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EDUCATION

Max Planck Institute for Evolutionary Anthropology & University of Leipzig, Leipzig, Germany

Ph.D. (rerum naturalium) in Biology (grade: magna cum laude), January 2004

Dissertation: Conflict management in wild chimpanzees.

Referees: Christophe Boesch (supervisor, MPI EVA), Peter Kappeler (German Primate Center), Frans de Waal (Emory University & Yerkes Primate Research Center)

University of Bielefeld, Bielefeld, Germany

Diploma (masters) in Biology (grade: sehr gut), February 1996

Thesis: Änderungen der Verhaltensprofile bei Schimpansen einer Gehegegruppe während der Integration zweier Artgenossen (Changes in the behaviour of captives chimpanzees during the integration of two new conspecifics).

Referees: Hubert Hendrichs (supervisor, Bielefeld University) and Jürgen Döhl (Bielefeld University)

RESEARCH INTERESTS

Together with my co-PI Dr. Catherine Crockford and my research group, I investigate the costs and benefits of group living and close social bonds in wild chimpanzees (*Pan troglodytes*) and other non-human primates, in particular bonobos (*Pan paniscus*), chacma baboons (*Papio ursinus*) and sooty mangabeys (*Cercocebus atys*). We examine the underpinning hormonal mechanisms and cognitive adaptations that lead to higher net-benefits and how this translates into life history. We want to understand how individuals benefit from close social bonds and how these bonds affect cooperation, prosocial behaviour and theory of mind.

The ultimate goal of our research is to better understand the evolution of human social organization, cooperation, cognition, culture and communication within an ecological framework by investigating the roots of these adaptations in humans' closest living relatives.

- Costs and benefits of group living in primates
- Cognitive mechanisms that underlie social behaviour
- Evolution of social cognition
- Evolutionary significance of social bonds
- Comparative primate behaviour, cognition and communication

Methods used to investigate the topics above:

- Behavioural observations together with multivariate analysis methods
- Field experiments (play-back experiments, object presentation experiments)
- Hormonal analysis from non-invasive sampling methods (e.g. faecal, urine, saliva)
- DNA analysis for genetic relationship of individuals
- Comparison between humans, apes, monkeys and non-primate mammals

PROFESSIONAL EMPLOYMENT:

- 12/2013 **Research group leader (W2: equivalent to professor position at university)** Max Planck Institute for Evolutionary Anthropology, Department of Primatology, Leipzig, Germany.
- 9/2011 – 11/2013 **Scientific staff**, Max Planck Institute for Evolutionary Anthropology, Department of Primatology, Leipzig, Germany.
- 1/2008 – 8/2011 **Leverhulme Fellow (Post-doc)**, School of Psychology, University of St Andrews, St Andrews, UK.
- 6/2004 – 10/2007 **Research Fellow (Post-doc)**, Department of Biology, University of Pennsylvania (UPENN), Philadelphia, PA, USA.
- 1/2004 – 5/2004 **Post-doc**, Max Planck Institute for Evolutionary Anthropology, Department of Primatology, Leipzig, Germany.

SCIENTIFIC / RESEARCH EXPERIENCE:

- 10/2014 **Elected member, Scientific council of Max Planck Society**. Representing MPI EVA at the Humanities section.
- 1/2012 **Director, Taï Chimpanzee Project (TCP), Côte d'Ivoire**. Scientific and administrative responsibility for TCP.
- 3/2008 – 8/2010 **Assistant director, Budongo Conservation Field Station (BCFS), Uganda**. On site deputy function on behalf of the director, who is based half of the time in Kampala. Representative of the Scientific director, who is based in Scotland. Managing and developing the research of BCFS including supervision of field assistants and students, developing new research directions and managing the long-term data of the chimpanzee population.
- 2/2008 – 8/2011 **Post-doctoral research Budongo Conservation Field Station, Uganda**. Project: Language and social cognition in wild chimpanzees: (a) the adaptive value of close bonds in chimpanzees (hormonal correlates of social bonds), and (b) the cognitive abilities of chimpanzees within the social domain. With Klaus Zuberbühler (University of St Andrews), Tobias Deschner (MPI EVA), Toni Ziegler (National Primate Research Center, Madison, WI) and Catherine Crockford (University of St Andrews).
- 11/2007 – 12/2007 **Visiting scientist School of Psychology, University of St Andrews, UK**. Project: Feasibility and preparation of a study on social intelligence with the chimpanzees at the Budongo Conservation Field Station, Uganda.
- 6/2004 – 10/2007 **Postdoctoral researcher Baboon Camp, Okavango Delta & Departments of Biology & Psychology, University of Pennsylvania (UPENN), USA**. Project 1: Cognitive underpinnings of competition in chacma baboons (*Papio hamadryas ursinus*). Project 2: Social correlates of stress hormones in chacma baboons. With Dorothy Cheney (UPENN), Robert Seyfarth (UPENN), Pat Whitten (Emory University) and Catherine Crockford (UPENN).
- 6/2004 – 12/2005 **Camp manager at Baboon Camp, Okavango Delta, Botswana**. Data collection for the above presented projects: daily behavioural observations, playback experiments and faecal sampling (incl. hormone extraction) on chacma baboons in the wild. In addition, managing and supervising two field assistants and 2 staff, building and maintenance of remote camp. With Dorothy Cheney (UPENN), Robert Seyfarth (UPENN), Catherine Crockford (UPENN) and Eva Wikberg.
- 1/2004 – 5/2004 **Postdoctoral researcher at Department of Primatology, Max Planck Institute for Evolutionary Anthropology (MPI EVA), Leipzig, Germany**. Pilot-study on non-invasive measurements of acute stress in primates. With Christophe Boesch (MPI EVA), Josep Call (MPI EVA) and Almuth Einspanier (Leipzig University).
- 6/1999 – 12/2003 **PhD student at Department of Primatology, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany**. Project: Conflict management in wild chimpanzees of the Taï National Park, Côte d'Ivoire. With Christophe Boesch (MPI EVA).
- 3/1996 – 5/1999 **Research fellow & camp manager at Taï Chimpanzee Project, Taï National Park, Côte d'Ivoire**. Data collection for the above presented project: daily focal sampling of chimpanzee behaviour in the wild. In addition, managing and supervising 15 field assistants

- and 10 graduate students, building and maintenance of 2 camps. With Christophe Boesch (MPI EVA & Basel University).
- 1/1995 – 7/1995 **Research fellow at Zoo Münster, Münster, Germany.** Project: Behavioural observation and supervision of the integration of two new conspecifics in a group of captive chimpanzees. With Hubert Hendrichs (Bielefeld University) and Christophe Boesch (Basel University).
- 6/1994 – 8/1994 **Research assistant at Department of Biology, University of Bielefeld, Bielefeld, Germany.** Project: Homing by path integration in the spider *Agelena labyrinthica*. With Peter Moller (Hunter College, CUNY, USA) and Peter Görner (Bielefeld University).
- 9/1993 – 11/1993 **Research assistant at National Institute of Amazon Research (INPA), Manaus, Brazil.** Project: Ecology of the floodplain areas of Rio Solimões and Rio Negro. With Maria Piedade (INPA) and Pia Parolin (MPI Limnology).

RESEARCH GRANTS & AWARDS

- 2015** Associated researcher for ERC starter grant Ape Attachment granted to C. Crockford
- 2015** PhD research grant (Alexander Mielke) received from Wenner-Gren Foundation (supervisor role)
- 2015** Minerva PhD grant extension (Liran Samuni) 12 months (supervisor role)
- 2014** DFG research grant: Sociality and Health in Primates – Project 1 (with Dr F Leendertz & Dr T Deschner)
- 2013** EAZA Ape Conservation Fund together with Zoo Leipzig and RKI, Berlin
- 2013** PhD research grant (Anna Preis) received from Leakey Foundation (supervisor role)
- 2013** Minerva PhD grant (Liran Samuni) 24 months (supervisor role)
- 2010** Invited Guest of the Wissenschaftskolleg Berlin, Germany
- 2009** Research Grant received from the Wenner-Gren Foundation together with Dr C Crockford (Co-PI), Dr T Deschner and Dr K Zuberbuehler
- 2009** Research Grant received from the Leakey Foundation together with Dr C Crockford (Co-PI), Dr T Deschner and Dr K Zuberbuehler
- 2006** Research fellowship of the German Research Foundation – Deutsche Forschungsgemeinschaft (DFG) Research Fellowship WI 2637/2-1 (24 months)
- 2004** DFG conference grant (Conference of the International Primatological Society)

PUBLICATIONS

JOURNAL: PEER REVIEWED

- Surbeck, M., Girard-Buttoz, C., Boesch, C., Crockford, C., Fruth, B., Hohmann, G., Langergraber, K., Zuberbühler, K., **Wittig, R. M.**, & Mundry, R. (in press). Sex-specific association patterns in bonobos and chimpanzees reflect species differences in cooperation. *Royal Society Open Science*.
- Surbeck, M., Boesch, C., Girard-Buttoz, C., Crockford, C., Hohmann, G. & **Wittig, R. M.** (in press). Comparison of male conflict behaviour in chimpanzees (*Pan troglodytes*) and bonobos (*Pan paniscus*), with specific regard to coalition and post-conflict behaviour. *American Journal of Primatology*.
- Mossoun, A., Calvignac-Spencer, S., Anoh, A. E., Pauly, M. S., Driscoll, D. A., Michel, A. O., Nazaire, L. G., Pfister, S., Sabwe, P., Thiesen, U., Vogler, B. R., Wiersma, L., Muyembe-Tamfum, J.-J., Karhemere, S., Akoua-Koffi, C., Couacy-Hymann, E., Fruth, B., **Wittig, R. M.**, Leendertz, F., & Schubert, G. (2017). Bushmeat hunting and zoonotic transmission of Simian T-lymphotropic virus 1 in tropical West and Central Africa (advance online). *Journal of Virology*.
- Fröhlich, M., Müller, G., Zeitrüg, C., **Wittig, R. M.**, & Pika, S. (2017). Gestural development of chimpanzees in the wild: the impact of interactional experience (advance online). *Animal Behaviour*.
- Grützmacher, K., Keil, V., Leinert, V., Legullion, F., Henlin, A., Couacy-Hyman, E., Köndgen, S., Lang, A., Deschner, T., **Wittig, R. M.**, & Leendertz, F. (2017). Human quarantine: Towards reducing infectious pressure on chimpanzees at the Taï Chimpanzee Project, Côte d'Ivoire. *American Journal of Primatology*, doi: 10.1002/ajp.22619
- Samuni, L., Preis, A., Mundry, R., Deschner, T., Crockford, C., & **Wittig, R. M.** (2017). Oxytocin reactivity during intergroup conflict in wild chimpanzees. *Proceedings of the National Academy of Sciences of the United States of America*, 114(2), 268-273.
- Luncz, L., Proffitt, T., Kulik, L., Haslam, M., & **Wittig, R. M.** (2016). Distance-decay effect in stone tool transport by wild chimpanzees. *Proceedings of the Royal Society B: Biological Sciences*, 283(1845): 20161607.

- Wittig, R. M.**, Crockford, C., Weltring, A., Langergraber, K. E., Deschner, T., & Zuberbühler, K. (2016). Social support reduces stress hormone levels in wild chimpanzees across stressful events and everyday affiliations. *Nature Communications*, 10.1038/NCOMMS13361.
- Madinda, N. F., et al. (2016). Assessing host-virus codivergence for close relatives of merkel cell polyomavirus infecting african great apes. *Journal of Virology*, 90(19), 8531-8541.
- Antonation, K. S., et al. (2016). *Bacillus cereus* biovar anthracis causing anthrax in sub-saharan Africa: Chromosomal monophyly and broad geographic distribution. *PLOS Neglected Tropical Diseases*, 10(9): e0004923.
- Fröhlich, M., **Wittig, R. M.**, & Pika, S. (2016). Play-solicitation gestures in chimpanzees in the wild: Flexible adjustment to social circumstances and individual matrices. *Royal Society Open Science*, 3: 160278.
- Gogarten, J. F., Düx, A., Schuenemann, V. J., Nowak, K., Boesch, C., **Wittig, R. M.**, Krause, J., Calvignac-Spencer, S., & Leendertz, F. H. (2016). Tools for opening new chapters in the book of *Treponema pallidum* evolutionary history (advance online). *Clinical Microbiology and Infection*
- Kalan, A., Piel, A. K., Mundry, R., **Wittig, R. M.**, Boesch, C., & Kühl, H. S. (2016). Passive acoustic monitoring reveals group ranging and territory use: A case study of wild chimpanzees (*Pan troglodytes*). *Frontiers in Zoology*, 13: 34.
- Fröhlich, M., Kuchenbuch, P., Müller, G., Fruth, B., Furuichi, T., **Wittig, R. M.**, & Pika, S. (2016). Unpeeling the layers of language: Bonobos and chimpanzees engage in cooperative turn-taking sequences. *Scientific Reports*, 6: 25887.
- Kühl, H. S. et al. (2016). Chimpanzee accumulative stone throwing. *Scientific Reports*, 6: 22219.
- Fröhlich, M., **Wittig, R. M.**, & Pika, S. (2016). Should I stay or should I go? Initiation of joint travel in mother–infant dyads of two chimpanzee communities in the wild. *Animal Cognition*.
- Jirků, M. et al. (2015). Wild chimpanzees are infected by *Trypanosoma brucei*. *International Journal for Parasitology: Parasites and Wildlife*, 4:277-282.
- Luncz, L. V., **Wittig, R. M.**, & Boesch, C. (2015). Primate archaeology reveals cultural transmission in wild chimpanzees (*Pan troglodytes verus*). *Philosophical Transactions: Biological Sciences*, 370:0140348.
- Power, R. C., Salazar García, D. C., **Wittig, R. M.**, Freiberg, M., & Henry, A. G. (2015). Dental calculus evidence of Tai Forest Chimpanzee plant consumption and life history transitions. *Scientific Reports*, 5: 15161.
- Hoppe, E. et al. (2015). Multiple cross-species transmission events of human adenoviruses (HAdV) during hominine evolution. *Molecular Biology and Evolution*, 32:2072-2084.
- Wittig, R.M.**, Crockford, C., Deschner, T. & Zuberbühler, K. (2015) Single aggressive interactions increase urinary glucocorticoid levels in wild male chimpanzees. *PLoS One*
- Wittig, R. M.** (2015). Aggression, eine natürliche Anpassung an Konkurrenzsituationen. In G. Hartung, & M. Herrgen (Eds.), *Interdisziplinäre Anthropologie: Jahrbuch 2/2014: Gewalt und Aggression* (pp. 92-96). Berlin [u.a.]: Springer.
- Crockford, C., **Wittig, R.M.** & Zuberbühler, K. (2015). An intentional vocalization draws others' attention: A playback experiment with wild chimpanzees. *Animal Cognition* 10.1007/s10071-014-0827-z.
- Cheney, D. L., Crockford, C., Engh, A. L., **Wittig, R. M.**, & Seyfarth, R. M. (2015). The costs of parental and mating effort for male baboons. *Behavioral Ecology and Sociobiology*, 69:303-312.
- Albrechtova, K., et al. (2014). Low rates of antimicrobial-resistant enterobacteriaceae in wildlife in Tai National Park, Cote d'Ivoire, surrounded by villages with high prevalence of multiresistant ESBL-producing *Escherichia coli* in people and domestic animals. *PLoS One* 9:e113548.
- De Nys, H.M., Calvignac-Spencer, S., Boesch, C., Dorny, P., **Wittig, R.M.**, Mundry, R. & Leendertz, F.H. (2014) Malaria parasite detection increases during pregnancy in wild chimpanzees. *Malaria Journal* 13:413
- Wilson, M.L. et al. (2014) Lethal aggression in *Pan* is better explained by adaptive strategies than human impacts. *Nature* doi:10.1038/nature13727
- Power, R.C.F., Salazar-Garcia, D.C., **Wittig, R.M.** & Henry, A.G. (2014) Assessing use and suitability of scanning electron microscopy in the analysis of microremains in dental calculus. *Journal of Archaeological Science* 49:160-169.
- Langergraber, K.E., Roney, C., Schubert, G., Crockford, C., Hobaiter, C., **Wittig, R.**, Wrangham, R.W., Zuberbühler, K. & Vigilant, L. (2014) How old are chimpanzee communities? Time to the most recent common ancestor of the Y-chromosome in highly patrilocal societies. *Journal of Human Evolution* 69:1-7.

- Wittig, R.M.**, Crockford, C., Langergraber, K.E. & Zuberbühler, K. (2014) Triadic social interactions operate across time: a field experiment with wild chimpanzees. *Proceedings of the Royal Society London B* **281**:20133155.
- Langergraber, K.E., Rowney, C., Crockford, C., **Wittig, R.M.**, Zuberbühler, K. & Vigilant, L. (2014) Genetic analyses suggest no immigration of adult females and their offspring into the Sonso community of chimpanzees in the Budongo Forest Reserve, Uganda. *American Journal of Primatology*
- Wittig, R.M.**, Crockford, C., Deschner, T., Langergraber, K.E., Ziegler, T.E. & Zuberbühler, K. (2014) Food sharing is linked to urinary oxytocin levels and bonding in related and unrelated wild chimpanzees. *Proceedings of the Royal Society London B* **281**:20133096.
- Murthy, S., Couacy-Hymann, E., Metzger, S., Nowak, K., De Nys, H., Boesch, C., **Wittig, R.M.**, Jarvis, M.A., Leendertz, F.H. & Ehlers, B. (2013) Absence of frequent Herpesvirus transmission in non-human primate predator – prey system in the wild. *Journal of Virology* **87**:10651-10659.
- De Nys, H., Calvignac-Spencer, S., Thiessen, 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**:20121160.
- Crockford, C., **Wittig, R.M.**, Langergraber, K.E., Ziegler, T.E., Zuberbühler, K. & Deschner, T. (2013). Urinary oxytocin and social bonding in related and unrelated wild chimpanzees. *Proceedings of the Royal Society London B*. **280**:20122765.
- Crockford, C., **Wittig, R.M.**, Mundry, R. & Zuberbühler, K. (2012). Wild chimpanzees inform ignorant group members of danger. *Current Biology* **22**:142-146.
- Langergraber, K.E., Prüfer, K., Rowney, C., Boesch, C., Crockford, C., Fawcette, K., Inoue, E., Inoue-Muruyama, M., Mitani, J.C., Muller, M.N., Robbins, M.M., Schubert, G., Stoinski, T.S., Viola, B., Watts, D., **Wittig, R.M.**, Wrangham, R.W., Zuberbühler, K., Pääbo, S. & Vigilant, L. (2012). Generation times in wild chimpanzees and gorillas suggest earlier divergence times in great ape and human evolution. *Proceedings of the National Academy of Sciences USA* **39**: 15716-15721.
- Wittig, R.M.** & Boesch, C. (2010). Receiving post-conflict affiliation from the enemy's friend reconciles former opponents. *PLoS ONE* **5(11)**:e13995.
- Silk, J.B., Beehner, J.C., Berman, T.J., Crockford, C., Engh, A.L., Moscovice, L.R., **Wittig, R.M.**, Seyfarth, R.M. & Cheney D.L. (2010). Strong and consistent social bonds enhance the longevity of female baboons. *Current Biology* **20**:1359-1361.
- Silk, J.B., Beehner, J.C., Berman, T.J., Crockford, C., Engh, A.L., Moscovice, L.R., **Wittig, R.M.**, Seyfarth, R.M. & Cheney D.L. (2010). Female chacma baboons form strong, equitable and enduring social bonds. *Behavioral Ecology and Sociobiology* **64**:1733-1747.
- Moscovice, L.R., DiFiorie, A., Crockford, C., Kitchen, D.M., **Wittig, R.**, Seyfarth, R.M. & Cheney, D.L. (2010). Hedging their bets? Male and female chacma baboons form friendships based on likelihood of paternity. *Animal Behaviour* **79**:1007-1015.
- Silk, J.B., Beehner, J.C., Berman, T.J., Crockford, C., Engh, A.L., Moscovice, L.R., **Wittig, R.M.**, Seyfarth, R.M. & Cheney D.L. (2009). The benefits of social capital: Close social bonds among female baboons enhance offspring survival. *Proceedings of the Royal Society B* **276**:3099-3104.
- Amati, S., Babweteera, F. & **Wittig, R.M.** (2008). Snare removal by a chimpanzee of the Sonso community, Budongo Forest (Uganda). *Pan African News* **15(1)**:6-8.
- Wittig, R.M.***, Crockford, C., Lehmann, J., Whitten, P.L., Seyfarth, R.M. & Cheney D.L. (2008). Focused grooming networks and stress alleviation in wild female baboons. *Hormones & Behavior* **54**:170-177.
- Boesch, C., Crockford, C., Herbinger, I., **Wittig, R.**, Moebius, Y. & Normand E. (2008). Intergroup conflicts among chimpanzees in the Tai National Park: Lethal violence and the female perspective. *American Journal of Primatology* **70**:519-532.
- Crockford, C., **Wittig, R.M.***, Whitten, P.L., Seyfarth, R.M. & Cheney, D.L. (2008). Social stressors and coping mechanisms in wild female baboons (*Papio hamadryas ursinus*). *Hormones & Behavior* **53**:254-265.
- Crockford, C., **Wittig, R.M.**, Seyfarth, R.M. & Cheney, D.L. (2007). Baboons eavesdrop to deduce mating opportunities. *Animal Behaviour* **73**:885-890.
- Wittig, R.M.**, Crockford, C., Wikberg, E., Seyfarth, R.M. & Cheney, D.L. (2007). Kin-mediated reconciliation substitutes for direct reconciliation in female baboons. *Proceedings of the Royal Society B* **274**:1109-1115.
- Wittig, R.M.**, Crockford, C., Seyfarth, R.M. & Cheney, D.L. (2007). Vocal support in Chacma baboons (*Papio hamadryas ursinus*). *Behavioral Ecology and Sociobiology* **61**:899-909.

- Wittig, R.M.** & Boesch, C. (2005). How to repair relationships – reconciliation in wild chimpanzees (*Pan troglodytes*). *Ethology* **111**:736–763.
- Wittig, R.M.** & Boesch, C. (2003). The choice of post-conflict interactions in wild chimpanzees (*Pan troglodytes*). *Behaviour* **140**:1527–1559.
- Wittig, R.M.** & Boesch, C. (2003). "Decision-making" in conflicts of wild chimpanzees (*Pan troglodytes*): An extension of the Relational Model. *Behavioral Ecology & Sociobiology* **54**:491–504.
- Wittig, R.M.** & Boesch C. (2003). Food competition and linear dominance hierarchy among female chimpanzees of the Tai National Park. *International Journal of Primatology* **24**:847–867.

REVIEW ARTICLES: PEER REVIEWED

- Gogarten, J.F. et al. (2016) Tools for opening new chapters in the book of *Treponema pallidum* evolutionary history (advance online). *Clinical Microbiology and Infection*.
- Gogarten, J.F. et al. (2014) The ecology of primate retroviruses – an assessment of 12 years of retroviral studies in the Tai National Park area, Côte d'Ivoire.
- Crockford, C., Deschner, T., Ziegler, T.E. & **Wittig, R.M.** (2014) The contribution of endogenous peripheral oxytocin measures to understanding the dynamics of social relationships: a review. *Frontiers in Behavioral Neuroscience*
- Fraser, O.N., Koski, S.E., **Wittig, R.M.** & Aureli, F. (2009). *Opinion Article*: Why are bystanders friendly to recipients of aggression? *Communicative and Integrative Biology* **2(3)**:1-7.

COMMENTARIES

- Wittig, R.M.** (2015). Aggression, eine natürliche Anpassung an Konkurrenzsituationen. *Interdisziplinäre Anthropologie* **2**:92-96.
- Wittig, R.M.** (2011). *Media Commentary*: A comprehensive guide to chimpanzee behaviour. Review of the audio-visual encyclopedia on 'Chimpanzee Behavior in the Wild'. *American Journal of Primatology* **73**.

JOURNALS: not peer reviewed

- Wittig, R.M.** (2002). Die anderen Vettern aus dem Wald – 25 Jahre Tai Schimpansen Projekt, Côte d'Ivoire, Westafrika. *Phylodrom Journal* **2**:49–53.
- Wittig, R.** (1997). Änderungen der Verhaltensprofile bei Schimpansen einer Gehegegruppe während der Integration zweier Artgenossen. *Mitteilungsblatt der Ethologischen Gesellschaft* **39**:54.

BOOK CHAPTERS & MONOGRAPHS

- Wittig, R.M.** (2016). Ein guter Freund schützt vor Feinden – Die hormonellen und kognitiven Grundlagen von Freundschaften bei Schimpansen und deren Auswirkung auf aggressive Kontakte mit Nachbargruppen. In: Gehirn zwischen Liebe und Krieg (Fink, H. & Rosenzweig, R., editors), Münster: mentis, pp. 121-138.
- Wittig, R.M.** (2016). Der Austausch von Ressourcen und enge soziale Bindungen – Biologische Märkte bei freilebenden Schimpansen. In: Arm und Reich – zur Ressourcenverteilung in prähistorischen Gesellschaften (Meller, H., Hahn, H.P., Jung, R. & Risch, R., editors). Halle (Saale): Landesmuseum für Vorgeschichte, pp. 20-25.
- Wittig, R.M.** (2015). Führen Schimpansen Krieg? Aggression unter Schimpansen und deren Gründe – ein Diskurs. In: Zuberbuehler, K. & **Wittig, R.M.** (2011). Field experiments with non-human primates: A tutorial. In: Field and laboratory methods in primatology: A practical guide, 2nd edition, (Setchell, J.M. & Curtis, D.J., editors), Cambridge: Cambridge University Press, pp. 207-224.
- Wittig, R.M.** (2010). Function and cognitive underpinnings of post-conflict affiliation in wild chimpanzees. In: Chimpanzee Mind (Lohnsdorf, E., Ross, S. & Matsuzawa, T., editors), Chicago, IL, Chicago University Press, pp. 208-219.
- Kitchen, D.M., Cheney, D.L., Seyfarth, R.M., Beehner, J.C., Bergman, T.J., Crockford, C., Engh, A.L., Fischer, J. & **Wittig, R.M.** (2009). Costs and consequences of male aggression directed at female chacma baboons. In: Male Coercion in Primates, (Muller, M. & Wrangham, R., editors), Cambridge, MA: Harvard University Press, pp 128-156.
- Wittig, R.M.** (2004). Conflict management in wild chimpanzees. *University of Leipzig, Leipzig* pp.160

Wittig, R. (1996) Änderungen der Verhaltensprofile bei Schimpansen einer Gehegegruppe während der Integration zweier Artgenossen. *University of Bielefeld, Bielefeld* pp.95

CONFERENCE / WORKSHOP PAPERS

KEYNOTE LECTURES

Wittig, R.M. The effect of social bonds on the cost-benefit arithmetic of chimpanzees – behavioural, hormonal and experimental results. *Symposium of the Erasmus Mundus Network in Auditory Cognitive Neuroscience* 27 – 29 April 2017, Leipzig, GER, **2017**

Wittig, R.M. & Crockford, C. Friendships, cooperation and prosociality in wild chimpanzees. *Annual Conference of the International Society for the Study of Anthrozoology: "Exploring Human – Animal Interactions"* 7 – 11 July 2016, Barcelona, ESP, **2016**

Wittig, R.M. Culture, cognition, cooperation and conservation in wild chimpanzees: the Tai Chimpanzee Project. *Annual conference of the Society for Tropical Ecology: "Tropical ecosystems – between protection and production"*. 25 – 28 February 2014, München, GER, **2014**

SYMPOSIUM DURING INT. CONFERENCES

Symposium (**Wittig, R.M.**, Crockford, C., Deschner, T. & Jaeggi, A.): Links between oxytocin, bonds and cooperation in primates. *Bi-annual conference of the International Primatological Society*. 21 – 27 August 2016, Chicago, USA 2016.

INVITED CONFERENCE SPEAKER

Wittig, R.M. & Boesch, C. Our ancient heritage in the last forest remnants. Max Planck Society Conference Series on Fundamental Research and Shaping the Future: *Initiating Change: Sustainability through Research*. 22 February 2017, Harnack-Haus, Berlin, GER, **2017**.

Wittig, R.M. Chimpanzee friends: formation, maintenance and benefits of social bonds in wild chimpanzees. *Chimpanzees in context*. 16 – 20 August 2016, Lincoln Park Zoo, Chicago, IL, USA, **2016**.

Wittig, R.M. Social bonds and resource exchange – bookkeeping in wild chimpanzees. *Mitteldeutsche Archäologentage*. 22 – 24 October 2015, Halle (Saale), GER, **2015**

Wittig, R.M. & Crockford, C. The cognitive component of conflict management – comparing monkeys and apes. *Behavior (Symposium: Primate cognition)*. 4 – 8 August 2013, Newcastle, UK, **2013**

Crockford, C. & **Wittig, R.M.** Oxytocin involvement in bonding of unrelated chimpanzees. *Annual meeting of the Society of Behavioral Neuroendocrinology (young investigator award)*. 15 – 18 June 2012, Madison, WI, USA, **2012**

Wittig, R.M., Crockford, C., Seyfarth, R.M. & Cheney, D.L. Baboons perceive grunts by an approaching female as a signal of benign intent. *International Primatological Society Meeting (Symposium: Meaning and function of primate vocalisations and gestures: monkeys and apes)*. 3 – 8 August 2008, Edinburgh, Scotland, UK, **2008**

Crockford, C., **Wittig, R.M.**, Whitten, P.L., Seyfarth, R.M. & Cheney, D.L. Grooming helps to manage raised faecal glucocorticoid levels in female baboons (*Papio hamadryas ursinus*). *International Primatological Society Meeting (Symposium: Hormones & behaviour)*. 3 – 8 August 2008, Edinburgh, Scotland, UK, **2008**

Crockford, C., **Wittig, R.M.**, Seyfarth, R.M. & Cheney, D.L. Are primates the social geniuses? *International Ethological Conference (Symposium: Social and cognitive convergence in vertebrates)*. 15 – 23 August 2007, Halifax, NS, Canada, **2007**

Wittig, R.M. Function and effect of bystander initiated post-conflict affiliation in Tai chimpanzees. *The mind of the chimpanzees*. 22 – 25 March 2007, Chicago IL, USA, **2007**

Wittig, R.M. Reconciliation and cooperation: comparison between species of the genera Pan, Gorilla and Homo. *African great apes: Evolution, diversity and conservation*. 3 – 5 March 2004, Kyoto, Japan, **2004**

Wittig, R. Die anderen Vettern aus dem Wald – 25 Jahre Tai Schimpansen Projekt, Côte d'Ivoire, Westafrika. *III Internationale Tagung zur Regenwald-Thematik*. 11 – 12 May 2002, Leipzig, Germany, **2002**

Wittig, R. Conflict management in wild chimpanzees. *Behavioural diversity in chimpanzees and bonobos*. 12 – 17 June 2000, Kloster Seeon, Germany, **2000**

Wittig, R. Die Schimpansen (*Pan troglodytes verus*) des Tai Nationalparks, Côte d'Ivoire: Einzigartigkeit und Schutz. *Zookunft 2000: Artenschutz im neuen Millennium*. 18 – 19 Februar 2000, Münster, Germany, **2000**

INVITED WORKSHOP PARTICIPATION

Wittig, R.M. Schimpansen Aggression und Krieg – Einblicke in das Konfliktverhalten unserer nächsten Verwandten. *Römisch Germanische Kommission des Deutschen Archäologischen Instituts: Technische Innovation und Kriegsführung in vor- und frühgeschichtlicher Zeit*. Frankfurt (Main), GER, 12 – 13 June **2014**.

Wittig, R.M. Social bonds in primates and non-primates. *Lorentz Center Workshop: Obstacles and Catalysts of Peaceful Behavior*. Leiden, NL, 18 – 22 March **2013**.

Wittig, R.M. Reconciliation and consolation in wild chimpanzees. *Workshop: Behavioural Diversity in Chimpanzees and Bonobos*. Seon (Bavaria), GER, 11 – 17 June **2000**.

INTERNATIONAL CONFERENCE PAPERS

Wittig, R.M., Deschner, T. & Crockford, C. Social bonding as a stress buffer: linking cortisol, oxytocin and social bonds in wild chimpanzees. *IX. Göttinger Freilandtage*. 3 – 6 December 2013, Göttingen, Germany, **2013**

Crockford, C., **Wittig, R.M.**, Ziegler, T.E., Zuberbühler, K. & Deschner, T. A physiological mechanism enables social bonding between non-kin, promoting flexible bonding options. *VIII. Göttinger Freilandtage*. 6 – 9 December 2011, Göttingen, Germany, **2011**

Crockford, C. & **Wittig, R.M.** A physiological mechanism to promote social bonding between non-kin: evidence from wild chimpanzees. *4th Congress of the European Federation for Primatology*. 14 – 17 September 2011, Almada, Portugal, **2011**

Wittig, R.M. & Crockford, C. Understanding others' relationships – social intelligence in monkeys and apes. *VI Göttinger Freilandtage*. 11 – 14 December 2007, Göttingen, Germany, **2007**

Wittig, R.M., Crockford, C., Whitten, P.L., Seyfarth, R.M. & Cheney, D.L. Social stressors and coping mechanisms in female baboons' everyday life. *International Ethological Conference*. 15 – 23 August 2007, Halifax, NS, Canada, **2007**

Wittig, R.M. The choice of post-conflict interactions. *IV Göttinger Freilandtage*. 9 – 12 December 2003, Göttingen, Germany, **2003**

Wittig, R.M. & Boesch, C. Linear dominance hierarchy due to contest competition among female chimpanzees. *VIII International Conference of the Gesellschaft für Primatologie*. 1 – 4 October 2003, Leipzig, Germany, **2003**

Wittig, R.M. & Boesch, C. Post-Conflict Management in wild Chimpanzees of the Tai National Park. *1st European Conference on Behavioural Biology*. 31 July – 4 August 2002, Münster, Germany, **2002**

Wittig, R. Ecological and social influences on conflict resolution in wild chimpanzees. *XVIII Congress of the International Primatological Society*. 7 – 12 January 2001, Adelaide, Australia, **2001**

INVITED TALKS

The effect of social bonds on the cost-benefit arithmetic of chimpanzees – new results. *Colloquium of the Research Training Group: Understanding social relationships*, **Georg August Universität**, Göttingen, GER, 18 January 2017, invited by Prof. J. Fischer.

Konfliktmanagement bei freilebenden Schimpansen. *Wuppertaler Zoogesprache*, **Studium Generale des Philosophischen Seminars, Bergische Universität Wuppertal & Zoo Wuppertal**, Wuppertal, GER, 15 December 2015, invited by Prof. G. Hartung.

The effect of social bonds on the cost-benefit arithmetic of chimpanzees. *Wilhelminenberg Seminar*, **Konrad Lorenz Institut für Vergleichende Verhaltensforschung**, Vienna, A, 13 May 2015, invited by KLIVV.

The effect of social bonds on the cost-benefit arithmetic of chimpanzees. *Department Seminar*, **Department of Comparative Cognition, University of Neuchâtel**, Neuchâtel, CH, 9 January 2015, invited by Prof. K. Zuberbühler.

The physiology of cooperation in chimpanzees. *Ethos Seminar*, **Department of Animal and Human Ethology, University of Rennes**, Rennes, F, 12 July 2012, invited by Dr. A. Lemasson.

Social bonds among chimpanzees – physiological evidence. *Behavioural Ecology Research Group Seminar*, **School of Nature Sciences, University of Stirling**, Stirling, UK. 28 September 2011, invited by Prof. H. Buchanan-Smith.

Chimpanzees inform ignorant others. *Anthropology Seminar*, **Anthropologisches Institute and Museum, University of Zuerich**, Zuerich, Switzerland. 16 May 2011, invited by Prof. C. van Schaik.

Social bonds among chimpanzees: physiological evidence and impact. *Behaviour, Ecology, Environment and Evolution Seminar*, **Institute for Evolutionary Biology and Environmental Studies, University of Zuerich**, Zuerich, Switzerland. 17. May 2011, invited by Prof. M. Manser.

Chimpanzees' social environment: from building bonds to intentional informing. *School Seminar*, **School of Psychology, University of St Andrews**, St Andrews, UK. 4 March 2011, invited by Head of School, Prof. Malcolm MacLeod.

The impact of sociality on fitness. **Wissenschaftskolleg zu Berlin**, Berlin, Germany. 4 March 2010, invited by Prof. K. Zuberbuehler.

The impact of sociality on fitness. *Primate Seminar*, **Max Planck Institute for Evolutionary Anthropology**, Leipzig, Germany. 2 Februar 2010, invited by Prof. C. Boesch.

Conflict management in chimpanzees and baboons: mechanisms and cognitive underpinnings. *Living Links Colloquium*, **Yerkes Primate Research Center & EMORY University**, Atlanta, GO, USA. 4 October 2006, invited by Prof. F.B.M. de Waal.

Conflict management in chimpanzees: 'decision-making' in conflicts and the choice of post-conflict interactions. *Anthropology Colloquium*, **Harvard University**, Cambridge, MA, USA. 8 September 2006, invited by Prof. R.W. Wrangham.

Die Vettern aus dem Wald. *Lecture Series: Brennpunkt Körper – Eigenes und Fremdes*. 19 – 28 April 2001, Leipzig, Germany, 2001, invited by BMF (German Minister for Science).

PUBLIC / PR TALKS

- 10 Oct 2015 Ein guter Freund schützt vor Feinden. Symposium TurmDerSinne, Fürth, Germany.
- 17 Dec 2014 ‚Schimpansen – ein Spiegelbild des Menschen?‘ Landesmuseum, Braunschweig, Germany
- 29 Nov 2013 Science behind the movie 'CHIMPANZEE': Evokids conference of the Giordano Bruno Stiftung, Gießen, GER.
- 9 Sep 2013 Promoting chimpanzee research in the wild: Excursion of the Elitenetzwerk Bayern, Studienstiftung des deutschen Volkes, Leipzig, GER

ORGANISATION OF CONFERENCES

- 2015 Meeting of the Gesellschaft für Primatologie – bi-annual meeting of the German Primate Society, 11 – 13 February 2015, Leipzig University & MPI EVA, Leipzig, Germany.
- 2009 Great Ape Health Workshop – International Conference on the Health Threat for Great Apes in Research and Tourist Sites, 21 – 24 Aug 2009, LAICO Lake Victoria Hotel, Entebbe, Uganda.

CONSULTING / PR

- 2015 – 2016 Wie Tiere fühlen (arte TV production): scientific advisor.
- 2015 Wissenschaftskino Leipzig: Schimpansen – der Film, Leipzig.
- 2014 – 2016 Specialist Consultant on ape conflicts for the exhibition 'WAR' – Museum for pre-history, Halle / S. (Germany)
- 2013 Adnan unter wilden Tieren (arte TV production): scientific advisor.
- 2005 Planet Earth (BBC Nature TV production): scientific advisor for baboons.
- 2002 Consultant on ape behaviour and evolution for the exhibition 'Mensch und Tier: eine paradoxe Beziehung' (Man and animal: a paradox relationship). 22 Nov 2002 – 10 Aug 2003 Deutsches Hygienemuseum, Dresden, Germany.
- 2000-2003 Education coordinator for Wild Chimpanzee Foundation, Feldmeilen, Switzerland.
- 2000-2001 Consultant on ape behaviour and evolution for the educational exhibition of the new ape house at Leipzig Zoo, Germany.
- 2000-2001 Consultant on chimpanzee conservation for the exhibition 'Gorillas in the soup'. Ongoing exhibition about the bushmeat crisis - campaign of the European Association of Zoos and Aquaria.

SUPERVISION EXPERIENCE (*alumni in italic*)

POST DOC

- 2013 – 2015 *Dr. Martin Surbeck (bonobo – chimpanzee comparison)*
- 2014 – 2018 *Dr. Cedric Girard-Buttoz (bonobo – chimpanzee comparison)*

2016 – 2020 Dr. Pawel Fedurek (ape attachment)
2016 – 2020 Dr. Ruth Sonnweber (ape attachment)
2016 – 2020 Patrick Tkaczynski PhD (ape attachment)
2017 – 2019 Isaac Schamberg PhD (chimpanzee communication)

PHD SUPERVISOR

2012 – 2017 Anna Preis, University of Leipzig, Germany
2012 – 2017 Alexander Mielke, University of Leipzig, Germany
2013 – 2018 Liran Samuni, University of Leipzig, Germany
2013 – 2018 Sylvain Lemoine, University of Leipzig, Germany
2014 – 2019 Clement Gba, University Felix-Huphoët-Bogny, Abidjan, Ivory Coast
2016 – 2020 Veronika Beek, University of Leipzig, Germany
2017 – 2022 Prince Valé, University Felix-Huphoët-Bogny, Abidjan, Ivory Coast
2017 – 2021 Virgile Manin, University of Leipzig, Germany

PHD CO-SUPERVISOR

2011 – 2015 *Helen deNys, University of Gent, Belgium*
2012 – 2016 *Jan Gogarten, McGill University, Montreal, Canada*
2012 – 2017 Giulia Siriani, University of Leipzig, Germany
2013 – 2017 Theresa Löhrich, Freie Universität, Berlin, Germany
2014 – 2017 Doris Wu, University of Leipzig, Germany
2015 – 2019 Alexander Lang, Freie Universität, Berlin, Germany
2016 – 2019 Kamilla Pleh, Freie Universität Berlin, Germany

EXTERNAL ADVISOR

2012 – 2016 *Marlen Fröhlich, University of Konstanz, Germany*
2013 – 2018 Erin Wessling, Iowa State University, Ames, USA
2013 – 2016 *Robert Power, MPI EVA – Human Evolution*
2014 – 2017 Yaelle Bouquet, University of Neuchatel, Neuchatel, CH

COLLABORATIONS (last 3 years)

Catherine Crockford	Co-PI on all projects – MPI EVA
Tobias Deschner	Co-PI on hormone projects – MPI EVA
Gottfried Hohman	Co-PI on Pan-species comparison – MPI EVA
Hjalmar Kühl	Co-PI on conservation projects – MPI EVA, iDIV
Fabian Leendertz	Co-PI on health projects – Robert Koch Institute, Berlin
Martin Surbeck	Co-PI on Pan-species comparison – MPI EVA
Linda Vigilant	Co-PI on genetic projects – MPI EVA
Dorothy Cheney	Biology, University of Pennsylvania, Philadelphia, USA
Amanda Henry	Archaeology, University of Leiden, NL
Catherine Hobaiter	Psychology, University of St Andrews, UK
Peter Kappeler	German Primate Center, University of Göttingen, GER
Inza Kone	University Houphouët Boigny, Abidjan, CI
Kornelius Kupczik	Weizman Center, MPI EVA, GER
Kevin Langergraber	Human Evolution, Arizona State University, Tempe, USA
Lydia Luncz	Ape Archaeology Group, Oxford University, UK
Richard McElreth	Human Behavioural Ecology, MPI EVA, Leipzig, GER
Julia Ostner	Behavioural Ecology, University of Göttingen, GER
Simone Pika	MPI Sciences of Human History, Jena, GER
Jill Pruett	Anthropology, Iowa State University, Ames, USA
James Rilling	Anthropology, Emory University, Atlanta, USA
Oliver Schülke	Behavioural Ecology, University of Göttingen, GER

Robert Seyfarth	Psychology, University of Pennsylvania, Philadelphia, USA
Joan Silk	Human Evolution, Arizona State University, Tempe, USA
Steve Smith	Konrad Lorenz Institute, Veterinary University Vienna, A
Michael Wilson	Anthropology, University of Minnesota, Minneapolis, USA
Toni Ziegler	Wisconsin National Primate Research Center, University of Wisconsin, USA
Klaus Zuberbühler	Institute of Biology, University of Neuchatel, CH

TEACHING EXPERIENCE

Starting 2017 Master course: Becoming Human – MSc Integrative Biology, University of Leipzig. Elective Module: Cognitive Ethology of Great Apes.

Since 2012 Organiser and Lecturer of the IMPRS 'Human Origins' core seminar for Primatology: Comparative and molecular primatology. Units: Primate social intelligence & Experimental approaches of studying behaviour in the wild. The Leipzig School of Human Origins, MPI EVA and University of Leipzig, GER.

2011 Core seminar week: Comparative and molecular primatology. Unit: Experimental approaches of studying behaviour in the wild. The Leipzig School of Human Origins, MPI EVA and University of Leipzig, GER.

2011 Module PS3036: Evolutionary and Comparative Psychology. Unit: Evolution of Social Behaviour. School of Psychology, University of St Andrews, UK.

2008 & 2009 Honorary lecturer for Behavioural Ecology, Animal Cognition and Evolution at Nyabyeya Forestry College, Uganda.

2006 & 2007 Substitute lecturer (for Profs. Dorothy Cheney and Robert Seyfarth) in graduate and undergraduate courses on animal behaviour and animal cognition.

1994 & 1995 Teaching assistant in a course on Vertebrate morphology, anatomy and evolution (Dr. Alois Edelman, University of Bielefeld)

1993 Teaching assistant in a course on anatomy of invertebrates and vertebrates (Prof. Wolfgang Wägele, University of Bielefeld)

1992 & 1993 Teaching assistant in a course on animal behaviour (Profs. Fritz Trillmich, Hubert Hendrichs and Hajo Bischof, University of Bielefeld)

1991 & 1992 Teaching assistant in mathematics for biologists (Dr. Andreas Reißland, University of Bielefeld)

AD-HOC REVIEWING

American Journal of Primatology

Animal Behaviour

Behavioral Ecology and Sociobiology

Behaviour

Biology Letter

Current Biology

Hormones & Behavior

Human Evolution

International Journal of Primatology

Nature Communications

Naturwissenschaften

Primates

Proceedings of the National Academy of Sciences USA

Proceedings of the Royal Society London B

Science

Scientific Report

Leakey Foundation

Wenner Gren Foundation