



## Seewiesen Colloquia

Speaker invited by Dept. Kempenaers

**Thursday, 10 March 2016, 13:00 h, in House 4, Lecture Room**

### **Speciation Genomics in Natural Populations**

Prof. Jochen Wolf

Uppsala University, Sweden

The view of species as entities amenable to evolutionary change elaborated by Charles Darwin laid the conceptual foundation for our current understanding of how biodiversity can be generated. Initially marred by a rudimentary understanding of hereditary principles, evolutionists gained appreciation of the mechanistic underpinnings of adaptation and speciation following the merger of Mendelian genetic principles with Darwinian evolution. By the late 20th century a mature framework in theoretical and empirical evolutionary genetic research had been developed to investigate the genetic basis of species diversification. Spurred by a recent revolution in nano-sequencing technology speciation genetic research has become increasingly open to genetic non-model organisms. Genome-wide processes can now be investigated at unprecedented resolution in essentially any eco-evolutionary model species of interest. This development has expanded speciation research beyond the traditional boundaries and unveils the genetic basis of speciation from manifold perspectives and at various stages of the splitting process.

In this talk I will give an overview on recent work in the growing field of 'speciation genomics' unraveling the genetic underpinnings of adaptation and speciation from a micro-evolutionary perspective. While providing examples from a variety of taxa, I will capitalize on own recent work in the Eurasian crow species complex. This system is characterized by parallel evolution of a sexually selected plumage phenotype and lends itself to studying population differentiation across the speciation continuum at different time points in the evolutionary trajectory. Population genomic analyses of >100 re-sequenced genomes from across the species' range combined with transcriptome data and other functional assays provide first insight into processes underlying the built-up of genomic differentiation and its relationships to reproductive isolation.

#### Who is Jochen Wolf?

2015	Professor of Evolutionary Genetics, Uppsala University, Sweden
2014-2015	Senior lecturer (,lektor'), Dept. of Evolutionary Biology, Uppsala University, Sweden
2010-2015	Researcher, then Senior Lecturer, Uppsala University, Sweden
2008-2010	Volkswagen Research Fellow, Uppsala University, Sweden
2007-2008	Research Fellow, Max-Planck-Institute of Evolutionary Biology, Plön, Germany
2006-2007	Research Fellow, Köln University, Germany
2005	PhD in Animal Behaviour, Bielefeld University, Germany

#### Selected publications relevant to the talk :

Poelstra JW, Vijay N, Hoepfner MP, [Wolf JBW](#) (2015) Transcriptomics of colour patterning and coloration shifts in crows. **Mol Ecol**, 24, 4617–4628.

\*Poelstra JW, \*Vijay N, \*Bossu CM et al. [Wolf JBW](#) (2014) The genomic landscape underlying phenotypic integrity in the face of gene flow in crows. **Science**, 344, 1410–1414.

Shafer ABA, [Wolf JBW](#) (2013) Widespread evidence for incipient ecological speciation: a meta-analysis of isolation-by-ecology. **Ecol Lett**, 16, 940–950.

Ellegren H, Smeds L et al. [Wolf JBW](#) (2012) The genomic landscape of species divergence in Ficedula flycatchers. **Nature**, 491, 756–760.

[Wolf JBW](#), Lindell J, Backstrom N (2010) Speciation genetics: current status and evolving approaches. **Philos Trans R Soc Lond B** 365: 1717-1733.

**Co-ordinator: Carmen Dobus (cdobus@orn.mpg.de) Tel.: 08157-932-232**