

Accepted Manuscript

Title: Shy herbivores forage more efficiently than bold ones regardless of information-processing overload

Authors: Ming Kai Tan, Chia-chen Chang, Hugh T.W. Tan

PII: S0376-6357(17)30511-9
DOI: <https://doi.org/10.1016/j.beproc.2018.02.003>
Reference: BEPROC 3598

To appear in: *Behavioural Processes*

Received date: 31-10-2017
Revised date: 3-2-2018
Accepted date: 4-2-2018

Please cite this article as: Tan MK, Chang C-c, Tan HTW, Shy herbivores forage more efficiently than bold ones regardless of information-processing overload, *Behavioural Processes* (2018), <https://doi.org/10.1016/j.beproc.2018.02.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Title: Shy herbivores forage more efficiently than bold ones regardless of information-processing overload

Authors:

Ming Kai Tan ^{1*}

Chia-chen Chang ¹

Hugh T. W. Tan ¹

¹Department of Biological Sciences, National University of Singapore, 14 Science Drive 4, Singapore 117543, Republic of Singapore

*Corresponding author

Address: Department of Biological Sciences, National University of Singapore, 14 Science Drive 4, Singapore 117543, Republic of Singapore

Telephone number: +65 96463824

Email address: orthoptera.mingkai@gmail.com

Highlights:

- Katydids from the Tettigonioidae clade of Orthoptera exhibit different personality types
- There was no support for neural constraint hypothesis
- Bold katydids are actually less efficient foragers than shy ones

Abstract

The neural constraint hypothesis is central to understanding decision-making by foraging herbivorous insects which make decisions less efficiently when they face multiple choices for numerous resource types and/or at high densities instead of a few choices. Previous studies have also shown the relationship between personality type and decision-making style. How personality types correlate with foraging efficiency among herbivores is however largely untested. To answer this question, we used a widespread, polyphagous, floriphilic katydid, *Phaneroptera brevis* (Orthoptera: Tettigoniidae) and two naturalised, Asteraceae, food plants, *Biden pilosa* and *Sphagneticola trilobata*, as model systems. After we determined each katydid's exploration and boldness levels, we examined its foraging efficiency across different combinations of floral resource choice and density. We showed: (1) For the first time within the Tettigonioidae lineage that this katydid exhibits different personality types in exploration and boldness. (2) Contrary to our prediction, we did not find any support for the neural constraint hypothesis because more floral resource choice at a high density did not reduce foraging efficiency. (3) Surprisingly, bold katydids tend to be less efficient foragers than shy ones. Our findings have enhanced understanding of herbivore behavioural ecology and knowledge to better deal with potential pest herbivores.

Key words: florivory; neural constraint hypothesis; animal personality; behavioural ecology; katydids; Orthoptera

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات