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Centre for Ecological and Evolutionary Studies (CEES)

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Prof. dr. J.L. Olsen, Chairman
Prof. dr. J. Komdeur
Prof. dr. ir. J.D. van Elsas

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Bakker, Prof. dr. J.P.	3632221
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Wertheim, Dr. B.	3639039
Zande, Dr. L.P.W.G.M. van de	3632126

Highlights

In Memory

Carlo Heip (68), *Affiliated professor* CEES (MarBEE) and Emeritus Director of NIOZ passed away on 15 February 2013 following a short illness. Carlo was an engaged intellectual who combined vision and leadership in marine sciences within The Netherlands and Europe. He played a pivotal role in the worldwide study of marine biodiversity. Carlo was associated with CEES for 12 years during which time he served as promotor for seven PhD students. We remember him as a generous friend and warm person.



Dissertations granted by CEES in 2013

- R. Beukema** Biodiversity in rubber agroforests
Promotores: Prof. dr. J. van Andel, Prof. dr. M. Werger
Copromotor: Dr. M. van Noordwijk
- C.J. Camphuijsen** A historical ecology of two closely related gull species (Laridae): multiple adaptations to a man-made environment
Promotor: Prof. dr. T. Piersma
- S. Cretoiu** Metagenomics-guided exploration of natural habitats for bacterial chitinases
Promotor: Prof. dr. J.D. van Elsas
- S. Donadi** Bivalve loops. The importance of ecosystem engineering for soft-bottom intertidal ecosystems.
Promotores: Prof. dr. B.K. Eriksson, Prof. dr. J.L. Olsen
- F. Encinas Viso** Ecology and evolution of mutualistic networks
Promotores: Prof. dr. R.S. Etienne, Prof. dr. H. Olf
- C.X. Garzón López** Determinants of the spatial distribution of tree species in a neotropical forest
Promotores: Prof. dr. H. Olf, Prof. dr. S. Bohlman
- M. van der Geest** Multi-trophic interactions within the seagrass beds of Banc d'Arguin, Mauritania. A chemosynthesis-based intertidal ecosystem.
Promotores: Prof. dr. T. Piersma, Prof. dr. J. van der Meer, Prof. dr. H. Olf
- M. Hammers** Ecology of senescence in a cooperatively breeding bird. A long-term study on the Seychelles warbler
Promotor: Prof. dr. ir. J. Komdeur, Prof. dr. T. Burke
Co-promotor: Dr. D.S. Richardson
- B. de Jong** Testosterone, a female hormone - Testing the function and evolution of testosterone in female birds
Promotores: Prof. dr. J. Komdeur, Prof. dr. T. Groothuis, Prof. dr. L. Lens (Ghent University, Belgium)
- A.L.W. Kuijper** Sexual selection and sex allocation
Promotores: Prof. dr. I.R. Pen, Prof. dr. F.J. Weissing
- Q-X. Liu** Emergent properties of spatial self-organization. A study of patterned mussel beds
Promotores: Prof. dr. J. v.d. Koppel, Prof. dr. P.M.J. Herman, Prof. dr. H. Olf

- X. Liu** Interspecific and intraspecific perspectives of the Janzen-Connell effect. Incorporating phylogenetic and molecular evolutionary approaches
Promotores: Prof. dr. R.S. Etienne, Prof. dr. S. Yu
- T. Lok** Spoonbills as a model system. A demographic cost-benefit analysis of differential migration.
Promotores: Prof. dr. T. Piersma, Prof. dr. J.M. Tinbergen
- K. Meijer** Native versus non-native: The interplay between native insects and non-native plants
Promotores: Prof. dr. M. Schilthuis, Prof. dr. L.W. Beukeboom
Copromotor: Dr. C. Smit
- M.D.C. Pereira e Silva** The normal operating range of soil functioning. Understanding the natural fluctuations of nitrogen cycling communities
Promotor: Prof. dr. J.D. van Elsas
- A.L.D. van der Plas** Understanding trait-based community assembly in tropical savannahs at different trophic levels
Promotor: Prof. dr. H. Olff
- K. Reiss** Marine trophic cascades: synergistic effects of fishing and eutrophication
Promotor: Prof. dr. J.L. Olsen
- Elske van der Vaart** A Cognitive Model of Caching by Corvids
Promotores: Prof. dr. C.K. Hemelrijk, Prof. dr. L.C. Verbrugge
- R. Veeneklaas** Adaptation and dispersal of native invasive salt-marsh species *Elytrigia atherica*
Promotores: Prof. dr. J.P. Bakker, Prof. dr. R. Bijlsma

CEES PhD students in 2013

T. Aghajanzadeh	<i>Ecophysiology of Plants / Razi Med. Diag. Lab Iran</i> Volatile sulfur compounds released by Brassica species as biofungicides in crop production
A. Alzate Vallejo	<i>COCON</i> The impact of spatial structure and species diversity on the evolution of local adaptation
S.M. Amini Nasab	<i>BESO / Univ. Behbahan, Iran</i> Individual variation in parent and offspring fitness in blue tits: the role of parental effects and environmental variables
P. van den Berg	<i>Theoretical Biology</i> Evolutionary causes and consequences of personality differences in cooperative behaviour
R. Bom	<i>Animal Ecology / NIOZ</i> Cascading predator-prey effects in a pristine seagrass-based food web
V.S. Brauer	<i>Theoretical Biology</i> Effect of temperature on the dominance of N-fixing cyanobacteria
M. Buricova	<i>Evolutionary Genetics</i> Mutagenesis screen for photoperiodic timing genes in <i>Nasonia</i>
M. Busana	<i>BESO</i> Influence of demographic and social environment on individual behavioural phenotypes and fitness
A.A. Cabrera	<i>MarECon</i> Evolutionary Ecology of Marine Mammals
M. Chaib De Mares	<i>Microbial Ecology</i> Enhancing our understanding of the ecology of selected sponges - The key role of bacteria
L. Cornacchia	<i>COCON</i> The role of organism traits in self-organization of river vegetation
L. Cortes Tolalpa	<i>Microbial Ecology</i> Metagenomic mining of microbial communities and enzymes involved in lignocellulose breakdown
E. Dalla Benetta	<i>Evolutionary Genetics</i> Molecular genetic regulation of the <i>Nasonia</i> circadian and seasonal clock

H.C. de Paoli	<i>Community and Conservation Ecology</i> Key processes in the restoration of mussel beds in the Wadden Sea
W. Diao	<i>Evolutionary Genetics</i> Genetics and genomics of presygotic isolation in <i>Nasonia</i>
M. Dillen	<i>COCON</i> The interplay of biodiversity and environmental stress for ecosystem functioning
F. Dini Andreote	<i>Microbial Ecology</i> Microbial succession in salt marsh: The ecological and functional properties of communities
D. Ekkers	<i>Theoretical Biology</i> Experimental evolution of bacterial populations
E.M. El Hacen	<i>COCON</i> Do nutrients derived from birds drive the food web of Banc d'Arguin, Mauritania?
K. Fietz	<i>MarECon</i> The adaptive capacity of pelagic apex predators: The case of the Eastern Tropical Pacific scalloped hammerhead shark, <i>S. lewini</i>
R. Fokkema	<i>Animal Ecology</i> Family planning under social competition
W. Fokkema	<i>Community and Conservation Ecology</i> Brent geese in the Waddensea: coupling individuals' habitat use to species influence on (meta)ecosystem functioning
J. de Fouw	<i>Animal Ecology / NIOZ</i> Pervasive impact of intertidal migrant top predators on species diversity and size structure of its prey may lead to spatial knock-on effects between ecosystems
S. Gerritsma	<i>Evolutionary Genetics</i> Identifying genomic variation among natural <i>Drosophila melanogaster</i> populations and its association to immunological resistance against parasitoids
J. van Gestel	<i>Theoretical Biology</i> The eco-evo-devo of biofilm formation
E. Geuverink	<i>Evolutionary Genetics</i> Genetics of sex determination in haplodiploid wasps

M.C.W.G. Giesbers	<i>Evolutionary Genetics</i> Genetics of adaptation: mating behaviour and reproductive strategies in <i>Nasonia</i> wasps
M.K. Gopala Krishnan	<i>Microbial Ecology</i> Studying the diversity of plant-associated bacterial communities in pioneer arcto-alpine plants
S. Grizard	<i>Animal Ecology</i> How microbes shape bird eggs
F. Groenewoud	<i>BESO</i> The cost of helping and the expression of individual phenotypes in cooperative breeders
I.U. Haq	<i>Microbial Ecology</i> Bio-indicators for soil health
R.A. Howison	<i>Community and Conservation Ecology</i> Plant-plant interactions along biotic & abiotic stress-gradients at salt marshes
O.J. Ivanov	<i>Theoretical Biology</i> Network design and the response of complex systems to stress and deterioration
K.M. Jalvingh	<i>Evolutionary Genetics</i> Genetic stress responses of <i>Drosophila</i> species in relation to their geographic distribution and population dynamics
T. Janzen	<i>COCON</i> The origin and maintenance of biodiversity
D.J. Jimenez Avella	<i>Microbial Ecology</i> Metagenomics in the degradation of lignocellulosic substrates
J. Jouta	<i>Animal Ecology</i> Food webs of the Wadden Sea
S. Jurburg	<i>Microbial Ecology</i> Bio-indicators for soil health
M. Langenhof	<i>BESO</i> Surviving in a changing world: The effects of early-life conditions on determining an individual's behavior and adaptive response later in life
L. Lv	<i>BESO</i> Influence of nest dismantling and migratory behaviour on territory take-over in hair-crested drongos

W.J. Ma	<i>Evolutionary Genetics</i> Ecology and mechanisms of sex determination in the <i>asobara</i> genus (hymenoptera: braconidae)
C.A. Mallon	<i>Microbial Ecology</i> Understanding the effects of bacterial diversity on community functioning and stability
R. Marfull	<i>BESO</i> Begging responses in a social and environmental context in blue tits
M. Marutha Muthu	<i>Microbial Ecology</i> Strategies for improved bioprospection
J. Mwangi	<i>Animal Ecology</i> Predation, infection and protection: how to enhance survival in birds at a highly fragmented highland grassland
A. Nakauma	<i>Theoretical Biology</i> The evolution of the bacterial chemotaxis network
H. Ndithia	<i>Animal Ecology</i> Seasonal dynamics of reproductive strategies and disease in tropical grassland birds living in habitats highly threatened by land use change
J. Onrust	<i>Animal Ecology</i> Earthworm availability as key for the presence of wintering, migrating and breeding meadow birds
T. Oudman	<i>Animal Ecology / NIOZ</i> Pervasive impact of intertidal migrant top predators on species diversity and size structure of its prey may lead to spatial knock-on effects between ecosystems
J. Ouwehand	<i>Animal Ecology</i> Possibilities and constraints in life-cycle adaptation to climate change
J. Prodic	<i>Evolutionary Genetics</i> Genetic basis of cyclical life-history and behavioural traits in <i>Nasonia</i>
P.E. Puentes Téllez	<i>Microbial Ecology</i> Adaptation of <i>E. coli</i> to heterogeneous conditions
A.E. Quiñones Paredes	<i>Theoretical Biology</i> The evolution of eusociality

- M. Reich** *Ecophysiology of Plants*
Metabolic control of nutrient use efficiency at a whole plant perspective in a changing global atmosphere
- J. Rouhana** *Evolutionary Genetics*
Evolutionary genomics of the enigmatic sex peptide: a male 'master regulator' of female reproduction
- D.R. Ruthrauff** *Animal Ecology*
On the frozen edge: environmental and physiological constraints in the life history of a northerly-wintering shorebird
- L. Salazar Jaramillo** *Evolutionary Genetics*
Comparative genomics of parasitoid resistance in *Drosophila* spp.
- J. Samplonius** *Animal Ecology*
Adaptation to climate change in a migratory passerine
- A. Schlaich** *Animal Ecology*
Surviving in changing agricultural landscapes in Europe and Africa - Investigating habitat use of Montague's harriers along an intensification gradient
- L. Schmaltz** *Animal Ecology*
Comparative demography of Ruff and Golden Plover
- A. Sharma** *Evolutionary Genetics*
Testing theories of sex determination and sex chromosome evolution with houseflies
- M.A. SidiCheik** *Community and Conservation Ecology*
Historical , annual and seasonal dynamics of seagrass meadows at Banc d'Arguin (Mauritania): the foundation of a fragile ecosystem
- J. Spoelder** *HLB Laboratory / Ecophysiology of Plants*
Endophyte communities in potato and their relationship with the host plant
- H.P.J. van Veelen** *Animal Ecology*
Effects of environmental microbial diversity and pathogenic pressure on immune investment in birds
- M.P. Veldhuis** *Community and Conservation Ecology*
Interactions among nutrient loops in African savannas
- L. van Walraven** *Animal Ecology / NIOZ*
Natural and anthropogenic impact on North Sea gelatinous zooplankton population dynamics: implications for ecosystem structure and functioning

- M. Wang** *Microbial Ecology*
Plant-bacterial interactions along a primary succession chronosequence in a salt marsh ecosystem
- J. van der Woude** *BESO*
Fitness consequences of intra-specific competition and social stress in the Seychelles warbler
- Y. Wu** *Evolutionary Genetics*
The birth and infancy of new sex chromosomes - Do neo-sex chromosomes arise from conflict between the sexes?
- H.-Y. Yang** *Animal Ecology / NIOZ / Beijing Normal University*
Foraging ecology of red knots staging in Bohai Bay China
- P. Yang** *Microbial Ecology*
The mechanisms of inetraction between bacteria and fungi in soil and rhirzosphere
- N. Yu** *Ecophysiology of Plants*
The role of receptor-like kinases in salt-induced changes or root architecture in *Arabidopsis thaliana*
- E. van der Zee** *Animal Ecology / NIOZ*
A regime shift in bentic organisms in the Waddensea: causes and consequences for higher trophic levels
- M. Zhang** *Microbial Ecology*
Bacterial-fungal interactions in soil and the role of plasmids

PhD Projects – Theses in preparation

- Y. Afeworki** *Marine Biology (Ocean Ecosystems)*
Seasonal dynamics in the trophic ecology and energetics of an important grazer (the parrot fish *Scarus ferrugineus*) on the coral reefs of Eritrea in the Southern Red Sea
- A.I. Bijleveld** *Animal Ecology / NIOZ*
Cost-benefit analyses of flocking in shorebirds, with a focus on information exchange
- C. Burger** *Animal Ecology*
Latitudinal dispersal as solution to insufficient adaptation to climate change
- X. Du** *Community and Conservation Ecology*
Progress in neutral theory for ecological communities
- S. Duijns** *Animal Ecology / NIOZ*
Foraging ecology of the Bar-tailed Godwit, *Limosa lapponica*

- K. Elschot** *Community and Conservation Ecology*
Biotically created vegetation heterogeneity during early primary succession on salt marshes
- R. Kentie** *Animal Ecology*
Spatial demography of Black-tailed Godwits: Metapopulation dynamics in a fragmented agricultural landscape
- F.S. Mandema** *Community and Conservation Ecology*
Biodiversity and nature management on mainland saltmarshes
- L. Molleman** *Theoretical Biology*
Human cooperation - the role of prosocial norms
- I.A. Neven** *Ecophysiology of Plants*
Inorganic carbon uptake of Southern Ocean Pacific phytoplankton in a high-CO₂ world
- S. Nolte** *Community and Conservation Ecology*
Biodiversity and nature management on mainland saltmarshes
- S. Paolucci** *Evolutionary Genetics*
The genetic basis of variation in reproductive diapause in *Nasonia* wasps
- S. Perez Vila** *Evolutionary Genetics*
Ecology and evolution of fly parasitoid communities
- M. Poortvliet** *Marine Benthic Ecology and Evolution*
Population connectivity and dispersal in devil rays in the tropical Pacific
- I. Puga-Gonzalez** *BESO / Theoretical Biology*
Self-organization of social behavior in primates
- J.L. Ruifrok** *Community and Conservation Ecology*
How herbivores create landscape mosaics of different plant functional types in temperate ecosystems
- M.W. Smith-Kleefsman** *Evolutionary Genetics*
Determinants of metapopulation dynamics: stochastic processes versus adaptation
- R. van Klink** *Community and Conservation Ecology*
Biodiversity and nature management on mainland saltmarshes
- E. van Velzen** *Community and Conservation Ecology*
The interplay between speciation, dispersal and adaptation to local conditions in a heterogeneous environment, and its effect on food web/community structure

Animal Ecology

<http://www.rug.nl/research/animal-ecology/>

Group leader Prof. dr. ir. C. Both

Composition of the group in 2013

Tenured staff	source	fte	period
Prof. Dr. Ir. C. Both	RUG	1.0	
Dr. M.W. Dietz	RUG	0.6	
Prof. Dr. T. Piersma	RUG/Flyway Ecology Chair	0.7	
Prof. Dr. B.I. Tieleman	RUG	1.0	
Prof. Dr. J.M. Tinbergen	RUG	1.0	
Post-docs			
Dr. A. Hegemann	NWO-VIDI Tieleman	1.0	15-01-2012 – 15-09-2013
Dr. T. Lok	RUG	1.0	01-01-2013 – 01-10-2016
Dr. K.D. Matson	NWO-VIDI Tieleman	1.0	24-07-2012 – 23-07-2014
Dr. J.W.H. Reneerkens	Metawad (Waddenfonds)	0.8	01-07-2011 – 01-07-2016
Dr. N.R. Senner	NWO-ALW-TOP	1.0	01-11-2012 – 31-10-2014
PhD-students			
Drs. R.W. Fokkema	NWO-ALW	1.0	01-11-2012 – 31-10-2016
Drs. S. Grizard	RUG-FWN	1.0	01-01-2010 – 01-01-2014
Drs. J.M. Mwangi	NFP fellowship	1.0	01-11-2013 – 31-10-2017
Drs. J. Onrust	UCF-IGRS Prov. Fryslân	1.0	01-10-2012 – 30-09-2016
Drs. J. Ouwehand	NWO-ALW	0.8	12-04-2010 – 08-03-2015
Drs. H. Ndithia	Nuffic	1.0	01-06-2010 – 01-06-2014
Drs. J.M. Samplonius	RUG-FWN	1.0	01-03-2013 – 28-02-2017
Drs. A.E. Schlaich	UE scholarship	1.0	01-02-2013 – 01-02-2017
Drs. L. Schmaltz	RUG-Prov. Fryslân	1.0	01-11-2009 – 01-11-2013
Drs. H.P.J. van Veelen			
Technical and Administrative Staff			
<i>secretary</i>			
J.G. Rietveld	RUG	0.4	
<i>technical assistant</i>			
Drs. J.C.E.W. Hooijmeijer	RUG	1.0	
Drs. R. Ubels	RUG	0.8	
Dr. M. van der Velde	RUG	0.4	
Dr. P. de Goeij	Metawad (Waddenfonds)	0.5	01-07-2011 – 31-12-2015
Dr. M.A. Versteegh	NWO-VIDI Tieleman	0.8	15-01-2012 – 15-07-2015
D. Visser	RUG		
<i>IT assistant</i>			
Ing. G.J. van den Burg	RUG	0.2	
Other PhD students			
Drs. A.I. Bijleveld	NIOZ	1.0	01-01-2010 – 01-01-2014
Drs. R. Bom	NIOZ	1.0	01-04-2011 – 01-04-2015
C.J. Camphuysen	NIOZ	1.0	
Drs. S. Duijns	NIOZ	1.0	01-10-2009 – 01-10-2013

Drs. J. de Fouw	NIOZ	0.8	01-04-2010 – 01-04-2015
Drs. J. Jouta	NIOZ	1.0	01-01-2011 – 31-04-2015
Drs. R. Kentie	NIOZ	1.0	
Drs. T. Oudman	NIOZ	1.0	01-11-2010 – 01-11-2015
Drs. L. Walraven	NIOZ	1.0	01-09-2010 – 01-09-2014
Drs. E. van der Zee	NIOZ	1.0	01-03-2009 – 01-03-2013
Drs. Nicky Yang Hong-Yan	Beijing Normal Uni.-NIOZ	1.0	01-12-2010 – 30-11-2014

Highlights

In 2013 our intensive long-term population study of Black-tailed godwits in Friesland celebrated its 10-year anniversary. The outreach activities around this study grew strongly through the project Kening fan 'e Greide (Frisian for: King of the Meadows). The satellite tracking of individual godwits during their spring migration from Spain to the Netherlands attracted a lot of media attention and public involvement. Furthermore, our combined research and conservation activities in close collaboration with local volunteers and farmers was important in the successful bid for Leeuwarden as Cultural Capital of Europe in 2018.

Flycatcher team member Rob Bijlsma was awarded the Edgar Doncker-award for Nature Conservation by the Edgar Doncker-foundation, because of his formidable contribution to research and conservation of raptors. Rob Bijlsma's most recent book (*Mijn Roofvogels*) was in the top-10 of best-selling non-fiction books in the Dutch book stores.

PhD student Almut Schlaich participated in the prize winning team of the Academische Jaarprijs 2013, which was led by the Amsterdam (UvA) ecologists Judy Shamoun-Baranes and Willem Bouten. This award for popularizing science in the Netherlands will be used to create an app (*Vogel het uit*) to gather habitat information of individually tracked birds using GPS-loggers. This citizen science project is enrolled this year, and also includes other bird species studied by the Animal Ecology Group.

Three PhD-students were awarded their PhD under supervision of Animal Ecology Group members:

Camphuijsen, C.J. (2013): A historical ecology of two closely related gull species (*Laridae*) - Multiple adaptations to a man-made environment. Promotor: prof.dr. T. Piersma; co-promotor: dr. H.W. van der Veer

Lok, T. (2013): Spoonbills as a model system - A demographic cost-benefit analysis of differential migration. Promotores: prof. dr. T. Piersma, prof. dr.J.M. Tinbergen (cum laude)

Van der Geest, M. (2013): Multi-trophic interactions within the seagrass beds of Banc d'Arguin, Mauritania - A chemosynthesis-based intertidal ecosystem. Promotores: prof. dr. T. Piersma, prof. dr. J. van der Meer, prof. dr. H. Olf

Publications

Doctorate granted by the institution, prepared within the institution

Camphuijsen, C.J. (2013): A historical ecology of two closely related gull species (*Laridae*) - Multiple adaptations to a man-made environment. Promotor: prof.dr. T. Piersma; co-promotor: dr. H.W. van der Veer

Lok, T. (2013): Spoonbills as a model system - A demographic cost-benefit analysis of differential migration. Promotores: prof. dr. T. Piersma, prof. dr.J.M. Tinbergen

Van der Geest, M. (2013): Multi-trophic interactions within the seagrass beds of Banc d'Arguin, Mauritania - A chemosynthesis-based intertidal ecosystem. Promotores: prof. dr. T. Piersma, prof. dr. J. van der Meer, prof. dr. H. Olf

Publications in journals

Buehler, D. M., Verkuil, Y. I., Tavares, E. S., & Baker, A. J. (2013) Characterization of MHC class I in a long-distance migrant shorebird suggests multiple transcribed genes and intergenic recombination. *Immunogenetics*, **65**: 211-225

Burger, C., Nord, A., Nilsson, J. A., Gilot-Fromont, E., & Both, C. (2013) Fitness consequences of northward dispersal as possible adaptation to climate change, using experimental translocation of a migratory passerine. *PLoS ONE*, **8**: e83176

Compton, T. J., Holthuijsen, S., Koolhaas, A., Dekinga, A., ten Horn, J., Smith, J., Galama, Y., Brugge, M., van der Wal, D., van der Meer, J., van der Veer, H. W., & Piersma, T. (2013) Distinctly variable mudscapes: Distribution gradients of intertidal macrofauna across the Dutch Wadden Sea. *Journal of Sea Research*, **82**: 103-116

Conklin, J. R., Battley, P. F., & Potter, M. A. (2013) Absolute consistency: Individual versus population variation in annual-cycle schedules of a long-distance migrant bird. *PLoS ONE*, **8**: e54535

Dietz, M. W., Piersma, T., Dekinga, A., Korthals, H., & Klaassen, M. (2013) Unusual patterns in N-15 blood values after a diet switch in red knot shorebirds. Isotopes in *Environmental and Health Studies*, **49**: 283-292

Dietz, M. W., Rogers, K. G., & Piersma, T. (2013) When the seasons don't fit: Speedy molt as a routine carry-over cost of reproduction. *PLoS ONE*, **8**: e53890

Donadi, S., van der Heide, T., van der Zee, E. M., Eklof, J. S., van de Koppel, J., Weerman, E. J., Piersma, T., Olf, H., & Eriksson, B. K. (2013a) Cross-habitat interactions among bivalve species control community structure on intertidal flats. *Ecology*, **94**: 489-498

Donadi, S., Westra, J., Weerman, E. J., van der Heide, T., van der Zee, E. M., van de Koppel, J., Olf, H., Piersma, T., van der Veer, H. W., & Eriksson, B. K. (2013b) Non-trophic interactions control benthic producers on intertidal flats. *Ecosystems*, **16**: 1325-1335

- Duijns, S., Hidayati, N. A., & Piersma, T. (2013) Bar-tailed Godwits *Limosa l. lapponica* eat polychaete worms wherever they winter in Europe. *Bird Study*, **60**: 509-517
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Ruthrauff, D. R., Dekinga, A., Gill, R. E., Summers, R. W., & Piersma, T. (2013b) Ecological correlates of variable organ sizes and fat loads in the most northerly wintering shorebirds. *Canadian Journal of Zoology*, **91**: 698-705

Trierweiler, C., Mullie, W. C., Drent, R. H., Exo, K. M., Komdeur, J., Bairlein, F., Harouna, A., de Bakker, M., & Koks, B. J. (2013) A Palaearctic migratory raptor species tracks shifting prey availability within its wintering range in the Sahel. *Journal of Animal Ecology*, **82**: 107-120

Trimbos, K. B., Kentie, R., van der Velde, M., Hooijmeijer, J. C. E. W., Poley, C., Musters, C. J. M., de Snoo, G. R., & Piersma, T. (2013) Intronic variation at the CHD1-Z gene in Black-tailed Godwits *Limosa limosa limosa*: correlations with fitness components revisited. *Ibis*, **155**: 508-517

Van den Hout, P. J., Loonstra, J., Veen, J. & Piersma, T. (2013) Very pale Bar-tailed Godwit killed by Peregrine: evidence for the oddity effect? *Wader Study Group Bulletin*, **120**: 136-137

Van Gils, J. A., van der Geest, M., Leyrer, J., Oudman, T., Lok, T., Onrust, J., De Fouw, J., van der Heide, T., van den Hout, P. J., Spaans, B., Dekinga, A., Brugge, M., & Piersma, T. (2013) Toxin constraint explains diet choice, survival and population dynamics in a molluscivore shorebird. *Proceedings of the Royal Society B-Biological Sciences*, **280** nr. 1763

Yang, H. Y., Chen, B., Ma, Z. J., Hua, N., van Gils, J. A., Zhang, Z. W., & Piersma, T. (2013) Economic design in a long-distance migrating molluscivore: how fast-fuelling red knots in Bohai Bay, China, get away with small gizzards. *Journal of Experimental Biology*, **216**: 3627-3636

Professional publications

Van den Hout, P. J. & Piersma, T. (2013) Laagwaterverspreiding van steltlopers in de Waddenzee. *Limosa*, **86**: 25-30

Behavioural Ecology and Self-organization

<http://www.rug.nl/research/behavioural-ecology-and-self-organization/>

Group leader Prof. dr. J. Komdeur

Composition of the group in 2013

Tenured staff	source	fte	period
Prof. Dr. C.K. Hemelrijk	RUG	1.0	
Prof. Dr. Ir. J. Komdeur	RUG	1.0	
Post-docs			
Dr. H. Hildenbrandt	RUG	0.8	01-12-2011 – 15-05-2014
Dr. S. Kingma	NWO-VENI	1.0	01-11-2013 – 01-11-2016
Dr. P. Korsten	NWO-ALW	1.0	01-11-2011 – 01-11-2014
Dr. I.B.R. Scheiber	NWO-CW	1.0	01-02-2013 – 01-02-2016
Dr. L. Spurgin	NWO-Rubicon	1.0	01-09-2012 – 31-08-2014
Dr. M.B. Utz	NWO-TOP	1.0	01-06-2013 – 01-06-2016
PhD-students			
Drs. S.M. Amini Nasab	Univ. Behbahan, Iran-RUG	1.0	01-08-2011 – 01-08-2015
Drs. M. Busana	NWO-TOP	1.0	01-07-2013 – 30-06-2017
Drs. F. Groenewoud	NWO-TOP	1.0	01-09-2013 – 31-12-2016
Drs. M.B.W. Langenhof	RUG-Ubbo Emmius	0.9	01-12-2009 – 01-06-2014
Drs. L. Lv	China Scholarship Council	1.0	01-04-2011 – 31-03-2015
Drs. R. Marfull	Erasmus Mundus Lindo	1.0	01-09-2013 – 31-08-2017
Drs. J. van der Woude	NWO-VICI	0.6	01-10-2008 – 31-03-2014
Technical/Administrative Staff			
<i>secretary</i>			
J.G. Rietveld	RUG	0.3	
<i>technical assistant</i>			
M. van der Velde	RUG	0.4	
Dr. E. Schut	EU-CIG	0.8	01-05-2012 – 31-10-2012
<i>IT-assistent</i>			
Dr. J. Bakker	RUG	0.2	
<i>Diervverzorging</i>	RUG	0.1	
Guests/Detachment			
Drs. H. Edwards	University of Sheffield (UK)	1.0	01-10-2012 – 01-10-2015
Drs. D. Gilroy	University East Anglia (UK)	1.0	01-10-2011 – 01-10-2014
Dr. S.A. Kingma	NWO-Rubicon	1.0	01-08-2011 – 01-08-2013
Dr. I. Lesna	UVA		
Dr. I.B.R. Scheiber	MEME	1.0	01-02-2012 – 31-01-2013
Drs. D.J. Wright	University East Anglia (UK)		

Publications

Doctoral Dissertations

De Jong B. (2013): Testosterone a female hormone - Testing the function and evolution of testosterone in female birds. PhD thesis, University of Groningen, The Netherlands

Hammers M. (2013): Ecology of senescence in a cooperatively breeding bird - A long-term study on the Seychelles warbler. PhD thesis, University of Groningen, The Netherlands

Van der Vaart E.E. (2013): A cognitive model of caching by corvids. PhD thesis, University of Groningen, The Netherlands.

Articles in Journals

Barrett E.L.B., Burke T., Hammers M., Komdeur J. & Richardson D.S. (2013): Telomere length and dynamics predict mortality in a wild longitudinal study. *Mol. Ecol.* **47**, 41-53, doi:10.1111/mec.12110

Buij R., Cavallès S. & Mullié W.C. (2013): Breeding biology and diet of the African swallow-tailed kite *Chelictinia riocourii* in Senegal and Cameroon. *J. Raptor Res.* **47**, 41-53

Buij R., Croes B.M., Gort G. & Komdeur J. (2013): The role of breeding range, diet, mobility and body size in associations of raptor communities and land-use in a West African savanna. *Biol. Conserv.* **166**, 231–246, doi:10.1016/j.biocon.2013.06.028

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Buij R., Kortekaas K., Van Krimpen R.R.D., Van Wijk R., Van der Zanden S., De longh H.H., Heitkönig I.M.A., de Snoo G.R. & Komdeur J. (2013): Breeding performance of the grasshopper buzzard (*Butastur rufipennis*) in a natural and a human-modified West African savanna. *The Condor* **115**, 47-57

Edwards H., Winney I., Schroeder J. & Dugdale H.L. (2013): Do rapid assays predict repeatability in labile (behavioural) traits? - A reply to Biro. *Anim. Behav.* **85**, e1-e3, doi:10.1016/j.anbehav.2012.12.021

Hammers M., Richardson D.S., Burke T., & Komdeur J. (2013): The impact of reproductive investment and early-life environmental conditions on senescence: support for the disposable soma hypothesis. *J. Evol. Biol.* **26**, 1999–2007, doi:10.1111/jeb.12204

Hinsch M., Pen I. & Komdeur J. (2013): Evolution of defense against depletion of local food resources in a mechanistic foraging model. *Behav. Ecol.* **24**, 245-252, doi:10.1093/beheco/ars160

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- Komdeur J., Schrama M.J.J., Meijer K., Moore A.J. & Beukeboom L.W. (2013): Cobreeding in the burying beetle, *Nicrophorus vespilloides*: Tolerance rather than cooperation. *Ethology* **119**, 1138-1148, doi:10.1111/eth.12174
- Korsten P., Van Overveld T., Adriaensen F. & Matthysen E. (2013): Genetic integration of local dispersal and exploratory behaviour in a wild bird. *Nat. Commun.* **4**, 2362, doi:10.1038/ncomms3362
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- Michler S., Nicolaus M., Van der Velde M., Radersma R., Ubels R., Both C., Komdeur J. & Tinbergen J. (2013): Local offspring density and sex ratio affect sex allocation in the great tit. *Behav. Ecol.* **24**, 169-181
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- Oschadleus H.D., Aumeeruddy R. & Kingma S.A. (2013): Longevity of the Seychelles fody *Foudia sechellarum*. *Ostrich* **84**, 89-91
- Rivero-de Aguilar J., Schut E., Westerdah H., Merino S., Martínez J. & Komdeur J. (2013): MHC class II B diversity in blue tits: A preliminary study. *Ecol. Evol.* **3**, 1878-1889, doi:10.1002/ece3.598
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- Spurgin L. (2013): Comment on Gohli et al. (2013): "Does promiscuity explain differences in levels of genetic diversity across passerine birds?" *Evolution* **67**, 3071–3072, doi:10.1111/evo.12212
- Trierweiler C., Mullié W., Drent R., Exo K.-M., Komdeur J., Bairlein F., Harouna A., Bakker M. & Koks B. (2013): A Palaearctic migratory raptor species tracks shifting prey availability within its wintering range in the Sahel. *J. Anim. Ecol.* **82**, 107-120, doi:10.1111/j.1365-2656.2012.02036.x
- Van der Post D.J., Van Weerd H., Verbrugge R. & Hemelrijk C.K. (2013): A novel mechanism for a survival advantage of vigilant individuals in groups. *Am. Nat.* **182**, 682-688, doi:10.1086/673298
- Van Weerden J.F., Reid D.A.P. & Hemelrijk C.K. (2013): A meta-analysis of steady undulatory swimming. *Fish and Fisheries*, doi:10.1111/faf.12022

Vedder O., Magrath M.J.L., Van der Velde M. & Komdeur J. (2013): Covariance of paternity and sex with laying order explains male bias in extra-pair offspring in a wild bird population. *Biol. Letters* **9**, 20130616, doi:10.1098/rsbl.2013.0616.

Weiß B.M. & Scheiber I.B.R. (2013): Long-term memory of hierarchical relationships in free-living greylag geese. *Anim. Cogn.* **16**, 91-97, doi:10.1007/s10071-012-0554-2

Books & Book Chapters

Hemelrijk C.K. (2013). Simulating complexity of animal social behaviour. In: Edmonds B. & Meyer R. (eds.): *Simulating Social Complexity - A handbook*, pp. 581-616. Springer

Scheiber I.B.R., Weiß B.M., Hemetsberger J. & Kotrschal K. (Eds) (2013). *The Social Life of Greylag Geese - Patterns, Mechanisms, and Evolutionary Function in an Avian Model System*. Cambridge University Press, Cambridge.

Professional Publications

Komdeur J. (2013). Book review of B. Leisler & K. Schulze-Hagen: *The Reed Warblers: Diversity in a Uniform Bird Family*. *Emu* **113**, 398-399, doi:10.1071/MUv113n4_BR

Community and Conservation Ecology

<http://www.rug.nl/research/community-and-conservation-ecology/>

Group leader Prof. dr. H. Olf

Composition of the group in 2013

Tenured Staff	source	fte	period
Prof.dr. J.P. Bakker	Emeritus		
dr. R.S. Etienne	RUG/NWO-ALW Vidi	1.0	
Prof. dr. H. Olf	RUG	1.0	
dr. ir. C. Smit	RUG	1.0	
Post-docs			
ir. T. van der Heide	Waddensleutels,Waddenfonds	1.0	01-03-2009 – 22-02-2015
dr. J. Carnicer	NWO/ALW Veni	0.8	01-04-2012 – 31-07-2017
dr. M.J.A. Christianen	Waddensleutels,Waddenfonds	1.0	01-02-2013 – 30-06-2015
dr. A.L. Pigot	NWO/ALW Veni	1.0	16-09-2013 – 15-09-2016
PhD students			
drs. E.M. El-Hacen	MAVA	1.0	16-06-2013 – 15-06-2017
drs. W. Fokkema	Metawad, Waddenfonds	1.0	01-09-2011 – 31-08-2015
drs. R.A. Howison	RUG	1.0	01-04-2011 – 01-04-2015
drs. T. Janzen	RUG-FWN	1.0	06-09-2010 – 05-09-2014
drs. A.L.D. van der Plas	Bursary (Pionier)	1.0	01-04-2009 – 31-03-2013
drs. M.A. Sidi Cheikh	PNBA. Vogelbescherming Ned.	1.0	01-09-2012 – 31-08-2016
drs. M.P. Veldhuis	Ubbo Emmius	1.0	01-11-2012 – 31-10-2015
Technical and Administrative staff			
<i>secretary</i>			
I.C. Jansen	RUG	0.5	
<i>chemical analist</i>			
N.D. Eck	RUG	1.0	
<i>botanical analist</i>			
J.J. Hogendorf	RUG	1.0	
<i>IT-assistent</i>			
ing. G.J. van den Burg	RUG	0.8	
Guests			
Prof. dr. J. van Andel	Groningen, NL		
prof. dr. M. Bertness	Brown University, USA		
prof. dr. E. van der Maarel	Groningen, NL		
prof. dr. K. Prach	Univ. South Bohemia, Czech Republic		
dr. J.M. Drees	Groningen, NL		
dr. R.M. Bekker	Groningen, NL		
dr. E.Chang	Groningen NL		
dr. P. Esselink	Groningen, NL		
dr. R.M. Veeneklaas	Groningen NL		
dr. F. Vera	NL		

Publications

Doctoral dissertations

F.A. Encinas Viso (2013): Ecology and evolution of mutualistic networks. PhD thesis, University of Groningen, The Netherlands

C.X. Garzón López (2013): Determinants of the spatial distribution of tree species in a neotropical forest. PhD thesis, University of Groningen, The Netherlands

Q-X. Liu (2013): Emergent properties of spatial self-organization - A study of patterned mussel beds. PhD thesis, University of Groningen, The Netherlands

X. Liu (2013): Interspecific and intraspecific perspectives of the Janzen-Connell effect - Incorporating phylogenetic and molecular evolutionary approaches. PhD thesis, University of Groningen, The Netherlands

A.L.D. van der Plas (2013): Understanding trait-based community assembly in tropical savannahs at different trophic levels. PhD thesis, University of Groningen, The Netherlands

R.M. Veeneklaas (2013): Adaptation and dispersal of native salt-marsh species *Elytrigia atherica*. PhD thesis, University of Groningen, The Netherlands

Publications in journals

Anderson, T. M., Kumordzi, B. B., Fokkema, W., Fox, H. V. and Olff, H.. (2013). Distinct physiological responses underlie defoliation tolerance in African lawn and bunch grasses. *International Journal of Plant Sciences* 174:769-778.

Carnicer, J., Brotons, L., Herrando, S., & Sol, D. (2013). Improved empirical tests of area-heterogeneity tradeoffs. *Proceedings of the National Academy of Sciences*, 110(31), E2858-E2860.

Carnicer, J., Stefanescu, C., Vila, R., Dincă, V., Font, X., & Peñuelas, J. (2013). A unified framework for diversity gradients: the adaptive trait continuum. *Global Ecology and Biogeography*, 22(1), 6-18.

Carnicer, J., Coll, M., Pons, X., Ninyerola, M., Vayreda, J., & Peñuelas, J. (2013). Large-scale recruitment limitation in Mediterranean pines: the role of *Quercus ilex* and forest successional advance as key regional drivers. *Global Ecology and Biogeography*, *on line early view*.

Carnicer, J., Barbeta, A., Sperlich, D., Coll, M., & Peñuelas, J. (2013). Contrasting trait syndromes in angiosperms and conifers are associated with different responses of tree growth to temperature on a large scale. *Frontiers in plant science*, 4.

Peñuelas, J., Sardans, J., Estiarte, M., Ogaya, R., Carnicer, J., Coll, M., & Jump, A. S. (2013). Evidence of current impact of climate change on life: a walk from genes to the biosphere. *Global change biology*, 19(8), 2303-2338.

Stefanescu, C., Carnicer, J. et al. (2013) Multi-generational long-distance migration of insects: studying the painted lady butterfly in the Western Palaearctic. *Ecography* 36.4 : 474-486.

- Coll, M., Peñuelas, J., Ninyerola, M., Pons, X., & Carnicer, J. (2013). Multivariate effect gradients driving forest demographic responses in the Iberian Peninsula. *Forest Ecology and Management*, 303, 195-209.
- Christianen, M.J.A., van Belzen, J., Herman, P.M.J., van Katwijk, M.M., Lamers, L.P.M., van Leent, P.J.M., Bouma, T.J. (2013) Low-canopy seagrass beds still provide important coastal protection services, *PLOS ONE*, 8(5): e62413 doi: 10.1371/journal.pone.0062413
- Cordlandwehr, V., Meredith, R. L. , Ozinga, W. A. , Bekker, R. M. , van Groenendael, J. M. and Bakker, J. P. (2013). Do plant traits retrieved from a database accurately predict on-site measurements? *Journal of Ecology* 101:662-670.
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Donadi, S., Van der Heide, T., Van der Zee, E., Eklöf, J.S., Van de Koppel, J., Weerman, E.J., Piersma, T., Olf, H. and Eriksson, B.K. (2013). Cross-habitat interactions among bivalves species control community structure on intertidal flats. *Ecology* 94: 489498.

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Van Leeuwen, E., Etienne, R.S. (2013) Caught in the middle: Asymmetric competition causes high variance in intermediate trait abundances. *Theoretical Population Biology* 85:26-37

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Van der Plas, F., Zeinstra, P., Veldhuis, M., Fokkema, R., Tielens, E., Howison, R. & Olf, H. (2013). Responses of savanna lawn and bunch grasses to water limitation. *Plant Ecol.*, 214, 1157-1168.

Van der Plas, F., Howison, R., Reinders, J., Fokkema, W. and Olf, H. (2013). Functional traits of trees on and off termite mounds: understanding the origin of biotically-driven heterogeneity in savannas. *Journal of Vegetation Science* 24:227-238.

Van Velzen, E., Etienne, R. S.. (2013). The evolution and coexistence of generalist and specialist herbivores under between-plant competition. *Theoretical Ecology* 6:87-98.

Veeneklaas, R. M., Dijkema, K. S., Hecker, N. and Bakker, J. P. (2013). Spatio-temporal dynamics of the invasive plant species *Elytrigia atherica* on natural salt marshes. *Applied Vegetation Science* 16:205-216.

Verwijmeren, M., Rietkerk, M. Wassen, M. J. and Smit, C. (2013). Interspecific facilitation and critical transitions in arid ecosystems. *Oikos* 122:341-347.

Te Beest, M., Elschot, K., Olf, H. & Etienne, R.S. (2013) Invasion success in a marginal habitat: An experimental test of competitive ability and drought tolerance in *Chromolaena odorata*. *PLoS ONE* 8(8):e68274

Elschot, K., Bouma, T.J., Temmerman, S. and Bakker, J.P. (2013) Effects of long-term grazing on sediment deposition and salt-marsh accretion rates. *Estuarine, Coastal and Shelf Science* 133:109-115

Books & book chapters

Van der Maarel, E. Book review Rolf Roos & Nico van der Wel (red.), (2013). Duinen en mensen Texel. Stichting Natuurmedia, Amsterdam. *Heimans en Thijsse Nieuwsbrief* 45:3.

Professional publications

Bakker, J.P. and Wiertz, J. (2013). Effectiviteit van natuurbeheer. *De Levende Natuur* mei 2013: 91-97

Vera, F. (2013) Can't see the trees for the forest. In: I.D. Rotherham (ed.) *Trees, Forested Landscapes and Grazing Animals. A European Perspective on Woodlands and Grazed Treescapes*. Routledge Taylor & Francis Group, London and New York, p. 99-126

De Vlas, J., Mandema, F., Nolte, S., van Klink, R. and Esselink, P. (2013). Natuurbeheer van kwelders de invloed van beweiding op de biodiversiteit. *PUCCIMAR rapport 08*, It Fryske Gea, Olterterp. 32 pp.

De Vlas, J., Mandema, F., Nolte, S., van Klink, R. and Esselink, P. (2013). Nature conservation of salt marshes. The influence of grazing on biodiversity. *PUCCIMAR report 09*, It Fryske Gea, Olterterp. 32 pp.

Ecophysiology of Plants

<http://www.rug.nl/research/plant-ecophysiology/>

Group leader Prof. dr. J.T.M. Elzenga

Composition of the group in 2013

Tenured Staff	source	fte	period
Prof. dr. J.T.M. Elzenga	RUG	1.0	
Dr. L.J. de Kok	RUG	1.0	
Dr. J. Stefels	RUG	0.4	
Postdocs			
Dr. D.den Os	NWO-ALW	1.0	01-10-2012 – 01-10-2014
Dr. M.A. van Leeuwe	NWO-ALW	0.6	01-02-2011 – 01-04-2015
Dr. N. Sujeeth	EU-FP7	1.0	01-04-2010 – 01-04-2013
Dr. J.H. Venema	EZ	0.8	01-04-2010 – 01-04-2014
PhD Students			
T. Aghajanzadeh	Razi Med. Diag. Lab.	1.0	01-11-2010 – 31-01-2014
M. Reich	EC-Fellow, BIONUT/ITN	1.0	01-07-2011 – 01-07-2015
J. Spoelder	HLB Laboratory	0.6	01-12-2010 – 01-12-2015
N. Yu	Chinese Scholarship Council	1.0	01-09-2011 – 01-09-2015
Technical/Administrative Staff			
<i>secretary</i>			
J. Nuijten-Tjalkes	RUG	0.4	
<i>administrator</i>			
G.P. Telkamp	RUG	0.4	
<i>research analyst</i>			
F.S. Posthumus	RUG	1.0	
M. Staal	RUG	1.0	
C.E.E. Stuiver	RUG	0.7	
Guest			
L.A. Villerius	Rijkswaterstaat		

Highlights

Opening of the new Dutch Science Facility on the Antarctic Peninsula

In January 2013, delegates from NWO and the ministry of Foreign Affairs opened the new Dutch Science Facility at the British Antarctic research base Rothera (see picture). The opening of the labs in Antarctica received much attention in the Dutch press: on television, radio and in national and local newspapers. An overview of all publicity can be found on the website of the Willem Barentsz Polar Institute: <http://wbpi.webhosting.rug.nl/index.php?nr=207>

Rothera base is situated at the west side of the Antarctic Peninsula, where currently large effects of global warming are apparent. Our project *Temporal dynamics of the climate gas dimethyl sulphide (DMS) and related compounds in a changing Antarctic sea-ice environment* is one of the five Dutch projects at Rothera and will run until 2016. Members of the Plant Ecophysiology group, Jacqueline Stefels, Maria van Leeuwe and Desiree den Os, form one of the main Dutch teams at Rothera, working on year-round measurements of climate gases and incubation experiments designed to measure biological process rates of climate relevant compounds. The data will serve to develop algorithms for sea ice-ocean-climate models.



Publications

Publications in journals

De Kok, L.J. and Hawkesford, M.J. 2013. Plant functioning in a changing global and polluted environment. *Environ. Exp. Bot.* 88: 1 (special issue).

Elzenga T. & Rennenberg H. (2013). Introducing the Strasburger. *Plant Biology* 15:425-425.

Fritz, Christian, Leon P. M. Lamers, Muhammad Riaz, Leon J. L. van den Berg, Theo J. T. M. Elzenga (2013) *Sphagnum* Mosses - Masters of Efficient N-Uptake while Avoiding Intoxication. PlosONE DOI: 10.1371/journal.pone.0079991

Law CS, Brévière E, De Leeuw G, Garçon V, Guieu C, Kieber DJ, Konradowitz S, Paulmier A, Quinn PK, Saltzman ES, Stefels J, von Glasow R (2013) Evolving Research Directions in Surface Ocean Lower Atmosphere (SOLAS) Science. *Environmental Chemistry* 10 (1): 1-16 DOI: 10.1071/EN12159

Patberg W., Baaijens G.J., Smolders A.J.P., Grootjans A.P. & Elzenga J.T M. (2013). The importance of groundwater-derived carbon dioxide in the restoration of small *Sphagnum* bogs. *Preslia* 85:389-403

Shahbaz, M., Parmar, S., Stuiver, C.E.E., Hawkesford, M.J. and De Kok, L.J. 2013. Copper toxicity and sulfur metabolism in Chinese cabbage are affected by UV radiation. *Environ. Exp. Bot.* 88: 60-70.

Interviews

“Zeecontainers als mobiele labs” NRC-Weekend, 19 & 20 January 2013. Interview with J. Stefels

“Antarctica: werken op supergave plek” Dagblad van het Noorden, 7 January 2013. Interview with D. den Os.

“Koud Kamp – Onderzoek doen op Antarctica is zo vervelend nog niet” *Experiment NL* (Quest i.s.m. NWO), November 2013. Interview with J. Stefels

“Zicht op de cycli van de ijskoude zee” *C2W*, October 2013. Interview with J. Stefels

“Waarneming en orientatievermogen van de Honingbij”. Theo Elzenga. *Vlieggat* 40-4 (2013)

Evolutionary Genetics

<http://www.rug.nl/fmns-research/evolutionary-genetics/index>

Group leader Prof. dr. L.W. Beukeboom

Composition of the group in 2013

Tenured Staff	source	fte	period
prof. dr. L.W. Beukeboom	RUG	1.0	
dr. L.P.W.G.M. van de Zande	RUG	1.0	
dr. B. Wertheim	Rosalind Franklin NWO-ALW VIDI	1.0	01-01-2009 – 01-01-2015

Post-docs

dr. T. Schwander	NWO-ALW VENI	1.0	01-02-2010 – 01-02-2013
dr. E.C. Verhulst	NWO-TOP	1.0	12-07-2010 – 12-07-2013
dr. C.J. Vermeulen	RUG	0.4	15-08-2009 – 15-08-2014

PhD-students

drs. M. Buřičová	RUG-Marie Curie ITN	1.0	16-06-2013 – 15-06-2017
drs. E. Dalla Benetta	RUG-Marie Curie ITN	1.0	01-11-2013 – 31-10-2017
drs. W. Diao	RUG-Marie Curie ITN	0.6	01-01-2009 – 01-06-2013
drs. S. Gerritsma	NWO-ALW VIDI	0.8	06-07-2009 – 29-10-2013
drs. E. Geuverink	NWO-TOP	1.0	01-09-2010 – 01-09-2014
drs. M.C.W.G. Giesbers	NWO-ALW	1.0	01-09-2008 – 01-05-2013
drs. W.J. Ma	UE bursary	1.0	01-10-2009 – 01-10-2013
drs. J. Prodic	RUG-Marie Curie ITN	1.0	01-05-2013 – 30-04-2017
drs. J. Rouhana	UE Sandwich bursary	1.0	01-10-2013 – 30-09-2017
drs. L. Salazar Jaramillo	RUG Rosalind Franklin bursary	1.0	01-02-2009 – 01-02-2013
drs. A. Sharma	NWO	1.0	16-01-2013 – 15-01-2017
drs. Y. Wu	UE Sandwich bursary	1.0	01-03-2013 – 28-02-2017

Technical and Administrative Staff

Secretary

E.E.J. Plender-Hartman	RUG	0.4	
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Technicians

M. Chaplinska	RUG	1.0	16-06-2013 – 16-06-2014
A. de Haan	NWO-ALW VIDI	0.5	01-10-2009 – 15-09-2013
	NWO-TOP	0.5	01-10-2009 – 15-09-2013
P.J. Hes	RUG	0.4	
R.S.S. Houwerzijl	RUG	1.0	
A.H. Rensink	RUG	1.0	

Guests

dr. L. Francuski	University of Novi Sad		02-12-2013 – 01-03-2014
dr. M. Trienens	Volkswagen Stiftung		01-08-2012 – 01-08-2014

Internships

A.W. Hunneman	Van Hall Institute Leeuwarden		02-09-2013 – 31-01-2014
M. Nas	Van Hall Institute Leeuwarden		02-09-2013 – 31-01-2014
S. Nijboer	Hanzehogeschool Groningen		02-09-2013 – 02-09-2014

Highlights

In September 2013 we organised a mini-symposium on "Exotic Plants and Adaptable Insects" in conjunction with the promotion of Kim Meijer. With this promotion we completed a successful collaboration with Menno Schilthuizen (Naturalis) who had been holding the Uyttenboogaart-Eliassen Foundation funded chair in insect biodiversity in CEES from 2007-2012.

We were very successful in obtaining grants for several new Phd students. Three new positions are within the Marie Curie ITN network "INsecTIME" for research on photoperiodism and diapause in *Nasonia*. A sandwich PhD position was obtained with the University of East Anglia on evolutionary genomics of the enigmatic sex peptide in *Drosophila*. Former PhD student and postdoc in our group, Eveline Verhulst, obtained a personal VENI grant from The Netherlands Organisation for Scientific Research (NWO) to continue her research on hymenopteran sex determination at Wageningen University.

We were invited for editing a special issue of *Sexual Development* on sex determination and differentiation in insects to which we contributed three articles. Our review article on invitation entitled "Polyploidy in animals: effects of gene expression on sex determination, evolution and ecology" was published in a special issue of *Cytogenetics and Genome Research* on "Trends in Polyploidy Research in Animals and in Plants". We contributed a review chapter on prezygotic isolation in the parasitoid wasp genus *Nasonia* to the book *Speciation: Natural processes, genetics and biodiversity* (P. Michalak, ed., Nova Science Publishers, Inc).

Publications

Doctoral dissertations

Meijer, K. (2013) Native versus Non-native – the interplay between native insects and non-native plants. Promotores: Prof. dr. M. Schilthuizen, Prof. dr. L.W. Beukeboom. University of Groningen, The Netherlands

Publications in journals

Bertossa, R.C., Van Dijk, J., Diao, W., Saunders, D., Beukeboom, L.W. and Beersma, D.G.M. (2013) Circadian rhythms differ between sexes and closely related species of *Nasonia* Wasps. *PLoS ONE* **8**, e60167.

Buellesbach, J., Gadau, J., Beukeboom, L.W., Echinger, F., Raychoudhury, R., Werren, J.H. and Schmitt, T. (2013) Cuticular hydrocarbon divergence in the jewel wasp *Nasonia*: evolutionary shifts in chemical communication channels? *J. Evol. Biol.* **26**, 2467-2478.

Gerritsma, S., De Haan, A., Van de Zande, L. and Wertheim, B. (2013) Natural variation in differentiated hemocytes is related to parasitoid resistance in *Drosophila melanogaster*. *J. Insect Physiol.* **59**, 148-158.

Komdeur, J., Schrama, M.J.J., Meijer, K., Moore, A.J. and Beukeboom, L.W. (2013) Cobreeding in the burying beetle, *Nicrophorus vespilloides*: Tolerance rather than cooperation. *Ethology* **119**, 1138-1148.

Ma, W., Kuijper, B., Boer, J.G., Van de Zande, L., Beukeboom, L.W., Wertheim, B. and Pannebakker, B.A. (2013) Absence of complementary sex determination in the parasitoid wasp genus *Asobara* (Hymenoptera: Braconidae). *PLoS One* **8**, - e60459.

Paolucci, S., Van de Zande, L. and Beukeboom, L.W. (2013) Adaptive latitudinal cline of photoperiodic diapause induction in the parasitoid *Nasonia vitripennis* in Europe. *J. Evol. Biol.* **26**, 705-718.

Verhulst, E.C., Lynch, J.A., Bopp, D., Beukeboom, L.W. and Van de Zande, L. (2013) A new component of the *Nasonia* sex determining cascade is maternally silenced and regulates transformer expression. *PLoS One* **8**, e63618.

Vermeulen, C.J., Pedersen, K.S., Beck, H.C., Petersen, J., Galalova, K.K. and Loeschcke, V. (2013) Proteomic characterization of inbreeding-related cold sensitivity in *Drosophila melanogaster*. *PLoS One* **8**, e62680.

Vermeulen, C.J., Sorensen, P., Kirilova Galalova, K. and Loeschcke, V. (2013) Transcriptomic analysis of inbreeding depression in cold-sensitive *Drosophila melanogaster* shows upregulation of the immune response. *J. Evol. Biol.* **26**, 1890-1902.

Wertheim, B., Beukeboom, L.W. and Van de Zande, L. (2013) Polyploidy in animals: effects of gene expression on sex determination, evolution and ecology. *Cytogenet. Genome Res.* **140**, 256-269.

Books and book chapters

Giesbers, M.C.W.G., Gerritsma, S., Buellesbach, J., Diao, W., Pannebakker, B.A., Van de Zande, L., Schmitt, T. and Beukeboom L.W. (2013) Prezygotic isolation in the parasitoid wasp genus *Nasonia*. *In: Speciation: Natural processes, genetics and biodiversity* P. Michalak (ed.). Nova Science Publishers, Inc.

Marine Benthic Ecology and Evolution (MarBEE)

<http://www.rug.nl/research/marine-benthic-ecology-and-evolution/>

Group leader Prof. dr. J.L. Olsen

Composition of the group in 2013

Tenured staff	source	fte	period
prof.dr. J.L. Olsen	RUG	1.0	
prof.dr. B.D.H.K. Eriksson	RUG	1.0	
prof.dr. W.T. Stam	RUG	Emeritus	
Post-docs			
dr. M.K. de Boer	RUG	0.8	01-11-2009 – 01-08-2013
dr. A.O. Jüterbock	NWO-ALW	1.0	01-10-2003 – 01-04-2014
PhD-students			
drs. S. Donadi	NWO-ZKO	1.0	01-03-2009 – 01-03-2013
Technical and Administrative Staff			
<i>Secretary</i>			
H.G. Tjoelker	RUG-CEES	0.25	
<i>Technicians</i>			
S.A. Boele-Bos	RUG	0.5	
J.H.Veldsink	RUG	1.0	
MSc students – MSc project in 2013:			
Sarah Bedolfe			
Vera Caruso			
Daan van de Geer			
Imke van Gerwen			
Annemarie Jellema			
Mike van 't Land			
Nina Langwald			
Audrey van Maastricht			
Reinier Nauta			
Marin van Regteren			
David Shoesmith			
Marelle van der Snoek			
Sijtze Terpstra			
Arjen Tilstra			
Pablo de Vries			

Highlights

Prof. Jeanine Olsen (MarBEE) and collaborators were awarded best paper of 2013 by the journal *Systematics and Biodiversity* for their time calibrated phylogeny of the seagrass family Zosteraceae.

Northern hemisphere species diverged ~ 4.6 mya consistent with the opening of the Bering Sea and dispersal into the Atlantic. Further diversification of *Zostera marina*, the overwhelmingly dominant species in the Atlantic, occurred ~1.6 mya. This study in combination with earlier phylogeographic studies shows that *Z. marina* has survived numerous Pleistocene glacial-interglacial cycles making it an important model for understanding plasticity and adaptation to climate warming along Atlantic coastlines.

Coyer, J.A., Hoarau, G., Kuo, J., Tronholm, A., Veldsink, J. and Olsen J.L. 2013. Phylogeny and temporal divergence of the seagrass family Zosteraceae using one nuclear and three chloroplast loci. *Systematics and Biodiversity* 11: 271-284. <http://dx.doi.org/10.1080/14772000.2013.821187>

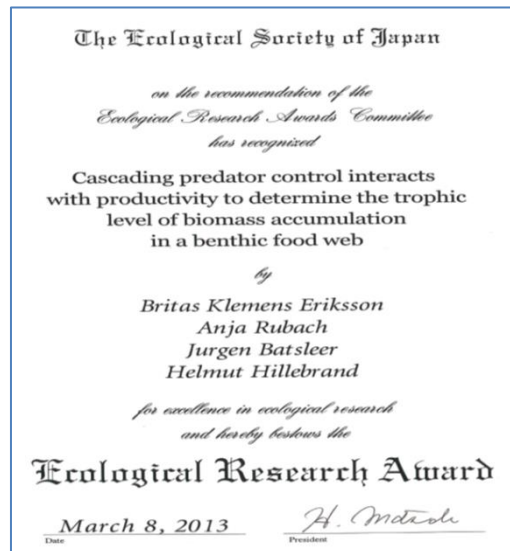


Prof. Britas Klemens Eriksson (MarBEE) received the Ecological Research Award 2013 from the Ecological Society of Japan for his paper on cascading predator control and its interactions with productivity to determine the trophic level of biomass accumulation in a benthic foodweb.

He and collaborators found that both the number of trophic levels (two vs. three) and the life-stage development of the producer trophic level determine the propagation of trophic cascades in benthic systems. Results also supported the hypothesis that predators interact with resource availability to

determine food-web structure. Understanding which food web properties contribute to the resilience of ecosystem functions are essential as globalization and intensification of human impacts increase.

Eriksson, B,K., Rubach, A., Batsleer, J., Hillebrand, H. 2012. Cascading predator control interacts with productivity to determine the trophic level of biomass accumulation in a benthic food web. *Ecological Research* 27: 2013-210. DOI 10.1007/s11284-011-0889-1



Publications

Doctoral Dissertations

Donadi, S. 2013. Bivale loops. The importance of ecosystem engineering for soft-bottom intertidal ecosystems. Thesis Rijksuniversiteit Groningen.

Reiss, K. 2013. Marine trophic cascades. Synergistic effects of fishing and eutrophication. Thesis Rijksuniversiteit Groningen.

Publications in journals

Coyer, J.A., Hoarau, G., Kuo, J., Tronholm, A., Veldsink, J. & Olsen, J.L. 2013. Phylogeny and temporal divergence of the seagrass family Zosteraceae using one nuclear and three chloroplast loci. *Systematics and Biodiversity* 1–14. <http://dx.doi.org/10.1080/14772000.2013.821187>.

Donadi, S., Heide, T. van der, Zee, E.M. van der, Eklöf, J.S., Koppel, J. van de, Weerman E.J., Piersma, T., Olf, H. & Eriksson, B.K. 2013. Cross-habitat interactions among bivalve species control community structure on intertidal flats. *Ecology* 94 (2):489-498.

Donadi, S., Westra, J., Weerman, E.J., Heide, T. van der, Zee, E.M., Koppel, J. van de, Olf, H., Piersma, T., Veer, H.W. van der & Eriksson, B.K. 2013. Non-trophic Interactions Control Benthic Producers on Intertidal Flats. *Ecosystems* 16(7):1325-1335.

Jueterbock, A., Tyberghein, L., Verbruggen, H., Coyer, J.A., Olsen, J.L. & Hoarau, G. 2013. Climate change impact on seaweed meadow distribution in the North Atlantic rocky intertidal. *Ecology and Evolution* 3 (5): 1356–1373. doi: 10.1002/ece3.541.

Olsen, J.L., Coyer, J.A., Stam, W.T., Moy, F.E., Christie, H., Jørgensen, N.M. 2013. Eelgrass *Zostera marina* populations in northern Norwegian fjords are genetically isolated and diverse. *Marine Ecology Progress Series* Vol. 486: 121–132, 2013. doi: 10.3354/meps10373.

Book Chapters

Olsen, J.L., Calewaert, J.B., Henriët, J.P., Wood, J., McDonough, N. 2013. Training and careers for the next generation of marine experts. European Marine Board. *Navigating the Future IV*: 156-165. Position Paper 20 of the European Marine Board, Ostend, Belgium. ISBN: 9789082093100.

Conference presentations

Pamela L. Reynolds, J. Emmett Duffy, Katharyn E. Boyer, Christoffer Boström, James Coyer, Mathieu Cusson, James G. Douglass, Johan Eklof, Aschwin Engelen, Britas Klemens Eriksson, Lars Gamfeldt, Masakazu Hori, Kevin A. Hovel, Stein Fredriksen, Katrin Iken, Per-Olav Moksnes, Masahiro Nakaoka, Mary I. O'Connor, Jeanine Olsen, Jennifer L. Ruesink, Erik E. Sotka, John J. Stachowicz, Jonas Thormar, Matthew Whalen. The ZEN of seagrass ecology: Biodiversity, environment, and eelgrass ecosystem functioning on a planetary scale. The Ecological Society of America, 98st Annual Meeting, August 4-9, 2013. Minneapolis, Minnesota, USA. *Oral presentation*.

Britas Klemens Eriksson, M. Karin de Boer, Vera, Helen Moor, Helmut Hillebrand, Birte Matthiessen. 2013. Dispersal generates a trade-off between adaptive capacity to temperature stress and local adaptation to stable conditions. The Ecological Society of America, 98st Annual Meeting, August 4-9, 2013. Minneapolis, Minnesota, USA. *Oral presentation*.

Karin de Boer, Helen Moor, Pablo de Vries, Franziska Werner, S. Lena Eggers, Anouk M.T. Piquet, Birte Matthiessen, Britas Klemens Eriksson. 2013. The effect of a short realistic heat wave on algal-bacterial interaction. The Ecological Society of America, 98st Annual Meeting, August 4-9, 2013. Minneapolis, Minnesota, USA. *Oral presentation*.

Serena Donadi, Tjisse van der Heide, Els M. van der Zee, Ellen Weerman, Johan Van de Koppel, Han Olf, Theunis Piersma, Henk van der Veer, Britas Klemens Eriksson. 2013. Engineering networks structure coastal ecosystems. The Ecological Society of America, 98st Annual Meeting, August 4-9, 2013. Minneapolis, Minnesota, USA. *Oral presentation*.

Professional publications

Weerman, E. & Eriksson, B.K. 2013. Kieskeurige kokkels graag in de buurt van mossels. Natuurbericht.nl. Weblog. Press release.

Marine Evolution and Conservation (MarECon)

<http://www.rug.nl/research/marine-evolution-and-conservation/>

Group leader Prof. dr. P.J. Palsbøll

Composition of the group in 2013

Tenured staff	source	fte	period
Prof. dr. P.J. Palsbøll	RUG	1.0	
Post-docs			
Dr. J.K. Kang	US NSF	1.0	01-10-2013 – 01-04-2014
PhD-students			
A.A. Cabrera Arreola MSc.	RUG	1.0	01-09-2012 – 31-08-2016
K. Fietz MSc.	RUG – UE	1.0	01-03-2013 – 01-03-2017
Technical and Administrative Staff			
<i>Secretary</i>			
H.G. Tjoelker	RUG-CEES	0.25	
<i>Technicians</i>			
Dr. M. Bérubé	RUG	1.0	
Dr. Y.I. Verkuil	RUG/H&K (Sweden)	0.8	15-04-2012 – 15-04-2015
Guest researchers			
Carolina Abud Amato MSc	University of Montevideo, Uruguay		Oct. 2012 - Febr. 2013
Xênia Moreira Lopes MSc	University of São Paulo, Brazil		Sept. - Oct. 2013
Dr. Christina Panti	University of Siena, Italy		June 2013
MSc students – MSc project in 2013:			
Jeroen Hoekendijk			
Léonie Huijser			
Tom Oosting			
Angeliki Paspati			
Vania Rivera Leon			
Jurjan van der Zee			
Maurits van Zinnicq Bergmann			

Highlights

On February 26th, 2013, prof. dr. Palsbøll gave his inaugural lecture entitled “*In silico* versus *in vivo* reality; the molecular ecology and conservation genetics of marine mammals”. The lecture was preceded by an introduction by prof. dr. Jeanine Olsen.

The subject of prof. dr. Palsbøll’s lecture was aimed at the current limitations in applying population genetic inference methods to conservation issues and how we might solve these restrictions.

Publications

Publications in journals

Archer, F.I., Morin, P.A., Hancock-Hanser, B.L., Robertson, K.M., Leslie, M.S., Bérubé, B., Panigada, S., Taylor, B.L. 2013. Mitogenomic Phylogenetics of Fin Whales (*Balaenoptera physalus spp.*): Genetic Evidence for Revision of Subspecies. PLoS ONE 01/2013; 8(5):e63396.

Palsbøll, P.J., Peery, M.Z., Olsen, M.T., Beissinger, S.R. & Bérubé, M. 2013. Inferring Recent Historic Abundance from Current Genetic Diversity. Molecular Ecology, 22, 22-40.

Peery, M.Z., Reid, B.N., Kirby, R., Stoelting, R., Doucet-Ber, E., Robinson, S., Vasquez-Carrillo, C., Pauli, J.N., & Palsbøll, P.J. 2013. More Precisely Biased: Increasing the Number of Markers Is Not a Silver Bullet in Genetic Bottleneck Testing. Molecular Ecology, 22, 3451-3457.

Ryan, C., McHugh, B., Boyle, B., McGovern, E., Bérubé, M., Lopez-Suárez, P., Elfes, C.T., Boyd, D.T., Ylitalo, G.M., Van Blaricom, G.R., Clapham, P.J., Robbins, J., Palsbøll, P.J., O'Connor, I., & Berrow, S.D. 2013. Levels of persistent organic pollutants in eastern North Atlantic humpback whales. Endangered Species Research, 22, 213-223.

Inaugural lecture

Palsbøll, P.J. 2013. *In silico* inference versus *in vivo* reality: the molecular ecology and conservation genetics of marine mammals. Inaugural lecture Rijksuniversiteit Groningen.

Conference abstracts

Verkuil, Y.I., Bérubé, M., Urbán, J., Darling, J.D., Mattila, D.K., Yamaguchi, M., Pastene L.A. & Palsbøll, P.J. 2013. Evolutionary history of North Pacific Humpback Whales. Poster presentation at 27th Conference of the European Cetacean Society.

Microbial Ecology

<http://www.rug.nl/research/microbial-ecology/>

Group leader Prof. dr. J.D. van Elsas

Composition of the group in 2013

Tenured Staff	Source	fte	period
prof. dr. J.D. van Elsas	RUG	1.0	
dr. J. Falcao Salles	RUG	1.0	
Post-docs			
dr. M.C. de Cassia Pereira e Silva	BE-Basic	1.0	16-12-2012 – 31-03-2014
PhD-students			
drs. M. Chaib de Mares	bursary	1.0	01-12-2013 – 01-12-2017
drs. L. Cortes- Tolalpa	BluePharmTrain	1.0	15-09-2013 – 15-09-2017
drs. M.S. Cretoiu	RUG	1.0	15-09-2009 – 15-09-2013
drs. F. Dini Andreote	NOW	1.0	16-01-2012 – 16-01-2016
drs. M.K. Gopala Krishnan	NWO/ Finnish Cultural Foundation	1.0	01-11-2012 – 01-10-2015
drs. S. Grizard	bursary	1.0	01-10-2010 – 31-12-2013
drs. I.U Haq	Trainbiodiverse	1.0	01-07-2012 – 30-06-2016
drs. D.J. Jimenez Avella	BE-Basic	1.0	01-07-2012 – 30-06-2016
drs. S.D. Jurburg	Trainbiodiverse	1.0	16-08-2012 – 16-08-2016
drs. C.A. Mallon	bursary	1.0	01-09-2009 – 01-09-2013
drs. M. Marutha Muthu	Be- Basic	1.0	01-06-2012 – 01-06-2016
drs. P.E. Puentes Tellez	NOW	1.0	01-09-2009 – 01-09-2013
drs. M. Wang	bursary	1.0	01-09-2013 – 31-08-2017
drs. P. Yang	bursary	1.0	01-09-2013 – 31-08-2017
drs. M. Zhang	bursary	1.0	01-11-2010 – 01-11-2014
Technical and Administrative Staff			
<i>Secretary</i>			
mw. J. de Vries-Veldkamp	RUG	0.5	
<i>Technician</i>			
ing. J.K. Brons	RUG	1.0	

Highlights

The Microbial Ecology group has, in 2013, been very successful in attracting two externally-funded projects on 'microbes in action', one on the 'minimal efficient biodegradative consortia acting on lignocellulosic waste (NWO/FAPESP, collaboration with Brazil), and another one on the microbiological potential of marine sponges (BluePharmtrain, EU-MC).

In November 2013, Silvia Cretoiu successfully defended her PhD thesis on 'Metagenomics of chitin-amended soils'.

Publications

Doctoral dissertations

Cassia Pereira e Silva, M. de., 2013. The normal operating range of soil functioning. Understanding the natural fluctuations of nitrogen cycling communities. Promotor: J.D. van Elsas; co-promotor: J. Falcao Salles. Rijksuniversiteit Groningen.

Cretoiu, M.S., 2013. Metagenomics-guided exploration of natural habitats for bacterial chitinases. Promotor: J.D. van Elsas. Rijksuniversiteit Groningen.

Publications in journals

Costa, R., Keller-Costa, T., Gomes, N.C., da Rocha, U.N., van Overbeek, L., van Elsas, J.D., 2013. Evidence for selective bacterial community structuring in the freshwater sponge *Ephydatia fluviatilis*. *Microb Ecol* 65: 232-44

Cotta, S.R., Dias, A.C.F., Marriel, I.E., Gomes, E.A., van Elsas, J.D., Seldin, L., 2013. Temporal dynamics of microbial communities in the rhizosphere of two genetically modified (GM) maize hybrids in tropical agrosystems. *Antonie van Leeuwenhoek* 103: 589–601

Cretoiu, M.S., Korthals, G.W., Visser, J.H., van Elsas, J.D., 2013. Chitin amendment increases soil suppressiveness toward plant pathogens and modulates the actinobacterial and oxalobacteraceal communities in an experimental agricultural field. *Appl Environ Microbiol.* 79: 5291-301

Dias A.C., Dini-Andreote, F., Hannula, S.E., Andreote, F.D., Pereira e Silva, M. de C., Salles, J.F., de Boer, W., van Veen, J., van Elsas, J.D., 2013. Different selective effects on rhizosphere bacteria exerted by genetically modified versus conventional potato lines. *PLoS One* 8: e67948

Dini-Andreote, F., van Elsas, J.D., 2013. Back to the basics – The need for ecophysiological insights to enhance our understanding of microbial behaviour in the rhizosphere. *Marschner Review, Plant Soil* 73: 1–15

Hardoim, C.C.P., Cox, C.J., Peixoto, R.S., Rosado, A.S., Costa, R., van Elsas, J.D., 2013. Diversity of the candidate phylum *Poribacteria* in the marine sponge *Aplysina fulva*. *Revista Brasileira de Microbiologia* 44: 329-334

Hardoim, P.R., Nazir, R., Sessitsch, A., Elhottová, D., Korenblum, E., van Overbeek, L.S., van Elsas, J.D., 2013. The new species *Enterobacter oryziphilus* sp.nov. and *Enterobacter oryzendophyticus* sp.nov. are key inhabitants of the endosphere of rice. *BMC Microbiol* 13:164

Inceoglu, O., van Overbeek, L.S., Falcão Salles, J., van Elsas, J.D., 2013. Normal operating range of bacterial communities in soil used for potato cropping. *Appl Environ Microbiol* 79: 1160-70

Inceoglu, O., Sablayrolles, C., van Elsas, J.D., Falcao Salles, J., 2013. Shifts in soil bacterial communities associated with the potato rhizosphere in response to aromatic sulfonate mendments. *Applied Soil Ecology* 63: 78-87

Jiménez, D.J., Korenblum, E., van Elsas, J.D., 2013. Novel multispecies microbial consortia involved in lignocellulose and 5-hydroxymethylfurfural bioconversion. *Appl Microbiol Biotechnol.* DOI 10.1007/s00253-013-5253-7

- Kielak, A.M., Cretoiu, M.S., Semenov, A.V., Sørensen, S.J., van Elsas, J.D., 2013. Bacterial chitinolytic communities respond to chitin and pH alteration in soil. *Appl Environ Microbiol* 79: 263-72
- Le Roux, X., Schmid, B., Poly, F., Barnard, R.L., Niklaus, P.A., Guillaumaud, N., Habekost, M., Oelmann, Y., Philippot, L., Salles, J.F., Schloter, M., Steinbeiss, S., Weigelt, A., 2013. Soil environmental conditions and microbial build-up mediate the effect of plant diversity on soil nitrifying and denitrifying enzyme activities in temperate grasslands. *PLoS One* 8: e61069
- Nazir, R., Warmink, J.A., Voordes, D.C., van de Bovenkamp, H.H., van Elsas, J.D., 2013. Inhibition of mushroom formation and induction of glycerol release—ecological strategies of *Burkholderia terrae* BS001 to create a hospitable niche at the fungus *Lyophyllum* sp. strain Karsten. *Microb Ecol* 65: 245-54
- Nunes da Rocha, U., Plugge, C.M., George, I., van Elsas, J.D., van Overbeek, L.S., 2013. The rhizosphere selects for particular groups of *Acidobacteria* and *Verrucomicrobia*. *PLoS One* 8: e82443.
- Pereira E Silva, M.C., Schloter-Hai, B., Schloter, M., van Elsas, J.D., Salles, J.F., 2013. Temporal dynamics of abundance and composition of Nitrogen-Fixing Communities across agricultural soils. *PLoS One* 8: e74500
- Procópio, L., Macrae, A., van Elsas, J.D., Seldin, L., 2013. The putative α/β -hydrolases of *Dietzia cinnamea* P4 strain as potential enzymes for biocatalytic applications. *Antonie Van Leeuwenhoek* 103: 635-46
- Puentes-Téllez, P.E., Hansen, M.A., Sørensen, S.J., van Elsas, J.D., 2013. Adaptation and heterogeneity of *Escherichia coli* MC1000 growing in complex environments. *Appl Environ Microbiol* 79: 1008-17
- Puentes-Téllez, P.E., Kovács, Á.T., Kuipers, O.P., van Elsas, J.D., 2013. Comparative genomics and transcriptomics analysis of experimentally evolved *Escherichia coli* MC1000 in complex environments *Environmental Microbiology* DOI: 10.1111/1462-2920.12239
- Semenov, A.V., van Elsas, J.D., Glandorf, D.C.M., Schilthuizen, M., de Boer, W.F., 2013. The use of statistical tools in field testing of putative effects of genetically modified plants on non-target organisms. *Ecology and evolution* 3: 2739-2750
- Semenov, A.V., Pereira e Silva, M.C., Salles, J.F., Schmitt, H., van Elsas, J.D., 2013. Quantitative assessment of soil functioning across a representative range of Dutch soils. *Ecological Indicators*
- Trevors, J.T., van Elsas, J.D., Bej, A.K., 2013. The molecularly crowded cytoplasm of bacterial cells: Dividing cells contrasted with viable but non-culturable (VBNC) bacterial cells. *Current Issues in Molecular Biology* 15: 1-6
- Vandamme, P., De Brandt, E., Houf, K., Falcão Salles, J., van Elsas, J.D., Spilker, T., Lipuma, J.J., 2013. *Burkholderia humi* sp. nov., *Burkholderia choica* sp. nov., *Burkholderia telluris* sp. nov., *Burkholderia terrestris* sp. nov., and *Burkholderia udeis* sp. nov.: *Burkholderia glathei*-like bacteria from soil and rhizosphere soil. *International Journal of Systematic and Evolutionary Microbiology* 63: 4707–4718
- Videira, S.S., de Cássia Pereira e Silva, M., de Souza Galisa, P., Cavalcante Franco Dias, A., Nissinen, R., Baldani Divan, V., van Elsas, J.D., Baldani, J.I., Falcão Salles, J., 2013. Culture-independent molecular approaches reveal a mostly unknown high diversity of active nitrogen-fixing bacteria associated with *Pennisetum purpureum*—a bioenergy crop. *Plant Soil* 373:737–754

Theoretical Biology

<http://www.rug.nl/research/theoretical-biology/>

Group leader Prof. dr. F.J. Weissing

Composition of the group in 2013

Tenured staff	source	fte.	period
prof. dr. I.R. Pen	RUG	1.0	
prof. dr. F.J. Weissing	RUG	1.0	
prof. dr. R. Bijlsma	RUG	emeritus	
Postdocs			
dr. G.S. van Doorn	RUG	1.0	01-10-2012 – 30-09-2017
dr. H. Dugdale	NERC	1.0	01-03-2012 – 28-02-2015
dr. S. Kingma	Veni	1.0	21-10-2013 – 31-10-2016
dr. L. Oña	ERC van Doorn	1.0	01-08-2013 – 31-07-2016
dr. M.B. Utz	NWO/ALW	1.0	01-06-2013 – 31-05-2016
C. Zhang	RUG/Lotusgrant	1.0	01-03-2013 – 11-04-2014
PhD students			
drs. P. van den Berg	NWO-ALW	1.0	01-01-2012 – 31-12-2015
drs. V. Brauer	NWO-ALW	1.0	01-10-2011 – 01-03-2014
drs. R.F. Castillo Cajas	EU Marie Curie	0.8	01-01-2009 – 01-07-2013
drs. D.M. Ekkers	ERC van Doorn	1.0	01-10-2013 – 30-09-2017
drs. J. van Gestel	NWO	1.0	01-11-2011 – 01-11-2015
drs. O. Ivanov	NWO-ALW	0.5	01-09-2011 – 01-09-2015
drs. L. Molleman	UE Bursaal	1.0	01-10-2009 – 01-10-2013
drs. A. Nakauma	ERC van Doorn	1.0	01-06-2013 – 31-05-2017
drs. A. E. Quiñones Paredes	RUG	1.0	15-04-2012 – 15-04-2015
Other PhD students			
A. Manser	University Zürich		
J. Zhang	University Beijing		
Administrative Staff			
<i>Secretary</i>			
I.C. Jansen	RUG	0.4	
Technical Staff			
<i>ICT-Counsellor</i>			
dr. J. Bakker	RUG	1.0	
<i>Research assistant</i>			
dr. A. Kamping	RUG	1.0	

Publications

Doctoral Dissertations

Kuijper, A.L.W. (2013): Sexual selection and sex allocation. PhD thesis, University of Groningen, The Netherlands.

Van der Vaart, E.E. (2013): A cognitive model of caching by corvids. PhD thesis, University of Groningen, The Netherlands.

Refereed Articles in Journals

Baldauf, S.A., Engqvist, L., Ottenheim, T., Bakker, T.C.M., Thünken, T. (2013): Sex-specific conditional mating preferences in a cichlid fish: implications for sexual conflict *Behav. Ecol. Sociobiol.* **67**, 1179-1186, doi:10.1007/s00265-013-1543-4.

Edwards, H., Winney, I., Schroeder, J. & Dugdale, H.L. (2013): Do rapid assays predict repeatability in labile (behavioural) traits? - A reply to Biro. *Anim. Behav.* **85**, e1-e3, doi:10.1016/j.anbehav.2012.12.021.

Hinsch, M., Pen, I. & Komdeur, J. (2013): Evolution of defense against depletion of local food resources in a mechanistic foraging model. *Behav. Ecol.* **24**, 245-252, doi:10.1093/beheco/ars160.

Molleman, L., Pen, I.R. & Weissing, F.J. (2013): Effects of conformism on the cultural evolution of social behaviour. *PLoS One* **8**, e68153, doi:10.1371/journal.pone.0068153.

Molleman, L., Quiñones, A.E. & Weissing, F.J. (2013): Cultural evolution of cooperation: the interplay between forms of social learning and group selection. *Evol. Hum. Behav.* **34**, 342-349, doi:10.1016/j.evolhumbehav.2013.06.001.

Molleman, L., van den Broek, E. & Egas, M. (2013): Personal experience and reputation interact in human decisions to help reciprocally. *Proc. R. Soc. Lond. B.* **280**, 1471-2954, doi:10.1098/rspb.2012.3044.

Revilla, T.A., Veen, G.F., Eppinga, M.B. & Weissing, F.J. (2013): Plant-soil feedbacks and the coexistence of competing plants. *Theor. Ecol.* **6**, 99-113.

Schärer, L. & Pen, I. (2013): Sex allocation and investment into pre- and post-copulatory traits in simultaneous hermaphrodites: the role of polyandry and local sperm competition. *Phil. Trans. R. Soc. B* **368**, 20120052.

Schroeder, J., Cleasby, I., Dugdale, H.L., Nakagawa, S. & T. Burke (2013): Social and genetic benefits of parental investment suggest sex differences in selection pressures. *J. Avian Biol.* **44**, 133-140, doi:10.1111/j.1600-048X.2012.00010.x.

Schroeder, J. et al. (incl. Dugdale, H.L. & Hinsch, M.) (2013): Fewer invited talks by women in evolutionary biology symposia. *J. Evol. Biol.* **26**, 2063–2069, doi:10.1111/jeb.1219.

Van den Berg, P., Fawcett, T.W., Buunk, A.P. & Weissing, F.J. (2013): The evolution of parent–offspring conflict over mate choice. *Evol. Human Behav.* **34**, 405–411,

doi:10.1016/j.evolhumbehav.2013.07.004.

Zhang, J., Chu, T. & Weissing, F.J. (2013): Does insurance against punishment undermine cooperation in the evolution of public goods games? *J. Theor. Biol.* **321**, 78–82, doi:10.1016/j.jtbi.2012.12.019.

Brauer, V.S., Stomp, M., Rosso, C., van Beusekom, S.A.M., Emmerich, B, Stal, L.J. and Huisman, J. (2013): Low temperature delays timing and enhances the cost of nitrogen fixation in the unicellular cyanobacterium *Cyanothece*. *The ISME Journal* **7**, 2105-2115.

Van Doorn, G.S. (2013) Evolutionary transitions between sex-determining mechanisms: a review of theory. *Sex. Dev.* (published online; doi: 10.1159/000357023)

Servedio, M.R., Hermisson, J. & van Doorn, G.S. (2013) Hybridization may rarely promote speciation. *J. Evol. Biol.* **2**: 282-285

Books & Book Chapters

Wolf, M., van Doorn, G.S., Leimar, O. & Weissing, F.J. (2013): The evolution of animal personalities. In: C. Carere & D. Maestriperi (eds) *Animal personalities: Behavior, physiology, and evolution*, in press. Univ. of Chicago Press, Chicago.