



Seewiesen Colloquia

Speaker invited by: Hau Research Group

Thursday, March 16, 2017, 13h, in House 4, Lecture Room

Early life effects on later life performance: mechanisms and time scales

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Conditions experienced early in life can have profound effects on phenotypes and subsequent life histories, and these effects can operate over different time scales and across generations in some cases. During early life, the environment can induce phenotypic effects which, while they may have short term benefits, can also carry long term costs. In this talk I will particularly concentrate on how variation in the plane of nutrition and in the level of stress exposure in early life can have long term consequences for fitness related parameters. This is based on experiments that we have carried out mainly in birds and fish, involving both field and laboratory based studies. I will also discuss a number of mechanisms that can underpin these effects, including changes to the reactivity to external stressors and to telomere dynamics, and discuss to what extent these induced changes might be adaptive. I will also briefly discuss the implications for conservation biology of these long lasting environmental effects on phenotypes.

Who is Pat Monaghan?

- 2012 – Regius Professor of Zoology, Institute of Biodiversity, Animal Health and Comparative medicine, University of Glasgow.
- Previously Professor of Animal Ecology, University of Glasgow

Selected publications:

- Heidinger, B.J., Monaghan, P. et al. 2016 Parental age influences offspring telomere loss. *Functional Ecology* DOI: 10.1111/1365-2435.12630
- Noguera, J.C., Metcalfe, N.B., Reichert, S., Monaghan, P. 2016 Embryonic and postnatal telomere length decrease with ovulation order within clutches. *Scientific Reports*: 6 Article Number: 25915 DOI: 10.1038/srep25915
- Nettle, D., Monaghan, P., Gillespie, R., Brilot, B., Bedford, T. & Bateson, M. 2015 An experimental demonstration that early-life competitive disadvantage accelerates telomere loss. *Proc Roy Soc Lond B*, 282(1798), DOI: 10.1098/rspb.2014.1610
- Monaghan, P. 2014. Organismal stress, telomeres and life histories. *J. Exp. Biol.* 217, 57-66
- Herborn, K.A., Heidinger, B.J., Boner, W., Noguera, J.C., Adam, A., Daunt, F & Monaghan, P. 2014 Stress exposure in early post natal life reduces telomere length: an experimental demonstration in a long lived seabird. *Proc. R. Soc. B*, 281, DOI 10.1098/rspb.2013.3151
- Monaghan, P. 2008 Early growth conditions, phenotypic development and environmental change. *Phil. Trans. R. Soc. B* 363, 1635-1645.
- Heidinger, B.J., Blount, J.D., Boner, W., Griffiths, K., Metcalfe, N.B. & Monaghan, P. 2012 Telomere length in early life predicts lifespan. *Proc. Natl. Acad. Sciences USA* 109, 1743-1748