

## PERSONAL INFORMATION

Name: **Jan Komdeur**  
Nationality: Dutch  
Date of birth: 13 April 1959  
URL website: <https://www.rug.nl/research/gelifes/bpe/komdeur/people>



## EDUCATION

1991 **PhD**, Dept. Zoology, University of Cambridge, England  
1983 **MSc**, Dept. Ecology, University of Wageningen, Netherlands

## ACADEMIC POSITIONS

2003 - Present **Professor of Evolutionary Ecology**, University of Groningen, Netherlands  
1998 - 2003 **Associate Professor in Behavioural Ecology**, University of Groningen, Netherlands  
1996 - 1998 **Lecturer in Behavioural Ecology**, Dept. Zoology, University of Melbourne, Australia  
1994 - 1996 **Post-Doc**, Dept. Animal Ecology, University of Groningen, Netherlands  
1991 - 1994 **Senior Scientist**, National Environmental Research Institute, University of Århus, Denmark  
1988 - 1991 **PhD study**, Dept. Zoology, University of Cambridge, UK  
1986 - 1988 **Researcher**, Seychelles, BirdLife International, Cambridge, UK  
1983 - 1985 **Research Assistant Ecology**, Dept. Ecology, University of Wageningen, Netherlands

## INSTITUTIONAL POSITIONS AND RESPONSIBILITIES

2009 - Present **Head of Evolutionary Ecology Group**, University of Groningen  
2006 - Present **Director of the Top Master's Programme in Evolutionary Biology**, University of Groningen  
1998 - Present **Visiting Professor**, Dept. Zoology, University of Melbourne, Australia  
2017 - Present **Visiting Professor**, Dept. Life Sciences, Beijing Normal University, China  
2019 **Visiting Professor**, Dept. Zoology, Cambridge University, UK  
2014 - Present **Chair, Selection Committees for Top Master's Course and Erasmus Mundus Joint Master's Course in Evolutionary Biology (MEME)**, run by the universities of Groningen, Montpellier, Munich, Uppsala, and Harvard  
2007 - Present **Member, Advisory Board** personal grant writing, University of Groningen  
2010 - 2014 **Board Member, Centre for Ecological and Evolutionary Studies**  
2006 - Present International evaluation committees: research groups, professorships including **Member of Curriculum Committee**, Bachelor/Master; **Member of Faculty Board**, Education

## HONOURS AND AWARDS

- **Best PhD Supervisor Award** of the Graduate School of Science and Engineering, University of Groningen (in both 2018 and 2019)
- **Bio Art & Design Award (1st prize)** of the Netherlands Organization for Health and Development (2014)
- Highest score ("*international excellence*") in the two most recent national research evaluations by an international Peer Review Committee (2004, 2011)
- **Excellence in Research Award, Netherlands Organisation for Scientific Research (NWO)** (2004)
- **Excellence in Research Award**, Netherlands Zoological Society (2000)
- **Frank A. Pitelka Award for Excellence in Research**, International Soc Behav Ecol, USA (1998)
- **Teaching Excellence Recognition Awards**, Faculty of Mathematics and Natural Sciences, University of Groningen (four times since 2000)

## PROFESSIONAL SERVICE AND COMMISSIONS OF TRUST

- **Member of Editorial Boards:** *Behavioral Ecology* (since 2020), *Behavioural Ecology and Sociobiology* (since 2013), *Journal BioMed Central Ecology* (since 2000), *International Journal of Zoology* (since 2006), *Netherlands Ornithological Society* (2000-2012), guest editor *Behaviour* (2004, 2010)
- **Member/chair, NWO Evaluation Committees:** Geo- and Biosphere (since 2004; chair in 2008, 2012, 2017); Innovational Research Incentives Scheme (Rubicon, VIDI and VICI, multi-disciplinary branch, since 2004, chair in 2012, 2014, 2016), National Polar Research (2006-2007), Nuffic Foundation (since 2014)
- **Board Member, Netherlands Ornithological Union** (2001-2011)
- **Member, Peer Review Committees:** Institute of Avian Research (Wilhelmshaven, 2010), Biosciences (Exeter, 2014), Institute of Ecology and Evolution (Bern, 2016), Faculty of Biology (Bielefeld, 2019)
- **Member, Advisory Boards:** Councils Endangered Species Research Seychelles Islands (2000-Present) and Galápagos Islands (2006-2010), Protekta Biological Pest Control (2010-2015)

- **Work package leader of the European Commission Programme** “New and Emerging Science and Technology, FP6-2004-NEST-Path (2007, €3.2M) and of the **European Commission Sixth framework programme** “Priority Nests” (Incore grant (2008, €1.2M)
- Member of various **Appointment Committees** (>35) and **Doctoral Defence Committees** (>65)

#### **MAJOR GRANTS 1999-2008: €7.5M; 2009-2019: €15.0M, of which €10.8M as main applicant**

- **Austrian Science Fund** (FWF, Austria). Applicants: BR Scheiber, & J Komdeur, 2019, **€0.7M**
- **TOP Grant**, NWO. Applicant: J Komdeur, 2012, **€0.8M**
- **VICI Grant**, NWO. Applicant: J Komdeur, 2003, **€1.3M**
- **EU research grants (consortium: STREP-NEST**. Applicant: J Komdeur, 2009 and 2012; **FP7-PEOPLE-2011-CIG**. Applicant: J Komdeur, 2009), 1 PhD and 2 post-doc positions, **€0.7M**
- **NWO Graduate Programme**. Applicant: J Komdeur, 2012, 2 PhD positions, **€0.5M**
- **Adaptive Life Programme**. University Groningen, Applicant: J Komdeur, 2017, 3 PhD positions, **€0.7M**
- **EU grant to establish the Erasmus Mundus Joint Master Course in Evolutionary Biology**. Applicant: FJ Weissing, co-applicants: J Komdeur, J Parsh, I Olivieri, J Höglund, H Ellegren, 2009, **€4.5M**
- **5 Visitor Grants**, NWO, for professors to spend 6 month in my group; 2014, 2016-2018, **€0.8M**
- Co-applicant for **National Environmental Research Council** (NERC, UK) grants. Applicants: T. Burke, D.S. Richardson, H. Dugdale; 2019, **€0.7M**; 2017, **€0.6M**; 2013, **€0.6M**; 2010; **€0.2M**; 2009, **€0.4M**)
- I was awarded 21 competitive, externally funded grants (>€250k each), including 17 PhD and 7 post-doc positions, totalling **€5.9M** (2009-2019: **€2.3M**)

#### **ORGANISATION OF SCIENTIFIC MEETINGS (selection)**

- 2018** Workshop on *Causes and consequences of individual variation in behaviour*, Beijing Normal University and Beijing Environmental Forestry University, China (150 participants (Ps))
- 2018** Symposium on *Implications of adult sex ratio variation in birds: breeding systems, demography and biodiversity conservation*, 27<sup>th</sup> International Ornithological Congress, Vancouver, Canada (200 Ps)
- 2017** Symposium on *Developmental plasticity as driver of adaptation to environmental change*, International Ecological Conference/Association for the Study of Animal Behaviour, Estoril, Portugal (200 Ps)
- 2015** Workshop on *The Economics of Evolution*, Netherlands Organization for Health and Development, Eindhoven, Netherlands (200 Ps)
- 2013** Symposium on *How and why does behaviour evolve and persist? Obstacles and Catalysts of Peaceful Behaviour*, Leiden, Netherlands (150 Ps)
- From 2009-** Various international symposia (>50 Ps) at University of Groningen, including: Social Evolution (2014, 4 days), Individual Variation (2015, 3 days), Evolution of Sociality (2018, 3 days)

#### **TEACHING ACTIVITIES AND INITIATIVES**

- **Current courses: BSc:** Genetics, Ecology & Evolution (5 ECTS; coordinator, main lecturer), Behavioural Research (10 ECTS; coordinator, main lecturer), Animal Ecology Research (10 ECTS; lecturer), Evolutionary Ecology (5 ECTS; main lecturer); Biodiversity & Conservation (5 ECTS; main lecturer). **MSc:** Behaviour, Ecology & Genetics (MEME-Top Master, 10 ECTS; coordinator, main lecturer), Current Themes in Ecology & Evolution (2 ECTS; coordinator, main lecturer), Research Proposals for Evolutionary Ecology (5 ECTS; lecturer)
- **Thesis supervision:** >40 BSc students, >170 MSc students, 43 PhD students graduated
- **Major initiatives:** Set up two international teaching curricula at the BSc and MSc level, Faculty of Science and Engineering, University Groningen, that started in September 2018; two one-semester programmes (Genetics, Ecology & Evolution and Behaviour, Ecology & Genetics) that started in September 2018. In total I have set up and taught >21 different courses at undergraduate, graduate and postgraduate level
- **Educational committees:** I have participated in the curriculum committees of 3 BSc and 2 MSc programmes, my research institute’s educational committee, and several teaching reform committees.

#### **MAJOR COLLABORATIONS**

With many research groups outside Groningen, involving joint supervision of 37 PhD or post-doc projects: F Bairlein, K-M Exo (Wilhelmshaven), A Bennett, K Buchanan, M Magrath (Melbourne), N van de Brink, S Kingma, K Matson, M van de Pol (Wageningen), T Bugnyar, E Milleisii (Vienna), T Burke (Sheffield), M Cant (Exeter), C Ding, Z Zheng (Beijing), H Dugdale (Leeds), M Griesser (Zürich), M Huybregts, A Schipper (Nijmegen), C Isaksson, H Westerdahl (Lund), P Kappeler (Göttingen), R Kilner (Cambridge), P Korsten (Bielefeld), O Leimar (Stockholm), L Lens (Ghent), A Liker (Pannonia), A Moore (Georgia), T Murphy (San Antonio), D Richardson (Norwich), B Schloegl (Leipzig), S Steiger (Bayreuth), T Székely (Bath), M Taborsky (Bern), R Vásquez (Santiago), L Xin, H Wu (Wuhan).

## ACADEMIC LEADERSHIP AND ACHIEVEMENTS

I am an integrative behavioural and evolutionary ecologist studying the evolution of social behaviour and life history patterns in social animals, with the goal of discovering why and how animals cooperate or compete with each other. My research focuses on behaviour as this is the level at which organisms interact most directly with their physical and social environment. I integrate empirical and theoretical studies to obtain deeper knowledge of the evolution of adaptive behavioural responses. I focus on long-term studies of wild birds in naturally varying environments; these are complemented with experimental studies at the individual and local population levels. Starting in 1985, I established one of the best known model systems in evolutionary ecology: the Seychelles warbler (e.g.<sup>49,81,166</sup>). Warblers normally produce one chick per nest and can be cooperative breeders, in which more than two individuals are engaged in raising the single offspring.

My research focuses on two groups of questions: (i) What drives the evolution of group living and cooperative breeding? (e.g.<sup>26,29,30,34,49,64</sup>) Offspring often delay dispersal and remain in their natal territory. My work provided confirmation of two much-debated hypotheses on the ecological factors influencing delayed dispersal<sup>65,167,168</sup>. I discovered that the main cause of such delay is the degree of habitat saturation (e.g.<sup>64,65,123</sup>). However, the amount of insect prey available in a territory is also an important factor. For a young bird, the breeding success and survival benefits of remaining and helping in good territories (high food abundance) outweigh the benefits of independent breeding in poor areas, and offspring from good territories rarely disperse to breed in poor areas (e.g.<sup>61,65,85</sup>). We found that most helpers are females, usually daughters from previous broods, and that it is the males who typically disperse from their natal territory<sup>83,104,107,166</sup>. Helpers increase their fitness indirectly by preferentially feeding more closely related offspring<sup>99,106,108,169</sup>, and directly through gaining breeding experience<sup>170</sup> and parentage within their own group<sup>92,97</sup>. For breeding pairs living in high-quality territories, having helpers increases their reproductive success and survival, but in low-quality territories helpers compete with breeders for food resources<sup>115,116,169</sup>.

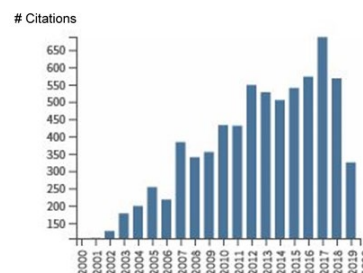
(ii) What drives the evolution of sex allocation? (e.g.<sup>82,106,166,171–174</sup>) I showed that mothers in high-quality territories produce mainly daughters (the helping sex), while in low-quality territories they produce mainly sons (the dispersing sex)<sup>83,104,107</sup>. This skew in the sex ratio is striking, because birds were thought to be unable to skew sex ratios (their sex is determined by chromosomes)<sup>105,175</sup>. By producing more daughters in high-quality territories, mothers gain future helpers<sup>103,110</sup>, lightening their own provision load, increasing total feed to nestlings<sup>100,176,177</sup>, and improving their survival<sup>90,176</sup>, reproductive success<sup>110</sup>, and longevity<sup>90,125,126</sup>. In contrast, mothers in low-quality territories produce dispersing offspring and so avoid competition over food resources that would lower reproductive success. In addition, daughters born in high-quality territories have higher survival and reproductive success than sons, while the reverse is true for low-quality territories<sup>103,104</sup>. My research has stimulated wider interest in how vertebrates manipulate offspring sex ratios.

As food availability and its spatio-temporal variation have changed, so the selection pressures on individuals have, and have forced them to adopt other strategies (e.g.<sup>49,94,178</sup>). We now need **to investigate how unpredictable environmental changes affect how animals cooperate or compete with one another, and the implications of environmentally induced sociality on per capita and long-term fitness.**

I publish regularly in the fields of evolutionary biology, behavioural biology, zoology, ecology, and genetics, but also in theoretical biology, biodiversity conservation, environmental sciences, immunology and endocrinology. I have also published in psychology, molecular biology and medical science.

## IMPACT

I have published 261 ISI publications (144 as first or senior author), 2 books, and 18 book chapters. In August 2019, *Web of Science* reports 7,946 citations and h-index of 47, *Google Scholar* 11,628 citations and h-index of 58. I strive for quality: 22 of my papers are in journals with IF >9.0 (Nature, Trends Ecol Evol, Nature Comm, PNAS, Current Biol, Ecol Letters) and 125 in journals with IF >3.0 (median IF Behav Sciences: 2.4, Ecology: 2.2, Evol Biology: 2.5). 8 articles have been cited >200 times, 26 cited >100 times; of these, I am single author of 6, and first or senior author of 18 articles. Most publications can be downloaded from <https://www.rug.nl/staff/j.komdeur/research/publications.html>.



## TOP 10 PUBLICATIONS IN THE LAST TEN YEARS

1. Hammers M, Kingma SA, Spurgin LG, Bebbington K, Dugdale HL, Burke T, **Komdeur J\*** & Richardson DS\* (2019). Breeders that receive help age more slowly in a cooperatively breeding bird. *Nature Commun.* 10: 1301 [\*joint last author]. (IF = 12.35)
2. Groenewoud F, Kingma SA, Hammers M, Dugdale HL, Burke T, Richardson DS, **Komdeur J** (2018). Subordinate females in the cooperatively breeding Seychelles warbler obtain direct benefits by joining unrelated groups. *J. Anim. Ecol.* 87: 1251–1263. (IF = 4.46)
3. Van de Crommenacker J, Hammers M, van der Woude J, Louter M, Santema P, Richardson DS, **Komdeur J** (2017). Oxidative status and fitness components in the Seychelles warbler. *Funct. Ecol.* 31,



1210-1219. (IF = 5.49)

4. **Komdeur J**, Székely T, Long X, Kingma SA (2017). Adult sex ratios and their implications for cooperative breeding in birds. *Phil. Trans. R. Soc. B. Biol. Sci.* 372: 5–9. (IF = 5.67)
5. **Komdeur J**, Richardson DS, Hammers M, Eikenaar C, Brouwer L, Kingma SA (2017). The evolution of cooperative breeding in vertebrates. In: Encyclopedia Life Sciences. John Wiley & Sons, Ltd: Chichester
6. **Komdeur J**, Burke T, Dugdale HL, Richardson DS (2016). Seychelles warblers: the complexities of the helping paradox. In: Koenig WD & Dickinson JL. (eds) Cooperative Breeding in Vertebrates. CUP, UK
7. Kingma SA, Bebbington K, Hammers M, Richardson DS, **Komdeur J** (2016). Delayed dispersal and the costs and benefits of different routes to independent breeding in a cooperatively breeding bird. *Evolution* 70: 2595–2610. (IF = 3.82)
8. Székely T, Weissing FJ, **Komdeur J** (2014). Adult sex ratio variation: Implications for breeding system evolution. *J. Evol. Biol.* 27: 1500–1512. (IF = 2.54)
9. **Komdeur J** (2012). Sex allocation. In: Royle NJ, Smiseth PT & Kölliker M. (eds) The Evolution of Parental Care. OUP, UK
10. Magrath MJL, Vedder O, van der Velde M, **Komdeur J** (2009). Maternal effects contribute to the superior performance of extra-pair offspring. *Current Biology* 19, 792-797. (IF = 9.25)

### BOOKS (3)

Taborsky M, Cant M, **Komdeur J** (2019). The Evolution of Social Behaviour. CUP, UK.

Székely T, Moore AJ, **Komdeur J** (eds) (2010). Social Behaviour: Genes, Ecology and Evolution. CUP, UK.

**Komdeur J** (ed – special issue) (2010). The Dynamics of Social Behaviour - The Importance of Dispersal and the Environment. *Behaviour* 147, 1501-1632.

### INVITED PRESENTATIONS AND HONORARY LECTURES (selection)

**221 speaker/keynote** lectures at international conferences, **66 seminars** at universities/research institutes.

2020 24th evolutionary biology - *keynote*, Marseille, France.

2020 Conference on Evolution of Social Behaviour - *keynote*, Bern, Switzerland.

2019 Conference on Evolution of Social Dynamics - *plenary*, Debrecen, Hungary.

2019 Invited Lectures, Cambridge University, UK.

2019 Invited Lectures, Biodiversity Research Centre, Taipei, Taiwan.

2018 Invited Lectures, Beijing Normal University and Beijing Forestry University, Beijing, China.

2018 Organizer and lecturer, workshop How to write a scientific article/grant applications? Beijing, China.

2018 27<sup>th</sup> Int Orn Congr, Long-term Studies Vehicles for Detection of Change-*keynote*, Vancouver, Canada.

2017 14<sup>th</sup> China Ornithological Congress - *plenary*, Xi'an, China.

2017 International Ecological Conference/Study of Animal Behaviour - *contributed talk*, Estoril, Portugal.

2017 Conference on Sex-role Evolution - *plenary*, Tihany, Hungary.

2017 Conference on Adult Sex Ratios and Reproductive Decisions - *plenary*, Berlin, Germany.

2016 Invited Lectures - Bern University, Switzerland, and Lyon University, France.

2016 Conference on Sex Roles and Adult Sex Ratios - *plenary*, Debrecen, Hungary.

2014 NWO Symposium on Polar Change - *invited speaker*, The Hague, NL.

2014 26<sup>th</sup> International Ornithological Congress - *keynote*, Tokyo, Japan.

2013 Interdisciplinary Conference 'Obstacles and Catalysts of Peaceful Behaviour' - *plenary*, Leiden, NL.

### RESEARCH EXPEDITIONS LED BY APPLICANT

I initiated long-term collaboration with Nature Seychelles and have led scientific expeditions for 2-8 persons to Seychelles (1988-2019, including four translocation programmes of warblers), Svalbard, Norway (2004-2019), Panama (2007-2009), Ecuador (2009), Australia (1998-2015), New Zealand (2006-2009), China (2009-2019), Chile (2017-2019), Tibet (2017-2019), Tenerife (2013), Mauritius (2019).

### CONTRIBUTIONS TO THE CAREERS OF YOUNG RESEARCHERS

Since 1998, I have supervised **52 PhD students**, to date 43 have received their doctorate. Of my PhD students and 15 post-doctoral fellows, 48 are still active in academic research. They include:

**5 Professorships:** Richardson, U East Anglia; Dugdale, U Leeds; Both, RUG; Dingemanse, Max Planck; Bregnballe, Århus U; and **12 Tenure-track Ass Professors:** Botero, Washington U; Kingma, WUR; Brouwer, Radboud U; Korsten, Bielefeld U; Eikenaar, Inst Av Res; Berg, Deakin U; Spurgin, U East Anglia; Amininasab, U Teheran; Nicolaus, RUG; Schloegl, Leipzig U; Pogany, Eötvös U; Isaksson, Lund U; **8 Senior scientists:** Magrath, Wildlife Conserv Science; Kraaijeveld, U Leiden; Hinch, Imp College London; Velde, RUG; Busana, Radboud U; Radersma, WUR; Woxvold, Museum Victoria Sciences Dept; Buij, WUR; **4 independent research fellows on personal grants, 11 post-docs and 8 have positions at applied institutions.** Several of my PhD students have received prestigious early-career grants (selection): **4 NWO Rubicons; 5 NWO VENIs; 2 NWO VIDIs; 2 Marie Curie grants; 1 BBSRC Fellowship** (Spurgin); **2 NERCs** (Dugdale, Hadfield); **1 Dutch Zoology Prize;** and **2 Australian Science Fund Holders.**