

Curriculum Vitae Ton Groothuis**1. PERSONAL**

Name: Antonius Gerardus Gijsbertus (Ton) Groothuis
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 Date of birth: March 19 1954 (Groningen, the Netherlands)

Degrees

1981 Biology, Mater of Science, University of Groningen (*cum laude*).
 1989 Ph.D. degree (*cum laude*).

Academic employment

1987-1996 Assistant professor in the Ethology group of prof. J.P. Kruijt (University of Groningen).
 1992-1993 Visiting guest of the Neuroendocrine Development and Behaviour Group (Dr. J. Hutchison) of the Medical Research Council Cambridge, U.K.
 1996-1998 Assistant professor in Animal behaviour.
 1998-2005 Associate professor Animal Behaviour.
 Since 2005 Full professor Behavioural Biology and head of the research group

Awards and distinctions

1981 Cum Laude (top 5%) master in Science (Biology)
 1989 Cum Laude (top 5%) PhD degree
 1994 Invitation for a professorship at the Ethology group at the university in Leiden. Declined.
 1994 Invitation for associate professorship in the Ethology group at the university of Wageningen. Declined.
 1996 Short listed for full professor Ethology, RU Groningen.
 1998. VSNU rating (international peer review) of the research unit Animal Behaviour: excellent on quality (5), good (4) on all other criteria (ranking between 1 and 5). The work on birds, including my developmental studies, is referred to as "of exceptional quality and interest".
 2004. Best thesis 2004 of the Research School BCN for one of the PhD students of which I had the daily supervision, Dr. C. Carere.
 2005 The research unit was rated by the international visitation committee as the best of the research institute (4.5 on a scale from 1 to 5).
 2005 Invited member of the Ubbo Emmius College, City of Groningen, NL

Large grants obtained (more than for one PhD student plus budget)

- Dutch Science Foundation: coordinator network and main PI 1M€ (1998)
- Dutch Science foundation: 750 K€ together with prof Seehausen (2001)
- Dutch Science Foundation: 400 K€ 2005
- EU 6th frame work: PI contributor 2.5 M€ of which 380 K€ for RUG (2007)
- Dutch Science Foundation: PI contributor 763 K€ of which 250K€ for RUG (2010)

Selection of professional international service and management / editorial boards

2009-now Board member of the Centre for Behaviour and Neuroscience
 2005-2007 Member of the committee for the development of the B.Sc. major Behaviour and Neurosciences, University of Groningen.
 2005-2007 Member of the committee for the development of the B.Sc. major Ecology, Evolution and Marine Biology, University of Groningen
 2007-now Coordinator top master Behaviour and Cognitive Neurosciences, track Behaviour. Member exam committee
 1991-1996 Co-founder (1991) of the Dutch Society for Behavioural Biology.
 Secretary (1991-1993) and chairman (1993-1996).

1995-recent	International Council for Behavioural Biology, representative of the Netherlands.
2000-2007	Ethical Committee of the Association for the Study of Animal Behaviour.
2004-2006	Committee of European Societies for Behavioural Biology
1991-2011	Editor of Behaviour , an International Journal for Behavioural Biology.
Since 2001	Member of the editorial board of the international journal Acta Ethologica
Since 1992	Organization of 13 international symposia or other meetings, being the president of the 2 nd European Conference for Behavioural Biology in Groningen, NI (2004).

Reviewed grant applications for:

Dutch Science Foundation, Royal Academy of Science (NI), NERC (UK), BsRC (UK), Austrian Science Council, NSF (USA), Swiss Science foundation, NSF.

Reviewed manuscripts for:

American Naturalist, Animal Behaviour, Ardea, Avian Biology, Behaviour, Behavioural Ecology, Behaviour Ecology and Sociobiology, Biology Letters, Ethology, Ethology Ecology and Sociobiology, Functional Ecology, Gen. Comp. Endocrinology, Hormones and Behaviour, Journal of Comparative Physiology B, Physiology and Behaviour, Psychological Neuroendocrinology, Proceeding of the Royal Society, London, series B, TREE

2. TEACHING

I teach at all levels of the curriculum for Life Science and Technology, Biology, Behaviour and Neuroscience, Ecology and Evolution: Behaviour (1st year), Behavior and Brain (1st year), Behavioural Biology (2nd year), Ecology and Behaviour (2nd year), Behavioural Biology research (3th year), Human behavioural Biology (3th year), Individuality, maternal effects and experimental design (master level).

I have supervised over 50 master students.

I am coordinator of the Behaviour track in the top master Behavioural and Cognitive Neuroscience. I am and have been in several educational committees of my university.

At the **PhD level** I have supervised 8 PhD students that all received their degree successfully.

Currently I supervise 4 PhD students and co-supervise 7 PhD students.

I have been in International PhD examination committees in Vancouver (Ca), Oxford (UK), Cambridge (UK), St. Andrews (UK), Glasgow (UK), Exeter (UK) and Antwerp (Belgium).

3. RESEARCH**Main research lines**

Integration of mechanistic and functional / evolutionary approaches to behaviour,

Developmental behavioural endocrinology.

Focus on hormone mediated maternal effects, including its relation with personalities and brain lateralization.

I work on fish, birds, rodents and humans.

Twelve post-docs have stayed in my lab in the past 15 years and I have or have had over 30 productive international collaborations.

Six KEY PUBLICATIONS (2005-2011):

- Groothuis TGG, von Engelhardt N, Müller W, Carere C, and Eising C.M. 2005. Maternal hormones as a tool to adjust offspring phenotype in avian species. *Neuroscience and Biobehavioral Reviews*. 29/2: 327-351. IF **9.0**
- Groothuis T.G.G., Schwabl H. 2008. Hormone mediated maternal effects in birds: mechanisms matter but what do we know of them? *Phil Trans R Soc B* 363: 1497 : 1647-1661. IF **6.1**
- Pfannkuche KA, Bouma A, **Groothuis T.G.G.** 2009. Does testosterone affect lateralization of brain and behaviour? A meta- analysis in humans and other animal species *Phil Trans R Soc b-biological sciences* 364: 1519: 929-942 IF **6.1**
- Stamps, J, and Groothuis, T.G.G. 2010. The development of animal personality: relevance, concepts and perspectives. *Biological Reviews* 85: 2: 301-325. IF **6.6**
- Henriksen R, Rettenbacher S., Groothuis T.G.G. 2011 Prenatal stress in birds: Pathways, effects, function and perspectives. *Neuroscience and Biobehavioral Reviews* 35: 1484-1501 IF **9.0**
- Groothuis T G. G.; Trillmich F. 2011. Unfolding Personalities: The Importance of Studying Ontogeny. *Dev Psychobiol*: 53 641-655

4. PUBLICATIONS in internationally refereed journals and international books

2011 / in press (so far). Pdf's on request. For publications before 2011 see "publications" in the menu.

- Boncoraglio G., **Groothuis TGG.**, von Engelhardt N. 2011. Differential Maternal Testosterone Allocation among Siblings Benefits Both Mother and Offspring in the Zebra Finch *Taeniopygia guttata*. *Amer Naturalist* 178: 1 64-74.
- Burton, T, Hoogenboom MO, Armstrong JD, **Groothuis TGG** and Metcalfe NB. In press. Egg hormones in a highly fecund vertebrate: Do they influence offspring social structure in competitive conditions? *Funct Ecol*
- Casagrande S, Dijkstra C, Tagliavini J, Goerlich V, **Groothuis T** (2010) Differential effect of androgens and estrogen on carotenoid deposition in an avian secondary sexual trait. *J Comp Physiol A* 197, 1-13.
- Casagrande, S., Dell'Omo, G., Costantini, D., Tagliavini, J., **Groothuis, T** . 2011. Variation of a carotenoid-based trait in relation to oxidative stress and endocrine status during the breeding season in the Eurasian kestrel: A multi-factorial study. *Comp Biochem Physiol a* : 160 Issue: 1 Pages: 16-26 DOI: 10.1016/j.cbpa.2011.04.011
- Casagrande S., and **Groothuis, TGG**. In press. The interplay between gonadal steroids and immune defence in affecting the expression of a carotenoid-dependent avian secondary sexual trait. *Behav Ecol Sociobiol*.
- Dijkstra PD., Schaafsma SM., Hofmann H., **Groothuis TGG**. Winner effect' without winning: Unresolved social conflicts increase the probability of winning a subsequent contest in a cichlid fish. *Phys Behav* doi:10.1016/j.physbeh.2011.08.029
- Dijkstra PD., Wiegertjes GF., Forlenza M., van der Sluijs I., Hofmann HA., Metcalfe NB., **Groothuis TGG**. In press. The role of physiology in the divergence of two incipient cichlid species. *J Evol Biol* doi: 10.1111/j.1420-9101.2011.02389.x
- Gracceva Giulia; Koolhaas Jaap M.; **Groothuis TGG**. 2011. Does the Early Social Environment Affect Structure and Consistency of Personality in Wild-Type Male Rats? *Dev. Psychobiol* 53: 6: 614-623.
- Groothuis T G. G.**; Trillmich F. 2011. Unfolding Personalities: The Importance of Studying Ontogeny. *Dev Psychobiol*: 53 641-655.
- Henriksen R., **Groothuis TGG**. Rettenbacher S. 2011. Elevated Plasma Corticosterone Decreases Yolk Testosterone and Progesterone in Chickens: Linking Maternal Stress and Hormone-Mediated Maternal Effects. *PLOS ONE* 6 Issue: 8. DOI: 10.1371/journal.pone.0023824
- Henriksen, R., Rettenbacher S., **Groothuis TGG**. 2011. Prenatal stress in birds: Pathways, effects, function and perspectives. *Neurosci Biobehav rev* 35: 1484-1501.
- Heylen, D., Müller, W., **Groothuis, TGG**, Matthysen, E. In press. Female great tits do not alter their yolk androgen deposition when infested with a low-transmittable ectoparasite. *Behav Ecol Sociobiol*.
- Hoogenboom, MO., Armstrong, JD., Miles, MS., Burton, T., **Groothuis, TGG.**, Metcalfe, NB 2011. Implantation of cocoa butter reduces egg and hatchling size in *Salmo trutta*. *J Fish Biol* 79 Issue: 3 Pages: 587-596 DOI: 10.1111/j.1095-8649.2011.03039.x
- Isaksson C., While GM., McEvoy J. van de Crommenacker, Olsson M., **Groothuis TGG**, Komdeur J. & Wapstra E. 2011. Aggression, but not testosterone, is associated to oxidative status in a free-living vertebrate. *Behav* 148: 713-731.

- Janmaat S., Akwa Y., Doulazmi M., Bakouche J., Gautheron V., Liere Ph., Eychenne B., Pianos A., Luiten P., **Groothuis T.**, Baulieu E-E., Mariani J., Sherrard RM., and Frédéric F. In press. Age-related Purkinje cell death is steroid dependent: ROR α haplo-insufficiency impairs plasma and cerebellar steroids and Purkinje cell survival. *AGE*.
- Lust JM., Geuze, RH., **A.G.G. Groothuis**, van der Zwan JE., Brouwer WH., van Wolffelaar PC, Bouma A. In press. Testing the function of human brain lateralization using fTCD in an ecologically relevant context. *Neuropsychologia*.
- Lust, J.M., Geuze, R.H., **Groothuis, A.G.G.**, Bouma, A. 2011. Functional cerebral lateralization and dual-task efficiency – testing the function of human brain lateralization using fTCD. *Behav Brain Res* 217-293-301.
- Lust, JM, Geuze, RH, Van de Beek, C, Cohen-Kettenis, PT, Bouma, A, **Groothuis, TGG.** 2011. Differential effects of prenatal testosterone on lateralization of handedness and language. *Neuropsychology* 25 581-589.
- Mueller W., **Groothuis TGG.**, Goerlich VC., Eeens M. 2011. GnRH - a Missing Link between Testosterone Concentrations in Yolk and Plasma and Its Intergenerational Effects *PLOS ONE* 6 DOI: 10.1371/
- Hegyí, G., Herényi H., Szöllösi E., Rosivall B., Török J., and **Groothuis TGG.** 2011. Yolk androstenedione, but not testosterone, predicts offspring fate and reflects parental quality. *Behav Ecol* 22, 29-38.
- Hoogenboom, MO., Armstrong, JD., Miles, MS, Burton, T., **Groothuis TGG.**, and Metcalfe NB. Implantation of cocoa butter alone reduces egg and hatchling size in brown trout *Fish Biol* 79, 587-596.
- Okuliarova, M., **Groothuis, TGG.**, Škrobánek, P., Zeman M. 2011. Experimental evidence for genetic heritability of maternal hormone transfer to offspring. *Am Nat* 177, 824-834.
- Pfannkuche K. A.; Gahr M.; Weites I. M, Riedstra B., Wolf, C., **Groothuis TGG.** 2011. Examining a pathway for hormone mediated maternal effects - Yolk testosterone affects androgen receptor expression and endogenous testosterone production in young chicks (*Gallus gallus domesticus*). *Gen Comp Endo* 172: 487-493.
- Schaafsma, SM., Geuze, RH, Riedstra, BJ., Schiefenhövel, W., Bouma, JM., **Groothuis, TGG.** Handedness in a pre-industrial society challenges the fighting hypothesis as an evolutionary explanation of left-handedness. *Evol Human Behav* in press.
- Schaafsma, SM., and **Groothuis TGG.** In press. Sex-specific effects of postnatal testosterone on lateralization in cichlid fish. *Anim Behav.* doi:10.1016/j.anbehav.2010.10.019
- Weber SB., Broderick AC., **Groothuis, TGG.**, Ellick J., Godley BJ., and Blount JD. In press. Local adaptation to nesting beach temperature in a green turtle population. *Proc R Soc L.*

Book chapters

- Baerends, G.P. and **Groothuis, T.G.G.** 1993. The "fixed action pattern" concept revisited; an ethologist's commentary to the papers by Prechtl and Provine. In: a longitudinal approach to the study of motor development in early and later childhood. Eds: A. Kalverboer, B. Hopkins and R. Geuze, p. 74-88.
- Groothuis, T.G.G.** 1994. The development of social displays: interplay between motor development, social experience and motivation. In: Causal mechanisms in behavioural development (Eds: J. Hogan and J.J. Bolhuis) Cambridge University Press, p. 183-212.
- Koolhaas, J.M., de Boer, S.F., Buwalda, B. Van der Vegt, B.J., Carere, C., and **Groothuis, T.G.G.** 2001. How and why coping systems vary among individuals. In: Coping with challenge: welfare in animals including humans (D.M. Broom Ed.). pp 197-209. Dahlem University press, Dahlem.

- Crews, D. and **Groothuis, T.G.G.** 2007. The fourth question of Tinbergen: ontogeny: sexual and individual differentiation. In: Tinbergen's Legacy (eds.: J. Bolhuis and S. Verhulst). pp 54-81 Cambridge University Press, Cambridge.
- Groothuis, TGG** & Mastroianni D. 2012. Prenatal influences on offspring personality traits in oviparous and placental vertebrates. In: Animal Personalities: eds: Carere C and Mastroianni, D. Chicago Press. In Press
- Groothuis, T.G.G.**, Schaafsma, S.M., Bouma, A.M., Geuze, R.H., Lust, J.M., Pfannkuche, K.A., Riedstra, B.J. 2010. Is two times a half more than one? Function and developmental plasticity of behavioural lateralization in humans and other animals. In: Building bridges between anthropology, medicine and human ethology. Tributes to Wulf Schiefenhövel./ (2010).
- Riedstra B, Pfannkuche KA., and **Groothuis TGG.** 2011. Organizational and activational effects of prenatal exposure to testosterone on lateralization in the domestic chicken (*Gallus gallus domesticus*).
- Schwabl, H, **Groothuis TGG.** 2010. Maternal effect on Behaviour. In: Encyclopedia of Vertebrate behaviour, volume reproductive behaviour. Breed M.D. and Moore J., (eds.) Encyclopedia of Animal Behavior, volume 2, pp. 399-411 Oxford: Academic Press. European University Press; The University Press Bochum. ISBN: 978-3-89966-348-8.
- Von Engelhardt N., and **Groothuis T.G.G.** 2010. Maternal hormones in avian eggs. In: Hormones and reproduction in vertebrates. Vol 4: Birds. (Eds DO Norris and KH Lopez). 91-128. Elsevier Amsterdam NL.