



## KIDS, DOGS, TITS AND ELEPHANTS VIRPI LUMMAA

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I am a Finnish evolutionary biologist born in 1974, and my main aim is to understand the ecological causes and evolutionary consequences of variation in reproductive success, longevity and life-history strategies. I have worked mostly on analysing longitudinal demographic data that I have collected on several historical human populations from Finland living in the 18th and 19th centuries, but I have recently become interested also in how my findings on natural selection, reproductive scheduling, menopause and life-span in humans apply to other extremely long-lived mammals, such as elephants, or to contemporary human populations in Finland and elsewhere. I received my undergraduate degrees at the University of Turku in Finland and in 1999 my Ph.D. there. I then moved to the Zoology Department in Cambridge (UK) with Academy of Finland and Marie Curie Fellowships. Since 2003, I have been a Royal Society University Research Fellow at the Department of Animal and Plant Sciences, University of Sheffield. – Address: Department of Animal and Plant Sciences, University of Sheffield, Sheffield, S10 2TN, United Kingdom. E-mail: [v.lummaa@sheffield.ac.uk](mailto:v.lummaa@sheffield.ac.uk)

I came to Wiko with the idea, like many people there, of putting my work on the evolutionary demography of historical Finnish people all in one book. I left with no book and having devoted most of the year not to the Finnish farmers at all, but to a new project on Burmese elephants. I'd still call it a very successful year, as perhaps Wiko was what was needed for me to dare taking that first step to look for new directions and motivations in my career.

When I first discussed the possibility of a Wiko fellowship with Paul Schmid-Hempel back in 2009, I asked whether coming with a small child – and a very large dog – would be a problem. Paul told me that it is not a problem, and so I eventually turned up in 2011 with TWO small children, three enormous Newfoundland dogs, a grandmother, and a large selection of plants. – And of course, Alexandre Courtiol. Someone might say that doing a Wiko fellowship with 1- and 4-year-old children is not the best idea, and it is true that I missed out all the Berlin clubs, operas, galleries, exhibitions and even a lot of social life and discussions constantly going on at Wiko (I think I went to the pub twice). Instead, I enjoyed the opportunity to work hard free of students and other obligations and with good childcare support, and during the year I finished many “nightmare” papers that had been too long under construction, as well as one big grant application. But when I was not working, I preferred to spend time with my kids and dogs roaming around the Grunewald forest amongst the wild boar, swimming in all the possible lakes (apart from the short period when they were all frozen!) or simply digging sand in the Villa Walther playground. That was my paradise for the year. Meanwhile, I learned a lot about how other Fellows managed (and sometimes did not manage) to fit together busy research careers, social life and family, as I have never had the opportunity to follow the life of others (in science) as closely as we necessarily did at Wiko.

In spring, our family was supplemented by three homeless Great Tit chicks that fell from their nest onto our doorstep. I must admit that when rescuing the helpless naked babies into my son’s green magic hat, I knew very little about bird life. – That they need feeding every 15 minutes with only a shortish break at night; that finding caterpillars in the forest can be so hard; that they go through hundreds of caterpillars each day, and that we must look after them for several weeks even after they have fledged, to teach them how to forage on their own. So in May and June, everyone at Wiko got a share of our tits: Hollis Taylor gave advice; Jim Hunt and the family Gospodinov were babysitting when we went dog-walking; Eva and the German group had to put up with me handling worms while we were together practising German adjective endings; my son’s kindergarten spent a whole day collecting caterpillars for us; and the birds were under the table even during the holy Thursday dinners. Eventually, one made it and was released at the end of our stay with great glory, while another one escaped presumably too early to survive alone, and the third one sadly passed away. Now I will never be able to think about Berlin or Wiko without thinking of tits!

Apart from the time and peace to focus on writing (and feeding tits!), my greatest gains during the year were related to observing the life of others coming from different disciplines and different research cultures: how they schedule their workday, keep their motivation, make arguments, have fun, collaborate, think about biologists, get funding, supervise students, struggle in their everyday life. To me, this was the biggest gift of Wiko, even if it does not directly translate into books, papers or grants – or even immediate collaborations. I had no idea that “data” can mean so many things depending on what you call yourself, be it biologist, historian or lawyer, and I certainly did not know that what I call a Ph.D. student can be such a different experience to a supervisor elsewhere. Perhaps I should learn to take mine a bit less seriously. I enjoyed my “year of anthropology”: weekly interactions with Monique Borgerhoff Mulder and Bram Tucker as well as their visitors, and I learned so much about everything and just life. Thanks guys. I also enjoyed collaborating with Alex, Steve Stearns and Ian Rickard, a short-term fellow, on a paper we wrote on the effects of the demographic transitions to low mortality and fertility rates in many recent human populations on the opportunity and direction of natural selection affecting such societies. This has made me think much more widely how modern human populations are, and are not, experiencing selection; this could perhaps lead to more future work. My Berlin year also led to very useful links established to world-leading German groups working on demography and primatology, as well as discovering that some of the world experts in elephant biology camp just an hour away, at the other end of Berlin.

I could write a whole book on what I learnt during the year from the Germans themselves. I'll just summarise here by saying that I admire their dog training skills and the effectiveness of “HALT!” in any situation – it even works on my (rather stupid) Finnish-speaking dogs! I was scared driving in the traffic, I was happy in public transport for the first time in my life, I was lost in the supermarkets, I was frustrated with trying to get myself understood just about anywhere, I was thrilled with all the recycling and organic food around, I was positively surprised at the doctors and dentists, I hated my German speaking satellite navigator, I loved all the “free” things to do and I was envious about how the banks work as compared with those in Britain. Writing this, in October and three months on since I left Berlin, I still automatically say “Möhre” when I see carrots, I collect all the plastic wrappings separately just to discover that there is no way to recycle them in Sheffield, and I am thinking of starting to use my bicycle more. Maybe something permanent and irreversible did happen during my Wiko year, after all!

Wiko is full of absolutely fantastic people, but the one person I will miss most is Vera. Thank you for all the friendliness, smiles and giggles, gossip and advice ranging from where is the best beach to how to find a testicle doctor. Thank you, Wiko!

The papers I worked on during my Wiko year:

- Courtiol, A., J. Pettay, M. Jokela, A. Rotkirch, and V. Lummaa (2012). “Natural and sexual selection in a monogamous historical human population.” *Proceedings of the National Academy of Sciences of USA*. 109: 8044–8049.
- Hayward, A. D., J. Holopainen, J. E. Pettay, and V. Lummaa (2012). “Food and fitness: associations between crop yields and life-history traits in a longitudinally monitored pre-industrial human population.” *Proceedings of the Royal Society of London B* October 22, 279, 1745: 4165–4173.
- Lahdenperä, M., D. O. S. Gillespie, V. Lummaa, and A. F. Russell (2012). “Severe inter-generational reproductive conflict and the evolution of menopause.” *Ecology Letters* 15, 11: 1283–1290.
- Liu, J., A. Rotkirch, and V. Lummaa (2012). “Maternal risk of breeding failure and life-history shifts during demographic transitions in Finland.” *PLOS One* 7, 4: e34898.
- Mar, K. U., M. Lahdenperä, and V. Lummaa (2012). “Causes and correlates of calf mortality in semi-captive Asian elephants (*Elaphas maximus*).” *PLOS One* 7, 3: e32335.
- Mumby, H. S., A. Courtiol, K. U. Mar, and V. Lummaa (2012). “Climatic variation and age-specific survival in Asian elephants from Myanmar.” *Ecology* (in press).
- Nitsch, A., C. Faurie, and V. Lummaa (2012). “Are elder siblings helpers or competitors? Long-term fitness effects of sibling interactions in humans.” *Proceedings of the Royal Society of London B* (in press).
- Rickard, I. J., A. Courtiol, A. M. Prentice, A. J. C. Fulford, T. H. Clutton-Brock, and V. Lummaa (2012). “Intergenerational effects of maternal birth season on offspring size in rural Gambia.” *Proceedings of the Royal Society of London B* October 22, 279, 1745: 4253–4262.
- Rickard, I. J., A. Courtiol, and V. Lummaa (2012). “Why is lifetime fertility higher in twinning women, and what does this say about heterogeneity?” *Proceedings of the Royal Society of London B* July 7, 279, 1738: 2510–2511.

Robinson, M. R., K. U. Mar, and V. Lummaa (2012). "Senescence and age-specific trade-offs between reproduction and survival in female Asian elephants." *Ecology Letters* 15: 260–266.

Some more papers conceived at Wiko that didn't quite make it to "in press" yet:

Berg, V., V. Lummaa, I. J. Rickard, K. Silventoinen, J. Kaprio, and M. Jokela. "Genetic associations between personality traits and reproduction in humans."

Bouwhuis, S., J. E. Pettay, and V. Lummaa. "Women win sexual conflict over lifespan in humans."

Courtiol, A., I. J. Rickard, V. Lummaa, A. M. Prentice, A. J. C. Fulford, and S. C. Stearns. "The demographic transition influences variance in fitness and selection on height and BMI in rural Gambia."

Hayward, A. D. and V. Lummaa. "Testing the evolutionary basis of the predictive adaptive response hypothesis in a preindustrial human population."

Liu, J. and V. Lummaa. "The dynamics of socio-economic status related differentials in male mating and reproductive success during the demographic transition in fertility."

Mar, K. U., A. D. Hayward, M. Lahdenperä, and V. Lummaa. "Early reproductive investment, senescence and lifetime reproductive success in female Asian elephants."

Mar, K. U., M. Lahdenperä, A. Courtiol, and V. Lummaa. "Effects of capture from the wild on age-specific survival in Asian elephants."

Pettay, J. E., A. Rotkirch, A. Courtiol, M. Jokela, and V. Lummaa. "Multiple mating did not enhance male or female long-term fitness in a monogamous human population."