12. Sound Production

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SNAK course on Acoustic Communication 2006
Tuesday, August 22nd at 9:00-10:00 in the Johnstad-Møller Lecture Hall:

In my lecture I will review different mechanisms of sound production used by animals. In addition, I will present different methods for studying sound production as exemplified by my studies of bird phonation over the past 10 years.

If you want to get some background before the course I recommend that you read Chapter 4 (pp. 75-109) in Bradbury & Vehrencamp (1998): *Principles of Animal Communication*, Sinauer Ass.: Sunderland

13. Applied bioacoustics: Pest control.

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If pest animals make sound, we may possibly detect them by acoustic detection devices, and if the animals can sense acoustic energy there is a potential to manipulate their behaviour by means of acoustic play-back.
Bioacoustics for pest control had a short blossoming period 30-40 years ago, where several acoustic based insect pest controlling systems were evaluated. However, at that time, applied bioacoustic methods lost in competition with very efficient chemical compounds in controlling animal pests. Later, the unfortunate long term toxic effects caused by pesticides on the ecosystem became well known. In recent years, major concerns about pesticides' hazardous impact on the human consumer led to a ban of many effective compounds in the EU. This triggered efforts to develop alternative and environmental friendly pest controlling systems. Concurrent advances in technology have prompted some promising acoustic methods to control animal pests and it seems that the field is experiencing a renaissance. These days, acoustic systems involving ultrasensitive detection methods for detecting beetles in stored products and termites in households are being commercialized.
In my lecture, I will give examples on acoustic methods which have been successful in pest management of insects, birds, mammals and even teenagers! The main focus will be on detection devices, and deterrent and repellent systems. I will also provide examples of cases where the applied acoustic methods failed. We will discuss the future of acoustics in pest control especially in relation to integrated pest management (IPM).