

Preface

"I am lost – I cannot fathom nature anymore . . ." exclaimed one of the authors to the other after having experienced parts of a forest completely devoid of fungal fruitbodies bordering other parts with thousands. The longer you are in the game, the more you realize how little you understand. We have now been engaged in mycology and fungal identification for more than 40 years and a synthesis of our combined experience would seem desirable. It would have been easier if mycological knowledge had stabilized and many of the problems had been settled. Instead, we experience a period with constant change and much confusion. Our ignorance still appears to be monumental....

We have both worked on the dissemination of mycology for our entire mycological careers: from teaching evening classes, through courses organized by, e.g., the Danish Mycological Society, to courses at university level in Denmark and abroad. At all levels we have felt that well-written and well-illustrated teaching material was lacking and we have, to our best ability, tried to provide such over the years. We have published basic fungal identification guides, advanced mycological textbooks, coffee table books, fungal keys and manuals. At the end of the nineties we realized that we had to go one step further.

Advanced fungal identification is often hampered by the difficulties of finding the right genus, so we initiated the MycoKey project: digital keys to fungal genera. Digital keys can be constructed as synoptic keys, whereby the user only enters characters that are absolutely certain. The computer analyzes these data and displays matching genera. When carefully constructed, such keys can be very accurate and highly useful. Unfortunately, however, a major part of the mycological community still preferred books, with their relative easy overview, to digital flexibility. So, again, we had to rethink.

An ambitious 5-volume publication dealing with all the Danish fruitbody-forming *Basidiomycota* was planned by Jan Vesterholt, Jacob Heilmann-Clausen, Thomas Læssøe and Jens H. Petersen in connection with the 'Atlas of Danish fungi' (2009–13). However, partly due to the premature death of Jan Vesterholt in 2011, this plan was abandoned. As a result, the large image library, collated in part for that publication, was archived. In 2014, Axel Kielland (Gyldendal Publishing) approached Jens hoping he would revise Jan Vesterholt's out of print book *Danmarks Svampe* (The Fungi of Denmark). This hefty book, which covers 1,000 species, stands as a very important and lasting contribution to Danish mycology and Jens felt it would be wrong to rewrite it. Instead, Jens came up with the idea of publishing a completely new work that had a larger geographical coverage. The concept was to base the layout and communication ideas on MycoKey. Some of the graphics had been tested at a small scale in other books by Jens and collaborators, but the idea was to present and key out more or less the whole fungal kingdom as a series of so-called 'fungal wheels'. Thomas agreed to join the project and the result is this two-volume publication with more than 80 fungal wheels, about 2,800 species accounts and almost 10,000 illustrations and photographs.

The fungal kingdom is, at present, being 'split' at an unprecedented rate, largely as a result of molecular studies. Indeed, even while this publication was on its way to the printer it is likely that new genera will have been introduced. Many species are being split based solely on molecular characters and can no longer be identified using standard keys. Nevertheless, we hope that the concept applied in this publication will help the enthusiast to better understand the complexities and not feel completely at a loss when faced with an unfamiliar fungus.

Thomas Læssøe and Jens H. Petersen

