

SEEWIESEN

LECTURE SERIES

FALL/WINTER 2018/19

Max Planck Institute
for Ornithology



MAX-PLANCK-GESELLSCHAFT

THURSDAY | March 28th, 2019 | 13.00 | HOUSE 4 LECTURE ROOM

THIERRY AUBIN

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Coding strategies in vocal communications of song birds

Constraining environments constitute a strong selective pressure potentially driving strategies to optimize the reliability of communication processes. In this perspective, the "Signal Structure Hypothesis" predicts that the structure of animal signals will differ depending on features of the habitat. For example and for vocal communications, the so-called "Acoustic Adaptation Hypothesis" predicts that bird songs optimized for long-range propagation in a forest should be slowly modulated in frequency and as low in frequency as the sender can produce. Since the susceptibility to propagation-induced modifications of emitted signals depends on their acoustic characteristics, the emitter also could enhance or on the contrary reduce its active space of communication by coding the information in more or less propagation-resistant parameters. I will show that this adjustment of the coding strategies according to the habitat can be experimentally demonstrated for the vocalizations of songbirds living in different habitats. Due to the variable spacing of territorial individuals, some information may be coded to degrade over short distance and some might be coded such that it transmits over long distance without much degradation. Thus, species-specific identity is encoded in propagation resistant

WHO IS THIERRY AUBIN?

1981	PhD thesis at Besançon University, France.
1982-1984	Postdoc at Institut National de la Recherche Agronomique (INRA).
1984-2002	Junior Scientist at the Centre National de la Recherche Scientifique (CNRS).
1994	Ability to the Direction of Researches, Nancy 1 University, France.
1990 ongoing	Director of the "Acoustic communication" team, Neuro-PSI, Paris-Sud University.
2002 ongoing	Senior Scientist at the CNRS

SELECTED RELEVANT PUBLICATIONS

- Briefer E., Osiejuk T.S., Rybak F. & T. Aubin (2010). Are bird song complexity and song sharing shaped by habitat structure? An information theory and statistical approach. *Journal of Theoretical Biology* 262, 151-164
- Boistel, R., Aubin, T., Cloetens, P., Peyrin, F., Scotti, T., Herzog, P., Gerlach, J., Pollet, N., Aubry, J.-F. (2013) How sooglossid frogs hear without a middle ear. *P.N.A.S* 110(38): 15360-15364.
- Charrier I., Mathevon N. & T. Aubin (2013). Bearded seal males perceive geographic variation in their trills. *Behav. Ecol. and Sociobiol.* 67, 1679-1689.
- Courvoisier H., Camacho-Schlenker S. & T. Aubin (2014). When neighbours are not "dear enemies": a study in the winter wren troglodytes troglodytes. *Anim. Behav.* 90, 229-235.
- Geberzahn N. & T. Aubin (2014). Assessing vocal performance in complex birdsong: a novel approach. *B.M.C. Biology* 12 :58.

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