Max-Planck-Institut für Ornithologie

Max Planck Institute for Ornithology

Seewiesen Colloquia

Speaker invited by: Henrik Brumm

Thursday, October 18, 2012, 13h, House 4, Lecture Room

Vocal learning under the sea: Acoustic communication in the bottlenose dolphin

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The two most established model systems for the study of complexity in animal communication are nonhuman primates and song birds. While these may seem obvious choices, both lack key features associated with complexity that are present in other animals. Bird song lacks semantics in the sense of utterances referring to objects in the external world. Primates show syntax and reference in their calls, but lack the ability to copy novel sounds. We should therefore look further afield for cases combining vocal learning, syntax, reference and other advanced cognitive skills to further comparative communication studies. The bottlenose dolphin (Tursiops truncatus) is such a case. Bottlenose dolphins use vocal learning and reference in the development and use of signature whistles that help to maintain group cohesion and social relationships. In my laboratory, we could show that each animal invents its own unique frequency modulation pattern that is used in separation contexts. Other animals learn to understand and to mimic this pattern and can use it to address the whistle inventor. When meeting at sea, dolphins exchange signature whistles before joining, while copying occurs primarily in a search context, often in the form of signal matching interactions. In my talk, I will explore how these skills compare to vocal matching in bird song and vocal labelling in parrots.

Who is Vincent Janik?

1998	PhD University of St Andrews, UK
1998	Postdoctoral Research Fellow, Woods Hole Oceanographic Institution, USA
2001	Marie-Curie EU fellowship, University of St Andrews, UK
2002	Royal Society University Research Fellowship, University of St Andrews, UK
2009	Associate Professor in Biology, University of St Andrews, UK

Selected publications:

- Janik, V. M., Sayigh, L. S. and Wells, R. S. 2006. Signature whistle contour shape conveys identity information to bottlenose dolphins. Proceedings of the National Academy of Sciences of the USA 103: 8293-8297
- Laland, K. L. and Janik, V. M. 2006. The animal cultures debate. Trends in Ecology and Evolution 21: 542-547
- Sayigh, L. S., Esch, H. C., Wells, R. S. and Janik, V. M. 2007. Facts about signature whistles of bottlenose dolphins (Tursiops truncatus). Animal Behaviour 74: 1631-1642
- Götz, T. and Janik, V. M. 2011. Repeated elicitation of the acoustic startle reflex leads to sensitisation in subsequent avoidance behaviour and induces fear conditioning. BMC Neuroscience 12: 30
- Quick, N.J. and Janik, V. M. 2012. Bottlenose dolphins exchange signature whistles when meeting at sea. Proceedings of the Royal Society of London B 279: 2539-2545.

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