) executive council member of the Committee for the Care and Conservation of Chimpanzee (1988-1992); and (5) member of the Society for the study of Animal Behaviour (1993-1998).

6. During my career, I have served as a grant reviewer for the following institutions and foundations: NIH, National Science Foundation (USA), Swiss National Science Foundation, Leakey Foundation, National Geographic Society, Fulbright Foundation, and Wenner-Gren Foundation. Additionally, I have served as an ad hoc reviewer for a number of prominent peer-reviewed journals including: *Behavioural and Brain Sciences*, *Animal Behaviour*, *Nature*, *Behaviour*, *Ethology*, *Primates*, *International Journal of Primatology*, *American Journal of Primatology*, *Folia Primatologica*, *American Journal of Physical Anthropology*, *Current Anthropology*, *Behavioural Ecology*, *Proceedings of the National Academy Science, Series B*, *Quarterly Review of Biology*, *American Naturalists*, *Journal of Human Evolution*, *Proceedings of the Royal Society: Biological Sciences*, and *Journal of Evolutionary Biology*.

7. I have specialized in the study of wild chimpanzees for approximately 35 years. In 1976, I spent 8 months in the Taï National Park, Ivory Coast conducting a preliminary study on the behaviour of wild chimpanzees. I have completed on-going studies of these chimpanzees since 1979. My research on these chimpanzees has principally focused on ecology, social organisation, tool-use, hunting, cooperation, food-sharing, inter-community relationships and cognitive capacities. I also conducted a comparative field study on the chimpanzees of Gombe Stream National Park, Tanzania in 1990 and 1992 (April to July). Then in 1999 (August to October), I undertook a comparative field study on the chimpanzees of the Mahale Mountains National Park, Tanzania.

8. I have authored or co-authored 14 books on primate behavior, cognition, and evolution. Some of the most relevant include: (1) *Tool Use in Animals - Cognition and Ecology* (2013, Cambridge: Cambridge University Press); (2) *Wild Cultures: A Comparison between Chimpanzee and Human Cultures* (2012, Cambridge: Cambridge

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University Press); (3) *The Real Chimpanzee: Sex Strategies in the Forest* (2009, Cambridge: Cambridge University Press); (4) *Feeding Ecology in Apes and Other Primates* (2006, Cambridge: Cambridge University Press); (5) *Regional Action Plan for Chimpanzees and Gorillas in West Equatorial Africa* (2005, Washington: Conservation International); (6) *Behavioural Diversity in Chimpanzees and Bonobos* (2002, Cambridge: Cambridge University Press); and (7) *The Chimpanzees of the Tai Forest: Behavioural Ecology and Evolution* (2000, Oxford: Oxford University Press).

9. Since 1978, I have published at least 215 articles on the cognitive and learning capabilities, intelligence, communication, or language skills of apes and chimpanzees specifically. These articles are published in many of the in the world's most-cited peer-reviewed scientific journals, including: *Science*, *Nature*, *Journal of Comparative Psychology*, *Conservation Biology*, *American Journal of Primatology*, *International Journal of Primatology*, *Ecology and Evolution*, *Animal Behaviour*, *Journal of Human Evolution*, *American Journal of Physical Anthropology*, *Journal of General Virology*, *Folia Primatologica* (the official journal of the European Federation for Primatology), *Biological Conservation*, *Molecular Ecology*, and *Natural History*. I have also published articles in *The Oxford Handbook of Comparative Evolutionary Psychology*, *Proceedings of the National Academy of Sciences* and in *Proceedings of the Royal Society B*. Several articles of mine have also appeared in *BBC Wildlife Magazine*. Specific topics of these publications include: ecology and cognition of tool use in chimpanzees, chimpanzee culture, meat eating and hunting specialization in chimpanzees, botanical skills in chimpanzees, long-term spatial memory in chimpanzees, chimpanzee conservation, female gregariousness in chimpanzees, social behavior and cognition in primates, habitat use and competitive exclusion among sympatric chimpanzee, gorilla and elephant, cultural differences between neighboring chimpanzee communities, reciprocity

and trades in wild chimpanzees, locomotion and tool-use in chimpanzees, altruism in forest chimpanzees, adoption in chimpanzees, paternity and social rank in wild chimpanzees, feeding competition in chimpanzees, male aggression and sexual coercion in chimpanzees, reciprocation of grooming in chimpanzees, vocal, gestural and locomotor responses of wild chimpanzees to intruders, chimpanzee population size, social bonds in chimpanzees, sophisticated Euclidean maps in forest chimpanzees, integration of chimpanzee and human culture, wild ape health, infant mortality cycles in chimpanzees, sexual swelling cycles in chimpanzees, food choice in chimpanzees, paternity in wild chimpanzees, locomotor behavior in chimpanzees, cooperative hunting in chimpanzees, bisexually-bonded ranging in chimpanzees, group-specific calls in chimpanzees, effects of community size on wild chimpanzees social organization, decision-making in conflicts of wild chimpanzees, mortality rates in chimpanzees, female reproductive strategies, buttress drumming by wild chimpanzees, innovation in wild chimpanzees, predator-prey systems in chimpanzees, nut cracking in wild chimpanzees, handedness in chimpanzees, symbolic communication in wild chimpanzees, teaching in wild chimpanzees. My Curriculum Vitae fully sets forth my educational background and experience and is annexed hereto as "Exhibit A".

**Basis for Opinions**

10. The opinions I state in this Affidavit are based on my professional knowledge, education, training, and 35 years of research and field work with chimpanzees, as well as my knowledge of peer-reviewed literature about primatology published in the world's most respected journals, periodicals and books that are generally accepted as authoritative in the field of primatology, many of which were written by myself and colleagues with whom I have worked for many years and with whose research and field

stones:

work I am personally familiar. A full reference list of peer-reviewed literature cited herein is annexed hereto as "Exhibit B".

### Opinions

11. Scientific knowledge about chimpanzees is vast and has been increasing at an exponential rate. We must therefore be aware that what we know now is still only a small fraction of what chimpanzees are capable of. Here I discuss several areas particularly relevant as evidence of the autonomous nature of chimpanzees.

#### **A. Foreplanning and Episodic Memory: Components of an Autobiographical Self**

12. Self-aware, autonomous individuals understand that they exist through time, that is, they have an autobiographical self. This level of awareness makes it possible to recollect past events and plan for the future. Chimpanzees clearly possess an autobiographical self, as they are able to prepare for the future (Beran et al., 2004; Mulcahy and Call, 2006; Osvath, 2009; Osvath and Osvath, 2008) and can remember highly specific elements of past events over long periods of time (Janmaat et al., 2013a, b; Martin-Ordas et al., 2013; Normand and Boesch, 2009; Normand et al., 2009).

13. A wealth of experimental evidence shows that chimpanzees plan for the future. For instance, in a sequential numbering task it was found that their performance was only explainable if the chimpanzees were planning their responses one step ahead (Beran et al., 2004). Also, they can select, transport and save appropriate tools for a task in the future (Mulcahy and Call, 2006; Osvath and Osvath, 2008). The planning for future use of tools and objects has not only been demonstrated experimentally, but has been documented in a long-term observational study of spontaneous tool use and innovation in a captive chimpanzee (Osvath, 2009). In this study, a male chimpanzee in a zoo collected and stowed away sharp stones in his display area for use as projectiles thrown at visitors (Osvath, 2009). The chimpanzee also engaged in deceptive behavior by stashing the

stones in a “calm manner” so as not to be noticed (Osvath and Karvonen, 2012). Therefore, chimpanzees are not only able to mentally prepare for an upcoming event and alter the future but they are able to use intentional deception in the process. Intentional deception is a hallmark of the ability to take the perspective of and model mental states in others (de Waal, 2005).

14. Just as they can mentally run through steps in their mind to plan for future actions, chimpanzees can remember and mentally re-experience events in the past (also known as episodic memory). Several experimental studies demonstrate this capacity in chimpanzees (Martin-Ordas et al., 2010; 2013). For instance, chimpanzees can use information about tools they recall from an event that occurred only four times three years earlier (Martin-Ordas et al., 2013). They can also make complex decisions about which food items to choose based on perishability by keeping in mind two food items presented separately one hour apart (Martin-Ordas et al., 2013).

15. It is critical for chimpanzees living in a forest to retain knowledge of good sources of food using spatial memory. And it is particularly advantageous to remember which trees tend to yield an abundance of fruit. In an observational study of several female chimpanzees living in the Taï Forest in the Ivory Coast, my team discovered that, during their travels, they visited specific abundantly fruiting trees in a very deliberate and goal-directed manner, rather than through haphazard discovery. They clearly recalled the location of some of these trees for as long as three years. These visits were not initiated by visual cues or smell and occurred more often when females were foraging alone. These results strongly suggest that goal-directed monitoring is guided by a long-term “what and where” (episodic) memory of the location of good potential sources of fruit. (Janmaat et al., 2013a). In another study my team found evidence that the chimpanzees were using botanical features of the trees in their foraging plans. That is, they took advantage of the

timing of fruiting of different types of trees (e.g., making efficient direct lines to trees that were fruiting synchronously) and based their expectations of finding fruit on this botanical knowledge (Janmaat et al., 2013b). In another set of studies of foraging, my colleagues and I found that the chimpanzees knew precisely where they were going, were traveling in a straight line to reach food sources, and were aware of the distance they needed to walk. Moreover, the direction they started out in was exactly the direction needed to take them to their food source, suggesting that they were not meandering and using landmarks along the way but, rather, were depending on detailed spatial memories. They also returned to a food source from many different directions depending upon their starting point. (Normand and Boesch, 2009; Normand et al., 2009). These observations strongly suggest that, when foraging, the chimpanzees are using sophisticated Euclidean mental spatial maps based on long-term episodic memories (Normand and Boesch, 2009; Normand et al., 2009). These findings not only provide evidence of complex mental representational abilities in chimpanzees but also the use of long-term knowledge from specific memories within the context of an autobiographical sense of their own experiences over time.

## **B. Cultural Traditions**

16. Culture depends upon several complex cognitive capacities, including significant behavioral flexibility and innovation, social learning, cumulative knowledge, and adherence to traditions. The evidence for these capacities in wild chimpanzees is robust and indisputable and our knowledge of the richness of their different cultures continues to grow. Chimpanzees possess widespread cultures that are found in all known populations and that distinguish them from other populations (Boesch, 2003, 2012; Whiten and Boesch, 2001; Whiten et al. 1999, 2001). Within the same forest, neighbor groups distinguish themselves with different cultural traits that are maintained over decades despite the exchange of females across groups. New immigrants adopt the



cultural traditions of their group rapidly through social learning (Boesch, 2003, Luncz et al., 2012) allowing for the maintenance of continuity in different traditions within each group. They also show evidence of symbolic cultural traditions based on arbitrary gestures that have no direct connection with their meanings but are understood by all group members (Boesch, 2003; 2012). These characteristics of chimpanzee culture – diverse, innovative, group specific and even symbolic – point to the striking similarities in the cognitive mechanisms underlying chimpanzee and human culture.

### **C. Understanding of death**

17. An understanding of death requires an ability to recognize the continuity of self and others through time. Self-recognition, which chimpanzees demonstrate, would be a requirement for understanding the irreversibility of death. Self-aware individuals, such as chimpanzees, seem to have an understanding of death as a kind of irreversible situation. They often respond with elaborate mourning rituals that demonstrate some understanding of the concept of life and its ending. Years of independent observations of wild chimpanzees in the Taï forest and elsewhere in Africa lead to the conclusion that chimpanzees realize dead individuals do not move and do not need help anymore, and that they will remain in that state. Once they come to this realization they enact behaviors which can be described as mournful, respectful, and almost-ritualistic (Boesch, 2012; Goodall, 1986). As an example, a 10-year old female, Tina, was mortally wounded by a leopard in the Taï forest. Upon seeing her, several individuals in the community surrounded her body. The alpha male and two high-ranking females inspected the body by sniffing the wound while others held her hand. The body was guarded by the males and the highest-ranking female. Infants and low-ranking adults were chased away. Others allowed near the body approached quietly. The only infant allowed to approach Tina's body was her son, Tarzan. The males, who never groom a juvenile female under normal

circumstances, spent an hour grooming her body. One of the males gently tapped Tina on the chin while looking in her eyes and shook her arm while looking at her face as if to confirm the death. After six hours all finally left in a silent procession (Boesch, 2012). In another observation at Gombe National Park, the deceased, an adult female, was visited in succession by other high-ranking members of the group while juveniles and lower-ranking members looked on but were kept from touching the body. Several individuals formed a tight circle around her corpse and the alpha males guarded her (Goodall, 1986). There is even evidence of covering the body with leaves and branches (Boesch, 2012). Altogether, numerous independent observations from different chimpanzee communities strongly suggest a complex group response unique to death involving guarding of the dead body for hours, helping orphans who remain close to their dead mothers, testing for a reaction by shaking the body, grooming the body but not licking blood or wounds as is usually done with injured individuals, showing signs of sorrow when leaving the body, showing signs of respect by keeping youngsters at bay, and, sometimes, carrying the corpse to a safe place. (Boesch, 2012 ; Boesch and Boesch-Achermann 2000). It is notable that chimpanzees distinguish between mortal wounds and other kinds of injuries. If the individual is still alive, other chimpanzees will sometimes clean the wound by licking it and removing debris. However, no one licks similar wounds of deceased individuals; they seem to understand that it will not do any good (Boesch, 2012). Another example of distress at the death of a friend and the realization that the individual is beyond help comes from one chimpanzee, Falstaff's, severe injury during a leopard attack and the response of his hunting partner and friend, Snoopy. Snoopy stayed with the immobile Falstaff for two hours even though the rest of the males of the community were moving on. Snoopy would walk a few steps and look behind him at Falstaff to see if he was following him. He then moved 200 meters north and drummed loudly and repeatedly on a large tree to apparently

communicate to Falstaff. When Falstaff did not answer Snoopy let out a loud distressed scream as he finally realized Falstaff was not coming and he had to move on (Boesch, 2012). In the case of mothers who lose an infant, although they may be hesitant to abandon the corpse, they do not behave towards their dead infants as they would if they were alive and they eventually leave them behind (Boesch, 2012). These and many other examples strongly indicate that chimpanzees faced with the death of a friend or family member will not immediately give up but, after several attempts, experience strong bouts of grief and distress as they come to the realization that the deceased is not coming back and the condition is irreversible. Their responses are, at the least, equivalent to the first stage of understanding of death - irreversibility - which human children pass through at about age five (Speece and Brent, 1984), which is well past the age of the emergence of self-recognition and during a period of developing theory of mind and empathy.

#### **D. Empathy and Compassion**

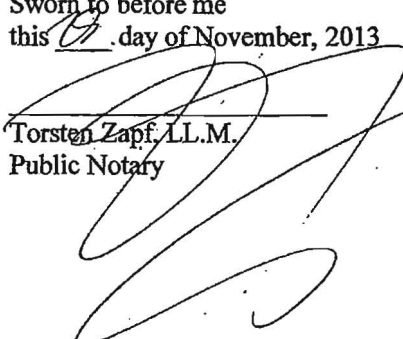
18. Empathy is the ability to put oneself in the situation of another perceptually and cognitively. It is only possible if one can adopt another's perspective. Empathy, and, in particular, compassion, require not only a sense of self but the ability to attribute feelings to others, i.e., to understand that someone else could be in a different state than you or could be feeling differently from you. Evidence from both captive and wild chimpanzees indicates that they are capable of highly developed empathic abilities (de Waal, 1990). I have observed clear instances of compassionate care and empathy among wild chimpanzees towards injured individuals. Moreover, responses to others' wounds are not based on simple learning rules because wound licking and tending are only done under specific circumstances, e.g., when the wounded individual is too weak to care for himself or when wounds are in hard-to-reach places. Wound tending is also done by individuals are not close family relatives of the injured. Finally, empathic tendencies vary across

chimpanzee individuals and populations. Wound-tending is quite common in the Taï forest chimpanzees. Saliva has a strong antiseptic property and its regular application to a fresh wound speeds up healing. Taï chimpanzees have been observed licking wounds on the injured feet of others and cleaning out a cut over an eye. Moreover, chimpanzees are aware of the intentions of another chimpanzees when being helped. I observed a female chimpanzee whose hand was trapped in a snare, extend her wounded hand to a male friend and sit still to allow him to remove the cables (Boesch, 2012). These and other examples are striking evidence for the chimpanzee empathy, compassion and recognition when someone else is trying to help them – all complex aspects of self-awareness.



Prof. Dr. Christophe Boesch  
Director, Dept. of Primatology  
Max Planck Institute for Evolutionary  
Anthropology

Sworn to before me  
this 07 day of November, 2013



Torsten Zapf, LL.M.  
Public Notary



FileNo. 666/2013

The following notarial act is just a confirmation of signature.

I hereby certify that the above is the true signature, subscribed in my presence, of

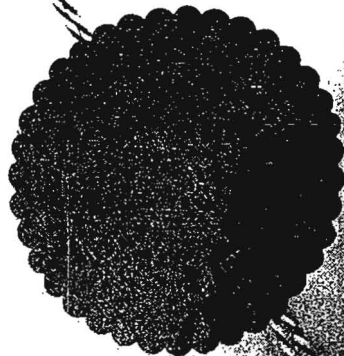
**Mr. Prof. Christophe Boesch**

Date of Birth: 11-08-1951 in St. Gallen

address: Bleichertstraße 2 in 04155 Leipzig

- identified by his French Passport No. 13BC63470

Leipzig, 11/19/2013



**APOSTILLE**

**(Convention de La Haye du 5 octobre 1961)**

1. Land: **Bundesrepublik Deutschland**

Diese öffentliche Urkunde

2. ist unterschrieben von **Herrn Zapf**

3. in seiner Eigenschaft als **Notar**

4. sie ist versehen mit dem Siegel des

**Notars in Leipzig Torsten Zapf**

Bestätigt

5. in **Leipzig**

6. am **21.11.2013**

7. durch den **Präsidenten des Landgerichts**

8. unter Nr. **910A-765/2013**

**In Vertretung**

9. Stempel/Siegel

10. Unterschrift



*Kai Deusing*

**Kai Deusing**  
Vizepräsident



# Exhibit: A. to Affidavit of Christophe Boesch sworn to November 19, 2013

## Curriculum Vitae

### Christophe Boesch CV

#### Personal

Date of Birth: 11-08-51 in St Gallen, Switzerland  
Nationality: French and Swiss  
Marital status: Married, two children (1983, 1988)  
Languages: French, English, German

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#### Education

Secondary school	1965-68: Lycée François Villon, Paris 1968-70: Collège Calvin, Genève degree: Maturité scientifique.
University of Geneva, Switzerland	1970-75: Faculty of Biology, Diplôme de biologiste, 1975: supervisor: Prof. Hans Huggel
University of Zürich, Switzerland	1979-1984: Department of Ethology and Wildlife Research Ph.D. degree, 1984: Title: "Nut-cracking behaviour of wild chimpanzees", supervisor: Prof. Hans Kummer.
University of Basel, Switzerland	Habilitation degree (Privat Dozent): 1994. supervisor: Prof. Stephen Stearns.

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#### Professional experience

1973	3 months of census work on the Mountain Gorilla in the Virunga National Park, Rwanda. Supervised by Dr. Dian Fossey. This work was the basis of my diplom master thesis.
1975 and 1977	Teaching biology at a secondary school, Collège Moderne, in Geneva.
1976	8 months in the Taï National Park, Ivory Coast, for a preliminary study of the nut-cracking behaviour of wild chimpanzees and an evaluation of the feasibility of a long-term study.
1978	4 months assistant at the Department of Ethology and Wildlife Research (Prof. Hans Kummer) at the University of Zürich.
1979-ongoing	Long-term study of the wild chimpanzees in the Taï National Park in the Ivory Coast. Principal themes under study; ecology, social organisation, tool-use, hunting, cooperation, food-sharing, inter-community relationships, cognitive capacities.
1984-1990	Postdoctoral Research Associate at the Department of Ethology (Prof. Hans Kummer) at the University of Zurich.
1987-1989	4 months visit at the Department of Population Biology (Prof. Stephen Stearns), University of Basel.
1990 and 1992 (April to July)	Comparative field study on the chimpanzees of Gombe Stream National Park, Tanzania.
January 1991-September 1997	Assistant professor at the department of Population Biology (Prof. Stephen C. Stearns), University of Basel (Switzerland).
1995 Spring	Visiting Professor, University of Rennes, France.
1996 Spring	Visiting Professor, Ecole Normale Supérieure, Paris, France.

1997- ongoing	Director, Max Planck Institute of Evolutionary Anthropology in Leipzig, Germany.
1999 (August to October)	Comparative field study on the chimpanzees of the Mahale Mountains National Park, Tanzania.
1999- ongoing	Honorary Professor, Dept. of Zoology, University of Leipzig, Germany.
2000- ongoing	Founder and President of the Wild Chimpanzee Foundation.

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### Teaching experience

Directing field work of students:	Diplom thesis: 16 students of different European universities. Ph. D. thesis: 24 students from European and American universities. Post-doctoral work: 8 students from European universities.
Teaching at the University of Basel:	Spring 1991: Behavioural Ecology of Primates (2 hours per week). Winter semester (1991- 1997): Evolution, Ecology and Behaviour (4 hours per week). Behavioural Ecology and Sociobiology (2 hours per week). Seminar on Population Biology (1 hour per week). Summer semester (1992-1997): Field course in Population Biology (2 weeks). Field course in Evolutionary Biology (1 week)
Teaching at the University of Leipzig:	Summer semester (1999-ongoing): Behavioural Ecology (2 hours per week)

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### Offices and advisory work

- Fyssen Foundation, Paris, scientific board member (1985-1989)
- World Wide Fund for Nature International (WWF Int.): Consultant to negotiate with the Ivorian government a conservation project for the Tai National Park (1987-1988).
- World Wide Fund for Nature International: Coordinator project in the Tai National Park, Ivory Coast (1988-1992).
- Committee for the Care and Conservation of Chimpanzee (CCCC), executive council (1988-1992)
- Society for the study of Animal Behaviour, Member (1993-1998)
- IUCN/SSC Primate, Specialist Group (1986-ongoing)
- International Primatological Society (1986-ongoing)
- International Primate Protection League (1986-ongoing).
- International Journal of Primatology, Editorial Board (1990-2004).
- Behavioral and Brain Sciences, Associates (1991-ongoing)
- Pan Africa News, Editorial Board (1997-ongoing)
- Steering Committee of the World Heritage Species Status Taskforce, Member (2002-ongoing)
- IUCN/SSC/ Section of the Great Apes (SGA), Executive Committee Member (2003-ongoing)
- Co-chairman of the Scientific Committee of the Great Apes Survival project (GRASP) of the UNEP/UNESCO (2003-ongoing)



Grant reviewer: NIH, National Science Foundation (USA), Swiss National Science Foundation, Leakey Foundation, National Geographic Society, Fulbright Foundation, Wenner-Gren Foundation,

Ad Hoc Reviewer: Behavioural and Brain Sciences, Animal Behaviour, Nature, Behaviour, Ethology, Primates, International Journal of Primatology, American Journal of Primatology, Folia Primatologica, American Journal of Physical Anthropology, Current Anthropology, Behavioural Ecology, Proceedings of the National Academy Science, Serie B, Quarterly Review of Biology, American Naturalists, Journal of Human Evolution, Proceedings of the Royal Society: Biological Sciences, Journal of Evolutionary Biology.

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#### **Awards and other honours**

- 1985 Prix Cortaillod for talented Swiss scientists under 35 years old, University of Neuchâtel, Switzerland.
- 1987 Great Apes Fellowship of the Leakey Foundation, Pasadena.
- 1989 Great Apes Fellowship of the Leakey Foundation, Pasadena.
- 1999 Phillip Morris Research Price, München.
- 2013 Medal "Officier de l'Ordre National" by the president of Côte d'Ivoire Alassane Ouattara 2013

## **Publications**

### **Books:**

Boesch, C. 2012: Wild Cultures: A Comparison between Chimpanzee and Human Cultures. Cambridge: Cambridge University Press.

Boesch, C. and O'Connell, S. 2012: Chimpanzee: The Making of the Film. Disney Editions New York

Boesch, C. 2009. The Real Chimpanzee: Sex Strategies in the Forest. Cambridge: Cambridge University Press.

Boesch, C. and Boesch-Achermann, H. 2000. The Chimpanzees of the Tai Forest: Behavioural Ecology and Evolution. Oxford: Oxford University Press.

Sanz Crickette M. , Call, J., Boesch, C. 2013: Tool Use in Animals - Cognition and Ecology Cambridge: Cambridge University Press.

Boesch, C., Grundmann, E., Mulhauser, B. 2011: Manifeste pour les Grands Singes. Le Savoir Suisse, Presses Polytechniques et Universitaires Romandes.

Robbins, MM. and Boesch, C. (eds) 2011. Among African Apes: Stories and photos from the field. Berkeley: University of California Press.

Hohmann, G. and Robbins, M. Boesch, C. 2006. Feeding Ecology in Apes and Other Primates. Cambridge: Cambridge University Press.

Reichard, U. and C. Boesch. 2003. Monogamy: Mating Strategies and Partnerships in Birds, Humans and Other Mammals. Cambridge: Cambridge University Press.

Boesch, C., Hohmann, G. and Marchant, L. 2002. Behavioural Diversity in Chimpanzees and Bonobos. Cambridge: Cambridge University Press.

### **2005**

Tutin, C., Stokes, E. Boesch, C. and Kormos, R. 2005. Regional Action Plan for Chimpanzees and Gorillas in West Equatorial Africa. Washington: Conservation International.

### **2003**

Doran, D. and Boesch, C. 2003. Special Issue on Western Lowland Gorillas. American Journal of Primatology.

Kormos, R. and Boesch, C. 2003. Regional Action Plan for Chimpanzees in West Africa. Washington: Conservation International.

Kormos, R., Boesch, C., Bakkar, M. and Butynski, T. 2003. The West African Chimpanzee: Status Survey and Conservation Action Plan. IUCN, Gland, Switzerland and Cambridge, UK.

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## Publications

### 2013

Boesch, C. 2013: Ecology and cognition of tool use in chimpanzees. In: Tool Use in Animals - Cognition and Ecology Cambridge: Cambridge University Press.

Borchers C., Boesch C., Riedel J., Guilahoux H., Ouattara D., Randler R. (2013). Environmental Education in Côte d'Ivoire/West Africa: Extra-Curricular Primary School Teaching Shows Positive Impact on Environmental Knowledge and Attitudes. International Journal of Science Education, Part B. [www.tandfonline.com/doi/full/10.1080/21548455.2013.803632](http://www.tandfonline.com/doi/full/10.1080/21548455.2013.803632)

Calvignac-Spencer, S., Merkel, K., Kutzner, N., Kühl, H., Boesch, C., Kappeler, P.M., Metzger, S., Schubert, G., Leendertz, F. (2013) Carrion fly-derived DNA as a tool for comprehensive and cost-effective assessment of mammalian biodiversity. *Molecular Ecology* 22, 915–924.

Coscolla, M., Lewin, A., Metzger, S., Maetz-Rennsing, K., Calvignac-Spencer, S., Nitsche, A., Wojtek Dabrowski, P., Radonic, A., Niemann, S., Parkhill, J., Couacy-Hymann, E., Feldman, J., Comas, I., Boesch, C., Gagneux, S. and Leendertz, F.H. 2013. Novel Mycobacterium tuberculosis Complex Isolate from a Wild Chimpanzee. *Emerging Infectious Diseases*, Vol. 19, No. 6, June 2013.

De Nys, H. M., Calvignac-Spencer, S., Thiesen, U., Boesch, C., Wittig, R. M., Mundry, R., & Leendertz, F. H. (2013). Age-related effects on malaria parasite infection in wild chimpanzees. *Biology Letters*, 9(4): 20121160. doi:10.1098/rsbl.2012.1160.

Fahy G.E., Richards M., Riedel J., Hublin J.J. and Boesch C. (2013). Stable isotope evidence of meat eating and hunting specialization in adult male chimpanzees. *PNAS*.

Head, J., Boesch, C., Robbins, M.M., Rabanal, L., Makaga, L., Kühl, H. 2013 Effective sociodemographic population assessment of elusive species in ecology and conservation management. *Ecology and Evolution* doi: 10.1002/ece3.670

Janmaat, KRL, Ban, SD & Boesch, C (2013). Taï chimpanzees use botanical skills to discover fruit: what we can learn from their mistakes. *Animal Cognition*, DOI 10.1007/s10071-013-0617-z.

Janmaat, K.R.L., Ban, S. D., Boesch, C. (2013). Chimpanzees use long-term spatial memory to monitor large fruit trees and remember feeding experiences across seasons. *Animal Behaviour*, <http://dx.doi.org/10.1016/j.anbehav.2013.09.021>, published online 23 October 2013.

N’Goran, P.K., Kouakou, C. Y., N’goran, E.K., Konaté, S., Herbinger, I., Yapi, F.A., Kuehl, H., Boesch, C. (2013) Chimpanzee conservation status in the World Heritage Site Taï National Park, Côte d’Ivoire. *International Journal of Innovation and Applied Studies*, 3, 326-336.

Polansky, L., & Boesch, C. (2013). Long-term Changes in Fruit Phenology in a West African Lowland Tropical Rain Forest are Not Explained by Rainfall. *Biotropica*, /45/(4), 434-440. doi:10.1111/btp.12033.

Wittiger, L., & Boesch, C. (2013). Female gregariousness in Western Chimpanzees (*Pan troglodytes verus*) is influenced by resource aggregation and the number of females in estrus. *Behavioral Ecology and Sociobiology*, /67/(7), 1097-1111. doi:10.1007/s00265-013-1534-5.

## 2012

Adlhoch, C. Kaiser, M., Loewa, A., Ulrich, M., Forbrig, C., Adjogoua, E.V., Akoua-Koffi, C. Couacy-Hymann, E., Leendertz, S.A., Rietschel, W., Boesch, C., Ellerbrok, H., Schneider, B.S., Leendertz, F.H. 2012. Diversity of Parvovirus 4-like Viruses in Humans, Chimpanzees, and Monkeys in Hunter-Prey Relationships. *Emerging Infectious Diseases* Vol. 18, No. 5, May 2012.

Boesch, C. 2012. From material to symbolic cultures: Culture in primates. In: Valsiner, J. (ed.), *The Oxford Handbook of Culture and Psychology*, Oxford: Oxford University Press.

Boesch, C. 2012. The Ecology and Evolution of Social Behavior and Cognition in Primates. In *The Oxford Handbook of Comparative Evolutionary Psychology*, edited by J. Vonk and T. Shackelford, Oxford: Oxford University Press

Breuer, T.; Robbins, A.M., Boesch, C., Robbins, M.M. 2012. Phenotypic correlates of male reproductive success in western gorillas. *Journal of Human Evolution*, 62 (2012) 466e472

Calvignac-Spencer, S., Merkel, K., Kutzner, N., Kühl, H., Boesch, C., Kappeler, P.M., Metzger, S., Schubert, G., Leendertz, F.H. (2012). Carrion fly-derived DNA as a tool for comprehensive and cost-effective assessment of mammalian biodiversity. *Molecular Ecology* doi: 10.1111/mec.12183

Deschner, T., Fuller, B., Oelze, V., Boesch, C., Hublin, J.J., Mundry, R., Richards, M.P., Ortman, S., Hohmann, G. Identification of energy consumption and nutritional stress by isotopic and elemental analysis of urine in bonobos (*Pan paniscus*). *Rapid Communications in Mass Spectrometry*. 2012, 26, 69-77.

Head, JS, Robbins, MM, Mundry, R, Makaga, L, and Boesch, C. 2012. Remote video-camera traps measure habitat use and competitive exclusion among sympatric chimpanzee, gorilla and elephant in Loango National Park, Gabon. *Journal of Tropical Ecology*, 28: 571-583.

Junker, J., Blake, S., Boesch, C., Campbell, G., du Toit, L., Duvall, C., Ekobo, A., Etoga, G., Galat-Luong, A., Gamys, J., Ganas-Swaray, J., Gatti, S., Ghiurghi, A., Granier, N., Hart, J., Head, J., Herbinger, I., Hicks, T.C., Huijbregts, B., Imong, I., Kuempel, N., Lahm, S., Lindsell, J., Maisels, F., McLennan, M., Martinez, L., Morgan, B., Morgan, D., Mulindahabi, F., Mundry, R., N'Goran, P., Normand, E., Ntongho, A., Tiku Okon, D., Petre, C.-A., Plumptre, A., Rainey, H., Regnaut, S., Sanz, C., Stokes, E., Tondossama, A., Tranquilli, S., Sunderland-Groves, J., Walsh, P., Warren, Y., Williamson, E.A. and Kuehl, H.S. Recent decline in suitable environmental conditions for African great apes 2012. *Diversity and Distributions*, (2012) 1–15, DOI: 10.1111/ddi.12005

Langergraber, K., Pruefer, K., Rowney, C., Boesch, C., Crockford, C., Fawcett, K., Inoue, E., Inoue-Muruyama, M., Mitani, J., Muller, M.N., Robbins, M.M., Schubert, G., Stoinski, T.S., Viola, B., Watts, D., Wittig, R.M., Wrangham, R.W., Zuberbuehler, K., Pääbo, S., Vigilant, L. 2012 Generation times in wild chimpanzees and gorillas suggest earlier divergence times in great ape and human evolution. *PNAS* August 13, 2012 doi: 10.1073/pnas.1211740109

Luncz, L. V., Mundry, R., Boesch, C. 2012 Evidence for Cultural Differences between Neighboring Chimpanzee Communities. *Current Biology* 22, 1–5, May 22, 2012 - DOI 10.1016/j.cub.2012.03.031

N'Goran, P. K., Boesch, C., Mundry, R., N'Goran, E.K., Herbinger, I., Yapi, F.A., Kühl, H.S. 2012 Hunting, Law Enforcement, and African Primate Conservation. *Conservation Biology* DOI: 10.1111/j.1523-1739.2012.01821.x

Neubauer, S., Gunz, P., Schwarz, U., Hublin, J.-J. and C. Boesch (2012) Endocranial volumes in an ontogenetic sample of chimpanzees from the Taï Forest National Park, Ivory Coast. *American Journal of Physical Anthropology*. 147(2):319-325.

Schaumburg, F., Alabi, A., Köck, R., Mellmann, A., Kremsner, P.G., Boesch C., Becker, K., Leendertz, F.H., Peters, G. 2012 Highly divergent *Staphylococcus aureus* isolates from African non-human primates. *Environmental Microbiology Reports* (2012) 4(1), 141–146

Skinner, M.F., Skinner, M.M., Boesch, C. Developmental defects of the dental crown in chimpanzees from the Taï National Park, Côte D'Ivoire: coronal waisting. *American Journal of Physical Anthropology* 149: 272-282

Vallo, P., Petrželková, K. J., Profousová, I., Petrášová, J., Pomajbíková, K., Leendertz, F., Hashimoto, C., Simmons, N., Babweteera, F., Machanda, Z., Piel, A., Robbins, A. M., Boesch, C., Sanz, C., Morgan, D., Sommer, V., Furuichi, T., Fujita, S., Matsuzawa, T., Kaur, T., Huffman, M. A., & Modrý, D. (2012).

Molecular diversity of entodiniomorphid ciliate *Troglodytella abressarti* and its coevolution with chimpanzees. *American Journal of Physical Anthropology*, /148/(4), 525-533. doi:10.1002/ajpa.22100.

## 2011

Arandjelovic, M., Head, J., Rabanal, L., Schubert, G., Mettke, E., Boesch, C., Robbins, M. and Vigilant, L. 2011. Non-invasive genetic monitoring of wild central chimpanzees. *PLoS One* 6(3): e14761.

Campbell, G., Kuehl, H., Diarrassouba, A., N'Goran, P. and Boesch, C. 2011. Long-term research sites as refugia for threatened and over-harvested species. *Biology Letters*, 7 (5) 723-726.

Gomes, C., and Boesch, C. 2011. Reciprocity and trades in wild West African chimpanzees. *Behavioral Ecology and Sociobiology*, Vol 65, No. 11, 2183-2196.

Héad, J., Boesch, C., Makaga, L., and Robbins, M.M. (2011). Sympatric chimpanzees and gorillas in Loango National Park, Gabon: Dietary composition, seasonal changes and inter-site comparisons. *International Journal of Primatology* 32:755-775.

Kouakou, C., Boesch, C. and Kuehl, H. 2011. Identifying hotspots of chimpanzee group activity from transect surveys in Taï National Park, Côte d'Ivoire. *Journal of Tropical Ecology*, 27: 621-630.

Lazenby, R., Skinner, M., Hublin, J. and Boesch, C. 2011. Metacarpal trabecular architecture in the chimpanzee (*Pan troglodytes*): evidence for locomotion and tool-use? *American Journal of Physical Anthropology*, 144: 215-225.

Leendertz, S.A., Locatelli, S., Boesch, C., Kücherer, C., Formenty, P., Liegeois, F., Ayouba, A., Peeters, M., Leendertz, F. 2011 No evidence for transmission of SIVwrc from western red colobus monkeys (*piliocolobus badius badius*) to wild west African chimpanzees (*pan troglodytes verus*) despite high exposure through hunting. *BMC Microbiology* 2011, 11:24

Schubert, G., Stoneking, C., Arandjelovic, M., Boesch, C., Eckhardt, N., Hohmann, G., Langergraber, K., Lukas, D. and Vigilant, L. 2011. Male-mediated gene flow in patrilocal primates. *PLoS One* 6(7): e21514.

Smith, H. and Boesch, C. 2011. Mortality and the magnitude of the "wild effect" in chimpanzee tooth emergence. *Journal of Human Evolution*, 60: 34-46.

Tranquilli, S., Abedi-Lartey, M., Amsini, F., Arranz, L., Asamoah, A., Babafemi, O., Barakabuye, N., Campbell, G., Chancellor, R., Davenport, T. R., Dunn, A., Dupain, J., Ellis, C., Etoga, G., Furuichi, T., Gatti, S., Ghiurghi, A., Greengrass, E., Hashimoto, C., Hart, J., Herbinger, I., Hicks, T. C., Holbeck, L. H., Huijbregts, B., Imong, I., Kumpel, N., Maisels, F., Marshall, P., Nixon, S., Normand, E., Nziguyimpa, L., Nzooh-Dogmo, Z., Okon, D. T., Plumptre, A., Rundus, A., Sunderland-Groves, J., Todd, A., Warren,

Y., Mundry, R., Boesch, C., & Kuehl, H. S. (2011). Lack of conservation effort rapidly increases African great ape extinction risk./*Conservation Letters*./ /5/(1), 48-55. doi:10.1111/j.1755-263X.2011.00211.x.

Wevers, D., Metzger, S., Babweteera, F., Bieberbach, M., Boesch, C., Cameron, K., Couacy-Hymann, E., Cranfield, M., Gray, M., Harris, L. A., Head, J., Jeffery, K., Knauf, S., Lankester, F., Leendertz, S. A. J., Lonsdorf, E., Mugisha, L., Nitsche, A., Reed, P., Robbins, M., Travis, D. A., Zommers, Z., Leendertz, F. H., & Ehlers, B. (2011). Novel Adenoviruses in Wild Primates: a High Level of Genetic Diversity and Evidence of Zoonotic Transmissions./*Journal of Virology*./ /85/(20), 10774-10784. doi:10.1128/JVI.00810-11.

## 2010

Arandjelovic, M, Head, J, Boesch, C, Kuehl, HS, Robbins, MM, Maisels, F, Vigilant. (2010). Effective non-invasive genetic monitoring of multiple wild western gorilla groups. *Biological Conservation*, 1443:1780-1791.

Boesch, C. (2010). Open peer commentary for BBS on Henrich, J. et al.. Away from Ethnocentrism and Anthropocentrism: Towards a scientific understanding of what makes us human". *Behavioral and Brain Sciences* 33: 86-87.

Boesch, C., Bolé, C., Eckhardt, N., Boesch, H. (2010). Altruism in forest chimpanzees: the case of adoption. *PlosOne* Vol. 5/1/e8901.

Junglen, S., Hedemann, C., Ellerbrok, H., Pauli, G., Boesch, C. and Leendertz, F. 2010. Diversity of STLV-1 strains in wild chimpanzees (*Pan troglodytes verus*) from Côte d'Ivoire. *Virus Research*, 150: 143-147.

Klee, S., Brzuszkiewicz, E., Nattermann, H. Brüggemann, H., Dupke, S., Wollherr, A., Franz, T., Pauli, G., Appel, B., Liebl, W., Couacy-Hymann, E., Boesch, C., Meyer, F., Leendertz, F., Ellerbrok, H., Gottschalk, G., Grunow, G., and Liesegang, H. 2010. The genome of a *Bacillus* isolate causing anthrax in chimpanzees combines chromosomal properties of *B. cereus* and *B. anthracis* virulence plasmids. *PLoS One* 5(7): e10986.

Koendgen, S, Schenk, S., Pauli, G., Boesch, C., Leendertz, F. (2010). Noninvasive monitoring of respiratory viruses in Wild Chimpanzees. *EcoHealth* online, doi 10.1007/s10393-010-0340-z.

Langergraber KE, Boesch C, Inoue E, Inoue-Muruyama M, Mitani JC, Nishida T, Pusey A, Reynolds V, Schubert G, Wrangham RW, Wroblewski E, Vigilant L (2010) Genetic and 'cultural' similarity in wild chimpanzees. *Proceedings of the Royal Society B*.

Leendertz, S.A., Metzger, S., Skjerve, E., Deschner, T., Boesch, C., Riedel, J., Leendertz, F. (2010). A longitudinal study of urinary dipstick parameters in wild chimpanzees (*Pan troglodytes verus*) in Côte d'Ivoire. *American Journal of Primatology*, 71:1-10.

Newton-Fisher NE, Emery Thompson M, Reynolds V, Boesch C, Vigilant L (2010) Paternity and social rank in wild chimpanzees (*Pan troglodytes*) from the Budongo Forest, Uganda. *American Journal of Physical Anthropology* 142: 417-428.

Rabanal, L.I., Kuehl, H.S., Mundry, R., Robbins, M.M., Boesch, C. (2010). Oil prospecting and its impact on large rainforest mammals in Loango National Park, Gabon. *Biological Conservation*, 143: 1017-1024.

Riedel, J., Franz, M., Boesch, C. (2010). How feeding competition determines female chimpanzees' gregariousness and ranging in the Tai National Park, Côte d'Ivoire. *American Journal of Primatology* 71:1-9.

Smith, T.M., Smith, B.H., Reid, D.J., Siedel, H., Vigilant, L., Hublin, J.J., Boesch, C. (2010) Dental development of the Tai Forest chimpanzees revisited. *Journal of Human Evolution*, 58: 363-373.

Stumpf, R.M., Boesch, C. (2010) Male aggression and sexual coercion in wild West African chimpanzees (*Pan troglodytes verus*). *Animal Behaviour* 79: 333-342.

Wevers, D., Leendertz, F., Scuda, N., Boesch, C., Robbins, M., Head, J., Ludwig, C., Kühn, J. and Ehlers, B. 2010. A novel adenovirus of western lowland gorillas (*Gorilla gorilla gorilla*). *Virology Journal*, 7: 303-311.

Wittig RM, Boesch C (2010): Receiving Post-Conflict Affiliation from the Enemy's Friend Reconciles Former Opponents. *PLoS ONE* 5(11): e13995. doi:10.1371/journal.pone.0013995

## 2009

Boesch, C, Head, J, & Robbins, MM. (2009). Complex tool sets for honey extraction among chimpanzees in Loango National Park, Gabon. *Journal of Human Evolution* 56: 560-569.

Borchers, C., Riedel, J., Boesch, C., Breuer, T. (2009). Deux programmes d'éducation environnementale pour la conservation des grands singes africains: Club Ebobo et Club P.A.N.. *Revue de primatologie*: [En ligne], 1.

Ehlers, B., Spieß, K., Leendertz, F., Peeters, M., Boesch, C., Gatherer, D. and McGeoch, D. (2009). Lymphocryptovirus phylogeny and the origins of Epstein-Barr virus. *Journal of General Virology*, 10.1099/vir.0.017251-0.



- Gomes, C. M. and C. Boesch (2009). Wild Chimpanzees Exchange Meat for Sex on a Long-Term Basis. *PLoS ONE* 4, 4, Seq. No.: e5116.
- Gomes, C. M., R. Mundry and C. Boesch (2009). Long-term reciprocation of grooming in wild West African chimpanzees. *Proceedings of the Royal Society, Series B: Biological Sciences* 276, 1657: 699-706.
- Herbinger, I., S. Papworth, C. Boesch and K. Zuberbühler (2009). Vocal, gestural and locomotor responses of wild chimpanzees to familiar and unfamiliar intruders: a playback study. *Animal Behaviour* 78, 6: 1389-1396.
- Jensen, S. A., R. Mundry, C. L. Nunn, C. Boesch and F. H. Leendertz (2009). Non-invasive Body Temperature Measurement of Wild Chimpanzees Using Fecal Temperature Decline. *Journal of Wildlife Diseases* 45, 2: 542-546.
- Kouakou, C. Y., C. Boesch and H. Kühl (2009). Estimating chimpanzee population size with nest counts: validating methods in Taï National Park. *American Journal of Primatology* 71, 6: 71-6.
- Kuehl, H. S., C. Nzeingui, S. Le Duc Yeno, B. Huijbregts, C. Boesch and P. D. Walsh (2009). Discriminating between village and commercial hunting of apes. *Biological Conservation* 142, 7: 1500-1506.
- Leendertz FH, Deckers M, Schempp W, Lankester F, Boesch C, Hohmann G, Mugisha L, Dolan A, Derek G, McGeech DJ, Ehlers B 2009. Novel cytomegaloviruses in free-ranging and captive great apes: phylogenetic evidence for bidirectional horizontal transmission. *Journal of General Virology*, 90, 2386-2394.
- Leendertz, F. H., M. Deckers, W. Schempp, F. Lankester, C. Boesch, L. Mugisha, A. Dolan, D. Gatherer, D. J. McGeech and B. Ehlers (2009). Novel cytomegaloviruses in free-ranging and captive great apes : phylogenetic evidence for bidirectional horizontal transmission. *Journal of General Virology* 90, 10: 2386-2394.
- Lehmann, J. and C. Boesch (2009). Sociality of the dispersing sex: the nature of social bonds in West African female chimpanzees (*Pan troglodytes*). *Animal Behaviour* 77, 2: 377-387.
- Morozov, V. A., F. H. Leendertz, S. Junglen, C. Boesch, G. Pauli and H. Ellerbrok (2009). Frequent foamy virus infection in free-living chimpanzees of the Taï National Park (Côte d'Ivoire). *Journal of General Virology* 90: 500-506.
- Neel, C., Etienne, L., Li, Y., Takehisa, J., Rudicell, R., Ndong, I., Moudindo, J., Mebenga, A., Esteban, A., Van Heuverswyn, F., Liegeois, F., Kranzusch, P., Walsh, P., Sanz, C., Morgan, D., Ndjango, J., Plantier, J.-C., Locatelli, S., Gonder, M., Leendertz, F., Boesch, C., Todd, A., Delaporte, E., Ngole, E.,

Hahn, B. and Peeters, M. (2009). Molecular epidemiology of Simian Immunodeficiency Virus Infection in wild-living gorillas. *Journal of Virology*: JVI.021 29-09v1.

N'Guessan, A. K., S. Ortmann and C. Boesch (2009). Daily Energy Balance and Protein Gain Among Pan troglodytes verus in the Taï National Park, Côte d'Ivoire. *International Journal of Primatology* 30, 3: 481-496.

Normand, E. and C. Boesch (2009). Sophisticated Euclidean maps in forest chimpanzees. *Animal Behaviour* 77, 5: 1195-1201.

Normand, E., S. Dagui Ban and C. Boesch (2009). Forest chimpanzees (*Pan troglodytes verus*) remember the location of numerous fruit trees. *Animal Cognition* 12, 6: 797-807.

Nunn, C. L., P. H. Thrall, K. Bartz, T. Dasgupta and C. Boesch (2009). Do transmission mechanisms or social systems drive cultural dynamics in socially structured populations?. *Animal Behaviour* 77, 6: 1515-1524.

Rich, S. M., F. H. Leendertz, G. Xu, M. LeBreton, C. F. Djoko, M. N. Aminake, E. E. Takang, J. L. D. Diffo, B. L. Pike, B. R. Rosenthal, P. Formenty, C. Boesch, F. J. Ayala and N. D. Wolfe (2009). The origin of malignant malaria. *Proceedings of the National Academy of Sciences* 106, 35: 14902-14907.

Savini, T., C. Boesch and U. H. Reichard (2009). Varying Ecological Quality Influences the Probability of Polyandry in White-handed Gibbons (*Hylobates lar*) in Thailand. *Biotropica* 41, 4: 503-513.

Skinner, M. M., P. Gunz, B. A. Wood, C. Boesch and J.-J. Hublin (2009). Discrimination of extant Pan species and subspecies using the enamel-dentine junction morphology of lower molars. *American Journal of Physical Anthropology* 140, 2: 234-243.

Stumpf, R. and Boesch, C. 2009. Male aggression and sexual coercion in wild West African chimpanzees (*Pan troglodytes verus*). *Animal Behaviour*, doi:10.1016/j.an.behav.2009.11.008.

## 2008

Aureli, F., Schaffner, C., Boesch, C., Bearder, S., Call, J., Chapman, C., Connor, R., Fiore, A., Dunbar, R., Henzi, P., Holekamp, K., Korstjens, A., Layton, R., Lee, P., Lehmann, J., Manson, J., Fernandez, G., Strier, K., van Schaik, C. 2008. Fission-fusion dynamics. *Current Anthropology*, Vol 49, No. 4.

Barelli, C., Boesch, C. Heistermann, and Reichard, U. (2008). Female white-handed gibbons (*Hylobates lar*) lead group movements and have priority of access to food resources. *Behaviour*, 145: 965-981.

Barelli, C., Heistermann, M., Boesch, C., Reichard, U. H. (2008). "Mating patterns and sexual swellings in pair-living and multimale groups of wild white-handed gibbons (*Hylobates lar*)." *Animal Behaviour*, 75: 991-1001.

Boesch, C. 2008. Culture in evolution: towards an integration of chimpanzee and human culture. In *Explaining Culture Scientifically* (Ed. M. Brown). Washington: University of Washington Press.

Boesch, C. 2008. Taking development and ecology seriously when comparing cognition: Reply to Tomasello and Call (2008). *Journal of Comparative Psychology*, 122(4): 453-455.

Boesch, C. 2008. Why do chimpanzees die in the forest? The challenges of understanding and controlling for wild ape health. *American Journal of primatology*, 70: 722-726.

Boesch, C., Crockford, C., Herbinger, I., Wittig, R., Moebius, Y. and Normand, E. (2008). Intergroup conflicts among chimpanzees in Taï National Park: lethal violence and the female perspective. *American Journal of Primatology*, 70: 519-532.

Boesch, C., Gnakouri, C., Marques, L., Nohon, G., Herbinger, I., Lauginie, F., Boesch, H., Kouamé, S., Traoré M. and Akindes, F. 2008. Chimpanzee conservation and theatre: a case study of an awareness project around the Taï National Park, Côte d'Ivoire. In *Conservation in the 21st Century: Gorillas as a Case Study* (Eds, Stoinski, T., Steklis, D. and Mehlman, P.). pp.128-135. New York: Springer Science and Business Media.

Campbell, G., Kuehl, H., N'Goran, P., Boesch, C. (2008). "Alarming decline of West African chimpanzees in Côte d'Ivoire." *Current Biology*, 18: R903-R904.

Hauser, B., Deschner, T., Boesch, C. (2008). "Development of a liquid chromatography-tandem mass spectrometry method for the determination of 23 endogenous steroids in small quantities of primate urine." *J Chromatogr B Analyt Technol Biomed Life Sci* 862: 100-12.

Hauser, B. Schulz, D. Boesch, C. & Deschner, T. (2008) Measuring urinary testosterone levels of the great apes—Problems with enzymatic hydrolysis using *Helix pomatia* juice. *General and Comparative Endocrinology*, 158: 77-86.

Kondgen, S., Kuhl, H., N'Goran P, K., Walsh, P. D., Schenk, S., Ernst, N., Biek, R., Formenty, P., Matz-Rensing, K., Schweiger, B., Junglen, S., Ellerbrok, H., Nitsche, A., Briese, T., Lipkin, W. I., Pauli, G., Boesch, C., Leendertz, F. H. (2008). "Pandemic Human Viruses Cause Decline of Endangered Great Apes." *Curr Biol.*, 8: 260-264.

Kuehl, H., Elzner, C., Moebius, Y., Boesch, C. and Walsh, P. 2008. The price of play: self-organized infant mortality cycles in chimpanzees. *PLoS One*, 3(6): e2440.

Leendertz, F. H., Zirkel, F., Couacy-Hymann, E., Ellerbrok, H., Morozov, V. A., Pauli, G., Hedemann, C., Formenty, P., Jensen, S. A., Boesch, C., Junglen, S. et al. (2008). "Interspecies transmission of simian foamy virus in a natural predator-prey system." *J Virol* 82: 7741-7744.

Lehmann, J. and Boesch, C. (2008). Sex differences in chimpanzee sociality. *International Journal of Primatology* 29: 65-81.

Möbius, Y., Boesch, C., Koops, K., Matsuzawa, T., Humle, T. (2008). "Cultural differences in army ant predation by West African chimpanzees? A comparative study of microecological variables." *Animal Behaviour* 76: 37-45.

Savini, T., Boesch, C., Reichard, U. H. (2008). "Home-range characteristics and the influence of seasonality on female reproduction in white-handed gibbons (*Hylobates lar*) at Khao Yai National Park, Thailand." *Am J Phys Anthropol* 135: 1-12.

Skinner, M. M., Wood, B. A., Boesch, C., Olejniczak, A. J., Rosas, A., Smith, T. M., Hublin, J. J. (2008). "Dental trait expression at the enamel-dentine junction of lower molars in extant and fossil hominoids." *J Hum Evol* 54: 173-86.

Zihlman, A. L., Stahl, D., Boesch, C. et al. (2008). "Morphological variation in adult chimpanzees (*Pan troglodytes verus*) of the Tai National Park, Côte d'Ivoire." *Am J Phys Anthropol* 135: 34-41.

## 2007

Barelli Claudia, Heistermann Michael, Boesch Christophe & Reichard Ulrich (2007) Sexual swellings in wild white-handed gibbon females (*Hylobates lar*) indicate the probability of ovulation. *Hormones and Behavior*, 51: 221-230.

Bertolani, P. and Boesch, C. (2007). Habituation of Wild Chimpanzees (*Pan troglodytes*) of the South Group at Tai forest, Côte d'Ivoire: Empirical Measure of Progress. *Folia Primatologica*, 79: 162-171.

Boesch, C. 2007 What Makes Us Human (*Homo sapiens*)? The Challenge of Cognitive Cross-Species Comparison. *Journal of Comparative Psychology*, 121: 227-240.

Boesch C, Head J, Tagg N, Arandjelovic M, Vigilant L, Robbins M 2007. Fatal chimpanzee attack in Loango National Park, Gabon: Observational and genetic evidence. *International Journal of Primatology*. 28: 1025-1034.

Breuer, T., Robbins, M.M., Boesch, C. (2007) Using photogrammetry and color scoring to assess sexual dimorphism in wild western gorillas. *American Journal of Physical Anthropology*, 134: 369-382.

Chi, F., Leider, M., Leendertz, F., Bergmann, C., Boesch, C., Schenk, S., Pauli, G., Ellerbrok, H., Hakenbeck, R. (2007). New *Streptococcus pneumoniae* Clones in Deceased Wild Chimpanzees. *J. Bacteriology* 189: 6085–6088.

Deschner, T. and Boesch, C. 2007. Can the patterns of sexual swelling cycles in female Taï chimpanzees be explained by the “cost-of-sexual attraction” hypothesis? *International Journal of Primatology*.

Kuehl, Hjalmar S., Liz Williamson, Chrickette Sanz, David Morgan and Christophe Boesch (2007). Launch of A.P.E.S. database. *Gorilla Journal* 34: 20-21

Mercader, J., Barton, H., Gillespie, J., Harris, J., Kuhn, S., Tyler, R., Boesch, C. 2007. 4,00-Year-old chimpanzee sites and the origins of percussive stone technology. *PNAS* vol 104, no. 9, 3043-48

## 2006

Anderson, D., Nordheim, E. and Boesch, C. 2006. Environmental factors influencing the seasonality of estrus in chimpanzees. *Primates*, 47: 43-50.

Boesch, C., Goné Bi, Z., Anderson, D. and Stahl, D. 2006. Food choice in Taï chimpanzees: Are cultural differences present? In *Feeding Ecology in Apes and Other Primates* (Hohmann, G., Robbins, M. and Boesch, C., Eds), pp. 365-399. Cambridge: Cambridge University Press.

Boesch, C., Kohou, G., Néné, H., and Vigilant, L. 2006. Male competition and paternity in wild chimpanzees of the Taï forest. *American Journal of Physical Anthropology*.

Carlson, K., Doran-Sheehy, D., Hunt, K., Nishida, T., Yamanaka, A. and Boesch, C. 2006. Locomotor behavior and long bone morphology in individual free-ranging chimpanzees. *Journal of Human Evolution*, 50(4): 394-404.

Eriksson J, Siedel H, Lukas D, Kayser M, Eler A, Hashimoto C, Hohmann G, Boesch C, Vigilant L (2006) Y-chromosome analysis confirms highly sex-biased dispersal and suggests a low male effective population size in bonobos (*Pan paniscus*). *Molecular Ecology*, 15(4): 939-949.

Klee, S., Ozel, M., Appel, B., Boesch, C., Ellerbrok, H., Jacob, D., Holland, G., Leendertz, F., Pauli, G., Grunow, R. and Nattermann, H. 2006. Characterisation of *Bacillus anthracis*-like bacteria isolated from wild great apes from Côte d'Ivoire and Cameroon. *Journal of Bacteriology*, 188(15): 5333-5344.

Leendertz, F., Lankester, F., Guislain, P., Néel, C., Drori, O., Dupain, J., Speede, S., Reed, P., Wolfe, N., Loul, S., Mpoudi-Ngole, V. Peeters, M., Boesch, C., Pauli, G., Ellerbrok, H. and Leroy, E. 2006. Anthrax in Western and Central African great apes. *American Journal of Primatology*.

Leendertz, F., Pauli, G., Maetz-Rensing, K., Boardman, W., Nunn, C., Ellerbrok, H., Jensen, S., Junglen, S. and Boesch, C. 2006. Pathogens as drivers of population declines: the importance of systematic monitoring in great apes and other threatened mammals. *Biological Conservation*, 131: 325-337.

Leendertz, F., Yumlu, S., Pauli, G., Boesch, C., Coucy-Hyman, E., Vigilant, L., Junglen, S. and Ellerbrok, H. 2006. A new *Bacillus anthracis* found in wild chimpanzees and a gorilla from west and central Africa. *PLoS Pathogens*, 2(1): 1-4.

Lehmann, J., Fickenscher, G. and Boesch, C. In press. Kin biased investment in wild chimpanzees. *Behaviour*.

Stumpf, R. and Boesch, C. 2006. The efficiency of female choice in chimpanzees of the Taï forest, Côte d'Ivoire. *Behavioural Ecology and Sociobiology*, 60: 749-765.

## 2005

Anderson, D., Nordheim, E., Moermond, T., Gone Bi, Z. and Boesch, C. 2005. Factors influencing tree phenology in the Taï National Park, Côte d'Ivoire. *Biotropica*, 37(4): 631-640.

Boesch, C. 2005. Joint cooperative hunting among wild chimpanzees: Taking natural observations seriously. *Behavioral and Brain Sciences*.

Boesch, C., Boesch, H. and Vigilant, L. 2005. Cooperative hunting in chimpanzees: Kinship or Mutualism? In *Cooperation in Primates and Humans: Mechanisms and Evolution*, (Kappeler, P. and Van Schaik, C., Eds.), 139-159. Berlin: Springer Verlag.

Crockford, C. and Boesch, C. 2005. Call combinations in wild chimpanzees. *Behaviour*.

Lehmann, J. and Boesch, C. 2005. Bisexually-bonded ranging in chimpanzees (*Pan troglodytes verus*). *Behavioral Ecology and Sociobiology*.

Lukas, D., Reynolds, V., Boesch, C. and Vigilant, L. 2005. To what extent does living in group mean living with kin? *Molecular Ecology*, 14(7): 2181-2196.

Stumpf, R. and Boesch, C. 2005. Does promiscuous mating preclude female choice? Female sexual strategies in chimpanzees (*Pan troglodytes verus*) of the Taï National Park, Côte d'Ivoire. *Behavioral Ecology and Sociobiology*, 57: 511-524.

## 2004

Boesch, C. 2004. Evolution des Werkzeuggebrauchs und der Kooperation bei schimpanzen. In *Sozialisationstheorie Interdisziplinär: Aktuelle Perspektiven* (Eds. Geulen, D. and Veith, H.). *Der Mensch als soziales und personales Wesen, Band 20*. Stuttgart : Lucius and Lucius.

- Bradley, B., Doran-Sheehy, D., Lukas, D., Boesch, C. and Vigilant, L. 2004. Dispersed male networks in Western gorillas. *Current Biology*, 14: 510-513.
- Crockford, C., Herbinger, I., Vigilant, L. and Boesch, C. 2004. Wild chimpanzees produce group-specific calls: a case for vocal learning? *Ethology*, 110: 221-243.
- Deschner, T., Heistermann, M., Hodges, K. and Boesch, C. 2004. Female sexual swelling size, timing of ovulation and male behavior in wild West African chimpanzees. *Hormones and Behavior*, 46: 204-215.
- Eriksson, J., Hohmann, G., Boesch, C. and Vigilant, L. 2004. Rivers influence the population genetic structure of bonobos (*Pan paniscus*). *Molecular Ecology*, 13(11): 3425-3435.
- Leendertz, F., Boesch, C., Ellerbrok, H., Rietschel, W., Couacy-Hyman, E. And Pauli, G. 2004. Non-invasive testing reveals a high prevalence of simian T-lymphotropic virus type 1 antibodies in wild adult chimpanzees of the Taï National Park, Côte d'Ivoire. *Journal of General Virology*, 85: 3305-3312.
- Leendertz, F., Boesch, C., Junglen, S., Pauli, G. and Ellerbock, H. 2004. Interspecies transmission of primate T-lymphotropic virus type 1 from red colobus monkeys to chimpanzees in the wild. *Journal of Virology*.
- Leendertz, F., Ellerbock, H., Boesch, C., Couacy-Hyman, E., Mätz-Rensing, K., Hakenback, R., Bergmann, C., Abaza, P., Junglen, S., Moebius, Y., Vigilant, L., Formenty, P. and Pauli, G. 2004. Anthrax kills wild chimpanzees in a tropical rainforest. *Nature*, 430: 451-452.
- Leendertz, F., Junglen, S., Boesch, C., Formenty, P., Couacy-Hyman, E., Courgnaud, V., Pauli, G. and Ellerbock, H. 2004. High variety of different simian T-cell leukemia virus type 1 strains in chimpanzees (*Pan troglodytes verus*) of the Taï National Park, Côte d'Ivoire. *Journal of Virology*, 78(8): 4352-4356.
- Lehmann, J. and Boesch, C. 2004. To fission or to fusion: effects of community size on wild chimpanzees (*Pan troglodytes verus*) social organisation. *Behavioral Ecology and Sociobiology*, 56: 207-216.
- Nsubuga, A., Robbins, M., Roeder, P., Morin, P., Boesch, C. and Vigilant, L. 2004. Factors affecting the amount of genomic DNA extracted from ape faeces and the identification of an improved storage method. *Molecular Ecology*, 13: 2089-2094.
- Reichert, K., Heistermann, M., Hodges, K., Boesch, C. and Hohmann, G. 2004. What females tell males about their reproductive status: are morphological and behavioural cues reliable signals of ovulation in Bonobos (*Pan paniscus*). *Ethology*, 108 (7): 583-600.
- Zihlmann, A., Bolter, D. and Boesch, C. 2004. Wild chimpanzee dentition and its implications for assessing life history in immature hominin fossils. *Proceedings of the National Academy of Sciences*, 101(29): 10541-10543.

## 2003

Boesch, C. 2003. Cooperation Complexities among Taï chimpanzees. In *Animal Social Complexity: Intelligence, Culture and Individualized Societies* (Eds. de Waal F. and Tyack, P.), pp. 93-110. Cambridge: Harvard University Press.

Boesch, C. 2003. Is culture a golden barrier between human and chimpanzee? *Evolutionary Anthropology*, 12: 26-32.

Courgnaud, V., Formenty, P., Akoua-Koffi, C., Noé, R., Boesch, C., Delaporte, E. and Peeters, M. 2003. Partial molecular characterisation of two simian immunodeficiency viruses (SIV) from African colobids: SIVwrc from Western red colobus (*Piliocolobus badius*) and SIVolc from olive colobus (*Procolobus verus*). *Journal of Virology*, 77(1): 744-748.

Crockford, C. and Boesch, C. 2003. Context-specific calls in wild chimpanzees, *Pan troglodytes verus*: analysis of barks. *Animal Behaviour*, 66: 115-125.

Deschner, T., Heistermann, M., Hodges, K. and Boesch, C. 2003. Timing and probability of ovulation in relation to sex skin swelling in wild West African chimpanzees, *Pan troglodytes verus*. *Animal Behaviour*, 66: 551-560.

Ehlers, B., Ochs, A., Leendertz, F., Goltz, M., Boesch, C., and Mätz-Rensing, K. 2003. Novel simian homologues of Epstein-Barr virus. *Journal of Virology*, 77(19): 10695-10699.

Leendertz, F., Boesch, C., Junglen, S., Pauli, G. and Ellerbock, H. 2003. Characterisation of a new Simian T-lymphotropic virus type 1 in a wild living chimpanzee (*Pan troglodytes verus*) from Ivory Coast: Evidence for a new STLV-1 group? Sequence note. *AIDS Research on Human Retroviruses*, 19: 255-258.

Lehmann, J. and Boesch, C. 2003. Social influences on ranging patterns among chimpanzees (*Pan troglodytes verus*) in the Taï National Park, Côte d'Ivoire. *Behavioural Ecology*, 14(5): 642-649.

Wittig, R. and Boesch, C. 2003. "Decision-making" in conflicts of wild chimpanzees (*Pan troglodytes*): an extension of the Relational Model. *Behavioral Ecology and Sociobiology*, 54: 491-504.

Wittig, R. and Boesch, C. 2003. Food competition and linear dominance hierarchy among female *Pan troglodytes verus* of the Taï National Park. *International Journal of Primatology*, 24(4): 847-867.

Wittig, R. and Boesch, C. 2003. The choice of post-conflict interactions in wild chimpanzees (*Pan troglodytes*). *Behaviour*, 140: 1527-1559.

## 2002



Boesch, C. 2002. Cooperative hunting roles among Taï chimpanzees. *Human Nature*, 13 (1): 27-46.

Mercader, J., Panger, M. and Boesch, C. 2002. A chimpanzee/human occupation sequence in the archeological record of Taï Côte d'Ivoire. Abstract IPC Congress, Beijing.

Mercader, J., Panger, M. and Boesch, C. 2002. Excavation of a chimpanzee stone tool site in the African rainforest. *Science*, 296: 1452-1455.

Santiago, M., Rodenburg, C., Kamenya, S., Bibollet-Ruche, F., Gao, F., Bailes, E., Meleth, S., Soong, S., Kilby, M., Moldoveanu, Z., Fahey, B., Muller, M., Ayouba, A., Nerrienet, E., McClure, H., Heeney, J., Pusey, A., Collins, A., Boesch, C., Wrangham, R., Goodall, J., Sharp, P., Shaw, G., and Hahn, B. 2002. Noninvasive detection and molecular identification of simian immunodeficiency virus in wild-living chimpanzees. *Science*, 295: 465.

#### 2001

Boesch, C. 2001. Sacrileges are welcome in sciences! Opening a discussion about animal culture. *Behavioral and Brain Sciences*, 24(2): 327-328.

Boesch, C. 2001. Chimpanzee hunters: Chaos or cooperation in the forest? In *Model Systems in Behavioral Ecology* (Ed. L. Dugatkin). Pp. 453-465. Princeton: Princeton University Press.

Boesch, C. 2001. Le propre de l'Homme est-il humain? In *Les Origines de l'Homme* (Eds. Y. Coppens and Picq, P.). pp. 170-199. Paris: Fayard.

Bradley, B., Boesch, C. and Vigilant, L. 2001. Identification and redesign of human microsatellite markers for genotyping wild chimpanzees (*Pan troglodytes verus*) and gorilla (*Gorilla gorilla gorilla*) DNA from faeces. *Conservation Genetics*, 1: 289-292.

Herbinger, I., Boesch, C. and Rothe, H. 2001. Territory characteristics among three neighbouring chimpanzee communities in the Taï National Park, Ivory Coast. *International Journal of Primatology*, 32(2): 143-167.

Hill, K., Boesch, C., Goodall, J., Pusey, A., Williams, J. and Wrangham, R. 2001. Mortality rates among wild chimpanzees. *Journal of Human Evolution*, 40: 437-450.

Morin, P., Chambers, K., Boesch, C. and Vigilant, L. 2001. Quantitative PCR analysis of DNA from noninvasive samples for accurate microsatellite genotyping of wild chimpanzees (*Pan troglodytes verus*). *Molecular Ecology*, 10: 1835-1844.

Vigilant, L., Hofreiter, M., Siedel, H. and Boesch, C. 2001. Paternity and relatedness in wild chimpanzee communities. *Proceedings of the National Academy of Sciences*, 98 (23): 12890-12895.

Whiten, A. and Boesch, C. 2001. The cultures of chimpanzees. *Scientific American*, 284: 48-55.

Whiten, A., Goodall, J., McGrew, W., Nishida, T., Reynolds, V., Sugiyama, Y., Tutin, C., Wrangham, R. and Boesch, C. 2001. Charting cultural variations in chimpanzee. *Behaviour*, 138: 1489-1525.

#### 1999

Formenty, P., Boesch, C., Dind, F., Donati, F., Steiner, C., Wyers, M. and Le Guenno, B. 1999. Ebola Virus Outbreak among Wild Chimpanzees Living in a Rain Forest of Côte d'Ivoire *Journal of Infectious Diseases* 179 (Suppl 1): 120-129.

Gagneux, P., Boesch, C. and Woodruff, D. 1999. Female reproductive strategies, paternity, and community structure in wild West African chimpanzees. *Animal Behaviour*, 57: 19-32.

Gagneux, P., Wills, C., Gerloff, U., Tautz, D., Morin, P., Boesch, C., Fruth, B., Hohmann, G., Ryder, O. and Woodruff, D. 1999. Mitochondrial sequences show diverse evolutionary histories of African hominids. *Proceedings of the National Academy of Science*, 96: 5077-5082.

Whiten, A., Goodall, J., McGrew, W., Nishida, T., Reynolds, V., Yugiama, Y., Tutin, C., Wrangham, R., Boesch, C. 1999. Culture s in chimpanzees. *Nature* 399: 682-685.

Wyers, M., Formenty, P., Cherel, Y., Guigand, L., Boesch, C. and Le Guenno, B. 1999. Histopathological and immunohistochemical studies of lesions associated with Ebola filovirus (CI-strain) in a naturally infected chimpanzee. *Journal of Infectious Diseases* 179 (Suppl 1): 54-59.

#### 1998

Arcadi, C., Robert, D. and Boesch, C. 1998. Buttress drumming by wild chimpanzees: Temporal patterning, phrase integration into loud calls, and preliminary evidence for individual distinctiveness. *Primates*, 39(4): 505-518.

Boesch, C. 1998. Adoption, Social signals, Dominance. In *The Encyclopedia of Ecology and Environmental Management* (Ed. P. Calow). Oxford: Blackwell Science.

Boesch, C. and Tomasello, M. 1998. Chimpanzee and human cultures. *Current Anthropology*, 39(5): 591-614.

Le Guenno, B., Formenty, P. and Boesch, C. 1998. Ebola virus outbreaks in the Ivory Coast and Liberia, 1994-1995. In *Marburg and Ebola Viruses* (Ed. Klenk, H.-D.). pp: 77-84. Berlin: Springer Verlag.

#### 1997

Boesch, C. 1997. Evidence for dominant mothers investing more in sons among wild chimpanzees. *Animal Behaviour* 54: 811-815.

Braga, J. and Boesch, C. 1997. Further data about venous channels in South African Plio-Pleistocene hominids. *Journal of Human Evolution*, 33(4): 423-447.

Gagneux, P., Boesch, C. and Woodruff, D. 1997. Microsatellite scoring errors associated with non-invasive genotyping based on nuclear DNA amplified from shed hair. *Molecular Ecology*, 6: 861-868.

Gagneux, P., Woodruff, D. and Boesch, C. 1997. Furtive mating in female chimpanzees. *Nature* 387: 358-359.

#### 1996

Boesch, C. 1996. Social grouping in Tai chimpanzees. In *Great Apes Societies* (Eds. W. McGrew., L. Marchant and T. Nishida), pp. 101-113. Cambridge: Cambridge University Press.

Boesch, C. 1996. Three approaches for assessing chimpanzee culture. In *Reaching into Thought: The Minds of the Great Apes* (Eds. Russon, A. E., Bard, K. and Parker, S.T.). pp. 404-429. Cambridge: Cambridge University Press.

Boesch, C. 1996. The emergence of cultures among wild chimpanzees. In *Evolution of Social Behaviour Patterns in Primates and Man* (Eds. Runciman W. G., Maynard-Smith, J. and R. I. M. Dunbar). pp. 251-268. Oxford: Oxford University Press for the British Academy.

Boesch, C. 1996. The question of culture. *News and Views. Nature* 379: 207-208.

Boesch, C. and Boesch, H. 1996. Rain forest chimpanzees: the human connection. *Nature and Resources*, 32(1): 26-32.

Boesch-Achermann, H. and Boesch, C. 1996. Kulturwesen, *Panda Magazin* 2/96, 26-31.

#### 1995

Boesch, C. 1995. Innovation in wild chimpanzees. *International Journal of Primatology* 16(1): 1-16.

Le Guenno, B., Formenty, P., M. Wyers, and Boesch, C. 1995. Isolation and partial characterization of a new Ebola strain. *The Lancet* 345: 1271-1274.

Marchesi, P. Marchesi, N., Fruth, B. and Boesch, C. 1995. Census and distribution of chimpanzees in Côte d'Ivoire. *Primates* 36(4): 591-607.

#### 1994

- Boesch, C. 1994: Hunting strategies of Gombe and Taï chimpanzees. In: Chimpanzee Cultures (R. Wrangham, W. McGrew, F. de Waal and P. Heltne, Eds), pp. 77-91. Cambridge: Harvard University Press.
- Boesch, C. 1994. Chimpanzees - red colobus: A predator-prey system. *Animal Behaviour* 47(5): 1135-1148.
- Boesch, C. 1994. Cooperative hunting in wild chimpanzees. *Animal Behaviour* 48(3): 653-667.
- Boesch, C. and Boesch-Achermann, H. 1994. Technique et culture chez les chimpanzés sauvages. *Technique et Cultures* 23-24: 1-27.
- Boesch, C., Esser, J., Allefort, P., Couturier, G. and Merz, G. 1994. La Faune. In *Le Parc National de Taï, Côte d'Ivoire*. Tropenbos Series 8, 72-93.
- Boesch-Acherman, H. and Boesch, C. 1994. The Taï chimpanzee project in Côte d'Ivoire, West Africa. *Pan Africa News* 1(1): 5-7.
- Boesch, C. Marchesi, P., Marchesi, N., Fruth, B., Joulian, F. 1994. Is nut cracking in wild chimpanzees a cultural behaviour? *Journal of Human Evolution* 26: 325-338.
- Boesch-Acherman, H. and Boesch, C. 1994. Hominisation in the rainforest: The chimpanzee's piece to the puzzle. *Evolutionary Anthropology* 3(1): 9-16.
- 1993**
- Boesch, C. 1993. Towards a new image of culture in wild chimpanzees? *Behavioral and Brain Sciences* 16(3): 514-515.
- Boesch, C. 1993. Aspects of transmission of tool use in wild chimpanzees. In *Tools, Language and Cognition in Human Evolution*, (Eds. K. Gibson and T. Ingold), pp. 171-183. Cambridge: Cambridge University Press.
- Boesch, C. and Boesch, H. 1993. Different hand postures for pounding nuts with natural hammers by wild chimpanzees. In: *Hands of the Primates* (Eds. H. Preuschoft and D. Chivers), pp. 31-43. Wien: Springer-Verlag.
- Boesch, C. and Boesch, H. 1993. Diversity of tool use and tool making in wild chimpanzees. In *Use of Tools in Human and Non-Human Primates* (Eds. A. Berthelet and J. Chavaillon), pp. 158-168. Oxford: Oxford University Press.

Boesch-Acherman, H. and Boesch, C. 1993. Tool use in wild chimpanzees: New light from Dark forests. *Current Directions in Psychological Science* 18-21.

Günther, M. and Boesch, C. 1993. Energetic cost of nut-cracking behavior in wild chimpanzees. In: *Hands of the Primates* (Eds. H. Preuschoft and D. Chivers), pp. 109-129. Wien: Springer-Verlag.

#### **1992**

Boesch, C. 1992. New elements about a theory of mind in wild chimpanzees. *Behavioral and Brain Sciences* 15(1): 149.

Boesch-Achermann, H. and Boesch, C. 1992. Forest close-ups. *BBC Wildlife Magazine* 10(1): 14-20.

Boesch-Achermann, H. and Boesch, C. 1992. Verblüffend menschlich: Westafrikas Schimpansen. *Das Tier* 5: 8-17.

#### **1991**

Boesch, C. 1991. Handedness in wild chimpanzees. *International Journal of Primatology* 12(6): 541-558.

Boesch, C. 1991. Symbolic communication in wild chimpanzees? *Human Evolution* 6 (1): 81-90.

Boesch, C. 1991. Teaching in wild chimpanzees. *Animal Behaviour*, 41(3): 530-532.

Boesch, C. 1991. The effects of leopard predation on grouping patterns in forest chimpanzees. *Behaviour*, 117 (3-4): 220-242.

Boesch, C. and Boesch-Achermann, H. 1991. Dim forest, bright chimps. *Natural History* 9/91 (50-57).

Boesch, C. and Boesch-Achermann, H. 1991. Les chimpanzés et l'outil. *La Recherche*, 233: 724-731.

#### **1990**

Boesch, C. 1990. First hunters of the forest. *New Scientist*, 19 May, 38-41.

Boesch, C. and Boesch, H. 1990. Adventures in Eating. *BBC Wildlife Magazine* 8(10): 668-672.

Boesch, C. and Boesch, H. 1990. Tool use and tool making in wild chimpanzees. *Folia Primatologica* 54: 86-99.

#### **1989**

Boesch, C. and Boesch, H. 1989. Hunting behavior of wild chimpanzees in the Taï National Park. *American Journal of Physical Anthropology* 78: 547-573.

**1988**

Boesch, C. 1988. West African Oasis. WWF Report 8/9/88.

**1984**

Boesch, C. and Boesch, H. 1984. Mental map in wild chimpanzees: An analysis of hammer transports for nut cracking. *Primates* 25: 160-170.

Boesch, C. and Boesch, H. 1984. Possible causes of sex differences in the use of natural hammers by wild chimpanzees. *Journal of Human Evolution* 13: 415-440.

Guillaum et, J.L. and Boesch, C. 1984. Le parc national et la protection de la nature. In: Recherches et aménagement en milieu forestier tropical humide: Le Projet Taï de Côte d'Ivoire. Notes techniques du MAB 15, UNESCO: Paris.

**1983**

Boesch, C. and Boesch, H. 1983. Optimisation of nut-cracking with natural hammers by wild chimpanzees. *Behaviour* 83: 256-286.

**1981**

Boesch, C. and Boesch, H. 1981. Sex differences in the use of natural hammers by wild chimpanzees: A preliminary report. *Journal of Human Evolution*. 10: 585-593.

**1978**

Boesch, C. 1978. Nouvelles observations sur les chimpanzés de la forêt de Taï ( Côte d'Ivoire). *Terre et Vie* 32: 195-201.

**Exhibit: B. to Affidavit of Christophe Boesch sworn to November 19, 2013**  
**Reference List of Peer-Reviewed Literature**

**EXHIBIT B**

References:

Beran, M.J., Pate, J.L., Washburn, D.A., and Rumbaugh, D.M. (2004) Sequential responding and planning in chimpanzees (*Pan troglodytes*) and rhesus macaques (*Macaca mulatta*). *Journal of Experimental Psychology: Animal Behavior Processes* 30(3): 203-212.

Boesch, C. (2012) Dead or alive? Towards a notion of death and empathy. In: *Wild Cultures: A Comparison Between Chimpanzee and Human Cultures*. Cambridge University Press, pp. 155 – 175.

Boesch, C. (2003) Is culture a golden barrier between human and chimpanzees? *Evolutionary Anthropology* 12: 26-32.

Boesch, C., and Boesch-Achermann, H. (2000) *The Chimpanzees of the Tai Forest: Behavioural Ecology and Evolution*. Oxford: Oxford University Press.

de Waal, F. B. M. (1990). *Peacemaking among primates*. Cambridge, MA: Harvard University Press.

de Waal, F.B.M. (2005) Intentional deception in primates. *Evolutionary Anthropology* 1(3): 86-92.

Goodall, J. (1986) *The Chimpanzees of Gombe: Patterns of Behavior*. Boston: Bellknap Press of the Harvard University Press.

Janmaat, K.R.L., Banb, S.D., and Boesch, C. (2013a) Chimpanzees use long-term spatial memory to monitor large fruit trees and remember feeding experiences across seasons. *Animal Behaviour* <http://dx.doi.org/10.1016/j.anbehav.2013.09.021>, published online 23 October 2013.

Janmaat, K.R.L., Ban, S.D., and Boesch, C. (2013b) Tai chimpanzees use botanical skills to discover fruit: What we can learn from their mistakes. *Animal Cognition* DOI 10.1008/s10071-013-0617-z.

Luncz, L., Mundry, R., and Boesch, C. (2012) Evidence for cultural differences between neighboring chimpanzee (*Pan troglodytes verus*) communities. *Current Biology* 22: 922-926.

Martin-Ordas, G., Haun, D., Colmenares, F., and Call, J. (2010) Keeping track of time: evidence for episodic-like memory in great apes. *Animal Cognition* 13: 331-340

Martin-Ordas, G., Berntsen, D., and Call, J. (2013) Memory for distant past events in chimpanzees and orangutans. *Current Biology* 23: 1438-1441

Mulcahy, N.J., and Call, J. (2006) Apes save tools for future use. *Science* 312: 1038-1040

- Normand, E., and C. Boesch (2009). Sophisticated Euclidean maps in forest chimpanzees. *Animal Behaviour* 77(5): 1195-1201
- Normand, E., S. Dagui Ban, and C. Boesch (2009). Forest chimpanzees (*Pan troglodytes verus*) remember the location of numerous fruit trees. *Animal Cognition* 12(6): 797-807.
- Osvath, M. (2009) Spontaneous planning for future stone throwing by a male chimpanzee. *Current Biology* 19: R190-R191
- Osvath, M., and Karvonen, E. (2012) Spontaneous innovation for future deception in a male chimpanzee. *PLoS ONE* 7(5): e36782.
- Osvath, M., and Osvath, H. (2008) Chimpanzee (*Pan troglodytes*) and orangutan (*Pongo abelii*) forethought: self-control and pre-experience in the face of future tool-use. *Animal Cognition* 11: 661-674
- Speece, M., and Brent, S. (1984) Children's understanding of death: A review of three components of a death concept. *Child Development* 55(5): 1671-1686.
- Whiten, A., Goodall, J., McGrew, W.C., Nishida, T., Reynolds, V., Sugiyama, Y., Tutin, C.E.G., Wrangham, W.R., and Boesch, C. (2001) Charting cultural variation in chimpanzees. *Behaviour* 138: 1489-1525.
- Whiten, A., and Boesch, C. 2001. The cultures of chimpanzees. *Scientific American* 284: 48-55.
- Whiten, A., Goodall, J., McGrew, W.C., Nishida, T., Reynolds, V., Sugiyama, Y., Tutin, C.E.G., Wrangham, R.W., Boesch, C. (1999) Cultures in chimpanzees. *Nature* 399: 682-685.