BOOK OF ABSTRACTS

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Swimming behaviour of females and males – case study *Keratella cochlearis*

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Abstract: Rotifer locomotion is principally connected to food acquisition. However, while females swim and feed, the males of many species do not feed and swim only to find a mate. These have been referred to as dwarf males. We filmed females and males of *Keratella cochlearis* to analyse their swimming behaviour with Bemovi, an open source software program that can analyse behaviour and morphology from videos. In our study we found that male *K. cochlearis* swam slower (ca. 1.7 mm sec^{-1}) than females (ca. 2.3 mm sec^{-1}). Visual inspection of data indicated that females showed a uniform swimming pattern, while males exhibited a varied swimming pattern ranging from circling within a restricted area, swimming in a straight line, and combinations of these two patterns. We classified the swimming pattern of males and females as a hidden Markow model (HMM) to unravel different swimming states. Initial results indicated that females did not vary between swimming states while males effectively showed a mixture between two movement states as indicated by HMM. Here we showed how filming and video analysis advances our understanding of rotifer ecology.

Keywords: Bemovi software, movement ecology, swimming pattern, swimming speed, rotifer