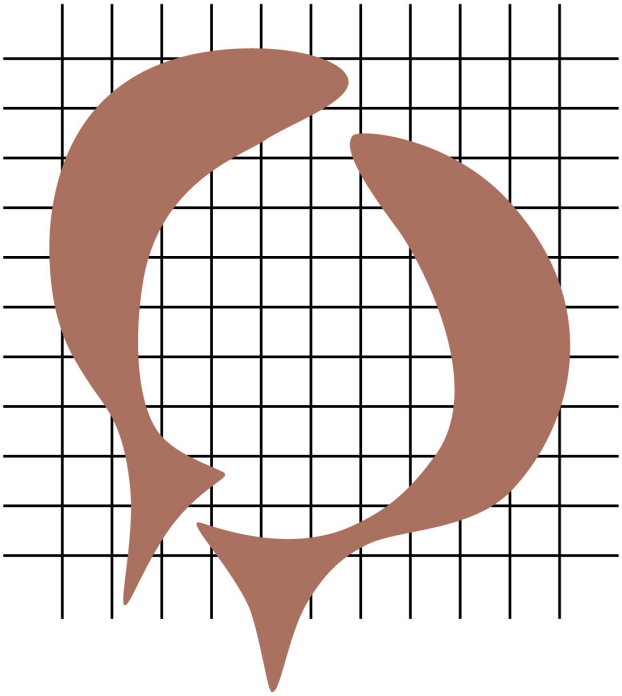
# NVG NEWSLETTER

21th year no. 2, December 2012

Nederlandse Vereniging voor

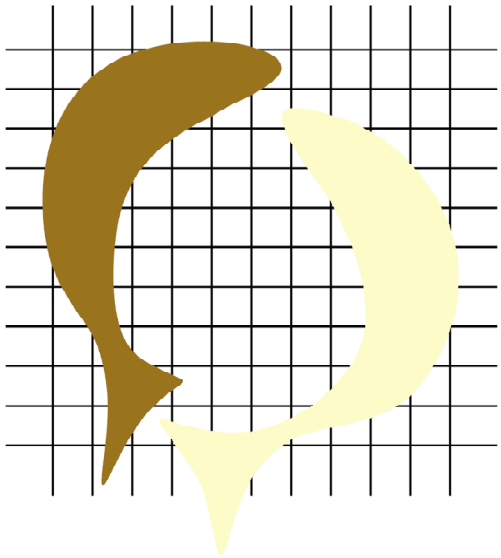
Gedragsbiologie



## Contents:

# NETHERLANDS SOCIETY FOR BEHAVIOURAL BIOLOGY

**The Netherlands Society for Behavioural Biology aims at strengthening behavioural biology in the Netherlands and the direct surroundings. We strive for top quality in all of the behavioural sciences with respect to teaching, research, and public debate. The society organizes a yearly meeting and distributes this biannual newsletter.**



**Council members:**

Prof. Dr. Simon Verhulst (Chair)

Dr. Ir. Bas Rodenburg (Secretary)

Prof. Dr. Marcel Eens (Belgium)

Dr. Kees van Oers (PhD workshop)

Dr. Liesbeth Bolhuis (Treasurer)

Dr. Martine Maan (NVG-meeting)

Dr. Hans Slabbekoorn (Newsletter)

**More information available at:**

http://www.gedragsbiologie.nl

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Membership fee: € 25,- per year for (PhD-)students and biologists in-between-jobs. Others: € 30,-.

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## Editorial Preface

After the excellent closure with the Baerends lecture, by Kevin Laland from St. Andrews, all attendees of the annual NVG-meeting seemed to share the same feeling of satisfaction. This had been the best and our largest meeting ever in terms of invited speakers, poster contributions, international guests, as well as overall number of visiting biologists. This, together with three new board members, relatively new appointments in Amsterdam and Wageningen, and more positive news from Utrecht, makes this a real feel-good issue of our newsletter. The NVG after 20 years is alive and kicking! Happy holidays and a scientifically satisfying new year! **The editor: Hans Slabbekoorn**

# SOESTERBERG

**~ Report from the last NVG-meeting at the Kontact der Kontinenten by a special reporter.**

## About controlled heterogeneity and the icing on the cake

**By: Anne-Laure Gauthier (Louvain)**

**The 20th annual NVG-meeting** was held from the 28th until the 30th of November 2012 in Soesterberg. It was a special meeting to celebrate the 20th anniversary of the Netherlands Society for Behavioural Biology (NVG). The great thing about it was that the organizers had invited a set of very good scientists, leaders in our field. Indeed, there were no less than three keynote speakers and twelve other senior researchers, topically matched, for six special sessions. However the other side of the coin was that very few PhD-students could give an oral communication. Fortunately, on the day before the conference there was a workshop for starting PhD-students (as usual), organized by Kate Lessells and focusing on meta-analysis in behavioural biology, where the students had the opportunity to present and receive feedback on their work, and last but not least students whose talks were not selected could present their work on posters at the meeting.

I must say it was my first NVG-meeting, so I cannot make comparisons with previous years. Nevertheless, I found that both seminars and posters were very interesting and diverse. Different areas of behavioral biology were represented allowing one to grasp up-to-date information in various sub-disciplines. The six topical sessions were on acoustic communication, animal welfare, behavioral ecology, animal personality, sexual selection and speciation and social behavior. My focus and my own PhD-project are in the field of sexual selection and speciation, so I especially appreciated the seminars given by Astrid Groot from the University of Amsterdam and Martine Maan from the University of Groningen, who nicely complemented each other and showed two fascinating case studies.

**Pictures by Astrid Groot**

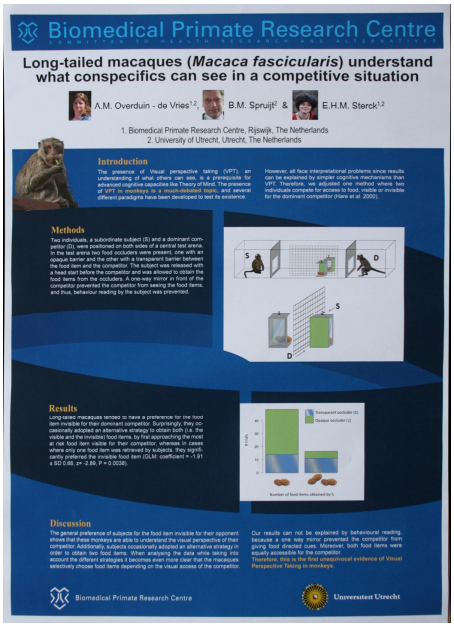
I also really enjoyed the talk of Hanno Würbel from the University of Bern explaining how

too much standardization of laboratory protocols can be detrimental to finding treatment effects that are independent of local conditions of a specific laboratory. It is better to introduce some (controlled) heterogeneity. I also learned a lot from the presentations of Constance Scharff, Carel ten Cate, and Claartje Levelt showing that humans and animals are not so different in vocal learning and 'linguistic' abilities. To conclude on seminars - as I unfortunately do not have the space here to mention all the other high quality talks I saw - I wanted to underline the entertaining performance of Hans van Dyck from the University of Louvain, which was very much appreciated for a late evening lecture.

**Hans van Dyck with one of his slides**

There were many more posters this year than in previous years, as a consequence of the few available slots for talks. Many were of high quality and for this reason there were also two poster prizes. One prize was awarded to **Anne Overduin-de Vries** (poster on the right) from Utrecht University and the other to **Jacobus de Roode** from Emory University (see "Expats Abroad"). All seminars were held in one room, where posters were also on display. It thus allowed poster viewing during the coffee breaks. Indeed, as I presented myself a poster, I could not attend the poster presentation of the others during the single poster session. In the future, especially when many posters are on display, perhaps it will be good having two sessions to avoid such a drawback.

Regarding meals, I found them well-suited beginning with an Indonesian dinner in a chapel for the first night, which was quite uncommon. The dinner sponsored by Noldus was original, offering a good meal, which was 'light' but 'well-compensated' by a rich and sumptuous dessert buffet of various iced-cakes, which fully satisfied those who were still hungry! Meals took place at several places in the conference center, allowing visiting the building and refreshing one's ideas out in the cold. To conclude, I enjoyed the pleasant and warm atmosphere, the reasonable size of the meeting allowing meeting and talking to everyone, and the friendliness of the participants who were patient with those less accustomed to speak English or Dutch.



**Three new board members** – At the annual meeting three board members resigned and three fresh board member took over their jobs.

OLD NVG-BOARD: Simon Verhulst; Bas Roodenburg, Kate Lessels, Bart Houx; Hans Slabbekoorn; Marcel Eens; Martijn Egas.

NEW NVG-BOARD: Simon Verhulst; Bas Roodenburg, Kees van Oers; Liesbeth Bolhuis; Hans Slabbekoorn; Marcel Eens; Martine Maan.

## Top tips for PhD-students (from the workshop on the 28th)

**By: Michelle Spierings (LU) & Edwin van Leeuwen (MPI, Nijmegen).**

The 2012 *Annual Meeting of the Netherlands Society for Behavioural Biology* started with the traditional PhD-workshop. The workshop started with an interesting lecture on meta-analysis by Mirre Simons. Afterwards, PhD-students were given the opportunity to present and discuss personal projects and plans with fellow PhD students, Mirre, and the senior researchers: Liesbeth Sterck, Kate Lessells, and Simon Verhulst. This happened in an deasy-going context and was of great value to all students. At the end of the day, the students contemplated their past experiences and formulated 10 tips that could possibly help fellow PhD-students in their scientific endeavors.

1. **Motivate your supervisor**: Success of your project depends for a large part on good supervision. Therefore, you may want to make things as easy as possible for him/her. Try and keep him/her enthusiastic by reiterating the essential parts of your plan, and try to schedule appointments in such a way to make it least time-consuming for him/her to help you.
2. **Communicate everything:** Even if your supervisor is extremely busy and might not always respond immediately to your emails, always communicate your decisions and possible collaborations with other labs as concisely as possible. Your supervisor ought to know this and might have helpful advice, even when you don't expect it.
3. **Elevator talk**: Be able to explain your topic to a general public within one minute. This will provide a useful tool to fine-tune your research and it is handy for conferences as well.
4. **Discussion group**: Try and be part of a discussion group in your department. You might be the expert on your specific

research topic, but the input from others can provide invaluable feedback and your thoughts will be shaped scientifically. (If none exist, organize it yourself!).

5. **Feedback:** Do not be afraid of giving and receiving feedback: no one holds the truth and science, by definition, will never end at opinions and/or absolutes.
6. **Confidence:** You do not have to solve everything and you cannot know everything. So, be confident with provisional knowledge: just do the best you can.
7. **Plan:** Plan your experiments as careful as possible (on time!). Write an introduction, proposal or review (with clearly defined research questions). Make your planning for projects/talks in advance. But ***be flexible*** for changes or improvements. For every task schedule: plan in some extra time for unpleasant surprises.
8. **Presentations**: Try and submit your work for (small scale) conferences. On top of the opportunity to meet people and discuss your work with others, this will also force you to rigorously scrutinize the current state of your work. And, thus, it might help you getting clear what adjustments are needed in order to get closer to substantial answers.
9. **Do not compare yourself to others:** There will always be people with more papers, expertise and/or projects – do not let it get you down. Your project has been approved for a reason, and you are working on it for an even better one: you can do it!
10. **Keep it simple stupid!** Even though you might think that difficult words and heavy jargon will reflect on you as being overly smart, it does not. Try and use simple descriptions to communicate your work to others, also in papers. It will allow you to spread your message more easily, render more constructive feedback and stimulate people that may become your collaborators.


## IN THE SPOTLIGHT

**~ Special occasions, honorary lectures, prizes, grants and awards for outstanding behavioural biologists.**

In February 2011 **Astrid T. Groot** started as associate professor at the Institute for Biodiversity and Ecosystem Dynamics (IBED) at the

University of Amsterdam. She was the recipient of one of the three MacGillavry fellowships, an initiative of the Faculty of Science of the UvA to recruit female talent. Her research focuses on the evolution of sexual communication in moths and how this is involved in speciation. She started this research as a postdoc in the labs of Fred Gould and Coby Schal at at North Carolina State University, Raleigh, USA to find the genetic basis of *inter*specific sex pheromone variation. After receiving an independent research grant from USDA, she started her own lab at NCSU in 2005, to focus on the *intra*specific variation in moth sexual communication. In 2007 she moved to the Max Planck Institute for Chemical Ecology in Jena, Germany, to become group leader in the department of David Heckel. Since she still has an active group in Jena, with three PhD students and two post-docs, she combines both positions in Jena (20%) and Amsterdam (80%): 1 week Jena and 4 weeks Amsterdam.

Groot: "Now that we have identified the genomic locations of inter- and intraspecific variation, we are in the position to identify the actual genes underlying this variation. I have just recruited a post-doc and a PhD-student for this daunting task. Since our candidate genes do not map to the identified locations, our current hypothesis is that trans-acting transcription factors are regulating our candidate genes. Our research also aims to identify which environmental factors may exert selection on moth pheromone communication. My other PhD student in Amsterdam, Heike Staudacher, is identifying mid-gut microbial communities in different moth species and in moths when fed on different host plants, to assess possible effects of microbes on sexual communication and other life history traits. We also just finished a research project with parasitic wasps that seem to be able to home in on the pheromone signals, but the selection pressure by these wasps seems minor. The real exciting part is that a wind tunnel is currently being built at the UvA, which finally gives the opportunity to study variation in male response to variation in the female signals."

More information on Groot's research can be found at her website: http://home.medewerker.uva.nl/a.t.groot/

**Kees van Oers** started on the 1st of February 2012 as Senior Researcher at the Department ofAnimal Ecology at the Netherlands Institute of Ecology (NIOO-KNAW) in Wageningen. His

research line will continue to concentrate on the causes and consequences of animal personality. He combines captive studies on the behavioural, physiological and genetic mechanism underlying consistent (co)variation in personality traits with work on the fitness consequences in the wild. Kees is also guest researcher at the Behavioural Ecology Group at Wageningen University, where he collaborates with Marc Naguib.

More information on Oers' research can be found at his website: https://www.nioo.knaw.nl/users/kvanoers


## Utrecht Behavioural Biology becomes Animal Ecology

**By: Liesbeth Sterck**

In 2010 it became clear that the continuation of Behavioural Biology at the Department of Biology at Utrecht University was threatened. This resulted from the hazardous financial situation of the Utrecht Science Faculty to which Biology belongs. The problems were solved in part by cutting back the number of research groups. Luckily, it has now become clear that there still is a future for Behavioural Biology at Utrecht. Johan Bolhuis continues his work in Cognitive Neurobiology at the Department of Psychology as explained by him below. Berry Spruijt, Liesbeth Sterck, Marie José Duchateau and Han de Vries are relocated to the research group of 'Animal Ecology' (together with Lisette van den Berg, MSc and PhD-student Raymond de Heer), still within the Department of Biology.

The Animal Ecology group's research involves the continuation of two research lines, concerning *animal group living*, with a special focus on primates, and *animal welfare*. These two research lines both address social cognition and welfare issues.

The research line of animal group living focuses on the evolution, mechanisms and functions of primate social cognition. Primates are a unique taxon to study the pivotal role of social cognitive capacities in complex social behaviour, since they are hypothesized to exhibit a gradient in social cognitive capacities across species. While humans certainly possess the most advanced type, namely Theory of Mind, our nearest ape relatives (chimpanzees) may possess some elementary form of this capacity, while this is probably lacking in more distant monkey relatives (e.g. macaques). This gradient allows a comparative approach to the mechanisms and function of cognition and social behaviour, involving behavioural tests of cognitive capacities in combination with observational studies and computer simulations of (primate) social behaviour. The next challenge is to investigate how basic

**Photo by Anne Overduin-de Vries**

social cognitive capacities can be understood in functional terms and translate this to human social behaviour. In addition, this knowledge on primate social behaviour contributes to optimal primate social housing conditions.

The second research line in the new animal ecology group concerns the use of an animal model in a broad variety of neuroscience studies allowing objective collection and sophisticated analysis of behavioural data and (ultra sonic) vocalizations in a novel animal friendly paradigm. This is based on long-term fully automated observations of individual and social behaviour in an enriched home cage avoiding human intervention, animal handling and animal transportation (www. Delta. Phenomics.com). The fundamental issue of animal sentience is addressed by combining own results and those of others in a framework of the neuro-economics of behaviour.

Another important role of the research group is teaching at the bachelor and master level. At the bachelor level the group coordinates and teaches several behavioural courses within the track Behavioural Biology, and at the master level it is responsible for the Behavioural Ecology programme of the master Environmental Biology. All members of the Animal Ecology research group are highly motivated to continue the high standard research and education program in this new setting.

**Liesbeth Sterck is associate professor in Animal Ecology at Utrecht University.**

## What's in a name? How Utrecht Behavioural Biology had to cope with some unusual selection pressures ….

**By: Johan Bolhuis**

**It has been a funny old year for the Utrecht University Behavioural Biology group. In many respects it has been our most successful year to date, but formally we ceased to exist as a research group. In the end, the good news is that teaching and research in behavioural biology continue at Utrecht.**

It has been onward and upward for Utrecht Behavioural Biology ever since yours truly was appointed in 2001, and Simon Reader joined us soon thereafter. We have made major advances in several fields, our work has featured heavily in Nature and other high impact journals, we obtained the highest possible rating in the recent Research Assessment Exercise ('visitatie'), and we obtained some substantial grants – most recently a share in a successful Gravity ('Zwaartekracht') project application 'Individual Development', to the tune of 28 million euros. So why then – I can hear you asking – did the Science Faculty at Utrecht decide to formally terminate such a successful group? "It doesn't make functional sense!", as my behavioural ecology colleagues would say. Well, of course it doesn't, but then in times of financial hardship Dutch university policy hardly ever seems to make any sense. Some of the goings on behind the scenes we will never know, but it is clear that the main selection pressures have been money and power, and scientific merit had nothing to do with it.

For us, scientific curiosity is the main driving force behind our



work, so I will leave the political shenanigans for what they are (boring, to say the least), and concentrate on the science (see http://web.science.uu.nl/behaviour/Bolhuis/ for details and relevant references). Our work involves three main research lines. First, we study the neural mechanisms of learning and memory, with birdsong as our chosen paradigm. Second, we investigate the neurocognitive parallels between birdsong, speech and language. Recently, we discovered human-like left hemispheric dominance in birdsong learning. Also, in collaboration with linguists at MIT, we have embarked on a project of neurolinguistic analyses of birdsong. Third, we have a more theoretical interest in the relationship between evolution, cognition, and the brain, for which we collaborate with biologists and philosophers at Utrecht and beyond. Most recently I published a critique of Evolutionary Psychology, together with Kevin Laland and others.

Formally, there is no Behavioural Biology group at Utrecht University anymore. However, teaching in Behavioural Biology continues (students = money: some selection pressures

are too great, even for university penpushers), and the newly created 'research group' Animal Ecology can conduct research to support their teaching, as explained by Liesbeth Sterck above. I will also continue my teaching in behavioural biology, and a second edition of our chosen textbook 'The Behavior of Animals' (Bolhuis & Giraldeau, Eds., Wiley-Blackwell, 2005) is in the making. My group can continue its research in the Department of Psychology, Faculty of Social and Behavioural Sciences, that has received us with open arms. We are now surrounded by colleagues interested in brain and cognition – a welcome change from a biology department that is now populated mainly by botanists. I have renamed my group Cognitive Neurobiology, which better reflects the work we do. Simon Reader had already accepted an offer to become Associate Professor of Animal Behaviour at McGill University in Montreal, and he will continue his already successful career there. Our group has been strengthened enormously with the arrival of Gabriel Beckers from the Max Planck Institute for Ornithology at Seewiesen, to begin with on a Marie Curie Career Development Fellowship. Gabriel will embark on an ambitious project to study the neural mechanisms of songbird vocal communication using state of the art multi-channel electrophysiology.

So, to quote the Immortal Bard once more, all's well that ends well, and we look forward to exciting years ahead.

**Johan Bolhuis is Professor in Cognitive Neurobiology at Utrecht University.**

# EXPATS ABROAD

**~ Dutch investigators making their career abroad by hopping countries and loosing their ties to us more or less…**

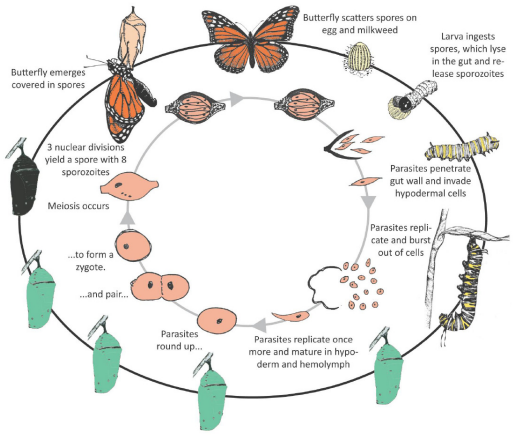
**Jaap de Roode**

I never really meant to leave the Netherlands, nor did I mean to study animal behaviour. But here I am, living in Atlanta, Georgia, and studying monarch butterfly behaviour. Being an evolutionary biologist in Georgia can certainly be interesting (I was once almost denied service at a bank because the employee found out I teach evolution…), but having my own research lab at Emory University more than makes up for that (the many sunny days and warm temperatures help too).

The funny thing is that I never really meant to study monarch butterflies either. It kind of just happened. Most people study monarch butterflies because they are pretty, or because they undertake a spectacular seasonal migration, by which hundreds of millions of monarchs migrate from North America to overwinter in Mexico. Not me. I study monarchs because they get sick.

I have been interested in disease ecology and evolution since my MSc-degree in Wageningen (1995-2000), during which I spent 7 months at the University of Edinburgh to study the within-host ecology of malaria parasites in laboratory mice. Although I subsequently spent 4 months in Malaysia (measuring dung beetle penises) and then over a year in Dutch science journalism, I eventually returned to Edinburgh for my PhD-project and the University of Georgia for a post-doc, both on disease evolution.

Monarchs have a very cool protozoan parasite called *Ophryocystis elektroscirrha*. This parasite forms spores on the outside of the bodies of adult butterflies, which are scattered onto eggs and host plants during monarch oviposition. Caterpillars ingest the spores, after which the parasites undergo rampant growth to form new spores on the developing adult butterfly. This growth does not leave the butterfly unaffected: indeed, high parasite numbers can cause the adult butterfly to become stuck to its chrysalis during emergence, while lower burdens result in shorter lifespan, poor flight and low fecundity.




Interestingly, monarch butterflies use multiple species of milkweed as their host plants. During my post-doc I found that some of these species act as medicinal plants, reducing parasite infection and monarch disease. It was that discovery that turned me into a behavioural biologist. Simply put, I wanted to find out if monarchs can use medicinal plants to reduce their own disease. As it turns out, caterpillars cannot, but adults can. When females are infected with the parasite, they preferentially lay their eggs on medicinal milkweed that reduces infection probability and disease in their offspring: a fine example of motherly care. Many scientists who study monarchs fall in love with them. I am not sure if I share that sentiment. But I do know that they are very interesting. One thing is for sure, though: without monarchs I would not be studying behaviour right now. And without studying behaviour, I would not have attended the 2012 NVG meeting. And that would have been an awful shame.

**Jaap de Roode is assistant professor of biology at Emory University in Atlanta, Georgia, USA.**

## FINANCIAL SUPPORT OPPORTUNITY FOR MEETINGS AND SYMPOSIA IN BEHAVIOURAL BIOLOGY

**AIM: The NVG wants to support small events with financial contributions if they yield a significant spread of interest, increase the understanding, or stimulate research ideas and collaborations in Behavioural Biology in the Netherlands or Flanders.**

Guidelines follow below for applying and receiving financial support from the NVG for Behavioural Biology events (as approved by the board on the 29th of June, 2012).

**Budget & Decision Process:**

1) A total of maximally €750 is available per budget year (Adjustments can only be determined at the annual meeting);
2) The possibility of support is advertised at the annual meeting and in the newsletter;
3) A board majority is required to award a support request;
4) Board members involved in a request are excluded from the decision making process;
5) Support decisions are communicated through a letter from the treasurer.

**Eligibility & Applications:**

1) Only NVG-members can apply;
2) Support requests need to be submitted at least six weeks before the event;
3) The application involves a brief explanation of how the event matches our aim;
4) The application should include a budget with costs, benefits and other co-sponsors.

**Obligations & Reimbursement:**

1) The applicant is obliged to inform NVG-members at least two weeks in advance about the NVG-supported event;
2) The applicant is obliged to write a brief report for the next newsletter about the event;
3) Payment takes place after the event, based on actual receipts, and after having received a newsletter report;
4) All documents will be provided to the audit committee for the annual financial report.

## WEB ALERT


**~ website suggestions by a colleague with information relevant to our community.**

**Niche construction. The neglected process in evolution.** By John Odling-Smee, Kevin Laland, Marcus Feldman (2003). > A review by **Gert Korthof** from the 16th of July 2008 can be found at:
http://home.planet.nl/~gkorthof/korthof

Few citations from the review:

"Niche Construction can change the direction, rate and dynamics of the evolutionary process, because it introduces feedback into the evolutionary process."

"The first and well known inheritance system is DNA. The second is ecological inheritance."

"What humans do to the earth is not always adequately described as 'Niche Construction'. It is often more appropriately described as 'Niche Destruction'."


**Picture by Paul Albers**

This year's G.P. Baerends lecture at the annual NVG-meeting in Soesterberg was given by Kevin Laland from the University of St. Andrews, UK. He spoke about "Cause and Effect in Biology Revisited" addressing among other things the concept of niche construction on which he wrote the book together with John Odling-Smee and Marcus Feldman.

**Website suggestion by Hans Slabbekoorn**

# THESIS DEFENSE

**~ Recently defended PhD-theses on animal behaviour. Target is to provide some background and to highlight an interesting finding in a single figure.**

Universiteit Antwerpen

Thijs van Overveld from Antwerp University defended his thesis on "Does personality drive dispersal? Causes and consequences of individual dispersal strategies in the great tit" on the 22nd October 2012.

**http://igitur-archive.library.uu.nl/dissertations/2003-1218-101459/c4.pdf**

**By: Thijs van Overveld**

My thesis aimed at understanding the role of individual variation in behaviour in shaping patterns of dispersal in a small passerine, the great tit. I thereby focused on the recent discovery that dispersal may be linked to differences in personality as measured by

exploratory behaviour. Natal dispersal was studied at different stages during the year with emphasis on family movements and the spatial behaviour of juveniles in their first summer. To study spatial behaviour I used a range of field-techniques, including the use of radio-tracking devices, passive integrated transponders for individual identification and mistnetting. I used both correlational and experimental approaches.


In a first step, I performed a detailed analysis of the relationship between exploratory behaviour and dispersal distances in different seasons over the course of the first year of life. Exploratory behaviour was an important predictor of dispersal distances in summer and autumn. However, a seasonal breakdown of patterns was observed in both sexes. These results provided insight into the specific stages in which personality can influence dispersal, in addition to further evidence for the existence of a behavioural syndrome including dispersal in birds.

In a next step, I examined a number of potential mechanisms underlying links between personality and patterns of dispersal. First, I investigated the link between parental exploratory behaviour and the occurrence of family excursions during the period of post-fledging care. Excursions were mostly made by fast-exploring first-year females. However, the direct effect on offspring dispersal was expected to be rather weak, because of the age - and sex-specific nature of this relationship. Second, I tested the prediction that links between exploratory behaviour and dispersal may be driven by differences in the way individuals cope with sudden uncertainties in environmental conditions. When challenged by an abrupt change in food supply, fast-exploring individuals more rapidly switched to different foraging areas at longer distances from the feeder. On the day of the food removal I found that fast explorers visited the empty feeders less often then slow explorers, suggesting that the observed difference in spatial response resulted from personality differences in information gathering tactics.

The last part of my thesis focused on the evolution of personality-dependent dispersal strategies. I showed that both dispersal and exploratory behaviour have a considerable heritable component and that there is a strong genetic correlation. This suggested that the same genes may be responsible for the expression of both behaviours. Although this genetic covariance between different traits may indicate the

presence of correlational selection, I did not find any evidence that integrated expression of exploratory behaviour is shaped by natural selection after settlement.

The main conclusion of my thesis was that exploratory behaviour measured in a novel environment may be an important behavioural component underlying individual variation in movement behaviour in the wild. I also showed that personality differences in information gathering tactics may have important consequences for the way individuals cope with environmental changes, which in turn may influence spatial behaviour. Despite strong positive associations between exploratory behaviour and dispersal at both the phenotypic and genetic level, the evolutionary forces shaping this relationship as well as the adaptive significance of their co-expression require further study.

**REFERENCES:**


**Hollander F., van Overveld T., Tokka I., Matthysen E. (2008).** Personality and nest defense in the great tit (Parus major). *Ethology* 114: 405-412.

**Van Overveld T., Matthysen E. (2010).** Personality predicts spatial responses to food manipulations in free-ranging great tits (Parus major). *Biology letters* 6:187-190.

**Van Overveld T., Adriaensen F., Matthysen E (2011).** Family space use in relation to environmental and parental characteristics. *Behavioural ecology* 22:899-907.

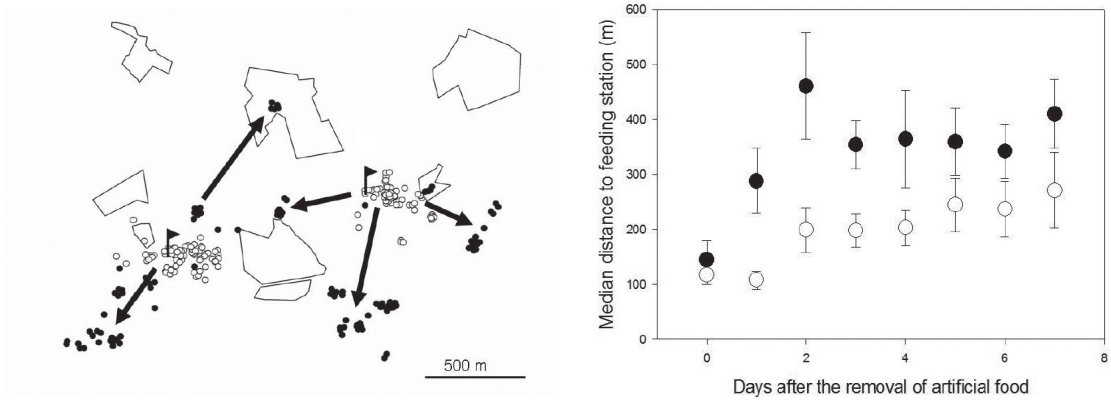




**Figure 1: A) Examples of spatial response of fast (filled dots) and slow explorers (open dots) to the removal of food at artificial feeding stations F1 and F2 (flags). Each black arrow represents a fast explorer. At both F1 and F2 the locations of 2 slow explorers are shown (LEFT). B) Difference between fast and slow explorers in median daily distance to the feeding stations after the food manipulation (RIGHT). Filled dots represent fast explorers (n = 15 range in exploration score 11-31) and open dots slow-explorers (n = 19 range in exploration scores 0-7).**

# Conferences & Meetings

- **ISAE–2013**, 47th Congress of the International Society for Applied Ethology, 2-6 June, Florianopolis, Brazil: http://isae2013.com/

- **BGA–2013,** 43nd Annual meeting of the Behavior Genetics Association, 28 June-2 July, Marceille University, France, http://www.bga.org/

- **Behaviour 2013,** Joint meeting of the International Ethological Conference (IEC) and the Association for the Study of Animal Behaviour (ASAB), 4-8 August, Newcastle/Gateshead, UK http://iec2013.com/

- **AquaticNoise-2013**, 3rd International Conference on the Effects of Noise on Aquatic Life, 11-16 August, Budapest, Hungary: http://www.an2013.or

- **ESEB–2013**, 14th Congress of the European Society for Evolutionary Biology, 19-24 August, Lisbon, Portugal: https://www.eseb2013.com/

- **BCZ–2013**, 20th BeneluxCongress of Zoology, Late October, Groningen University, themed ***"Animal individuality: From brain and morphology to behaviour and fitness"*** http://kndv.science.ru.nl/PDFs/zoology%20conference%20flyer.pdf

- **NVG–2013**, Annual Meeting of the Netherlands Society for Behavioural Biology, 27-29 November, Kontakt der Kontinenten, Soesterberg: www.gedragsbiologie.nl

- **ISBE–2014**, 15th International Behavioral Ecology Congress, 12-17 August, Hunter, City University of New York, USA: *http://cabi.hunter.cuny.edu/isbe2014c*