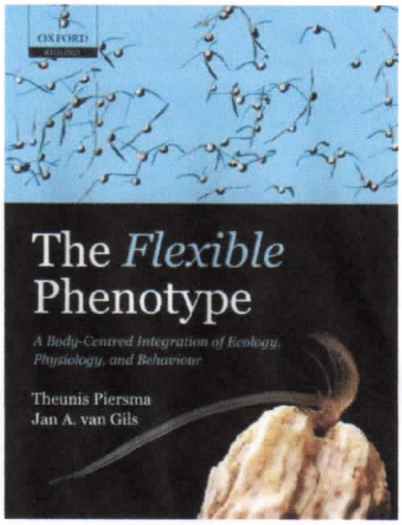
Book Review

The Flexible Phenotype: A Body-Centred Integration of Ecology, Physiology, and Behaviour. Piersma T, van Gils JA (2010)

By: Wouter Halfwerk (LU)

Variation among and within individuals is probably the most important fuel as well as tool of biological research. Our fascination for the diversity of form and function among species has always been an important force driving scientific progress and quantification of phenotypic variation is still the main method among biologists who try to understand the mechanism, development or evolution related to particular traits. Variation arises through genetic mutations, developmental plasticity or phenotypic flexibility. Surprisingly, the latter source of variation has received far less attention compared to the other two, and the main aim of the authors of 'The Flexible Phenotype' is to set this straight.

The central theme of the book '*bodies express ecology*' captures the notion that a large part of an animal's physiology, morphology and behaviour is under strong influence of the environment in which it lives. Animals have to find a balance between energy demands and energy intake continuously, which is heavily determined by ecological conditions, such as temperature, humidity, food availability and predation risk. Fortunately, most animals can rapidly change their phenotypes. Snakes, for instance, rapidly change their digestive physiology and morphology after they have captured a prey. However, the most diverse, cost-efficient, and rapid way to adjust to changing environments is through behavioural flexibility, such as moving to new patches when food becomes scarce, or taking off to cover when a deadly predator suddenly appears on the scene.



The book starts with some basic knowledge on organismal design aimed at energetic maintenance and other physiological demands and includes some boxes explaining metabolic ceilings and the principle of symmorphis. After some tough, but necessary reading for non-ecologists, the book becomes more and more interesting as it integrates animal physiology with body design and environmental selection pressures. The final parts should be of most interest to behavioural biologists, as it integrates behaviour with physiology and ecology and finally

evolution. In this part of the book it also becomes clear why knowledge of different biological levels is essential to understand phenotypic variation and its reciprocal relationships with the environment and evolutionary change.

The final take home message of the authors may however be a bit frightful to some of the lab-rats among us: that nothing makes sense except in the light of ecology and that work on animal physiology and behaviour can be considered a waste of time if not carried out under relevant environmental conditions.

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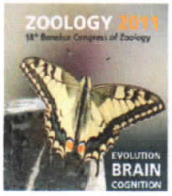

Sexual conflict and behavioural traits: steps towards a mechanistic integration

The NVG-sponsored symposium was prominently present in the programme of the 18th Benelux Congress of Zoology. After the meeting's opening plenary/Studium Generale on Wednesday evening, the Thursday morning was kicked off by our invited speakers, which were upgraded to plenaries. Both delivered excellent contributions entitled "Two sexes, one genome" (Ted Morrow, Uppsala University, Sweden) and "Sexual conflict over parental investment: behavioural mechanisms determine evolutionarily stable patterns of investment" (Kate Lessells, NIOO-KNAW, Wageningen, Netherlands). The afternoon session was filled with six talks (and a few posters) that covered both vertebrates (birds, mice, monkeys) and invertebrates (insects, molluscs). Our aim to stimulate integration of different disciplines and approaches was clearly reflected in the topics presented. These spanned the spectrum from parental care, ornamentation, mate choice, hormones, promiscuity, sperm competition, to genital morphology and more.

Bram Kuijper (Univ. Cambridge, UK; Univ Groningen, NL) & Joris M. Koene (VU Univ. Amsterdam, NL)

IN THE SPOTLIGHT

~ Special occasions, honorary lectures, prizes, grants and awards for outstanding behavioural biologists.

Marc Naguib started on the 1st of December 2011 as the new chair in Behavioural Ecology at Wageningen University, which is