PST13 - New interactive electronic keys for the identification of pond biodiversity

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Most of the taxonomic identification of pond biodiversity is still made using books with well-conceived but traditional dichotomous keys following a sequence and organisation of questions chosen by the author of the key. Despite their broad use, these keys suffer from three major disadvantages: (i) no choice in the order of use of identification criteria; (ii) strongly restricted use of illustrations, especially photographs; (iii) difficulty for the user to detect possible identification errors. In this beginning of 21th century, computers, tablets and smartphones are everywhere and offer interactive and user-friendly medias. They have the potential to improve these pitfalls and open perspectives of new tools for substantially improving identification process.

We developed a new tool to build multi-access identification keys on any taxonomic group. This software makes it possible to attach any kind of documents to illustrate the keys (images, films, 3D models, sounds, etc.) and automatically ranks the identification criteria according to their discriminatory power to facilitate rapid and reliable identification. With this tool, we developed several multi-access computer keys for freshwater biodiversity (macroinvertebrates, fish, amphibians, plants, …) of Switzerland (and neighbouring regions). We also developed a smartphone application with an user-friendly multi-access key for adult dragonflies adapted to a general audience. Surveys and user-tests conducted on our specific tools revealed a strong interest of both practitioners and young people. Overall, these interactive new tools are powerful, easy to use even outside, flexible and efficient at guiding users to correct answers.