HOLLYVOLE

UNIVERSITY OF SOUTH BOHEMIA
FACULTY OF SCIENCE
ČESKÉ BUDĚJOVICE

PRESENTS

STARRING

INDIVIDUALITY TAKES ALL !

...behavioural plasticity is related to personality type and influenced by social environment

common VOLES
vole@hole.ma

Klára ŠÍCHOVÁ
klara.sichova@email.cz

Gabriela URBÁNKOVÁ

Nella MLADENKOVÁ

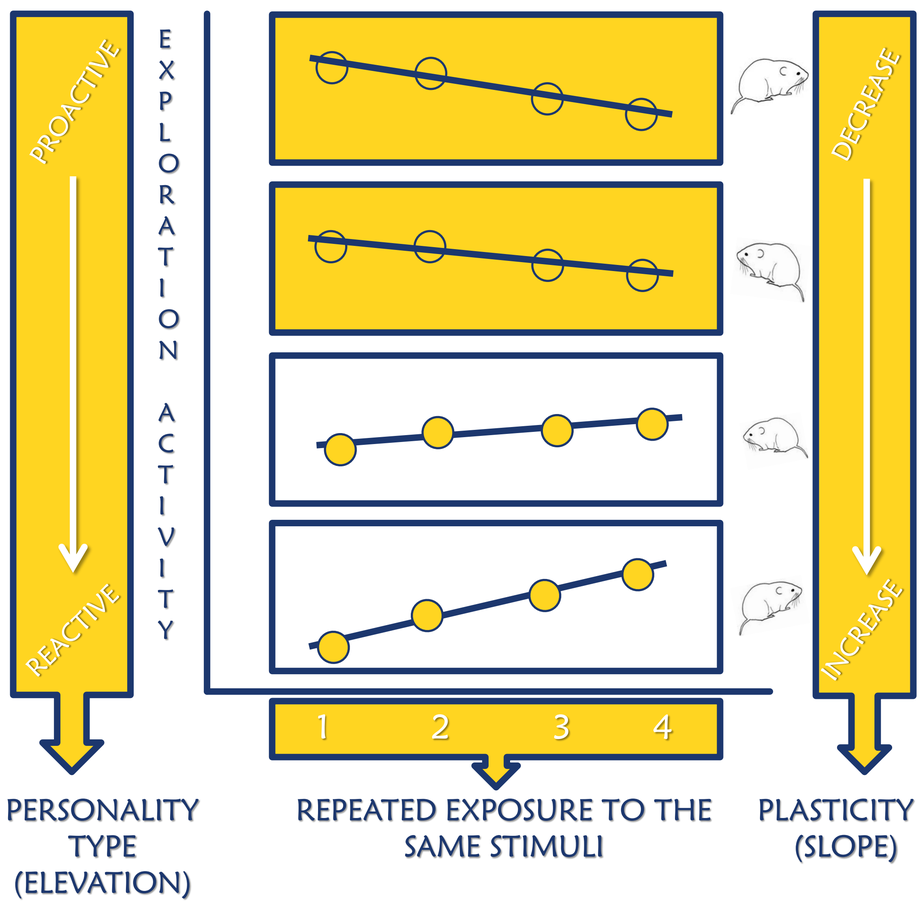
Jan RIEGERT

František SEDLÁČEK

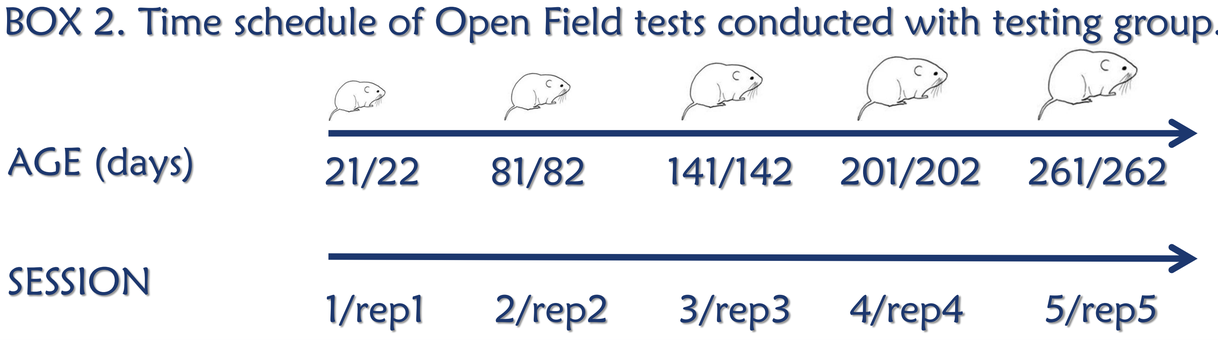
1. Intraspecific variation in behavioural phenotype, animal personality, represents an omnipresent and intensively studied phenomenon. It has been proved that these differences are partly heritable, tightly related to individual fitness, and show considerable rank order consistency over time or/and across variety of situations and contexts. However, latter rank order consistency does not necessary denote absolute stability of behavioural values at the individual level. Recently, it has been proposed that different personality types of animals may vary in their behavioural plasticity.

2. Using behavioural reaction norms approach (BRN, Dingemanse et al., 2009, see box 1), we assessed personality types and individual behavioural plasticity of 61 first-generation laboratory-reared common voles (*Microtus arvalis*). "Exploration activity" (length of travelled trajectory) of the same aged individuals, testing group, was quantified in five Open Field sessions and their repetitions - see box 2 for details. Control group of voles (42 individuals) was tested only in one session and its repetition (in age five months) to asses potential effect of repeated exposure to experimental situation.

BOX 1. Hypothetical example of behavioural reaction norms



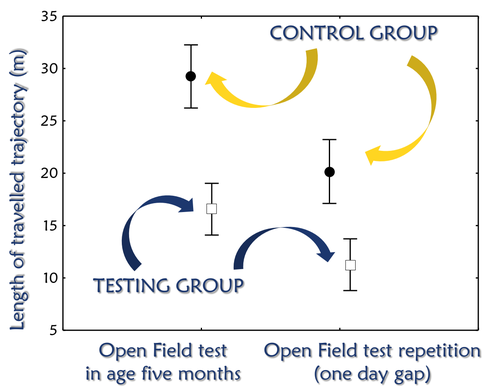
BOX 2. Time schedule of Open Field tests conducted with testing group.



3. Results

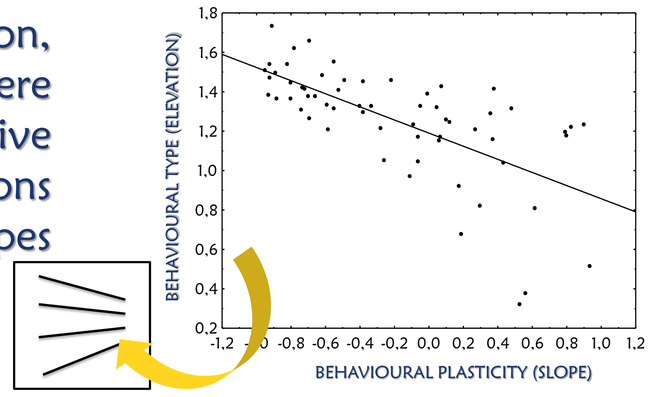
* Repeated exposure to the same stimuli considerably affected "exploration activity" of testing group.

(Nested ANOVA, $F(2, 199) = 30,579$, $p<.0001$



** Using random regression, components of BRN were extracted. Considerable negative relationship between elevations (behav. types) and slopes (behav. plasticity) was found.

Spearman's Rank Correlations, beta = 0,72787, $p < 0,05$



4. Our findings supported suggested prediction that, at least at the phenotypic level, animal personality is associated with variation in behavioural plasticity. Voles with high initial scores of "exploration activity" tended to decrease their value across repeated sessions and vice versa, both independently on the length of inter-session gap. Moreover, a substantial influence of repeated confrontation with the same experimental situation (caused decreased "exploration activity" of testing group) was found. This finding suggests that observed behavioural changes were caused by habituation to experimental situation rather than different ontogenetic stages of tested individuals.

Many thanks to Petra Lantová. This project was supported by GAJU 117/2012/P, GAJU 114/2010/P, and GAJU 159/2013/P.