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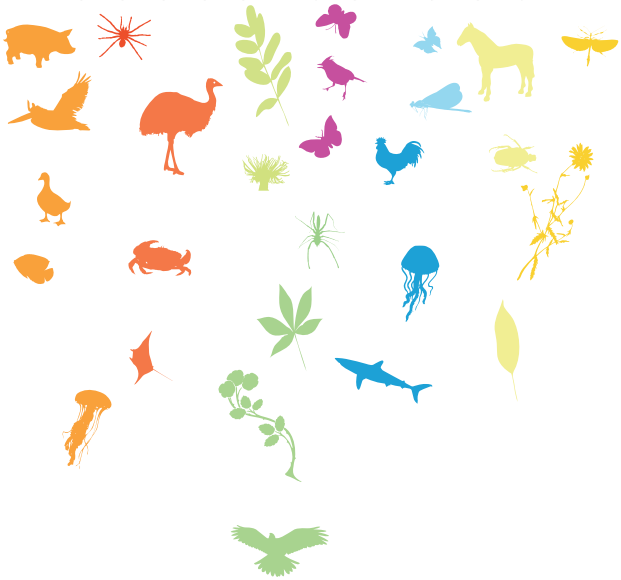

# Tools for Identifying Biodiversity:
## Progress and Problems

Pier Luigi Nimis and Régine Vignes Lebbe (eds.)

2010

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# Foreword

*The correct identification of organisms is fundamental not only for the assessment and the conservation of biodiversity, but also in agriculture, forestry, the food and pharmaceutical industries, forensic biology, and in the broad field of formal and informal education at all levels. However, since the first Meeting of the Systematics Association on «Biological identification with computers», in 1973, few scientific events have been dedicated to this subject. Furthermore, taxonomists, workers in biodiversity informatics, and the large community of users are rarely all gathered together.*

*Since the 1990s, the number of projects developing information repositories has greatly increased: Fishbase, GBIF, Species 2000, OBIS, EuroMed-PlantBase, Fauna Europaea, EoL etc. to cite only some of them. Until now, identification tools were poorly represented in such systems. This is already changing, and Fishbase is a good example illustrating the need to include identification facilities with biodiversity databases, and to adapt the keys to different types of users. International conferences on biodiversity research, tools and methods using ICT, are becoming more and more numerous. In the last decades, important advances have taken place in the ways identification is carried out, from molecular and biochemical methods of rapid identification to the development of interactive identification systems based on morpho-anatomical data. The effort to propose and to popularize identification tools using all types of biological characters (sequences, morphology, images, sounds etc.) must be continued.*

*The event «Tools for identifying biodiversity: progress and problems» offers an opportunity to provide an overview of recent advances in this field. It aims at stimulating integration of existing methods and systems, fostering communication amongst different research groups, and laying the foundations for integrated projects in the next decade. The congress was organised jointly by three large European projects dedicated to biodiversity and/or biological identification: KeyToNature, EDIT (European Distributed Institute of Taxonomy), and STERNA (Semantic Web-based Thematic European Reference Network Application).*

*The scientific program of the congress was subdivided into four sessions:*

- *Interactive identification tools based on morpho-anatomical data*
- *Molecular and biochemical methods for the identification of organisms*
- *Identification and education*
- *Industrial and practical applications of the new identification tools: case-studies and markets*

*In this book, the reader will find short presentations of current and upcoming projects (EDIT, KeyToNature, STERNA, Species 2000, Fishbase, BHL, ViBRANT, etc.), plus a large panel of short articles on software, taxonomic applications, use of e-keys in the educational field, and practical applications. Single-access keys are now available on most recent electronic devices; the collaborative and semantic web opens new ways to develop and to share applications; the automatic processing of molecular data and images is now based on validated systems; identification tools appear as an efficient support for environmental education and training; the monitoring of invasive and protected species and the study of climate change require intensive identifications of specimens, which opens new markets for identification research.*

*Pier Luigi Nimis, Régine Vignes Lebbe*

*Trieste – Paris, September 2010*

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