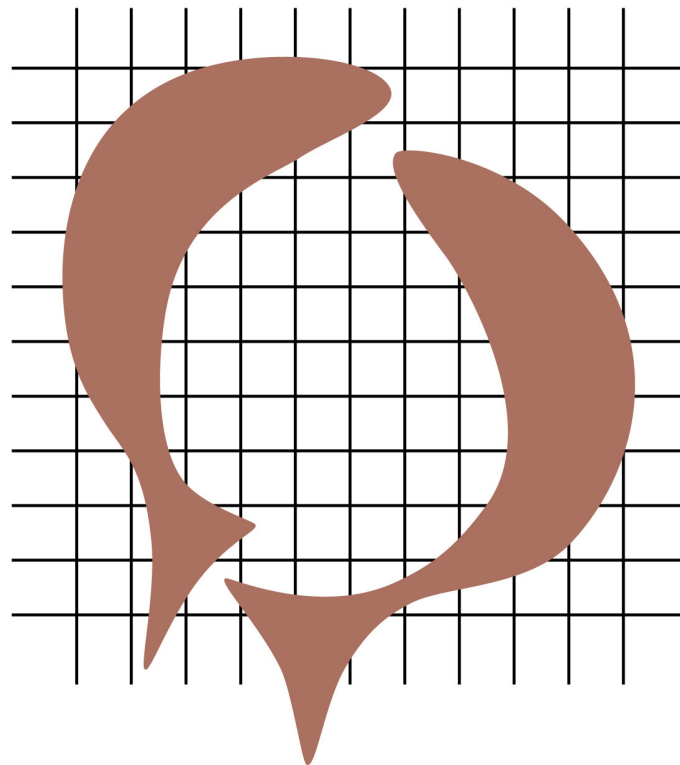


**NVG NEWSLETTER**  
**24th year no. 2, December 2015**

*Nederlandse Vereniging voor*  
**Gedragsbiologie**

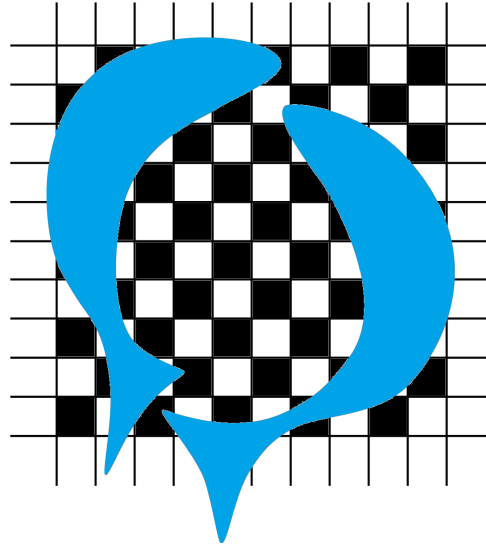


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# NETHERLANDS SOCIETY FOR BEHAVIOURAL BIOLOGY

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. Liesbeth Sterck (Chair)  
Dr. Ruud van den Bos (Secretary)  
Dr. Jeroen Stevens (Belgium)  
Dr. Jean-Cristophe Billeter (PhD workshop)  
Dr. Liesbeth Bolhuis (Treasurer)  
Dr. Mariska Kret (NVG-meeting)  
Dr. Kees van Oers (Newsletter)

**More information available at:**  
<http://www.gedragbiologie.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

This is my last newsletter as your editor. The years in the board passed by like weeks. It was a pleasure to work for the NVG and to attend the board and NVG meetings. I also enjoyed making the newsletter for you. I am sure my follow-up Kees van Oers will serve you equally well or better. I will remain active and likely see you again at the next NVG-meeting. Quite possible not earlier as there are some overlapping conferences in 2016: I will attend the conference in Dublin on the Effects of Noise on Aquatic Life, when many of you will be at the ECBB (Vienna) or ISAE (Edinburgh). Anyway, have fun and success. I wish you and Behavioural Biology a prosperous future!

**Hans Slabbekoorn**

# SOESTERBERG



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



## NVG meeting 2015: It's the way you move

**By: Astrid Rox - Biomedical Primate Research Centre/Utrecht University**

This year's annual NVG meeting was held from 25 to 27 November 2015 in Soesterberg. Again, the conference was held in the beautiful setting of the old nunnery Kontakt der Kontinenten. As a second-year PhD student, it was my second time attending the conference. Last year, a few months after starting my PhD-project, my supervisor Liesbeth Sterck, took me to the conference for the first time. I was then surprised by the great variety of talks, but also by the great variety of people. This year, the variety was there again.

For many PhD-students, the conference started with a PhD-workshop organized by Kees van Oers. On Wednesday evening, the conference also started for all other attendees. After dinner, the stage was for Felicity Huntingford for the BRILL Baerends lecture. Felicity spoke about predicting the outcome

of fights between animals. With our current knowledge we can only predict the outcome of 75% of the fights. She introduced the term *eptness* to possibly predict the remaining 25%. *Eptness* is in the way you move, the path you take, the smoothness of your movements. Felicity explained the concept of *eptness* using examples from many species, including humans (e.g. cowboy hero). Her talk inspired many of us and the term *eptness* zoomed around the conference the following days.



A great variety of topics were presented orally and on posters during the next two days. Physiological research, genetic research, welfare assessments, cognition, and personality were all discussed during the conference. Moreover, the presented research focussed on many different animal species. Since there is only one session at a time, you don't have to miss out on anything and may end up at surprisingly interesting talks.

The conference allows you to zoom out from your own research

focus and to open your eyes to other species and research fields. This can lead to surprisingly new knowledge. I personally learned that certain fruit flies can distinguish between larger and smaller groups, even when group sizes only differ two individuals. Other new things to me were that fish have an internal tidal clock, orang-utans have extremely low infant mortality, and that ferrets like to sleep in hammocks. Hearing all these different talks got me inspired, making me think about what I do and stimulated me to come up with new ideas.



I was especially excited about the talks from keynote speakers Carel van Schaik and Maria van Noordwijk. A large part of my PhD-project is based on their research on macaque immigration back in the 1980's. And of course, as a primate researcher, it is always great to hear some more primate talks. They both passionately talked about their orang-utan research. Carel focussed on intelligence. He made us wonder whether we measure animal intelligence correctly, and how social learning is linked to intelligence. Maria, on the other hand, focussed on maternal investments and possible conflicts between mother and infant. I think both talks were inspiring, also for non-primatologists.



However, not only their talks were of high quality. I found all talks during the three-day conference were of high scientific quality.

The final thing I would like to point out is one of the things I like most about the NVG meetings. There is a good atmosphere with a mixture of established and young scientists, including MSc- and PhD-students. People are open and friendly, and show a lot of interest in each other's studies. New contacts are therefore made easily during the excellent lunches, dinners and drinks. There is plenty of time and opportunity to meet new people and catch up with old friends. And, of course, there is plenty of time for discussion, after each talk or during the more informal moments.

I will definitely attend the meeting again next year, and I also hope to see you all there again!



Special note: During the general meeting for NVG-members on Thursday afternoon, the board was partly refreshed: Martine Maan (Groningen) & Hans Slabbekoorn (Leiden) resigned and Jean-



Christophe Billeter (Groningen) & Mariska Kret (Leiden) took their places.



Old (upper picture) and new board composition (lower picture). Note the "presence" of Jeroen Stevens in the upper left corner in both.

At the end of the meeting on Friday afternoon, the prizes for best poster and best talk were handed out by Maria van Noordwijk and Carel van Schaik respectively.



Prize-winning Posters:

**1. Diana Robledo-Ruiz** (MSc student, right): Is attractiveness inherited in the field cricket, *Gryllus bimaculatus*? A Quantitative Genetics approach

**1. Esther Langen** (PhD student, left): Transgenerational effects of the social environment in Japanese quail

Honorable mention:

**Judith Varkevisser** (MSc student): Adult zebra finch song can change over time.



Prize-winning Presentations:

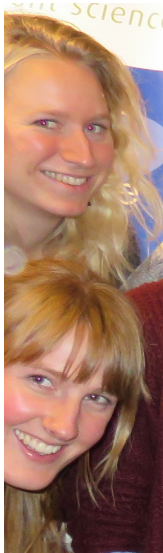
**1. Michelle Spierings** (PhD-student, left): Rule learning in birds: zebra finches generalize by positional similarities, budgerigars by the structural rules

**2. Nicky Staes** (PhD-student, right): Pan personality: genes and behaviour in chimpanzees and bonobos

**2. Bin-Yan Hsu** (PhD-student): Differential effects of maternal androgens under various contexts

# Report from the PhD-workshop on Bioethics

By: Annebelle Kok & Merel Burgering – Leiden University



Wednesday morning (November 25<sup>th</sup>): 14 PhD candidates were having a lively discussion about a study on a cichlid fish and its parasite. Suddenly another idea was brought up: how about looking at the parasite instead of the fish? This question illustrates the different perspectives that form bioethics.

The PhD workshop this year, organized by Dr. Kees van Oers with Dr. Franck Meijboom as the main speaker and with special guest emer. Prof. Felicity Huntingford, focused on bioethics in our studies. Both the diversity of our background and the size of the group gave us the opportunity to discuss the topic into great depth.

During the day, Tiziana Gobbin (University of Groningen), Irene Verhagen (NIOO), Asmoro Lelono (University of Groningen), Jip Ramakers (NIOO) and Lysanne Snijders (NIOO) presented their work and related bioethical issues to the group. At the end of the day, we had to boil down our ideas into some tips for all researchers, which are listed below.

**1- You should always realize that anything you do is not in the interest of the animal.**

In any experiment, there are no direct benefits for the animal, although there might be for the species eventually. Obviously, you will do anything to minimize discomfort and pain for the animal. You ought to define humane endpoints before the start of your experiment, but it is also important to prepare trouble-shooting plans in case of unexpected situations.

**2- You should always aim for a balance between high scientific value and minimal discomfort for the animal.**

An important question was brought up: do you perform one experiment on multiple animals or multiple experiments on one animal? On the one hand the impact on a species as a whole is smaller when you try to minimize the amount of animals and maximize the use of this animal. On the other hand, one individual will be longer and maybe more severely affected by multiple experiments than by one.

**3- Crucial in working with animals is justifying your actions to yourself.**

You have to take responsibility and know your boundaries. It is important to allow yourself to form your opinion independently, without hiding behind the approval of DEC or CCD and the animal experiments law. After all, you have to live with the consequences of the experiments you carried out. To know whether you agree with your methods you can ask yourself: 'Would I allow an interested science journalist to be present during my animal experiments? And if not, why not?'

#### **4- Discuss methods and doubts with your supervisor and colleagues before the start of your experiments.**

One of the most important tips that came out from the workshop: communicate! Even though you are considered to be independent as a researcher, most science nowadays is conducted in groups. Having an open discussion will not only ensure that everyone is on the same page, but might also provide important insights to solve any ethical issues. This will be in the interest of researchers and animals alike. Therefore, we hereby kindly request all researchers in the field, not just PhD-students, to be open to discussion.

#### **5- Respect for the animal is essential when working with animals.**

Respect partly derives from knowledge about your species and its specific needs. This includes information about the individual animal and its history. In order to meet an animal's specific needs, enrichment in housing may be desirable. You should also be aware of the effect you have on them and you should try to adapt to the animal's needs. For example, refill water and food at the same time rather than refilling sequentially and thereby disturbing the animals twice. Training and experience are the key to handling animals adequately and respectfully.

#### **Addendum by Kees van Oers**

This year's workshop touched upon a topic where all PhD students had a clear opinion. Discussion was lively, but consensus was often found.



Franck Meijboom (see picture, Utrecht University) gave a wonderful overview in his opening lecture. He specifically aimed at giving background to the different aspects of a PhD-project with regard to ethics and animals. He described the facets that had to do with animal ethics by addressing the challenge of fitting many jigsaw-puzzle pieces around a PhD project.

Franck was present the whole day and made important contributions to the discussion. We were also happy to have Felicity Huntingford participating during the day. Felicity, who would give the Brill Barentsz lecture later on that day, shared her experience with animal welfare and ethical issues with the PhD students. All in all, an intensive, but wonderful day!



## **About the new law on animal experiments**

**By: Arie J. van Noordwijk  
Department of Animal Ecology  
Netherlands Institute of Ecology  
(NIOO-KNAW)**

The intention of this text is to give hints for requesting permits under

the recently changed law on animal experiments. I will discuss a number of potential problems in fitting longer term behavioural research and fieldwork into the framework of the new law.

The intention of the legislator (at the European and at the national level) has been to achieve several things: 1) Evaluate whether animal experiments are **meaningful and appropriate** at a higher aggregation level, that is at the level of research programmes rather than at the level of individual projects. 2) Create a **greater independence** between the evaluating organ and the organization (people) carrying out the experiments. 3) Create **more openness** and supply more public information about animal experiments.



Centrale Commissie Dierproeven

What used to be a DEC protocol has now been split in a two-step evaluation by two different committees. In the first step, the project description, which is evaluated by a DEC (which stands for "DierExperimentenCommissie", of which there are now 17 legally acknowledged in the Netherlands, as declared on the 22<sup>nd</sup> of December 2015, among which e.g. BPRC, Leiden, Radboud, RUG, Utrecht, VU and Wageningen) controlled by a central committee (CCD: Centrale Commissie Dierproeven) and then given a permit by the CCD, evaluates whether the research programme is appropriate. The details of a specific experiment is

later evaluated by an animal welfare body (AWB) or Instituut voor Dierenwelzijn (IvD) within the own institution. This second step must ensure that the actual experiment is carried out within the limits of the license and is aimed at improving the way the research is carried out, reducing the animal discomfort and reducing the risks for unintended discomfort. The justification of the actual number of animals in each step is also carried out by the animal welfare body.

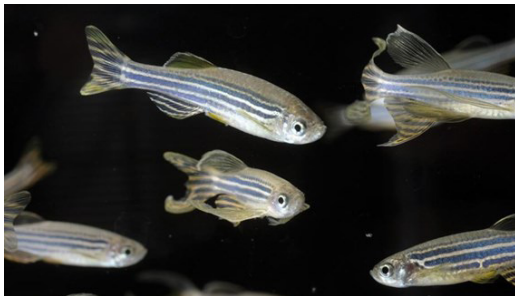


A license application consists of three different document types: The **project proposal** with one or more animal **procedure-descriptions** as appendices and the **Non Technical Summary** (NTS). This NTS has to be in Dutch and will be published on the website of the CCD when the license is granted. The NTS is anonymous, does not mention details, but it should contain a justification of the experiments, a description of the types of experiment, the species and the level of discomfort. At this moment, the site of the central committee on animal experiments, [www.centralecommissiedierproeven.nl](http://www.centralecommissiedierproeven.nl), contains about 100 NTS documents, largely for translational and basic research.

The NTS also contains the total number of animals involved.



These are maximum numbers that cannot be exceeded without prior consent of the CCD. The language in the NTS should be simple and understandable for the general public. The main text of the NTS is put directly on the website, but the whole form is available as PDF. In this form one should also address each of the three R's (or 3 V's in Dutch): **Replacement** (of animal experiments by other forms of research), **Reduction** (in numbers of animals used) and **Refinement** (leading to less discomfort of the experimental animals).



The project application document should give the justification of the research programme. What is the background? What is already known? What are the questions to be answered? And why is that useful? The question how big a project can or should be is still largely open. The official guideline is that it should be a coherent body of research. In practice there have been applications involving one researcher for one month to all the research of a group of several dozen people for the next five years, the maximum duration of a license.

The structure of most programmes is that there is a set of coherent scientific aims that will be approached using different types of experiments. A strategy should also

be provided to explain which type of experiments is carried out to address the different research questions and how the different types of experiments are interrelated. Typically, each type of experiment is described in a separate procedure description as an appendix that gives the details and contains all the information necessary to judge the expected level of (cumulative) discomfort.

Apart from the class *terminal* under anesthesia, there are now just three levels of discomfort: **mild** which is equivalent to the former classes *mild* and *mild to moderate*, **moderate** equivalent to the previous *moderate* and *moderate to severe* and the class **severe**. The fact that a procedure description should contain all information for judging the cumulative discomfort often raises a problem. It is assumed that each individual animal undergoes only one procedure. Thus when different behavioural tests are planned depending on the outcome of previous ones, these should all be described in a single procedure, together with the decision tree in terms of "if ..... then ...." statements.

In all of this there is the general rule that one can always do less than described in the procedure, but it is never allowed to do more. So, basically one is forced to describe everything in terms of worst case scenarios. It is possible to make descriptions in terms of "Individuals will undergo between 1 and 6 out of the following ten tests." This should then be accompanied by a description of how it is decided what to do next.

Permits have a maximum duration of 5 years. The possibility that some animals may live longer

than 5 years has never been considered by the legislator. The asymmetry in consequences (no problem to do less, but prior consent needed to do more) is leading to applications with over-estimates of numbers required and severity of discomfort. This has been noted by the CCD and it is to be expected that applications will be scrutinized on these issues. So, arguments should be given why the duration applied for is necessary.



The new law gives a definition of what is an experiment in terms of discomfort. ***“Anything that gives as much or more discomfort than the insertion of a needle following best veterinary practice is to be considered an animal experiment”***. For example, the application of a small radio-transmitter or logger to a bird was previously not considered to be an animal experiment as long as there were no additional manipulations, but under the new law, it clearly falls within the definition of an animal experiment and some licenses on projects to equip birds with GPS-loggers have already been given. The CCD meets about once every three weeks and the reports of these meetings are available on the website. It is interesting to see for

what reasons or on what grounds proposals have been rejected or additional conditions have been imposed. In several cases, the cohesion in the programme was deemed insufficient and in these cases only a part was granted. In quite some cases the requested period of five years was shortened to one or two years either because, according to the CCD, the project questions posed could be answered in a shorter time or because it was expected that new techniques would become available.

Another major issue is the use of both sexes. In several fields it has been customary to use one sex only, which then leads to the other sex being killed without use in experiments. The only two cases where this has recently been permitted, were a case where the unwanted sex was used in another simultaneous experiment and a case where switching sexes would lead to an inconsistent file to be submitted, thus incurring the risk that everything had to be repeated and the total number of animals used would have increased. In several other cases, the CCD has made it a condition to perform a pilot to see whether sex really matters.



The CCD is a government organization that falls under the public disclosure act (Wet

Openbaarheid Bestuur). Thus anyone may request a full disclosure of all documents submitted and these documents must be made public, unless there are legally valid reasons not to do so. The website of the CCD contains information about these WOB requests.

Procedures in the actual submission of programme applications are still in an initial phase. The actual submission can only be done by the person who holds the licence to carry out animal experiments, which is usually a single person per legal entity. In practice this is often delegated to the secretary of the DEC or an animal welfare officer within the institution.

Remember that in the end, the main criterion to get permission to carry out animal experiments is that ***"the value of the knowledge to be obtained must outweigh the discomfort caused to the animals by the experiments"***. Thus, the application should contain all the information that is necessary to make this ethical judgement. In particular, it helps to describe the results to be expected as explicitly as possible. This should be done both in terms of the results themselves, but also in terms of their implications.



Link CCD:  
[www.centralecommissiedierproeven.nl/](http://www.centralecommissiedierproeven.nl/)

Nieuwsbrief CCD:  
[http://nieuwsbrief.rijksoverheid.nl/847/Actions/Newsletter.aspx?messageid=7457&customerid=215173&password=enc\\_3641334438453943\\_enc](http://nieuwsbrief.rijksoverheid.nl/847/Actions/Newsletter.aspx?messageid=7457&customerid=215173&password=enc_3641334438453943_enc)

## BEHAVIOURAL BIOLOGY APPLIED



~ Special reports from the field of non-academic applications of scientific insights on animal behaviour.



## Applied ethology of companion animals and equids

By: Machteld van Dierendonck



**Problems in domestic animal care**  
Companion animals and equids (horses, donkeys and ponies) are often housed and managed without taking their basic ethological needs into account. As a consequence, several health and welfare problems are unnecessary common: immune-depression, stereotypes, low growth rates, early wastage and unpredictable or aggressive behaviour. Regrettably, most animal owners or even riding schools or training facilities are not

open to adapt their environment or way of working, mostly due to ignorance. People involved with horses often have no clue about the impact of incorrect application of learning principles which also can induce chronic stress. They do not understand that less (chronic) stress implies also a safer and "happier" animal and the International Federation of Equestrian sports (FEI) has in their code of conduct that horses *have* to show to be "a happy athlete". So, something has to change...



However, how to stimulate the equine community to adopt adequate monitoring procedures and a realistic Welfare Quality® label? I have been personally involved in the development and promotion of such a label ([www.keurmerkpaardenwelzijn.nl](http://www.keurmerkpaardenwelzijn.nl)). In 2007, minister Gerda Verburg (Agriculture, Nature and Food quality) declared there has to be an equine welfare assessment plan at the latest in 2017. Surprisingly little has happened since. It appears that equine owners and especially their representative bodies do not support an independent agency. They seem in favour of a scheme in which they will assess the welfare of their own animals and report to the government by themselves and without training ("We from WC-eend advice WC-eend as the best"). So, something has to change...

There are also many health and welfare issues in breeding cats, dogs and other small pets. Physical malformations and problem behaviours often occur due to limited knowledge of genetics and heritability. There are some positive initiatives for prevention like "Richtlijnen handelen erfelijke gebreken voor dierenartsen" and FairFok. However, progress is also still needed in prevention and treatment of for example dog problem behaviour.

Most dog trainers and veterinarians lack ethological knowledge, do not communicate well and seldom ask qualified ethologists for advice. A positive exception is the behavioural clinic for companion animals at Utrecht University where clinical ethologists and veterinarians cooperate at least in the treatment of dogs with behaviour problems. At other places, there is still a lot of confusion and maltreatment of animals. Some trainers (and vets) even doubt about things like the existence and nature of "dominance" among dogs. Some trainers use electric shock collars without understanding what the negative effects can be. Also some veterinarians still advice aversive training methods. So, something has to change...



### **Problems in care education**

BSc-students, at the start of their study in veterinary science, are usually very eager to learn about behaviour and welfare of the animals they are going to treat after



their graduation. However, at the end of their studies, many students have lost interest in the animal as a holistic being and do hardly know how to reduce stress in handling animals. This is also partly because there usually is little or no opportunity in the curriculum.

Unfortunately, there are many vet schools in Europe, which do not even treat ethology or welfare at all. This is surprising and undesirable since behaviour should be the first and most important read-out for any veterinarian. So, something has to change...



**Universiteit Utrecht**

The situation in the Netherlands at Utrecht University may be a positive exception, but also there improvements are required as clinical ethologists are for instance not yet 'allowed' to spend time on increasing the ethological needs of hospitalised dogs or cats. In Belgium the situation is worse, reflected by low numbers of staff: there is only one full-time ethologist at Ghent University with 3 specialised part timers (I am one of them), but there is no assistant or secretary. Ghent has a large well-equipped, compact campus, but there is hardly any consultation of the ethologists for patients and university owned animals. This is mirrored in the state and location of the offices: ethology and nutrition are in an old building and separated from the rest of the campus by a highway. In Antwerp, I am the only ethologist for the BSc-students with a 10% appointment (there are only BSc

students in Antwerp; MSc-students have to go to Ghent or elsewhere).



### **Join forces for improvement**

I invite NVG-members, and researchers who feel the same, to join me in upgrading the current state of this discipline and starting an applied ethology initiative from the non-production animal angle (contact: m.vandierendonck@uu.nl). I suggest we start with exchanging experiences, views and good practices. I also hope to (co-) organize a dedicated session at the annual NVG-meeting in November 2016 to present work from this field and to bring people together that are working professionally in the veterinary, clinical ethology and animal training field. My ultimate goal is to distribute awareness and ethological knowledge to all people owning or working with non-production animals. Clinical ethology is applied science, relevant to all who deal with animals.



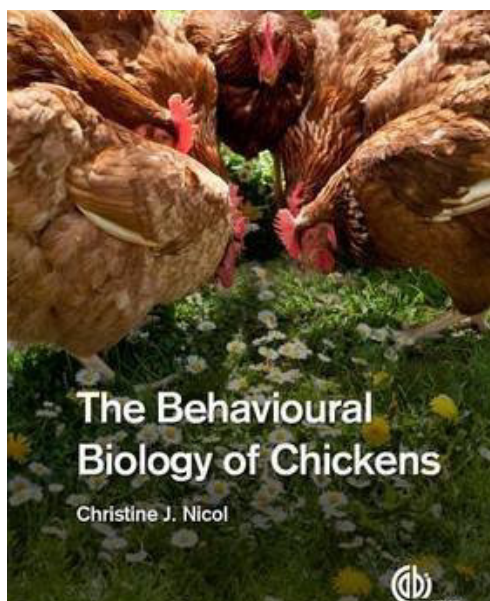
**Machteld van Dierendonck is teaching professor at the veterinary faculties of Ghent and Antwerp University. In Ghent, she is**

**responsible for BSc-teaching in Equine (ab)normal Behaviour and Welfare and Animal Welfare Assessments in general and for MSc-teaching in Equine Clinical Ethology. In Antwerp, she is responsible for BSc-teaching in: basic ethology, and (ab)normal behaviour and welfare of all key species for**

veterinarians: dogs, cats, horses, cattle, pigs, small herbivores, poultry, laboratory animals and exotics. She is not on the payroll anymore in Utrecht, but still involved in MSc-teaching in clinical ethology to equine practitioners to be. In addition, Machteld also runs her own Equus Research and Therapy referral clinic. She has done field work on equine ethology in Iceland, Mongolia, Sweden and Italy and did her PhD-project on "The importance of social relationships in horses" at Utrecht University in 2006. She was a founding member of ISES ([www.equitationsscience.com](http://www.equitationsscience.com)) and Certipet ([www.certipet.nl](http://www.certipet.nl)), which aims at certification of all professional clinical ethologist and animal trainers in the Dutch language area.



**KooReview**



"The Behavioural Biology of Chickens" by: Christine J. Nicol – CABI, Wallingford, UK 2015, 192 pp.

ISBN-13: 978 1 78064 249 9 (hbk);  
ISBN-13: 978 1 78064 250 5 (pbk).

**The author.** 'The Behavioural Biology of Chickens' is written by Prof. dr. Christine Nicol from the University of Bristol, an authority on animal behaviour and animal welfare science in general and on chicken ethology and cognition in particular. She is invited to present the David Wood Gush Memorial Lecture at the 50<sup>th</sup> International Congress of Applied Ethology (ISAE) in 2016, and recently made a BBC4 radio series "Would You Eat an Alien" in which she explores the challenging subject of animal sentience and welfare (<http://www.bbc.co.uk/programmes/b06s2w7b>).



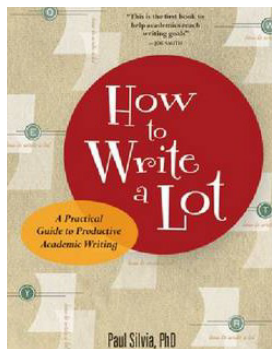
**The book.** The book brings together different fields (animal behaviour, psychology, neuroscience, genetics) to provide a comprehensive understanding of chicken behaviour. The book starts with a chapter on chicken genetics and domestication – not the easiest chapter to read – and then continues with sensory biology and behavioural and brain development, also attempting to summarize the current knowledge on hormonal-mediated maternal effects on development. It covers information on the behavioural priorities and preferences of the birds and on methods to assess these too.

Chickens are the world's most widely farmed animal, kept for both meat (broilers) and eggs (laying hens) and the book also describes the health and welfare problems of broilers and laying hens in different housing and management systems.

To me, the chapters about social behaviour, learning, intelligence and cognition were the most intriguing – the cognitive capabilities of chickens are explained in a fascinating manner. The book contains, for instance, information on the skills of chickens regarding mathematics (can they count..?), planning, abstract thinking and physics, and nicely summarizes recent research findings on chicken empathy.

I really enjoyed reading this book. The author not only explains what we know about the behaviour of chickens, but also provides us with the underlying scientific evidence. Moreover, the book is written in a pleasant and often humorous style. The book is highly recommendable for students in animal science, behavioural biology, animal welfare and for all others interested in chickens, their behaviour and how we know what we know.

**By: Dr. ir. Liesbeth Bolhuis, Dept. of Adaptation Physiology, Wageningen University**



#### **Book suggestion**

by Prof. dr. Liesbeth Sterck: "How to Write a Lot: A Practical Guide to Productive Academic Writing" by Paul J. Silvia, PhD.

## **IN THE SPOTLIGHT**



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



**Dr. Mariska Kret**

was recently appointed as assistant professor in Cognitive Psychology at Leiden University. She also just became part of the NVG-board and will be responsible for the organization of the annual NVG-meeting in Soesterberg 2016.

With two MSc-degrees in Cognitive and Clinical Psychology and a PhD-degree in Neuropsychology, Mariska Kret has a strong background in psychology. However, after she received her PhD (2011), she moved to Japan to study chimpanzee's emotional behaviour. Those nine months were the start of

her comparative research line. During her postdoctoral appointment in Amsterdam her research on emotion perception extended to social decision making. It also became more and more interdisciplinary, connecting sub disciplines within the field of psychology with primatology, behavioural biology and psychiatry and combining various research methods, ranging from psychophysiological measures to hormonal administration and observation studies. The NWO VENI and NWO Research Talent grants enabled her to set up the CoPAN lab at Leiden University, with a research focus on Comparative Psychology and Affective Neuroscience.



Bonobos (Photo: H. Jansman)

The PhD-project of Mariska Kret focused on the perception of emotional body language and innovated the field of affective neuroscience that was characterized by an almost exclusive focus on facial expressions. She showed that the brain processes body movements similarly as facial expressions, but initiate clearer action patterns.

Mariska Kret argued that body language is evolutionary seen older than facial expressions. Inspired by Darwin's work on emotions and by contemporary primatologists, she experimentally tested this statement in chimpanzees at the Kyoto University Primate Research Institute. With use of the emotional dot probe paradigm presented on a touch-screen, she was able to show that chimpanzees process chimpanzee body language similarly as humans do. Recently, this line of research was extended with the bonobos in 'de Apenheul'. Thanks to the interactions with these beautiful apes, she developed an interest in the use of eye-signals. Humans are the only species on earth with much visible eye-white that evolved for communicative purposes. Despite this difference with the chimpanzee, Mariska has shown that humans, as well as chimpanzees synchronize their pupil-size with their own species.

In a VENI project (which started in January 2015), she will further investigate emotion processing, pupil-mimicry, their neuro-physiological underpinnings and implications for social decision making in humans as well as in great apes. Clinical applications are investigated in close collaboration with the Münster University hospital.

**Areas of Expertise:** Comparative studies, evolutionary psychology, emotion perception, mimicry and synchronization, social anxiety and depression, fMRI, psychophysiology, oxytocin, multi-level modeling. More information at:

<http://www.mariskakret.com/>







**Dr. Sonja Vernes**

was recently awarded an independent Max Planck Research Group by the Max Planck Society. Sonja's research group is hosted by the MPI for Psycholinguistics in Nijmegen, and will study the genetic foundations of mammalian vocal communication, providing a novel gateway into understanding the biological underpinnings of human language.

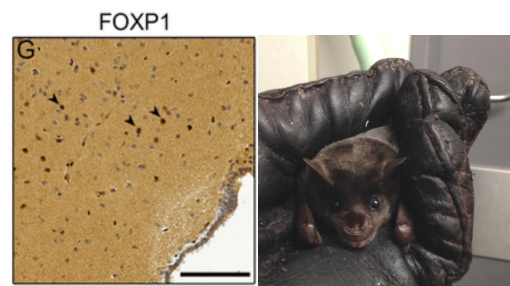


MAX-PLANCK-GESELLSCHAFT

Sonja became interested in studying links between genes and language during her doctoral research at the University of Oxford, where she investigated the function of the *FOXP2* gene. *FOXP2* mutations cause a rare form of speech and language disorder and Sonja was the first to identify the molecular pathways controlled by *FOXP2*. This gave the first evidence for the normal function of *FOXP2* in a developing brain, as well as highlighting neuronal functions that may be disrupted in language impaired individuals. This also led to

the discovery of links between the rare *FOXP2*-related disorder and the genetic factors contributing to common forms of language impairment in children.

Sonja was then awarded a HFSP post-doctoral fellowship to investigate gene networks involved in innate courtship behavior in fruit flies at the Institute for Molecular Pathology in Vienna. In 2012, Sonja returned to the Netherlands to continue her work on speech and language genetics with the overarching objective to use animal models together with human population studies to understand the biological basis of mammalian vocal communication.



Many species of mammal, including our primate cousins, have limited vocal repertoires. But a few mammals such as bats, whales and elephants use complex and varied vocalizations that share some characteristics with human speech, such as the ability to learn vocalizations from other members of their social group. Currently almost nothing is known about the genetic basis for these sophisticated vocal behaviours in other mammals.

Sonja's research group will use cutting-edge molecular techniques to identify genes that are important for vocal communication in bats,

one of the few non-human mammals that learn their vocalizations. As a first step towards this goal, Sonja's group recently published a study that used expression profiling to identify gene networks in vocal related regions of the bat brain ([www.biomedcentral.com/1471-2164/16/836](http://www.biomedcentral.com/1471-2164/16/836)).

The group is now building on this work to gain new insight into how such gene networks can direct behaviours such as vocal learning in a mammalian brain. Ultimately, genes identified in bats will be investigated in human populations to find out if they are also involved in human speech and language. This could provide clues about how mammals develop complex vocal communicative skills, but also how human language may have evolved and how language abilities are encoded in the human genome.



More information about Sonja's research group can be found on their homepage:  
<http://www.mpi.nl/departments/neurogen>

# Zoology 2015

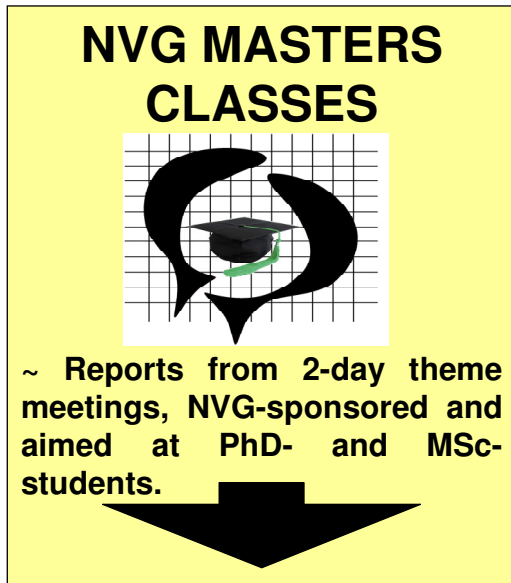


We organized a symposium during the 22nd Zoology Congress in Amsterdam (8-9 October 2015) to promote behavioural biology in general, and the NVG in particular.

The theme of the symposium was inspired by the question we proposed for the National Science Agenda ("Wetenschapsagenda", the role of behaviour in adaptation and coping with change). Invited speaker Hannah Dugdale talked about "Social effects on parental care behaviour in birds".

In consultation with the Scientific Committee of the University of Amsterdam (represented by NVG-member Martijn Egas), we selected three additional contributions: Liesbeth Sterck (Utrecht; modeling macaque social relationships), Bawan Amin (Leiden; zebrafish chronotype and personality), and Errol Neo (Leiden; seabass responses to anthropogenic sound). The symposium had a parallel session, but was very well attended. All the more reason to organise something again at the 2016 meeting in Belgium.

By Martine Maan



**On 2-3 November 2015**, we organized a two-day Masterclass with lectures, practicals, and interactive sessions. We worked two long days, nine-to-six, plus socialized and continued discussing during an Indonesian dinner in town. Hans Slabbekoorn organized the event with support and feedback from the following teachers: Katharina Riebel, Christian Tudorache (IBL); Niels Dingemanse (MPI) & Kees van Oers (NIOO). Christian was replaced on the event itself by Marcel Schaaf, assisted by Bawan Amin. Two interactive sessions were guided by Yimen Araya-Ajoy (MPI) and Lysanne Snijders (NIOO).



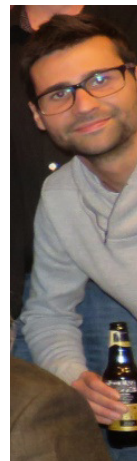
There were 17 participants, mostly PhD-students in behaviour or related fields from the Netherlands, Belgium, France, Germany, Iran, England, Slovakia, Costa Rica,

Malaysia and Mexico. All participants received a certificate at the end, signed by NVG-secretary Ruud van den Bos, who was present on the first day. Below follows a report from one of the participants.

### ***Animal Personality ~ concepts, methodology & applications***



**By: Sébastien Alfonso, St. Étienne**



The NVG-Masterclass was very rewarding to me. The topics were very useful for all people working on behavioural studies. I really appreciated to be a participant. The speakers were all interesting and diverse and provided examples of many approaches and techniques potentially useful for our own

future experiments.

The introduction by Hans Slabbekoorn allowed revisiting important definitions and some case studies on how personality at an individual level can play a role in explaining processes at a population level: perfect to start!

Then Kees van Oers lectured on physiological mechanisms and underlying genomic structures that act on personality. This was also

very informative as these are essential to better understand the observed behaviours. I really enjoyed the statistical module of Niels Dingemanse and Yimen Araya-Ajoy which is more than essential for us. The chance to attend a statistics lecture by Niels Dingemanse was really crazy. This was beyond my imagination!



Lysanne Snijders addressed "what test to use to measure what personality trait?" This was also very informative and allowed us to think about a protocol and then compare it with what others thought and with the literature. This was a great idea and, for future masterclasses, even more time to this kind of interactive sessions would be great.

Finally, Katharina Riebel addressed a fascinating topic on the influence of personality traits on sexual selection. Another cool thing in this course was that she highlighted some possible biases in experimental set-up, which made us all more aware of potential problems. To be honest, because she spoke a little quickly, I had trouble to understand everything (but I think I am the only one and I caught the main story).

The speakers were really top, very friendly, gave their best,

were available to talk and were happy to share their experience with us. The organization was very good. The order, the time between speakers and practical work was perfect. The practicals about problems just after learning the concepts was really a good thing.

Meeting researchers from different backgrounds and share experiences with them was enriching for me. The work in groups allowed confrontations about our own ideas and an exchange of viewpoints. This was really nice and one of the strengths of this masterclass!

Another plus would have been if there had been training on measurements of cognitive abilities. Indeed, some have hypothesized that certain traits, such as exploration and boldness, can affect measurements of cognition. Addressing this would have been interesting. However, I realize that it is difficult to do more things in just two days.



To sum-up in a few words: this Masterclass was very interesting and much fun. I am delighted that I had the chance to participate and would recommend it to everyone. A beer and a visit to the bird and fish facilities of the IBL were just perfect to close these two days!







## **The many faces of primate sociality: Looking into the future**

*A symposium in honour of Jan van Hooff's 80th birthday*

Datum: zaterdag 4 juni 2016

Locatie: Burgers Zoo; in het Safari Meeting Centre

Confirmed speakers: Frans de Waal; Ronald Noë; Carel van Schaik; en Liesbeth Sterck



Jan van Hooff: Looking into the future



## **Course on Observing Primate Behaviour 2016**

08 August - 26 August 2016  
Animal Ecology, Utrecht University  
in collaboration with Utrecht Summer School

Course director: Prof. dr E.H.M. Sterck; Fee: €1290,- (excl. housing)  
Credits: 4.5 ECTS



The summer course Observing Primate Behaviour focuses on getting familiar with observational methods by observing primate social behaviour and following the scientific cycle. Through (statistical) analysis of gathered observational data, students answer and present their own research questions. Furthermore, additional activities aim to provide the students with more background in different topics related to studying primate behaviour, such as welfare, colony management and fieldwork.

The course is open for advanced bachelor and master students in biology that have followed and passed courses in Animal Behaviour and basic statistics. The course has a minimum of 8 and a maximum of 16 participants. Applicants should include a letter with motivation (max 200 words), short resumé (including information on general education and animal behaviour courses and grades). Deadline for registration is 1st of May 2016.



Long-tailed macaques (Photo: K. Gosselt)

**[www.utrechtsummerschool.nl/courses/science/observing-primate-behaviour](http://www.utrechtsummerschool.nl/courses/science/observing-primate-behaviour)**

## 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.



**Remy Manuel defended his thesis 'Biology of welfare in fish: genes, physiology and behaviour' on the 8<sup>th</sup> of October 2015. The PhD-study was conducted at the Animal Ecology and Physiology Department of the Radboud University.**



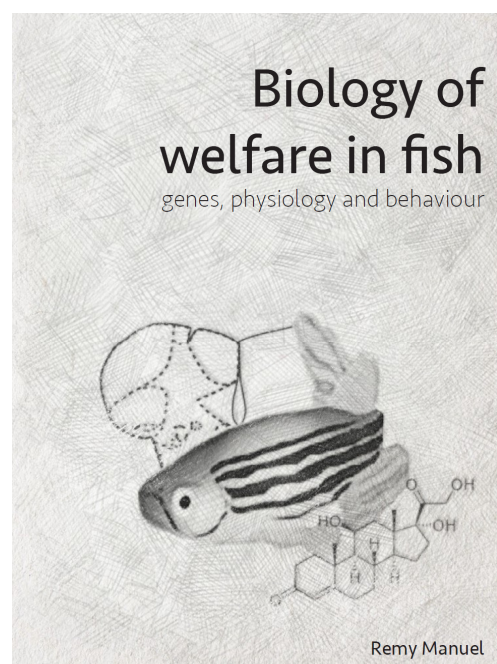
<http://repository.ubn.ru.nl/handle/2066/143549>

**By Remy Manuel**

### **Aim of the thesis**

The increase in aquaculture practices worldwide is associated with a growing concern about the welfare of fish in aquaculture

practices. Aquaculture often entails unnatural housing conditions such as unnatural day-night cycles, unnatural stocking densities, barren environments and repetitive as well as monotone feeding regimes. Such housing conditions may reduce the coping capacity of fish and lead to so-called allostatic overload and poor welfare when presented with stressors. The aim of the research described in my thesis was to enhance our knowledge on welfare of African catfish in Dutch aquaculture systems to optimise the balance between animal welfare and production.



To this end, I studied the effects of aquaculture- related stress factors on the allostatic load of fish. Specifically, I studied the effects of transport, housing under different photoperiods (i.e. continuous light or dark), and

different housing conditions (i.e. unpredictable chronic stress and enrichment) on the behaviour and physiology of African catfish (upper picture) and zebrafish (lower picture). In these studies, the zebrafish was used as model species to understand new fundamental aspects of coping capacity and associated welfare.

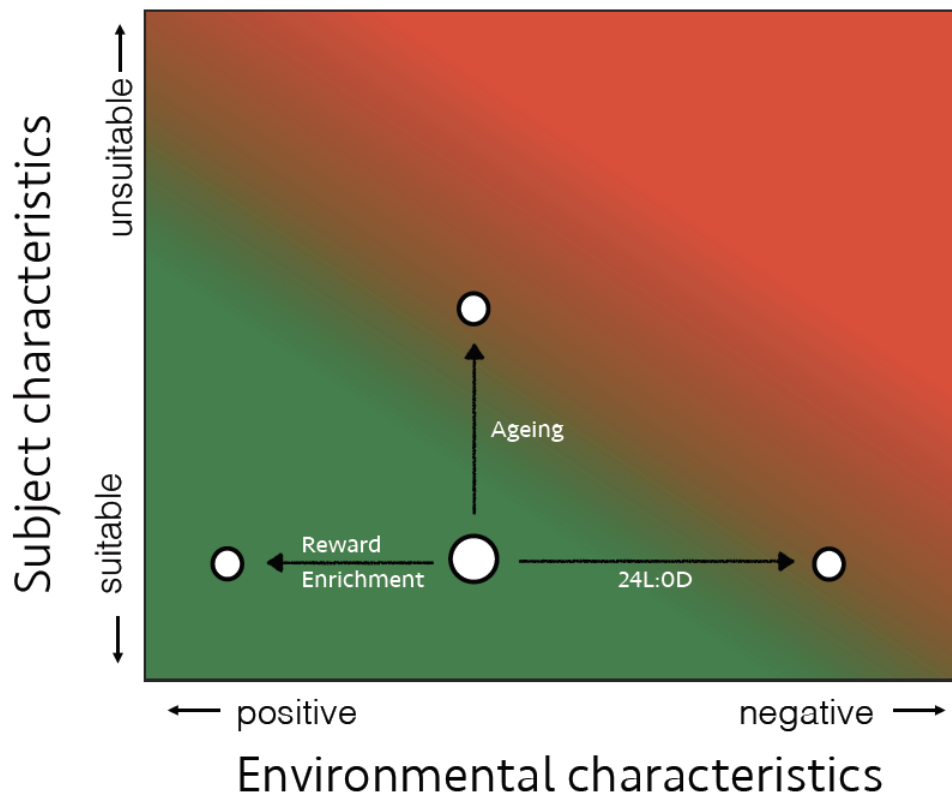


Although animal welfare can be defined in different ways, key to all definitions is that poor welfare is associated with overtaxing the coping capacity of animals, so that animals suffer allostatic overload during challenges. The extent to which an organism can display adaptive behaviour in response to a challenge is a measure for its biological functioning and indicative for its biological aspects of welfare. In general, if environmental conditions are 'positive' and the organism is suited to live under those conditions, its capacity to cope with adverse challenges will

be good. In contrast, when environmental conditions are 'negative' and the animal is not suited to live under such conditions, its ability to cope with an adverse challenge will be poor (see Figure 1).

Here I will summarise our zebrafish studies, in which we assessed effects of changing both environmental (enrichment, reward and continuous light) and subject characteristics (strains and ageing) on the ability to display a behavioural adaptation in response to a challenge. This challenge consisted of an inhibitory avoidance paradigm, which measures the latency of an individual to enter a conditionally aversive environment. In this challenge, zebrafish learn to avoid swimming from a white to a black compartment to avoid a mild electric shock.

Based on a combination of the behavioural response (i.e. inhibitory avoidance learning) and physical parameters (i.e. whole-body cortisol and gene expression analyses), we are able to "scale" the coping capacity of zebrafish to different treatments (i.e. experimental conditions) relative to the control condition (Figure 1: larger central circle). Based on our data, we predict that the capacity to cope with adverse challenges will improve under enrichment or a reward paradigm, while both continuous light and ageing results in a shift towards a compromised or even poor coping capacity.



**FIGURE 1: Coping capacity and welfare.** Capacity to cope with adverse challenges is determined by the interaction between characteristics of the subject (e.g. sex, age, genetics and life history) and long-term environmental characteristics (e.g. predictability, temperature, oxygen level and environmental enrichment). Under positive environmental conditions the coping capacity of an organism will increase, whereas negative condition will result in a reduction. In a similar fashion, subject characteristics suitable for the organisms current environment will increase the coping capacity, while having characteristics that are unsuitable will reduce the capacity to cope.

- Poor coping capacity
- Reduced coping capacity
- Good coping capacity

### Concluding remarks

Similar to mammalian species, my data suggest that changing environmental characteristics may change the capacity of fish to cope with challenges and thereby modulate the welfare status during adverse challenges. My studies show that enrichment and reward have positive effects on the

resilience of fish, whereas chronic stress, ageing and removal of the resting phase reduce this. Conditions that improve the coping capacity of aquacultured fish species will therefore be of particular interest for the sector. Future studies should determine which environmental conditions are considered as positive by different



fish species and what food items are seen as positive. Once such conditions are characterized, studies may focus on the effects thereof on the coping capacity of these different fish species and how implementation in aquaculture systems can be realized.

### Perspectives

In addition to the relevance for aquaculture, our data provide a solid basis for future neuro-behavioural investigations on anxiety and fear-related learning and memory. One focus for future studies may be to unravel the effects of environmental conditions on the emotional impact of the shock. For instance, in our studies we observed that reduced avoidance learning was associated with both an increase (adverse housing conditions) and decrease (positive housing conditions) in the expression of the *cannabinoid receptor 1* (*cnr1*). Our data hints to different brain regions in which these changes occurred, *e.g.* amygdala *versus* hippocampus or different types of neuron within these regions, *e.g.* telencephalic glutamatergic neurons. As *cnr1* is linked to both nociception (**can** a painful stimulus be perceived) and pain perception (**how** is a painful stimulus perceived), future studies may reveal whether these differences in *cnr1* expression reflect how the shock is perceived

(*i.e.* changes in the pain threshold) or if nociception *per se* is changed (*i.e.* changes in detection of the shock).



### References:

**Manuel, R., Boerrigter, J., Roques, J., van der Heul, J., van den Bos, R., Flik, G. 2014.** Stress in African catfish (*Clarias gariepinus*) following overland transportation. *Fish Physiology and Biochemistry* 40: 33-44.

**Manuel, R., Gorissen, M., Piza Roca, C., Zethof, J., van de Vis, H., Flik, G., van den Bos, R. 2014.** Inhibitory avoidance learning in zebrafish (*Danio rerio*): effects of shock intensity and unraveling differences in task performance. *Zebrafish* 11: 341-352.

**Manuel, R., Gorissen, M., Zethof, J., Ebbesson, L.O.E., van de Vis, H., Flik, G. van den Bos, R. 2014** Unpredictable chronic stress decreases inhibitory avoidance learning in Tuebingen long-fin zebrafish: stronger effects in the resting phase than in the active phase. *Journal of experimental biology* 217: 3919-3928.

**Manuel, R., Zethof, J., Flik, G., van den Bos, R. 2015.** Providing a food reward reduces inhibitory avoidance learning in zebrafish. *Behavioural processes* 120: 69-72.

# Conferences & Meetings

- **NAEM–2016**, Netherlands Annual Ecology Meeting of the Netherlands Ecological Research Network (NERN) and the Dutch - Flemish Ecological Society (NecoV), 9-10 February, Lunteren, the Netherlands: <http://www.nern.nl/NAEM-2016/>
- **EG-2016**, 11<sup>th</sup> topical meeting of the Ethologische Gesellschaft (on Cognition, Evolution, Behaviour), 17-19 February, German Primate Center in Göttingen, Germany: <http://www.ethol-ges.org/meetings.aspx>
- **EHBEA–2016**, Annual meeting of the European Human Behaviour and Evolution Association, 5-8 April, London School of Hygiene and Tropical Medicine, UK: <http://ehbea.com/conference2016/>
- **Measuring Behavior 2016**, 10<sup>th</sup> conference centered around methods and techniques in behavioral research, 25-27 May, Dublin, Ireland: <http://www.measuringbehavior.org/mb2016/home>
- **DN-2016**, Dutch Neuroscience Meeting (formerly ENP meeting), 9-10 June, Lunteren, the Netherlands: <http://dn2016.azuleon.org/>
- **Evolution-2016**, Joint Annual Meeting, 17-21 June, Austin, Texas: <http://evolutionmeetings.org/Evolution2016>
- **BGA–2016**, 46<sup>th</sup> Annual Meeting of the Behavior Genetics Association, 20-23 June, Brisbane, Australia: <http://bga.org/meetings/>
- **AN-2016**, 4th International Conference on the Effects of Noise on Aquatic Life, 10-16 July, Dublin, Ireland: <http://www.an2016.org/>
- **ECBB-2016**, 8th European Conference on Behavioural Biology (joint with the 2016 ASAB Summer meeting), 12-15 July, Vienna, Austria: <http://www.ecbb2016-vienna.com/home/>
- **ISAE–2016**, 50<sup>th</sup> Congress of the International Society for Applied Ethology, 12 - 16 July, Edinburgh, UK: <http://www.applied-ethology.org/isaemeetings>
- **ISBE-2016**, 16<sup>th</sup> congress of the International Society for Behavioral Ecology, on the 30th anniversary of its founding, 28 July- 3 August, University of Exeter, UK: <http://www.isbe2016.com/>
- **ABS-2016**, 53<sup>rd</sup> Annual Conference of the Animal Behavior Society, 30 July-3 August, University of Missouri, Columbia, USA: <http://animalbehaviorsociety.org>
- **NVG–2016**, 24<sup>th</sup> Annual Meeting of the Netherlands Society for Behavioural Biology, 23-25 November, Soesterberg, the Netherlands: [www.gedragsbiologie.nl](http://www.gedragsbiologie.nl)
- **Behaviour-2017**, a joint meeting of the 35th International Ethological Conference (IEC) and the 2017 ASAB Summer Meeting, 30 July- 4 August, Estoril, Portugal: <http://behaviour2017.org/welcome/>