Advances in Thrips Photography

Manfred R. Ulitzka, Thrips-*iD*, Straßburger Straße 37A, 77652 Offenburg, Germany


Haplothrips chinensis ♀


Haplothrips leucanthemi ♀


Haplothrips flavicinctus ♂


Haplothrips chinensis (second instar larva)

INTRODUCTION

Thrips are small-sized and very nimble insects. Capturing them in photographs has always been a special challenge. The present work represents a summary of my attempts to visualize thrips in high resolution images. For this purpose, micrography was combined with modern capturing techniques, such as focus stacking, and digital image post-processing.


Aeolothrips ericae ♀


Thrips minutissimus ♀

AIMS

The aims included depicting the tiny insects in natural microhabitats such as parts of flowers or leaves of their host plants, and moreover, visualising their specific character states to –ideally– enable an identification at species level on the photographs.


Tenothrips frici ♀


Taeniothrips inconsequens (second instar larva)


Phlaeothrips coriaceus ♀

METHODS I

Focal plane merging soon appeared as the only way to achieve appropriate resolutions. However, images created in this technique first of all require objects that do not move at all. Hence, the challenge with this kind of shootings is to immobilise the thrips for the time needed to complete a stacking series of about 40 to 70 shots in all focus layers. Best results were achieved by sedating the insects with carbon dioxide and then to place them aesthetically in an appropriate environment by using a stereo microscope. This preparation was done in a small glass dish that allows to move the “frozen scene” to the microscope used to take the pictures.


Sericothrips staphylinus ♀


Thrips parvispinus ♂

METHODS II

The photographs were taken with a Zeiss standard microscope (objectives: Neofluar 6,3/0,20 160/– and Plan 10/0,22 160/–). Illumination was done with two white-light-LED incident illuminators. The images were taken with a Canon EOS 70d camera and they were produced with Helicon Focus software; Nik Sharpener Pro and Adobe Photoshop were used for final colour adjustment and sharpening.


Hoplothrips semicaecus ♀ next to hatched eggs

CONCLUSIONS

This method allows to produce excellent images; however, it requires a lot of patience. Each picture series is a balancing act. If the carbon dioxide evaporates too quickly and the thrips just moves its antennae, the whole process needs to be repeated. If the gas concentration, however, is too high, the thrips dies and is lost for further shots. With the entrance of death, pressure conditions in the insects’ body change, causing tightening of legs and malpositioning of setae.

It should be noted that it is also possible to show thrips in actions, e.g. mating, but these situations need to be simulated.


Frankliniella occidentalis ♀

Further information: www.thrips-id.com