

## Curriculum vitae

Christoffer Johansson Westheim

Adress: Ecology building, Box 188, SE-221 00 Lund, Sweden

Phone: +46 (0)46-222 4955

E-mail: Christoffer.Johansson@teorekol.lu.se

### Summary:

I received my PhD in Zoomorphology at Göteborg University 2002, working on the hydrodynamics of swimming birds. My Post doc at Harvard University concerned the hydrodynamics of paddling propulsion of swimming frogs. I am currently employed as a scientist following up my work as an Assistant Professor at Lund University. I work on aerodynamics of vertebrate flight. In my present work and during my Post doc I have been working with Digital Particle Image Velocimetry (DPIV), a method for experimental studies of animal fluid dynamics, as well as three dimensional kinematic analysis based on high speed video filming. The results of my work have lead to two publications in Nature and two in Science.

### Current position:

February, 2008-. Scientist at the Dept. of Theoretical Ecology, Lund University, Lund, Sweden.

### Previous positions:

February, 2004 until January, 2008. Assistant Professor (Financed by the Swedish research council) at the Dept. of Theoretical Ecology, Lund University, Lund, Sweden.

2003. Post doc fellow in George Lauder's lab at the Dept. of Organismic and Evolutionary Biology at Harvard University, Cambridge, USA.

### Education:

April, 1997 until June, 2002. PhD-student at the department of Zoology at Göteborg University, Sweden. Doctor of Philosophy in Zoomorphology. Thesis title: *Swimming in birds. Propulsive mechanisms and functional morphology*. Advisor: Ulla Lindhe Norberg

September, 1991 until September, 1996. Science program with major in biology (230 p, where 1 p equals 1 week of study) at Göteborg University, Sweden. Master of Science in Biology. Thesis title: *Morphology of the legs of swimming birds in relation to swimming behaviour*. Advisor: Ulla Lindhe Norberg

August, 1988 until June, 1991. Science program at Osbecksgymnasiet in Laholm, Sweden.

### Administrative positions

October, 2004 until present. Permanent member on the board of the Theoretical Ecology section at Lund University.

September, 1999 until June, 2002. Permanent member on the board of the Department of Zoology at Göteborg University.

**Referee assignments:**

Currently acting as a referee for a number of scientific journals including, Journal of Experimental Biology, Journal of Evolutionary Biology and Canadian Journal of Zoology.

**Examining comities:**

March, 2006. On the examining comity of Ann Larsson's dissertation, Dept. Marine Ecology, Göteborg University.

**Grants and scholarships:**

2005. Research grants from Kungliga fysiografiska sällskapet i Lund (€ 10.500), Magn. Bergvalls stiftelse (€6.300) and Crafoordska stiftelsen (€15.700).  
2004 - 2007. Assistant professorship and research grant (€42.500 per year) financed by the Swedish research council.  
2003. Post doc scholarship financed by the Wenner-Gren foundation, Sweden. During my Post doc I received €5.500 in research grants.  
1997 - 2002. During my time as a PhD student I received approximately €41.500 in research grants. Basically all my research was financed by this money from private donors.

**Participation in international conferences:**

2004, Society for Experimental Biology, Edinburgh, UK. Oral presentation, abstract in *Comp. Biochem. Phys.*  
2003, Society of Integrative and Comparative Biology (SICB), Toronto, Canada. Poster, abstract in *Integ. Comp. Biol.*  
2002, 23<sup>d</sup> International Ornithological Congress (IOC), Beijing, China. Poster.  
2002, OIKOS 20, Göteborg, Sweden. Poster.  
2001, 6<sup>th</sup> International Congress of Vertebrate Morphology (ICVM), Jena, Germany. Oral presentation, abstract in *J. Morph.*  
1998, 22<sup>nd</sup> IOC, Durban, South Africa. Poster, abstract in *Ostrich*.  
1997, 5<sup>th</sup> ICVM, Bristol, Great Britain.

**Pedagogic merits:**

May 2007. Completed a Docent preparatory course. During the course I completed works on philosophy of science and held a short lecture.  
May 2006. Completed a course on supervising PhD-students.  
October 2005. Completed an introductory course in pedagogic techniques in higher education. During the course a completed a work focusing on improving the evaluation of student knowledge and stimulating student activity within a lecture.

**Teaching:**

I have developed and taught a lecture (1h) on a PhD-course in migration biology.

I have developed and taught two (2h) lectures and five (2h) seminars on a C-level course in evolutionary biology at Lund University. I have also developed and taught two lectures and a group session at the D-level course in theoretical ecology and on repeated occasions given a lecture on an A-level course in ornithology at Lund University.

I am also acting as an assistant advisor for two PhD-students (Marta Wolf and Florian Muijres) and for master students in our group.

I have been teaching on laboratory under-graduate courses in zoomorphology (A- and C- level) and marine biology (A-level) at Göteborg University as part of my position as a PhD-student. The teaching constituted 20% of my position, together with the administrative work. The teaching has included dissections of several major phyla with emphasis on vertebrates. I have also developed a lab regarding the aerodynamics of wing profiles.

I have furthermore taught an elementary course in Power Point for the personal at the department in Göteborg.

**Popular science:**

051021 Lecture on high speed filming in biological research at the annual meeting of the Scandinavian Society of High Speed Photography in Stockholm.

021128 Lecture on swimming birds for Folkuniversitet in Göteborg.

021114 Lecture on swimming birds for Göteborgs ornitologiska förening.

I have also, on several occasions, been interviewed by different media regarding my research, including Discovery.com (web site), Vetenskapsradion (radio) and Associated press (news agency).

**Research trips abroad:**

July, 2000. Vestman Islands, Iceland. Field trip to study the kinematics of diving puffins.

October 1999. Smithsonian Institute, Washington DC, USA. Collaboration with L. Gustavsson regarding comparative studies of fish morphology.

**Publication list:****In refereed journals:**

G. R. Spedding, A. Hedenström and **L. C. Johansson** (*in press*) A note on wind-tunnel turbulence measurements with DPIV. *Exp. in Fluids*

**L. C. Johansson**, M. Wolf, R. Von Busse, Y. Winter and G. R. Spedding, A. Hedenström (2008). The near and far wake of Pallas' long tongued bat (*Glossophaga soricina*). *J. Exp. Biol.* **211**(18): 2909-2918  
<http://jeb.biologists.org/content/vol211/issue18/>

F. T. Muijres, **L. C. Johansson**, R. Barfield, M. Wolf, G. R. Spedding and A. Hedenström (2008). Leading edge vortex improves lift in slow flying bats. *Science* **319**(5867): 1250-1253.  
<http://www.sciencemag.org/content/vol319/issue5867/index.dtl> \*\*

- A. Hedenström, **L. C. Johansson**, M. Wolf, R. Von Busse, Y. Winter and G. R. Spedding (2007). Bat flight generates complex aerodynamic tracks. *Science* **316**(5826): 793-914.  
(<http://www.sciencemag.org/content/vol316/issue5826/index.dtl>) \*\*
- L.C. Johansson** and G. V. Lauder (2004). Hydrodynamics of surface swimming in Leopard frogs (*Rana pipiens*). *J. Exp. Biol.* **207**(22): 3945-3958.  
(<http://jeb.biologists.org/content/vol207/issue22/>)
- L.C. Johansson** and R.Å. Norberg (2003). Delta-wing function of webbed feet gives hydrodynamic lift for swimming propulsion in birds. *Nature* **423**(6944): 65-68.  
(<http://www.nature.com/nature/journal/v424/n6944/index.html>)
- L.C. Johansson** (2003). Indirect estimates of wing-propulsion forces in horizontally diving Atlantic puffins (*Fratercula arctica* L.). *Can. J. Zool.* **81**(5): 816-822.  
([http://pubs.nrc-cnrc.gc.ca/cgi-bin/rp/rp2\\_tocs\\_e?cjb\\_cjb5-03\\_81](http://pubs.nrc-cnrc.gc.ca/cgi-bin/rp/rp2_tocs_e?cjb_cjb5-03_81))
- A. Zeffer, **L.C. Johansson** and Å. Marmebro (2003). Functional correlation between habitat use and leg morphology in birds (Aves). *Biol. J. Linn. Soc.* **79**(3): 461-484.  
(<http://www.blackwell-synergy.com/toc/bij/79/3>)
- T. Uller and **L.C. Johansson** (2003). Human mate choice and the wedding ring effect: Are married men more attractive? *Human Nature* **14**(3): 267-276.  
([http://transactionpub.metapress.com/\(2pfzwxblprvjuifbkkjmsn55\)/app/home/issue.asp?referrer=parent&backto=journal,15,21;linkingpublicationresults,1:112435,1](http://transactionpub.metapress.com/(2pfzwxblprvjuifbkkjmsn55)/app/home/issue.asp?referrer=parent&backto=journal,15,21;linkingpublicationresults,1:112435,1))
- L.C. Johansson** and B.S. Wetterholm Aldrin (2002). Kinematics of diving Atlantic Puffins (*Fratercula arctica*, L.): Evidence for an active upstroke. *J. Exp. Biol.* **205**(3): 371-378. (<http://jeb.biologists.org/content/vol205/issue3/>)
- L.C. Johansson** and U.M. Lindhe Norberg (2001). Lift-based paddling in diving grebe. *J. Exp. Biol.* **204**(10): 1687-1696.  
(<http://jeb.biologists.org/content/vol204/issue10/>)
- L.C. Johansson** and U.M. Lindhe Norberg (2000). Asymmetric toes aid underwater swimming. *Nature* **407**(6804): 582-583.  
(<http://www.nature.com/nature/journal/v407/n6804/index.html>)

#### **Other publications:**

- L.C. Johansson** (2002). *Swimming in birds. Propulsive mechanisms and functional morphology*. PhD-thesis. Vasastadens bokbinderi, Göteborg. 95 pp.  
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