

## BOOK REVIEW

**Revision of Malaysian species of *Boletales* s.l. (*Basidiomycota*) Described by E.J.H. Corner (1972, 1974).** By E Horak. 2011. Malaysian Forest Records No 51). Forest Research Institute Malaysia, 52109 Kepong. ISBN 978-967-5221-55-2. 283 pp. RM70/USD53.

### REVIEW 1

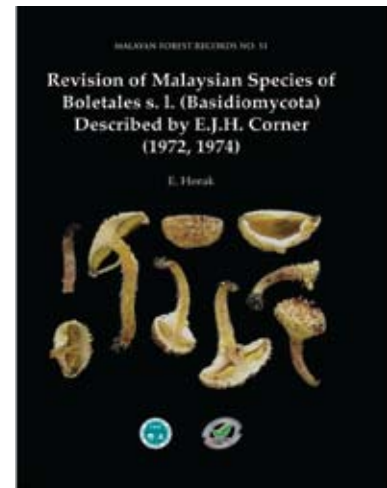
The 1972 publication of E.J.H. Corner's *BOLETUS IN MALAYSIA* (and a 1974 follow-up publication) represents a landmark in the taxonomy of boletoid fungi. The importance of this work is twofold. First, it provides the first (and still largely unsurpassed) extensive exposition of the prodigious biodiversity of boletes in tropical East Asia. Corner (1972) described nearly 100 new bolete species; furthermore, he noted that many species could not be described due to the sheer abundance of collections and environmental conditions that caused many to decompose before they could be examined, as well as to the abundance of suitable habitat, stating in regard to the latter: "When I consider the immense number of places unexplored mycologically in Malaysia, I think 300 species of boleti may be no exaggeration." Second, Corner's book called into question the tidiness of generic concepts that were constructed around the comparatively depauperate north temperate mycota. Corner maintained that the defining characteristics of many bolete genera (such as colour of the spore deposit) did not hold when tested by the tropical mycota, but rather exhibited a continuum between genera.

Despite the importance of this work, its impact on—and utility for—subsequent taxonomic studies in tropical Asia and Australasia has been somewhat diminished by taxonomic outdatedness and the restricted availability of type collections and other material examined by Corner. In accordance with his observations on intergradation of characters between genera, Corner (1972) recognized only four bolete genera—*Boletus*, *Gyroporus*, *Heimiella* (now *Heimioporus*), and *Strobilomyces*—while placing many taxa under subgenera (e.g., *Austroboletus*, *Leccinum*, *Tylopilus*) that are widely recognized at generic rank by other workers. Therefore, many taxa are in need of nomenclatural revision to

bring them up-to-date with current

taxonomic concepts. As a result of high humidity in both field and herbarium storage localities, primitive field conditions for drying specimens, and storage methods, many of Corner's collections were damaged by molds, degraded by storage in alcohol formalin (or hardened by evaporation of AF during storage), or rendered toxic by treatment with mercuric chloride; restricted access to collections and restricted accessibility of important microcharacters have been the result.

Given the importance of Corner's collections and the difficulties inherent in their study, the present revision by Egon Horak is a most welcome and important contribution to the taxonomic study of boletes. Dr. Horak presents revised descriptions of taxa combining information from Corner's original protologues and Latin diagnoses (the latter translated into English to facilitate study), data gained from additional studies of Corner's holotypes and other collections, and data from studies of holotype collections from other collectors (including Baker, Heim, Höhnel, Hooker, and Ridley, among others) for those species included but not described by Corner. Horak provides analyses of 160 (124 accepted, 22 doubtful, and 14 rejected, excluded, or invalid) species, including emended descriptions, line drawings of microscopic features (127 figures), lists of observations and conclusions from his studies, and nomenclatural changes necessary for bringing the nomenclature of Corner's taxa up-to-date with current concepts. Additional features include taxonomic keys to all of the treated taxa, a list of additional important taxonomic studies of boletes from the Far East, a synopsis of all of the treated taxa arranged by currently accepted genus, and species list indexed by specific epithet. Perhaps most importantly, Horak brings to this



study his own extensive personal experience working in Malaysia and the Asian tropics, and is therefore able to conceptualize Corner's taxa in a broad comparative context.

Any taxonomic revision requires some judgments as to the placement of species in more inclusive taxa. In the boletes, a longstanding taxonomic issue involves character weighting of species with pale short-elliptical or phaseoliform basidiospores; an example of this issue is *Rubinoboletus*, in which species have been placed that share this spore morphology but differ significantly in other characteristics (see Osmundson and Halling 2010). In the present revision, Horak places a number of species with pale phaseoliform basidiospores in *Gyroporus*, and in so doing emphasizes spore morphology over characteristics (e.g., presence/absence of clamp connections, orientation of hyphae in the stipe) emphasized by some previous authors. In the case of *Gyroporus balloui* (Peck) E. Horak (= *Tylopilus balloui* (Peck) Singer), this placement is contradicted by molecular evidence presented after the preparation of Dr. Horak's volume (Osmundson and Halling 2010), but other species remain to be evaluated in the light of DNA sequence data. In the meantime, a provisional placement based on spore morphology seems reasonable; this example emphasizes that some of our present taxonomic concepts contain inherent contradictions and may very well change in the light of additional data and analyses.

In *BOLETUS IN MALAYSIA*, Corner—considering existing taxonomic problems in the boletes—wrote, “I have no doubt that if the fungus flora of Malaysia can be explored before the destruction of the main forests or the elimination of the non-commercial trees, fresh discoveries will resolve these problems.” Biodiversity discovery, conservation, and the

solution to taxonomic problems share the need for carefully researched scholarly work on the description and revision of species and higher taxa. Horak states that “the present revision is only one further step in the direction to unravel the numerous bolete taxa described from SE-Asia and Australasia;” however, his “one further step” is a critical one: by providing a detailed re-examination of Corner's specimens and by bringing the taxonomy of Corner's taxa into a modern context, Horak has made two highly valuable contributions to the study of boletes. In this outstanding volume, Horak will not only earn the gratitude of boletologists, but has provided an important tool for assessing diversity, rarity, endemism and—unfortunately, but quite likely, given the extent and rate of forest conversion in Malaysia—extinction of the morphologically striking and ecologically important bolete fungi of the East Asian tropics.

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## REVIEW 2

Almost forty years have passed since E. J. H. Corner published his “*Boletus* in Malaysia”, one book which even nowadays remains an invaluable source for those studying the boletes in the tropics and the subtropics. After 1996 the mycologist Egon Horak undertook a revision of the Malayan bolete collections of the late Corner. Coping with old and often poorly preserved

materials is a difficult and laborious task. The reexamination of authentic materials is however vital to justify the application of a name, a matter being of even greater importance in this case of a book that is still the primary guide to the boletes of this part of the world.

Horak's study covers a total of 160 bolete taxa, grouped in three different categories, namely

“Accepted species” (124 taxa), “Doubtful species” (22) and “Rejected, excluded or invalid species” (14). All taxa considered are keyed out in sets of dichotomous keys placed in the beginning of the each of the above three sections. In addition a key is provided to the boletoid species described by Patouillard & Baker from Singapore. As noted by the author himself, this is not really convenient, but a necessary subdivision considering the very heterogeneous results obtained by the revision. The information set for each taxon includes its current name and nomenclator with its basionym and synonyms, supplemented by essential literature. Further on the information about the type material studied is listed followed by translation of the original description and by data on the ecology of the taxon. At the end the results of the revision of the studied material are summarized, presenting microscopic characters and author’s remarks. It would have been probably useful if the measurements of the microscopic structures were supplied with information on the number of structures measured. The descriptive information is supplemented with quality illustrations of essential microscopic characters in the majority of the species.

The revision inevitably led the author to the reconsideration of many taxa. Corner recognized only four bolete genera, and the majority of the taxa were accommodated by him in *Boletus* s. l. This prompted E. Horak to propose a number of new combinations and new names. Probably here is the place to say that an index of the new names and combinations somewhere at

the end of the book would have been greatly appreciated, it would have been very convenient for indexing purposes; adding a fly-out is now a possible option. Along with the transfers, six new names (*nomina nova*) are also introduced by this revision, although it seems that the name *Boletus* (*Xerocomus*) *microspermus* Corner & E. Horak [sic!] may fall under art. 33.1 of the ICBN. There are some minor discrepancies, for example the new name *Rubinoboletus globisporus* Horak is listed in the index as “*Rubinoboletus globisporus* (Corner) Horak”.

I would like to congratulate both the author and the publisher for presenting this valuable book to the scientific community. It is concise and necessary supplement to Corner’s work and it will certainly serve boletologists in their effort to describe the bolete diversity. It is nowadays clear that the bolete mycota of this part of the world may give answers to the many questions in the bolete evolution and systematics. There might be little doubt that Horak’s work will stimulate further study of the boletes in Southeast Asia and the adjacent regions.

B Assyov

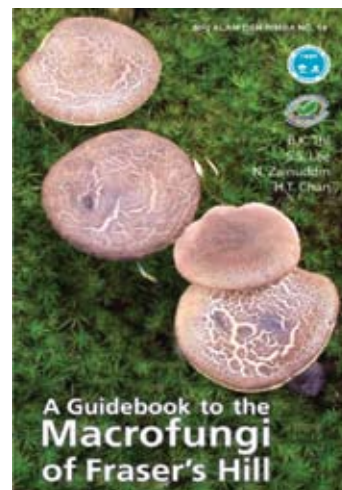
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### A Guidebook to the Macrofungi of Fraser’s Hill.

By BK Thi, SS Lee, N Zanuddin & HT Chan. 2011. Siri Alam dan Rimba No. 14. Forest Research Institute Malaysia, 52109 Kepong. ISBN 978-967-5221-63-7. 93 pp. RM30/USD23.

This little guide starts with an introduction to Fraser’s Hill, situated in the state of Pahang, Malaysia, around 100 km from the capital, Kuala Lumpur. Fraser’s Hill is not only a draw for tourists, it is also well known among mycologists (see e.g. Tan et al. 2009). The mountainous terrain is accessible along some well-maintained



trails and a road. The world of the fungi is also introduced to the readers, after which the main part follows with photos and short descriptions and notes on the most colourful and attractive mushroom-forming fungi of all taxonomic groups. It is a pleasure to see that the showy purple floccose *Lepiota*-like species, recently placed in the new genus *Coniolepiota* (Vellinga et al. 2011), is also present in this part of Malaysia, and that another *Lepiota*-like taxon in the *L. furfuraceipes* group (described from China) extends into Malaysia as well. A nice collection of boletes is illustrated. We hope that this book will be widely available at the park, opening the eyes of the visitors to the exciting world of fungi. And

that it will serve as an example for other forests in Malaysia and beyond.

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