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Max Planck Institute  
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THURSDAY | December 17, 2020 | 13 P.M. | ONLINE

## François-Xavier Dechaume-Moncharmont

Université Claude-Bernard Lyon 1, Lyon, France | Host: Department Kempenaers

### The difficulty in life is the choice

In evolutionary ecology, the process of mate sampling is often considered as a secondary problem compared to the more important question of co-evolution between the traits expressed in one sex and the preferences in the other sex. Since there are direct benefits from choosing a partner, the processes of pair formation have been overlooked as a somewhat trivial question. Yet, the question of the choice between several partners of varying quality is not as simple and immediate as it may seem at first look. Difficulties arise at several levels. The study of mating strategies often begins with field observations at the group or population level, but it is not straightforward to identify the actual choice criterion. If non-random pairing is observed, many authors are tempted to conclude to the existence of an underlying sexual preference. Yet, one cannot directly link the pattern of assortative mating at the population level to a given process of individual choice. Indeed, simple models show that one can easily generate such a pattern without assuming any sexual preference for the individuals. On the contrary, a pattern apparently resulting from random choices can be generated from assumptions in which the individuals actually rely on explicit sexual preferences. More generally, the scramble competition (always arising when there is a limited number of sexual partners) is a sufficiently strong constraint to severely impair the evolution of any choosy decision rules. In most cases, the evolutionary stable strategy is to use very low acceptance threshold. We also provide experimental mechanisms in favour of the adaptive value of this apparent absence of choice. These results emphasize the urgent need for carefully considering the pairing process in sexual selection.

### Who is François-Xavier Dechaume-Moncharmont?

2003 – 2006 : Postdoctoral Fellow, School of Biology, University of Bristol, Bristol, UK  
2006 – 2019 : Assistant Professor, Department. of Biology, University of Burgundy, Dijon, France  
20019 – present : Professor, Department of Biology, Université Claude-Bernard Lyon 1, Lyon, France

### Selected publications:

- Chevalier L, Labonne J, Galipaud M, Dechaume-Moncharmont F-X (2020) Fluctuating dynamics of mate availability promote the evolution of flexible choosiness in both sexes. *American Naturalist* <http://dx.doi.org/10.1086/711417>
- Dechaume-Moncharmont F-X, Brom T, Cézilly F (2016) Opportunity costs resulting from scramble competition within the choosy sex severely impair mate choosiness. *Animal Behaviour* 114:249–260 <http://dx.doi.org/10.1016/j.anbehav.2016.02.019>
- Laubu C, Dechaume-Moncharmont F-X, Motreuil S, Schweitzer C (2016) Mismatched partners that achieve postpairing behavioral similarity improve their reproductive success. *Science Advances* 2:e1501013 <http://dx.doi.org/10.1126/sciadv.1501013>
- Laubu C, Louâpre P, Dechaume-Moncharmont F-X (2019) Pair-bonding influences affective state in a monogamous fish species. *Proceedings of the Royal Society B: Biological Sciences* 286:20190760 <http://dx.doi.org/10.1098/rspb.2019.0760>

### Link to talk:

<https://gwdg.zoom.us/j/89233220714?pwd=aEdEblhXTHl0WEU4YnFvTTFTaEZGdz09>  
Meeting-ID: 892 3322 0714  
For code please contact:

CO-ORDINATOR Nicole Fritz | [nicole.fritz@orn.mpg.de](mailto:nicole.fritz@orn.mpg.de) | 08157 - 932 240