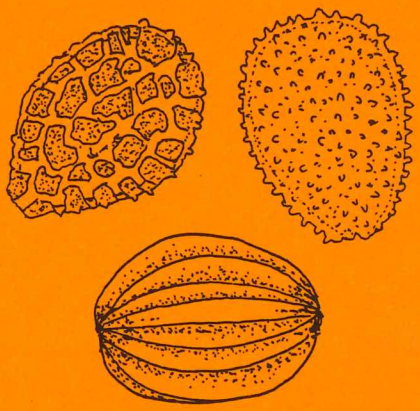
A Nomenclatural Study of the Ganodermataceae Donk

by

Jean-Marc Moncalvo & Leif Ryvarden



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In memory of P. Karsten, N. Patouillard, C.G. Lloyd, G. Bresadola, A.W. Murrill, and R.L Steyaert for their efforts and achievements with the ganodermatoid fungi

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Contents:

" [these fungi] have been 'described' and 'named' over and over again, until the 'literature' has become an almost unfathomable maze of meaningless and conflicting names. "

C.G. Lloyd, 1905.

1. INTRODUCTION

A few hundred species have been described in *Ganoderma* P. Karsten and allied genera (Ganodermataceae Donk). The laccate taxa in particular have received considerable attention from collectors. Among the many described species, however, several are represented by a single or only a few collections all from the same locality. Type or authentic specimens have sometimes been lost or lack modern descriptions. Synonymy has been controversial, and in many cases names and nomenclatural combinations have been misapplied. Most species are therefore poorly circumscribed and their geographic range remain unknown. The limits of *Ganoderma* with the other described genera in the Ganodermataceae are also not clear, nor are divisons of *Ganoderma* into subgenera and sections. *Ganoderma* is in taxonomic chaos (Ryvarden, 1991) and has been said to be the most difficult genus among the polypores (Ryvarden, 1985); it represents a taxonomic challenge in mycology (Corner, 1983).

In the recent years, there has been a renewed interest in the medical use of *Ganoderma* based on very old Chinese traditions, and a demand to elucidate the structure of possible active principles and what names to apply for the many species and strains that are grown for pharmacological or medical use. There has also been a renewed interest in the biology of wood decay by *Ganoderma* and other white-rot fungi for biotechnological application. Also, with the development of cladistic methods for reconstructing natural classification and molecular biology to produce new taxonomic characters, there has been the emergence of phylogenetic systematics as a paradigm in biology, which should be broadly applied to *Ganoderma* systematics as well. These different aspects of the biology of *Ganoderma* have been discussed in the 5th International Mycological Symposium in Vancouver in 1994 (see Buchanan et al., 1995).

One of us (JMM) has been recently involved in systematic studies of *Ganoderma* with Dr. R.S. Hseu in Taiwan, whereas the other author (LR) has been a dedicated scholar to polypore taxonomy for many years. During a visit of JMM to LR in Oslo, we both felt the need to have in hand a comprehensive list of taxa described in the Ganodermataceae and their reported distribution, and agreed to join forces in an attempt to make a nomenclatural study of all names published or used in the accepted genera of Ganodermataceae. We have therefore conducted an extensive literature search, and studied most of the original manuscripts to check accuracy of citations. We have also strictly adhered to the rules of the International Code of Botanical Nomenclature (ICBN).

Going back to William Curtis (1781), this study summarizes over 200 years of taxonomic work on *Ganoderma* and allied genera. Our intention was to record nomenclatural and taxonomic data as they have appeared in the past literature, and to locate types or authentic specimens for further studies. We have refrained from making statements about the accuracy of the proposed synonymies and taxonomic arrangements, and we have not proposed new nomenclatural combinations or synonymies. This study should serve as a nomenclatural and taxonomic basis for further systematics works in the Ganodermataceae.

2. HISTORICAL BACKGROUND

Ganoderma was created by P. Karsten in 1881 with *Polyporus lucidus* W. Curtis: Fr. as the only species which, by definition, became the type species of the genus. On the basis of the unique feature of the double walled basidiospore of *Ganoderma lucidum* (W. Curt.: Fr.) P. Karst., Patouillard (from 1887 to 1924) transferred several taxa in *Ganoderma,* and described new species in the genus. Patouillard (1889) also made the first attempt of a monograph of *Ganoderma*, in which he recognized 48 species and two sections: sect. *Ganoderma* and *Amauroderma*. The latter section was created for species with spherical or subspherical spores with the wall uniformly thickened (Patouillard, 1889). In the same year, Karsten (1889) created the genus *Elfvingia* based on *Boletus applanatus* Persoon for non-laccate *Ganoderma* species.

Bresadola, Lloyd and Murrill were three prolific and authoritative mycologists at the turn of the last century. Each described many species and re-classified several taxa with "ganodermous" spores described by earlier authors, but each held different taxonomic concepts about how to arrange these taxa. Bresadola (1890-1925) recognized the genus *Ganoderma* with two sections as proposed by Patouillard in 1889 (*Ganoderma* and *Amauroderma*), but not the genus *Elfvingia*. Lloyd (1898-1925) never recognized *Ganoderma, Amauroderma* and *Elfvingia* at generic level, and classified species with "ganodermatoid" spores in *Polyporus* section *Ganodermus* or section *Amaurodermus*, or in *Fomes*. Murrill (1902-1920)

recognized the genera *Ganoderma* and *Elfvingia*, emended *Amauroderma* at generic level (Murrill, 1905a), and created *Tomophagus* to accomodate *Polyporus colossus* Fr. (Murrill, 1905b). Saccardo and his collaborators (1882-1928) recognized *Ganoderma,* but not *Elvingia* and *Amauroderma*; however, they had a mixed and somewhat incoherent attitude in circumscribing *Ganoderma* as they transferred several taxa in that genus but also transferred many *Ganoderma* species in *Fomes*. Torrend (1920) monographed both *Ganoderma* and *Amauroderma* in South America and greatly contributed to our knowledge of *Amauroderma* in the neotropics. Donk (1933) proposed the subfamily Ganodermatoideae in the Polyporaceae to unite taxa with the distinctive double-walled basidiospore, then raised the group to family level (Donk, 1948). Imazeki (1939, 1952) summed up the knowledge of *Ganoderma* species in Eastern Asia. Imazeki (1939) proposed *Elvingia* P. Karst. as a subgenus of *Ganoderma,* but later (Imazeki, 1952) accepted *Elfvingia* as a genus and created the genus *Trachyderma* for *Polyporus tsunodae* Yas. ex Lloyd. Modern authors generally considered *Elfvingia* (Karst.) Imaz. a subgenus of *Ganoderma*, with the exception of Cunningham (1965) who accepted *Elfvingia* at the generic level.

Detailed studies with emphasis on micromorphology began with Hansen (1958), Sarkar (1959), Teixeira (1962), Furtado (1965), Pegler and Young (1973) and numerous papers by Steyaert (1961-1980). Based on basidospore morphology, Steyaert (1972) created genera *Haddowia* and *Humphreya*. Later, based on the cutis type, Steyaert (1980) segregated genus *Ganoderma* into several subgenera and sections (see below under "proposed classifications"). While Steyaert extensively studied and described taxa from Africa and tropical Asia, Furtado focused on neotropical species and concluded with a monograph of *Amauroderma* (Furtado, 1981). Corner (1983:103-104) criticized the classification proposed by Steyaert (1980) stating that "several lines of degeneration of the hymenoderm cut across his classification". Corner (1983) gave a large survey of his accumulated knowledge of *Ganoderma* and *Amauroderma* with emphasis on species of tropical Asia and America, and added many new species and observations on both anatomy and ontogeny. Finally, Zhao (1989) summed up the present knowledge of the genus in China: he listed and described 84 species, of which about half of them are known only from China and were described by Zhao himself or with his collaborators.

Modern works were undertaken by Adaskaveg and Gilbertson (1986, 1988, 1989) with the use of cultural and mating studies in addition to morphology. These studies provided new tools for systematics at the species level. These authors were followed by Hseu (1990), Peng (1990), Yeh (1990), Wang and Hua (1991), Buchanan and Wilkie (1995), and others. Also useful for systematics at species level were isozyme studies by Hseu (1990) and Gottlieb et al. (1995). More recently, Moncalvo et al. (1995a,b,c, 1996) have used ribosomal DNA sequences and cladistic methods to infer natural relationships in the Ganodermataceae. These recent studies had little impact in *Ganoderma* systematics because too few taxa were

examined and compared, and the correct name for many taxa used in these works often remained unclear. However, these studies suggested that modern systematic methods might eventually shed light into speciation patterns and evolution in the Ganodermataceae, and eventually may be helpful to better circumscribe species and evaluate their geographic range.

3. PHYLOGENY

There has been much speculation on the phylogeny of Ganodermataceae. Earlier speculations were based on comparisons of morphological characters, and conclusions were drawn intuitively upon supposed character analogy or homology with other genera. For instance, Corner (1983) believed that the family represents an old lineage from which other polypores have derived, and stated "That this may be an advanced family of polypores is to me very doubtful" (Corner 1983:40). In contrast, Ryvarden (1991) advanced the argument that the family is rather young based on homogeneity in many microscopic characters with complex structure, and presence of many stipitate representatives. The lack of fossils limits our ability to provide a minimum age for the genus; fossils of corky polypores from the Miocene, however, have been tentatively identified as *G. adspersum* (Fraaye and Fraaye, 1995).

Recent studies based on parsimony analysis of ribosomal DNA sequences (Hibbett and Donoghue, 1995) showed that *Ganoderma lucidum* classified in a group of trimitic and dimitic species of *Trametes*, *Polyporus*, etc... These species have been assumed to be advanced (Ryvarden, 1991) due to their complex micro structure, thin-walled cylindrical spores, and white-rot, among other characters. This group also appeared to be a derived group among the Basidiomycetes (Hibbett and Donoghue, 1995; Hibbett, pers. comm.). Also, the low level of nucleotide sequence divergence in the ribosomal DNA among *Ganoderma* species suggested that the genus has diverged recently (Moncalvo et al., 1995a).

4. PROPOSED CLASSIFICATIONS

In this section we list the different taxonomic ranks proposed for groups of species in the Ganodermataceae. Personally, we do not follow Jülich (1981): we consider Haddowiaceae a synonym of Ganodermataceae, and classify the Ganodermataceae in the order Aphyllophorales.

4.1 Order:

Ganodermatales Jülich ; Biblioth. Mycol. 85:224, 1981.
Type: Ganodermataceae Donk.

Status: valid and legitimate.

4.2 Families:
Ganodermataceae Donk ; Bull. Bot. Gard. Buitenz. 3:474, 1948.
Type: *Ganoderma* Karst.
Status: valid and legitimate.

Haddowiaceae Jülich ; Biblioth. Mycol. 85:226, 1981.
Type: *Haddowia* Steyaert
Status: valid and legitimate. Created for genus *Haddowia*.

4.3 Subfamily:
Ganodermatoideae Donk ; Mederl. Mycol. Ver. Meded. 22, 1933.
Type: *Ganoderma* Karst.
Status: valid and legitimate. In Donk's 1933 system, the subfamily classified in the Polyporaceae. Modern authors generally follow Donk (1948) and accept the family Ganodermataceae in the Aphyllophorales.

4.4 Genera:
Ganoderma Karst. ; Rev. Mycol. 3:17, 1881.
Type species: *Polyporus lucidus* W.Curt.: Fr.
Status: valid and legitimate (Ryvarden 1991:150).

Elfvingia Karst. ; Bidr. Kann. Finl. Nat. Folk. 48:333, 1889.
Type species: *Boletus applanatus* Pers.
Status: valid and legitimate (Ryvarden, 1991:142). Modern authors generally follow Imazeki (1939) and accept subgenus *Elfvingia* (Karst.) Imaz.

Tomophagus Murr. ; Torreya 5:197, 1905. *Tomophagus* was proposed to replace *Dendrophagus* Murr. which was preoccupied with *Dendrophagus* Toumey 1900 (Loranthaceae, Myxomycetes).
Type species: *Polyporus colossus* Fr.
Status: valid and legitimate (Ryvarden, 1991:229). *G. colossum* is the only species described in the genus, which is considered a synonym of *Ganoderma* by modern authors.

Amauroderma Murr. ; Bull. Torrey Bot. Club 32:366, 1905.
Type species: *Fomes regulicolor* Berk. ex Cooke.
Status: valid and legitimate (Ryvarden 1991:106). The genus is based on sect. *Amauroderma* Pat. (1889) and has been largely accepted by modern authors.

Amauroderma (Pat.) Murr. (1905). This combination is sometimes found in the literature, but is incorrect. As stated by Ryvarden (1991:106), Murrill (1905) selected a type species that was not originally included in sect. *Amauroderma* Pat. Thus, Murrill described a genus with a different taxonomic circumscription than Patouillard's section.

Amauroderma (Pat.) Torr.; Brotéria Bot. 18:121, 1920.
Type species: *Polyporus auriscalpium* Pers.
Status: illegitimate as a homonym of *Amauroderma* Murr. (Ryvarden 1991:106). Torrend was apparently not aware that Murrill already had used Patouillard's sectional name to raise *Amauroderma* to the generic level.

Trachyderma (Imaz.) Imaz. ; Bull. Govt. Forest. Exp. Sta. Tokyo 57:97, 1952.
Type species: *Polyporus tsunodae* Yas. ex Lloyd.
Status: illegitimate as a homonym of *Trachyderma* Norm. 1853 (Lichens, Pannariaceae) (Ryvarden 1991:230). In addition, the basionym was not cited but the name was proposed before 1956 therefore this would not invalidate the name (see ICBN). Two species have been described in the taxon: *G. tsunodae* and *G. subresinosus*.

Haddowia Stey. ; Persoonia 7:108, 1972.
Type species: *A. longipes* (Lév.) Torr.
Status: valid and legitimate (Ryvarden 1991:157). Three species have been described in the genus: *Ha. longipes*, *Ha. aetii*, and *Ha. neurospora*. Furtado (1981) considered the name a synonym of *Ganoderma*. Corner (1983:33) stated that generic distinction seems doubtful and noted that *"Haddowia* is *Humphreya* tending strongly to *Amauroderma*".

Humphreya Stey. ; Persoonia 7:98-99, 1972.
Type species: *G. lloydii* Pat. & Har.
Status: valid and legitimate (Ryvarden 1991:162). Four species have been described in the genus: *Hu. lloydii*, *Hu. coffeatum*, *Hu. endertii* and *Hu. eminii*. Furtado (1981) considered the name a synonym of *Ganoderma*. Corner (1983:32) stated that there is no absolute means of distinguishing species of *Humphreya* from either *Amauroderma* or *Ganoderma* which they united.

Magoderna Steyaert ; Persoonia 7:111-112, 1972.
Type species: *Fomes subresinosus* Murr.
Status: valid and legitimate (Ryvarden, 1991:180). Three species have been described in the genus: *M. subresinosus*, *M. infundibuliforme* and *M. vansteenesii*. Ryvarden (1991:180) noted that it may be a synonym of *Amauroderma*, as stated by Corner (1983:34), a conclusion with which we agree.

4.5 Subgenera:

Elfvingia (Karst.) Imaz. ; Bull. Sci. Mus. Tokyo 1:51-52, 1939.
Type species: as for *Elfvingia* Karst.
Status: valid and legitimate. Created to reduce genus *Elfvingia* Karst. to a subgenus of *Ganoderma*.

Trachyderma Imaz.; Bull. Nat. Sci. Mus. Tokyo 1:49, 1939.
Type species: *Polyporus tsunodae* Yas.: Lloyd.
Status: illegitimate (see 4.4 above, under "*Trachyderma*").

Anamixoderma Stey. ; Bull. Jard. Bot. Nat. Belg. 50:139, 1980.
Type species: *G. adspersum* (Schulz.) Donk.
Status: valid and legitimate. Created for non-laccate species with the cutis of the anamixoderm type, which otherwise would be classified in subgenus *Elfvingia* (Karst.) Imaz.

Plecoderma Stey. ; Bull. Jard. Bot. Nat. Belg. 50:139, 1980.
Type species: *G. philippii* (Bres. & Henn.) Bres.
Status: valid and legitimate. Created for non-laccate species with the cutis of the plecoderm type, which otherwise would be classified in subgenus *Elfvingia* (Karst.) Imaz.

4.6 Sections:

Amauroderma Pat. ; Bull. Soc. Mycol. France 5:77, 1889.
Type species not designated by Patouillard. We propose *Polyporus rudis* Berk. because it is the first species listed by Patouillard (loc.cit.) in section *Amauroderma* that has an unambiguous typification or was not proposed later in *Haddowia*. Modern authors have accepted this group of species at generic rank as proposed by Murrill (1905).

Phaeonema Zhao, Xu & Zhang ; Acta Microbiol. Sin. 19:266, 1979.
Type species: *G. sinense* Zhao, Xu & Zhang.
Status: valid and legitimate. Created for laccate species (*Ganoderma* subgenus *Ganoderma*) with the context uniformly brown. This group may not be natural (Moncalvo et al., 1995a).

Characoderma Stey. ; Bull. Jard. Bot. Nat. Belg. 50:138, 1980.
Type species: *G. cupreolaccatum* (Kalchbr.) Igmandy.
Status: valid and legitimate. Created for laccate species (*Ganoderma* subgenus *Ganoderma*) with the cutis of the characoderm type. This group may not be natural (Moncalvo et al., 1995a).

5. CONSTRUCTION OF THE LIST OF SPECIES NAMES

5.1 Retrieving and listing published names

To retrieve names published in the accepted genera of Ganodermataceae, we have conducted a literature search in the Index of Fungi (1941-1995) and Petrak's List of Fungi ([1920] 1935-1940). As we are going into press, electronic searches of both lists became available on the Internet at the address http://nt.arsgrin.gov/indxfun/frmIndF.htm. Also being now installed for electronic searches on the Internet is an Aphyllophorales database developed by Stalpers and Stegehuis at CBS, at the address http://www.cbs.knaw.nl/www/aphyllo/database.html. For names older than 1920, which are not listed in Index of Fungi and the Petrak's List of Fungi, we have consulted the major taxonomic works in Ganodermataceae (see chapter "taxonomic background") and, when necessary, the literature cited in these works, as well as classic texts (Fries, 1821, 1828; Patouillard, 1876-1924; Bresadola, 1881-1926; Saccardo and his collaborators, 1882-1928; Lloyd, 1898-1925) and checklists (Stevenson and Cash, 1936; Donk, 1974; Reid, 1974; Pfister, 1977, 1980; Hein, 1988; Reed and Barr, 1993).

The specific epithets have been listed in alphabetical order. Forms and varieties have generally been omitted.

5.2 Place of publication

The original place of publication has been cited with recommended abbreviations.

5.3 Types

We have adhered to the definitions used in ICBN article 9. Thus, we have used the word "holotype" exclusively when this word was used by the author himself. For authors before 1956 the word was non-existent and the designation "lectotype" has been used. Syntype has been used when more than one specimen were cited in the original description. Today it is only necessary to use the word "type" in connection with description of a new species. The previous obligate requirement to use the word "holotype" was deleted in the Botanical Congress in Tokyo in 1993.

5.4 Type locality

In citation of the type locality, modern geographical names have been mentioned as far as possible. To update geographical names, we have used the Webster's New Geographical Dictionary (Merriam-Webster, 1972). However, some localities are so vaguely cited in the original description, such that no country could be specified. In such cases, the locality is cited as it appeared in the original description or the sheet attached to the type specimen.

5.5 Herbaria

The herbarium in which the type is deposited is cited with the recommended

abbreviations from Index Herbariorum (Holmgren et al., 1990; Holmgren and Holmgren, 1994), as follows:

AD : Botanic Garden, Adelaide, Australia.
ANUB : Biology Department, Anhui Normal University, Wuhu, Anhui, China.
B : Botanischer Garten und Botanishes Museum, Berlin, Germany.
BANT : Oil Palm Research Station, Banting, Selangor, Malaysia .
BO : Herbarium Bogoriense, Bogor, Java, Indonesia.
BP : Hungarian Natural History Museum, Budapest.
BPI : U.S. National Fungus Collection, Beltsville, Maryland, U.S.A.
BR : Jardin Botanique National de Belgique, Meise, Belgium.
CGE : Botany School, University of Cambridge, Cambridge, England, U.K.
CUP : Plant Pathology Herbarium, Cornell University, Ithaca, New York, U.S.A.
DD : Forest Research Institute, Dehra Dun, Uttar Pradesh, India.
E : Royal Botanic Garden, Edinburgh, Scotland, U.K.
FH : Farlow Herbarium of Cryptogamic Botany, Harvard University, Cambridge, Massachusetts, U.S.A.
H : Botanical Museum, University of Helsinki, Unioninkatu, Helsinki, Finland.
HMAS : Mycological Herbarium, Institute of Microbiology, Academia Sinica, Beijing, China.
IPA : Laboratório de Botânica, Empresa Pernambucana de Pesquisa Agropecuária, Recife, Pernambuco, Brazil.
K : Royal Botanic Gardens, Kew, Richmond, Surrey, England, U.K.
L : Rijksherbarium, Leiden, Netherlands.
LAH : University of the Punjab, Lahore, Punjab, Pakistan.
LISU : Instituto Botânico, Faculdade de Ciências, Lisboa, Portugal.
LPS : Instituto de Botánica Carlos Spegazzini, Museo de La Plata, Universidad Nacional de La Plata, La Plata, Buenos Aires, Argentina.
MHSU : Mycological Herbarium of Shanxi University, China.
NY : New York Botanical Garden, Bronx, New York, U.S.A.
P : Laboratoire de Phanérogamie, Musée National d'Histoire Naturelle, Paris, France.
PC : Laboratoire de Cryptogamie, Musée National d'Histoire Naturelle, Paris, France.
PRE : National Herbarium, Botanical Research Institute, Pretoria, South Africa.
PRM : Mycological Department, National Museum, Praha, Cschechia.
S : Botany Department, Swedish Museum of Natural History, Stockholm, Sweden.
SP : Instituto de Botânica, São Paulo, Brazil.
STE : National Botanical Institute, Stellenbosch, South Africa.
TAI : Department of Botany, National Taiwan University, Taipei, Taiwan.

TNS : Botany Department, National Science Museum, Tokyo, Japan.
UC : University Herbarium, University of California, Berkeley, California, U.S.A.
UPS : Botanical Museum, Uppsala University, Uppsala, Sweden.
URM : Departamento de Micologia, Universidade Federal de Pernambuco, Recife, Pernambuco, Brazil.
W : Department of Botany, Naturhistorisches Museum, Wien, Austria.
YBI : Département de Botanique, Institut National pour l'Etude et la Recherche Agronomique, Yangambi, Zaire.

Corner's herbarium: A recent announcement in Mycotaxon (Mycotaxon 60:497, 1996) indicated that E.J.H. Corner's mycological material has been transferred to the Royal Botanic Garden in Edinburgh (E) except for the types already in the holdings of the Cambridge University Herbarium (CGE). We do not know which of Corner's types of Ganodermataceae are in E or in CGE; therefore, we have listed both possible locations in the text.

5.6 Combinations and synonymies

We have listed combinations of basionyms in genera of Ganodermataceae as they were found in the literature, but have omitted combinations in genera not classified in the Ganodermataceae when the taxon is being currently accepted in this family; e.g., we have omitted the numerous combination in *Fomes* by Gillet (1878), Saccardo and others (1882-1928, 1972), Lloyd (1898-1925), etc. Such combinations and others can now be found in Internet at the address http://www.cbs.knaw.nl/www/aphyllo/database.html (Stalpers and Stegehuis).

We have listed under each name synonymies proposed in the literature, with mention of the author(s) who proposed the synonymies. We have used the word "teste" followed by the authors' names when the authors have examined the types, and the word "in" followed by the authors' names when the authors did not examine the types but refer to descriptions in the literature. With few exceptions, we have refrained from making any statement about the accuracy of the proposed synonymies.

5.7 Nomenclatural status

We have followed the ICBN rules for the following definitions:
- Valid: This means that a name 1) must have been effectively published, 2) have a form that is according to the code, 3) has been properly described with a Latin description or diagnosis. A name is invalid if not fulfilling these requirements.
- Illegitimate: A name that is not in accordance with the rules.

The most common reasons for a name being illegitimate are as follows:
i) The name is superfluous, i.e. there exists already a name based on the same type specimen;
ii) The name is a homonym, i.e. there exists an earlier name based on a different type, or an earlier combination based on the same type; we have used the words

"nomen illegit." for illegitimate homonyms, followed with the word "non" and direct reference to the valid name.
iii) The name was published without a proper description, resulting in the creation of a nomen nudum. Often the reason was that the older authors took names from herbaria labels and used them in lists etc. not being aware that the name was for internal or personal use only.

5.8 Taxonomic status

We have used six generic names to group species with morphological similarities. This has been done either from examination of the type, or from statements and descriptions in the literature. The groups are defined as follows:
- *Ganoderma* group: species with smooth or echinulate basidiospores, enlarged and truncated at the apex, generally ovoid, and with a cutis composed of hyphal ends forming a palisade layer (the hymenoderm and the characoderm types of Steyaert). Most species are laccate and many are stipitate.
- *Elfvingia* group: species with smooth or echinulate basidiospores, enlarged and truncated at the apex, generally ovoid, and with a cutis not forming a palisade layer. Most species are non-laccate and sessile.
- *Amauroderma* group: species with smooth or echinulate basidiospores with the wall uniformly thickened, generally spherical or subspherical, generally stipitate and found on the ground.
- *Tomophagus* group: species with soft context. Only one species is known: *G. colossum*.
- *Humphreya* group: species having basidiospores ornamented with a reticulate pattern of ridges.
- *Haddowia* group: species having longitudinally crested basidiospores.

Descriptions of species have not been included. Instead, we have referred the reader to good descriptions of the type specimen of each taxon or unambiguously named collections, if such descriptions were found.

5.9 Distribution

Most species are still too poorly circumscribed to properly assess their geographic distribution. Therefore, we have decided to mention under each name localities from which that name has been reported in the literature. Examination of polypore floras and checklists by regions was therefore necessary (e.g., Dennis, 1970; Bakshi, 1971; Ryvarden and Johansen, 1980; Gilbertson and Ryvarden, 1986; Bernicchia, 1990; Bilgrami et al., 1991; Ryvarden and Gilbertson, 1993; Hongo and Isawa, 1994; Baxter and Eicker, 1995; Da Silva and Minter, 1995; etc., see references).

5.10 Generic abbreviations

A. = *Amauroderma*, *Ag.* = *Agaricus*, *B.* = *Boletus*, *E.* = *Elfvingia*, *F.* = *Fomes*, *G.* = *Ganoderma*, *Ha.* = *Haddowia*, *Hu.* = *Humphreya*, *M.* = *Magoderna*, *P.* =

Polyporus, *Pt.* = *Ptychogaster*, *S.* = *Stereum*, *T.* = *Trametes*, *Tr.* = *Trachyderma.*

5.11 Other abbreviations
fragm. = fragment; loc.cit. = as cited above; s.coll. = collector unknown; s.hosp. = host not mentioned; s.loc. = locality unknown; s.n. = without number.

6. LIST OF SPECIES NAMES

adspersus Schulz., P. ; Flora 61:11, 1878 ; authentic specimen "Schulzer", s.n. (BP, fragm. BR) collected on *Carpinus betulus* in Vinkovce, Slovania (ex-Yugoslavia).
- *G. adspersum* (Schulz.) Donk ; Proc. Nederl. Akad. Wetensch. Ser. C. 72:273, 1969.
= *G. australe* (Fr.) Pat., in Patouillard (1889:71), teste Steyaert (1972:67-68), in Ryvarden and Gilbertson (1993:271).
Elfvingia group, in the *G. applanatum - australe* complex. Steyaert (loc.cit.) described the authentic specimen of *P. adspersus* in BP and proposed the synonymy with *P. australis* but mistook *G. adspersum* as the valid name. However, *G. australe* has a controversial typification and may not occur in Europe (see under "*australe*"). Reported only from Europe.

aetii Stey., Ha. ; Persoonia 7:109-111, 1972 ; s.hosp., Sangkulirang, Kalimantan, Indonesia, holotype "Aet 122, Exp. M.E. Walsh" (BO, fragm. L, BR).
Haddowia group. See the original description. Known only from the type locality.

africanus Lloyd, P.; Mycol. Writ. 3, Stip.:103, 1912 ; s.hosp., South Africa, holotype "De Thümen, 708", probably lost (not seen in BPI by Ryvarden, 1990).
- *G. africanum* (Lloyd) Doidge ; Bothalia 5:511, 1950.
No detailed description has been found, and from the original description it is unclear if it classifies in the *Elfvingia* or *Ganoderma* group. Lloyd (loc.cit.) described the species from a fragment of a specimen identified *P. umbraculus* Thüm. by Kalchbrenner, and stated resemblance with *P. fulvellus* (the two names are synonym in Patouillard, 1889:69), which is a laccate species; but later Lloyd (Let. 43:2, 1912, under "*P. dubiocochlear*") stated that *P. africanus* is non-laccate. If the type is not retrieved, the name should be abandoned. Known only from the type locality.

ahmadii Stey., G. ; Persoonia 7:91-93, 1972 ; on *Dalbergia sissoo*, Sialkot, Pakistan, lectotype "S. Ahmad, Fungi of West Pakistan 14329" (LAH, fragm. BR).
Ganoderma group. See the original description or Zhao (1989:59-60) who examined an authentic specimen. It is related to, but distinct from *G. lucidum* s.stricto.

Reported from Pakistan, India and South China.

albimarginatum He, G. ; in He and Yu, Acta Mycol. Sin. 8:282, 1989 ; Baiwayao, Guizhou Prov., China, holotype "He 531" (HMAS).
Ganoderma group. In the original description, in the legend of the figure the name was spelled "*albomarginatum*", otherwise as cited above. Known only from the type locality.

albocinctum Pat., G. ; in Patouillard and Morot, Journ. Bot. Paris 8:365, 1894 ; s.hosp., Kitabi, Brazzaville, Republic of Congo, lectotype "Lecomte, 1893", s.n. (FH, fragm. BR).
= *G. chalceum* (Cke) Stey., teste Steyaert (1967a:481).
Ganoderma group, in the *G. chalceum* complex. Known only from the type locality.

alluaudii Pat. & Har., G. ; Bull. Soc. Myc. Fr. 22:117, 1906 ; on the ground, Nairobi, Kenya, holotype "Alluaud, Aug. 1903", s.n. (FH).
Ganoderma group. For a description see Ryvarden (1983:2-4). It is a very distinctive species reported throughout tropical Africa.

amazonense Weir, G. ; Bull. U.S. Dept. Agric. 1380:84, 1926 ; on *Spondiae luteae* in plantation of *Hevea brasiliensis*, Cocal Grande, Para, Amazonas, Brazil, lectotype "Weir", s.n. (BPI 62043, fragm. in BR).
Elfvingia group. For a description see Furtado (1967b:381-382) or Steyaert (1980:163-167). The type is sessile but stipitate forms have been reported. Corner (1983:153-155) tentatively identified a Malaysian collection with dextrinoid skeletal hyphae as *G. amazonense*. This reaction, very rare in *Ganoderma,* was not reported from American collections of this species but may not have been investigated. Reported throughout the neotropics; may also be present in tropical Asia according to Corner (loc. cit).

amboinensis Lamark, Ag. ; Encycl. Méthodique Botanique 1:51, 1783 ; Amboine Is., Maluccu, Indonesia, type specimen not known. According to ICBN, the illustration given by Rumphius from which Lamarck introduced the name *Agaricus amboinensis* can be selected to represent the type specimen. This figure is published as fig. 1 on plate 57 in Rumphius' "Herbarium amboinense" 1750. However, Merrill (as stated in Steyaert, 1972:88-89) designated a neotype: Amboine Is., Maluccu, Indonesia, neotype "C.B. Robinson no. 572" (NY). Steyaert (loc.cit.) was unable to find Merrill's neotype and proposed a second neotypification from a specimen "which corresponds fairly well with Rumphius' illustration": s.hosp., Pontianak, Kalimantan, Indonesia, neotype "J.P. Schuitemaker" (BO 13446, fragm. L, BR).
- *P. amboinensis* Lam.: Fr. ; Syst. Mycol. 1:354, 1821.

- *G. amboinense* (Lam.: Fr.) Pat. ; Bull. Soc. Myc. Fr. 3:171, 1887.
- *G. amboinense* (Lam.: Fr.) Bres. ; Rev. Mycol. 12:5, 1890: Nomen illegit. non Pat. 1887.
- *G. amboinense* (Lam.: Fr.) Kawam. ; Icones of Japanese Fungi 2:212, 1954: Nomen illegit. non Pat. 1887.

A lot of confusion is associated with *G. amboinense*. Fries (loc.cit., and [1821] 1828:76) did not give a clear idea about this taxon but stated that *P. cochlear* Blume & Nees, also a poorly known taxon, is a synonym. Patouillard (1889:70) agreed with synonymy and noted that the species resembles *G. fornicatum* and *G. lingua*. According to Lloyd (Stip., 1912:102), among the numerous specimens in European herbaria labeled *G. amboinense* none resembles Rumphius' figure and most are *G. fornicatum*. Merrill (1917:58) wrote that he has little hesitation in interpreting true *Ag. amboinense* Lam. as the form currently known as *A. rugosum* and designated Robinson's collection 572 as neotype which is, according to Furtado (1981:91), *A. subrugosum* (Furtado was apparently not aware that it was Merrill's neotype of *G. amboinense*). Steyaert (1972:88) stated that it is impossible to associate Rumphius' figure with *A. rugosum* as stated by Merrill and proposed a novel neotypification. Steyaert's neotype belong to the *G. chalceum* complex, and is from Kalimantan: we argue that a neotype should be chosen in the locality of the original description. From the facts cited above, *P. amboinense* qualify as a nomen confusum and should be dropped from consideration in the future.

amoiense Zhao & Xu, A. ; Acta Mycol. Sin. 2:164, 1983 ; on sandy ground near *Acacia confusa*, Amoy, Fujian, China, holotype HMAS 42784.
Amauroderma group. For a description see Zhao (1989:128-130), who noted that the species is similar to *A. rugosum* and *A. sericatum*. Known only from South China.

angustus : see "augustus".

annularis Fr., P. ; Nov. Symb. Mycol. p. 52, 1851: Illegitimate as nomen superfluous for *P. annulatus* Jungh 1838.
- *G. annulare* (Fr.) Gilbn.; in Lowe and Gilbertson, Mycologia 53:505, 1961: Illegitimate since the basionym is illegitimate.

The text in Fries is as follows: "*P. (Petal) annularis. P. annulatus* Jungh. Jav. p. 53, f. 28. Nomen incongruum et fallax leviter mutandum" (incongruent name, should easily be changed). Under the rules of ICBN, Fries made a nomen superfluous when he created a nomen novum for *P. annulatus* Jungh 1838, a species of unknown identity (Ryvarden 1981:369). Therefore, Fries name becomes illegitimate, whereas *P. annulatus* Jungh. is a nomen ambigum. For these reasons, the names *P. annularis* Fr. and *P. annulatus* Jungh. should be abandoned. In consequence, *G. annulare* (Fr.) Gilb. has to be renamed and typified. Gilbertson and

Ryvarden (1986:289-290) considered *G. annulare* (Fr.) Gilb. a distinctive *Ganoderma* species, known only in California; later, Zhao (1989:100-101) reported a collection from Hainan Island but with smaller spores than Californian specimens.

annularis Lloyd, F. ; Mycol. Writ. 4, Let. 40:6, 1912 ; Cap Town, South Africa, lectotype "W.T. Saxton" (BPI).
- *G. annulare* (Lloyd) Boedijn ; Bull. Jard. Bot. Buitenzorg ser. 3, 16:391, 1940.
= *G. australe* (Fr.) Pat., teste Ryvarden (1989:232).
Lloyd species was not based on *P. annularis* Fr. as erroneously stated in Gilbertson and Ryvarden (1986:289). Lloyd (Fom.:268, 1915) already stated resemblance with *G. australis*. Beside the type from South Africa, there is one report from India (Bilgrami et al., 1991:215).

applanatus Pers., B. ; Obs. Myc. 2:2, 1799 ; Europe, authentic specimen in L (see Steyaert 1967b:207).
- *G. applanatum* (Pers.) Pat. ; Hymen. Eur. p. 143, 1887.
- *E. applanata* (Pers.) Karst. ; Krit. Ofver. Finl. Basidsv. p. 334, 1889.
Elfvingia group. Type species of *Elfvingia* Karst. and a central species in the *G. applanatum - australe* complex. *G. applanatum* s.stricto is distinguished from *G. australe* by having smaller basidiospores and possibly a more northern distribution (Ryvarden and Gilbertson, 1993:272). Atkinson (1908:109) and others (e.g. Bernicchia, 1990) considered *G. applanatum* a synonym of *G. lipsiensis* (Batsch) Atk., a nomen ambigum that should be abandoned (see under "*lipsiensis*"). This species has many synonyms (see for instance Atkinson, loc.cit.) and has been reported worldwide, but distribution remains unclear because the species itself is not well circumscribed.

arenosobasus Lloyd, P. ; Mycol. Writ. 6:919, 1920 ; Durban, South Africa, lectotype "P. Van der Bijl 710" (BPI), isotype in PRE.
- *Amauroderma* sp., teste Ryvarden (1990:84).
Amauroderma group. Lloyd (loc.cit.) described the species having a short stem prolonged underground into a scerotium-like body of agglutinate sand. Ryvarden (loc.cit.) noted that the lectotype in BPI is in bad condition, as is the isotype in PRE described by Reid (1974:22). Basidiospores have not been found in the type materials for a good evaluation of this taxon, but it is certainly an *Amauroderma* species (Ryvarden, loc.cit.). Known only from the type locality.

areolatum Murr., G. ; Bull. New York Bot. Gard. 8:149, 1912 ; on dead trunk of a silk-cotton tree, near Colima, Mexico, lectotype "W.A. and E.L. Murrill 588, I-1910" (NY).
= *G. resinaceum* Boud., teste Ryvarden (1985:179).
Ganoderma group. Known only from the type locality.

argenteofulvus v.d. Bijl, P. ; S. Afr. J. Sci. 24:225, 1927 ; Harare, Zimbabwe, lectotype "Eyles 4110" (STE).
- *A. argenteofulvum* (v.d. Bijl) Doidge ; Bothalia 5:503, 1950.
Amauroderma group. For a description see Ryvarden and Johansen (1980:69). Long cylindrical spores (13-18 x 4.5-6 mm), large pores and a fragile consistency are diagnostic characters of this species, which seems related to *A. oblongisporum* and *A. ealaensis* (Ryvarden 1974:69). Distribution: tropical Africa.

argillaceum Murr., G. ; North Amer. Flora 9:122-123, 1908 ; on a dead mango log, Santiago de las Vegas, Prov. de Havana, Cuba, lectotype "F.S. Earle 658, July 5, 1904" (NY, fragm. BR)
= *G. resinaceum* Boud., teste Steyaert (1972:95), teste Bazzalo and Wright (1982:310).
Known only from the type locality.

armadillus Lloyd, P. ; Mycol. Writ. 6:1062, 1921 ; Isabella, Basilan Is., Philippines, lectotype "H.S. Yates, Bur. Science 36060" (BPI).
- *Ganoderma* sp., teste Ryvarden (1990:84).
Ganoderma group, but the name has yet to be combined in *Ganoderma*. Ryvarden (loc.cit.) refrained to evaluate the taxonomic status of this fungus without a revision of the group of species with a laccate upper surface and light-colored context. According to Lloyd (loc.cit.), "[this is] a remarkable species not similar to any other *Polyporus* I ever saw". Known only from the type locality.

asperulatum Murr., A. ; Bull. Torrey Bot. Club 35:407, 1908 ; on the base of dead *?Parkia*, Lamao, Bataan Prov., Luzon Is., Philippines, lectotype "E.B. Copeland, Feb. 2, 1904", s.n. (NY, fragm. BPI).
- *G. asperulatum* (Murr.) Bres., Annals Mycol. 9:549, 1911.
- *G. asperulatum* (Murr.) Sacc. & Trott. ; Syll. Fung. 21:307, 1912: Nomen illegit. non Bres. 1911.
Ganoderma group, assignable to *Humphreya* group? For a description see Furtado (1967b:382-383) or Ryvarden (1985:170-171). This species is characterized by a thin, cream-colored context and large spores (17-25 x 10-18 mm) "studded with immense wards" in Murrill's original description, "strongly ornamented" in Ryvarden (loc.cit.), "irregularly reticulate appearance, as seen in the basidiospore of *G. coffeatum*" in Furtado (loc.cit.). *G. coffeatum* was transferred in *Humphreya* by Steyaert (1972:102) because of its basidiospore ornamentation. Reported from Philippines and Borneo.

ater Lloyd, P. ; Mycol. Writ. 6:1003, 1920 ; Singapore, lectotype leg. T.F. Chipp "M. Noor 5383" (BPI).
- *A. atrum* (Lloyd) Corner ; Beheift. Nova Hedw. 75:70, 1983.

= *A. rugosum* (Nees: Fr.) Torr., teste Ryvarden (1990:84).
Amauroderma group. Corner (loc.cit.) described collections from Borneo and the Solomon Is. and stated that this species is very close to *A. rugosum* and *A. subresinosum*. Later Ryvarden (loc.cit.) proposed the synonymy with *A. rugosum*. Reported from Singapore, Borneo and the Solomon Is.

atkinsonii Jahn., Kotl. & Pouz., G. ; Westf. Pilzbr. 11:97-121, 1980 ; on *Abies alba*, Bohemia, holotype "F. Kotlaba et Z. Pouzar" (PRM 820700).
= *G. carnosum* Pat., teste Kotlaba and Pouzar (1983:50).

atrum Zhao, Xu & Zhang, G. ; Acta Microbiol. Sin. 19:268, 1979 ; on stump of deciduous tree, Bawangling, Hainan Is., China, holotype HMAS 37726.
Ganoderma group. For a description see Zhao (1989:23-24), who noted that this species is similar to *G. hainanense* and *G. calidophilum*. The name of this species was not carefully choosen because the epithet "*atrum*" already exists in the family (*A. atrum*). Known only from Hainan Is.

augustus Berk., P. ; Hook. J. Bot. & Kew Misc. 8:143, 1856 ; Panure, Amazonas State, Brazil, lectotype "Spruce 211" (K, fragm. BPI).
- *A. augustum* (Berk.) Torr. (misspelled as *A. angustum*) ; Brotéria Bot. 18:137, 1920.
= *G. coffeatum* (Berk.) Murr., teste Furtado (1967b:383).
= *Hu. coffeatum* (Berk.) Stey., teste Ryvarden (1984:331).
Humphreya group. Torrend (loc.cit.) referred to Lloyd when he made the combination *A. angustum* instead of *A. augustum*, and wrote: "It seems there is a mistake in Lloyd about the name *angustum* (narrow) given to this giant species. I think that *augustum* was the name in the manuscript of Berkeley." Indeed, Berkeley (1856:143) named this species *P. augustus*, while he later published *P. angustus* (1860:253) which is *Tyromyces tephrotonus*, teste Ryvarden (1984:331). In his 1967b paper, Furtado certainly examined *P. augustus* Berk. when he did the synonymy with *P. coffeatus* Berk. although, as did Lloyd, he mistook the epithet "*angustus*" for *P. augustus*. Known only from the type locality.

aurantiacum Torr., G. ; in Bresadola, Icon. Mycol. 22:1007, 1932; Brazil, no type or authentic specimen have been found by Furtado (1981:96).
According to Furtado (1981:96), it could be an *Amauroderma* and a possible earlier name for *A. macrosporum*. If no authentic specimen can be found, the name should be abandoned as nomen confusum.

aureolum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:101-102, 1962; Tchivinguiro, Angola, s.hosp., holotype "Leito Rio in Pinto-Lopes", s.n. (K, fragm. BR).
Ganoderma group. Latin diagnosis detailed. Known only from the type locality.

auriscalpius Pers., P. ; in Gaudichaud, Voy. aut. Monde p. 169, 1826 [1827] ; Rio de Janeiro, Brazil, lectotype in PC.
- *G. auriscalpium* (Pers.) Pat. (in sect. A.) ; Bull. Soc. Myc. Fr. 5:78, 1889.
- *A. auriscalpium* (Pers.) Torr. ; Brotéria Bot. 18:131, 1920.
- *A. auriscalpium* (Pers.) Pat. ex Rick ; Ann. Reun. Sud-Amer. Bot. Rio de Janeiro 2:275, 1938 [1940]: Nomen illegit. non Torr. 1920.
Amauroderma group. The type is almost sterile: Ryvarden (1973:306) observed only 12 spores. If one relies on Furtado (1981:77-78, 96-97), who did not examine the type, it may be an earlier name for *A. schomburgkii*. Zhao (1989:130, 150-151) reported both *A. auriscalpium* and *A. schomburgkii* from South China. Reported from Brazil and China.

auriscalpioides Henn., F. ; Hedwigia 43:82, 1904 ; Rio de Janeiro, Brazil, holotype "Ule 2568" (?B).
= *A. auriscalpium* (Pers.) Torr., in Torrend (1920:131).

australis Fr., P. ; Elench. Fung. 1:108, 1828 [1821] ; on trunk, Pacific Is., the type (K) no longer exists and the only authentic specimen in K is an European specimen which does probably not correspond to the original collection (Steyaert 1975:487).
- *G. australe* (Fr.) Pat. ; Bull. Soc. Myc. Fr. 4:1712, 1887.
- *E. australis* (Fr.) Cunn. ; Bull. N.Z. Dep. Scient. Ind. Res. 164:256, 1965.
Elfvingia group. It is a central species in the *G. applanatum* - *australe* complex. In Europe, it is distinguished from *G. applanatum* by having larger spores (Steyaert 1972:67, Ryvarden and Gilbertson 1993:272). *G. australe* was described from the Pacific and is commonly reported in the tropics (Corner 1983:155-157). Bresadola (1890:7) described *G. australe* f. *arculatum* from Australia as follows: "a typo differt margine crasso, arculiforme, et tubulis brevioribus". In Taiwan, Yeh (1991) demonstrated the existence of two intersterility groups from morphologically indistinguishable fruit bodies, all identified *G. australe*. Later, Yeh et al. (1994) showed that a collection from Florida was interfertile with one of the two intersterility groups of Taiwan; but *G. australe* was not recorded in North America by Gilbertson and Ryvarden (1986:287-288). In Europe, *G. adspersum*, *G. linhartii* and *G. europaeum* are considered synonyms of *G. australe*; however, it may be that the original *P. australis* does not occur in Europe.

austrofujianense Zhao, Xu & Zhang, G. ; Acta Microbiol. Sin. 19:274, 1979 ; on stump of pine, Nanjing Xian, Fujian, China, holotype HMAS 37991.
Ganoderma group. For a description see Zhao (1989:62-64). Known only from China, apparently only from the type locality.

austrosinense Zhao & Xu, A. ; Acta Mycol. Sin. 3:20, 1984 ; on ground, South China, holotype in HMAS.
Amauroderma group. For a description see Zhao (1989:131-133), who reported it as a very distinctive species because of its umbelliform, densely sulcate pileus and whitish context. Known only from South China.

avellaneum Murr., A. ; North Am. Flora 9:116, 1908 ; on decayed wood, Nicaragua, lectotype "C.L. Smith", s.n. (NY).
- *G. avellaneum* (Murr.) Sacc. & Trott. ; Syll. Fung. 21:305, 1912.
= *A. sprucei* (Pat.) Torr., teste Furtado (1981:88-89), teste Ryvarden (1985:171).

bakeri Pat., G. ; Philipp. J. Sci. ser. C Bot. 10:96, 1915 ; on dead log, Los Baños, Prov. Laguna, Luzon Is., Philippines, lectotype "Baker 2104, Dec. 1913" (FH).
= *G. mirabile* (Lloyd) Humph., teste Ryvarden (1983:5).

balabacense Murr., G. ; Bull. Torrey Bot. Club 35:410, 1908 ; Balabac Is., Philippines, lectotype "L. Mangubat 539, March-April 1906" (NY), isotype in BPI.
= *G. dahlii* (Henn.) Aosh., teste Aoshima (1971:421).
= *G. chalceum* (Cooke) Stey., teste Ryvarden (1985:179).
Ganoderma group. Aoshima (loc.cit.) examined the isotype in BPI and made the synonymy with *G. dahlii,* which is a possible synonym of *G. chalceum* in Corner (1983:126). *G. balabacense* belongs to the *G. chalceum* complex and has probably an earlier name. Known only from the type locality.

barrettii Torr., G. ; Brotéria Bot. 8:133, 1909 ; Madeira, Brazil, lectotype "Menezes & Barreto" (LISU?).
Ganoderma group. After publication of this species, Torrend (1920:37) wrote: "Our *G. barrettii* is probably a smaller form of *G. oerstedii".* No modern description has been found. Known only from the type locality.

bataanense Murr., A. ; Bull. Torr. Bot. Club. 35:407, 1908 ; on decaying underground roots, Lamao, Prov. Bataan, Luzon Is., Philippines, lectotype "H.M. Curran, Forestry Bureau 7528, Sept. 1907" (NY).
- *G. bataanense* (Murr.) Sacc. & Trott. ; Syll. Fung. 21:307, 1912.
- *G. bataanense* (Murr.) Bres. ; Hedwigia 56:295, 1915: Nomen illegit. non Sacc. & Trott. 1912.
Amauroderma group. For a description see Murrill's original paper or Furtado (1981:27-29). Reported from Philippines and South China.

baumii Pilát, G. ; Annals Mycol. 30:460, 1932 ; on trunk, Kilimandjaro alt. 2500 m., Tanzania, lectotype "J. Baum", s.n. (PR, fragm. BR).

= *G. chalceum* (Cke) Stey., teste Steyaert (1967a:481).
Ganoderma group, in the *G. chalceum* complex. Known only from the type locality.

baudonii Stey., G. ; Bull. J. Bot. Bruxelles 32:95-96, 1962 ; Fort Crampel, s.hosp., Rep. Centrafrica, holotype "Baudon 2085A" (Herb. Pat. in FH, fragm. BR).
Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

bavianum Pat., G. ; J. Bot. 4:19, 1890 ; on old stumps, Mt. Bavi, Langkok Valley, Tonkin, Vietnam, lectotype "M. Balansa, Jun. 1888" (FH).
= *A. subrugosum* (Bres. & Pat.) Torr., teste Furtado (1981:91).
= *A. rugosum* (Bl. & Nees: Fr.) Torr., teste Ryvarden (1983:7).

bawanglingense Zhao & Zhang, G. ; Acta Mycol. Sin. 6:205, 1987 ; on trunk of deciduous tree, Bawangling, Hainan Is., China, holotype HMAS 49895 (or 49896?).
Elfvingia group. For a description see Zhao (1989). Known only from South China.

bibadiostriatum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:99, 1962 ; Mesa do Imperador, Rio de Janeiro, Brazil, s.hosp., holotype "O. Fidalgo and Kauffmann Fidalgo OKF00633b, mars 1955" (BR).
Ganoderma group. For a description see Steyaert (1980:182-183). The species belongs to the *G. parvulum* complex (Steyaert 1980:180-183), which is related to G. *lucidum* s.lato (Ryvarden 1985:179). Reported throughout tropical America.

bicharacteristicum Zhang, G. ; Mycosystema 7:105, 1994 ; on rotten wood, Yunnan, China, holotype HMAS 16292.
Unknown to us.

boleticeps : misspelling for "*boleticeus*" (see below) in Patouillard (1889:77), and the error was perpetuated by various authors.

boleticeus Pat. & Gaill., P. ; Bull. Soc. Mycol. Fr. 4:29, 1888 ; s.hosp., San Fernando de Atabapo, Amazonas Territory, Venezuela, lectotype "Gaillard 211, Sept. 1887" (FH 3294 and BPI; merotypes).
- *G. boleticeus* (Pat. & Gaill.) Pat. ; Bull. Soc. Myc. Fr. 5:77, 1889 (misspell as "*boleticeps*").
- *A. boleticeus* (Pat. & Gaill.) Torr. ; Broteria Bot. 18:132, 1920.
Amauroderma group. For a description see Furtado (1981:29-31), who noted that this species can be confused with *A. omphalodes, A. sprucei, A. camerianum* and *A.*

expallens. Reported throughout tropical America.

boninense Pat., G. ; Bull. Soc. Mycol. Fr. 5:72, 1889 ; on dead trunk, Bonin Is. (Pacific), lectotype "C. Wright", s.n. (PC, K, fragm. BR). Steyaert (1967a:480) unnecessarily designated a neotype: "C. Wright", s.n. (FH), which is in fact a lectotype since the specimen was among the original material.
Ganoderma group. For a description see Steyaert (1967a:479-481). Patouillard (1887) originally described this species as a variety of G. *lucidum* and noted its affinity with *G. lingua*. Corner (1983:126) suggested a possible synonymy with *G. chalceum*, in agreement with Ryvarden (1983:8). Reported throughout the Pacific and tropical and subtropical Asia.

brittonii Murr., A. ; Mycologia 2:193, 1910 ; on a rotten log, Bachelor's Hall, Parish of St. Thomas, Jamaica, lectotype "N.L. Britton 3630, Sept. 15-19, 1908" (NY).
- *G. brittonii* (Murr.) Sacc. & Trott ; Syll. Fung. 21:306, 1912.
= *Laetiporus persicinus* (Berk. & Curt.) Gilbn., teste Ryvarden (1985:171).

brownii Murr., E. ; Western Polypores p. 29, 1915 ; on dead *Umbellularia*, Strawberry Canyon, California, U.S.A., lectotype "V.S. Brown 307, IX-1913" (NY, fragm BR).
- *G. brownii* (Murr.) Gilb. ; Mycologia 53:505, 1961.
Elfvingia group, in the *G. applanatum - australe* complex. For a description see Gilbertson (loc.cit.). Lloyd (vol.7:1289, 1924) considered it a synonym of *F. oroflavus*. Steyaert (1972:66-67) accepted *G. brownii* as a distinct species, then considered it a synonym of *G. australe* (Steyaert 1975:461). It is a synonym of *G. australe* in Cunningham (1965:256) and in Ryvarden (1985:176). Gilbertson and Ryvarden (1986:293) recognized it as a distinct species apparently restricted to California. Zhao (1989:107) reported it from Fujian (South China). Corner (1983:158-159,165) suggested comparison with *G. williamsianum, G. impolitum, G. kosteri, G. manoutcherii* and, even, *G. tropicum* (!).

bruggemanii Stey., G. ; Persoonia 7:78, 1972 ; s.hosp., Gunung Gedeh, Tjibodas, Java, holotype "M.L.A. Bruggeman" (BO 7304, fragm. BR).
Ganoderma group. See the original description. Steyaert noted that it is close to *G. ostracodes* from Vietnam but has a different cutis and larger spores. Corner (1983:147) noted that it is practically indistinguishable from *G. tropicum*. Known only from Java.

buissonii Pat., G. ; Bull. Soc. Myc. Fr. 40:164-165, 1924 ; on the ground, near Lubumbashi (formerly Elisabethville), Zaire, lectotype "M. Buisson, 1923" (FH).
= *G. ochrolaccatus* (Mont.) Pat., teste Ryvarden (1983:9).

buloloi Aosh., A. ; Bull. Nat. Sci. Mus. Tokyo 14:436, 1971 ; New Guinea.
Amauroderma group. For a description see Aoshima (loc.cit.). *A. malesianum* may be a synonym (Corner 1983:75). Known only from the type locality.

cacainum Bres., G. ; Annals Mycol. 18:37, 1920 ; on trunk, s.loc., ex-Congo, lectotype in BPI, S, fragm. in BR.
= *G. chalceum* (Cke) Stey., teste Steyaert (1967a:481), teste Ryvarden (1988b:305, misspelled as "*G. cacinum*").
Bresadola wrote in the original description: "*Ganodermati amboinensi* proximum".
Known only from the type locality.

calcigenus Berk., P. ; Hooker, Lond. J. Bot. 2:636, 1843 ; on calcareous ground, Natividade, Goias State, Brazil, lectotype "Gardner, Nov. 1839" (K, BPI).
- *G. calcigenum* (Berk.) Pat. (in sect. A.) ; Bull. Soc. Myc. Fr. 5:76, 1889.
- *A. calcigenum* (Berk.) Torr. ; Brotéria Bot. 18:129, 1920.
Amauroderma group. For a description see Furtado (1981:31-35) who noted that it is possible to mistake this species with *A. macrosporum* and *A. pseudoboletum*. Corner (1983:50) reported dextrinoid skeletal hyphae from collections identified as *A. calcigenus* but the reaction has not been reported in the type (but has probably not been investigated). Reported only from Brazil and Guyana by Furtado (loc.cit.), and from Singapore by Lloyd (1924:1327).

calidophilum Zhao, Xu & Zhang, G. ; Acta Microbiol. Sin. 19:270, 1979 ; on dead wood, Bawangling, Hainan Is., China, holotype HMAS 37982.
Ganoderma group. For a description see Zhao (1989:24-26) who noted that this species resembles *G. hainanense* and *G. atrum*. Known only from China.

camerarius Berk., P. ; J. Bot. & Kew Misc. 8:143, 1856 ; on the ground in forest, Panure, Amazonas State, Brazil, isotypes "Spruce 197, Feb./53" (K), "Spruce 194" (K) and "Spruce 171" (K, BPI).
- *A. camerarium* (Berk.) Furt. ; Rev. Gen. *Amauroderma* (Polyp.) Est. Bas. Microestr. Basid. p. 140, 1968.
Amauroderma group. For a description see Furtado (1981:35-38) who noted a possible synonymy with *A. pallidum* and relationships with *A. conjunctum, A. sprucei* and *A. omphalodes*. Reported throughout tropical America.

cantharelloideum Liu, G. ; in He and Yu, Acta Mycol. Sin. 8:279, 1989 ; on dried wood, Guizhou Prov., China, holotype "Liu Mei-Hua 1041" (HMAS).
Ganoderma group. Known only from the type locality.

capensis Lloyd, P. ; Mycol. Writ. 5, Let. 63:10, 1916 ; South Africa, lectotype "leg. Van der Bijl", US03025 in BPI.

- *G. capense* (Lloyd) Teng ; Fungi of China:448, 1963.
- *G. capense* (Lloyd) Reid ; Contr. Bolus Herb. 7:53, 1975: Nomen illegit. non Teng 1963.
Ganoderma group, in the *G. lucidum* complex. For a description see Reid (loc.cit.). Lloyd (loc.cit.) and Ryvarden (1990:85) considered it very close to *G. lucidum*. Zhao (1989:26-28) described Chinese specimens referring to this species and noted that they slightly differ from the type. Reported from South Africa and China.

carnosum Pat., G. ; Bull. Soc. Mycol. Fr. 5:66, 1889 ; on trunk of *Abies*, Forêt de Gouizy, Eaux-Bonnes, Pyrénées, France, lectotype "E. Doassans 11939, 18 Aug. 1881" (FH).
Ganoderma group. In the original description Patouillard wrote that it can easily be distinguished from *G. lucidum* by having a larger margin and larger, more echinulate basidiospores. It occurs on conifers, mostly on *Abies*. For a modern description see Ryvarden and Gilbertson (1993:273-274), or Jahn et al. (1980) under *G. atkinsonii*, which is a synonym of *G. carnosum* (Kotlaba and Pouzar, 1983). Known only from Central Europe.

cervinum Bres., G. ; Engler Bot. Jahrb. 54:249, 1916 ; Ettappenberg, Papua New Guinea, lectotype "Ledermann 9235" (BPI).
Ganoderma group, in the *G. lucidum* complex (Ryvarden 1988b:305). No modern description has been found. Known only from the type locality.

chaffangeonii Pat., G. ; Bull. Soc. Mycol. Fr. 5:74, 1889 ; on dead trunk, Haut Orenoque, Venezuela, lectotype "Chaffangeon 1885" (FH).
= *G. resinaceum* Boud., teste Steyaert (1972:95), teste Ryvarden (1983:12).
Reported by Lloyd (Ap.Pol.:372, 1915) from Brazil and Bengal.

chalceus Cooke, P. ; Trans. Proc. Bot. Soc. Edinburgh 13:135, 1878 ; s.hosp., s.loc., Sierra Leone, lectotype "A. Afzelius", s.n. (UPS, fragm. BR).
- *G. chalceum* (Cooke) Stey.; Bull. Jard. Bot. Nat. Belg. 37:481- 485, 1967.
Ganoderma group. For a description see Steyaert (1967a:482-485). See also Corner (1983:126-132) who did not examine the lectotype but gave an extensive description of South Asian material referring to this species, and described three varieties. Steyaert (1967a:481-482) recognized several synonyms, including *P. cupreus* Fr. 1851 non Berk. 1839 but overlooked that the name *P. cupreus* has priority. Corner (1983:126-132) listed several species which he was not able to distinguish from *G. chalceum*. It is obviously a species complex, pantropical in distribution and related to the *G. lucidum* group.

chaperi Pat., G. ; Jour. Bot. Paris 4:197-198, 1890 ; on dead wood, Cuba, lectotype "M. Chaper", s.n. (FH, fragm. BPI, BR).

- *A. chaperi* (Pat.) Murr. ; Bull. Torr. Bot. Club 32:367, 1905.
= *A. praetervisum* (Pat.) Torr., teste Furtado (1981:65), teste Ryvarden (1983:12).

chenghaiense Zhao, G. ; Acta Mycol. Sin. 8:31, 1989 ; on *Acacia* sp., Shanghai Xian, Guangdong, China, holotype HMAS 50774.
Ganoderma group. For a description see Zhao (1989:66-67) who noted that it resembles *G. tropicum*. Known only from South China.

chilensis Fr., P. Acta Soc. Sci. Upsal. Ser 3, no 1:63, 1851; Chile, lectotype "Hochstetter", s.n. (UPS).
- *G. chilense* (Fr.) Pat. ; Bull. Soc. Mycol. Fr. 5:74, 1889.
- *G. chilense* (Fr.) Bres. ; Malpighia 5:7, 1890: Nomen illegit. non Pat. 1889.
Elfvingia group, in the *G. applanatum - australe* complex. Bresadola (1913:55) wrote under *G. australe*: "*Fomes chilensis* Fr. quoque huc ceu synonymon est referendus". Known only from the type locality.

chonoides Stey., G. ; Bull. Jard. Bot. Bruxelles 32:91-92, 1962 ; ?Lubumbashi (formerly Elisabethville), Shaba Prov. (formerly Haut-Katanga), Zaire, s.hosp., holotype "Deloose 22" (BR).
Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

clemensiae Murr., A. ; Bull. Torr. Bot. Club 35:408, 1908 ; near Camp Keithley, Lake Lanao, Mindanao Is., Philippines, lectotype "M.S. Clemens, Sept.-Oct. 1907" (NY).
- *G. clemensiae* (Murr.) Sacc. & Trott. ; Syll. Fung. 21:306, 1912.
= *Microporellus clemensiae* (Murr.) Ryv., teste Ryvarden (1985:171).

cochlear Blume & Nees, P. ; Nova Acta Acad. Caes. Leop. Carol. 13:20, 1826 ; Java, Indonesia, lectotype "Blume", probably lost. Merrill (in Steyaert, 1972:88) designated a neotype but Steyaert (loc.cit.) did not find it.
- *G. cochlear* (Blume & Nees) Bres. ; Hedw. 51:313, 1912.
Ganoderma group. Synonym of *G. amboinense* in Fries ([1821] 1828:76), Patouillard (1889:70) and Bresadola (1890:5, 1893:493). Later, Bresadola (1912:313) considered it as a distinct species. Zhao (1989:67-69) reported the species from South China, referring to Lloyd's description (Stip.:103, 1912) based on a specimen identified by Bresadola in L, which, according to Lloyd (loc.cit.) is doubtfully distinct from *P. amboinensis* and *P. fornicatus*. However, Lloyd (loc.cit.; Let. 43:2, 1912, under "*P. dubiocochlear*"; Let. 55:3-4, 1915) raised doubts about the true identity of *P. cochlear* Nees & Blume. A reassessement and neotypification of this taxon is necessary, otherwise the name should be abandoned. Reported from Java and China.

coffeatus Berk., P. ; Ann. Nat. Hist. 3:385, 1839 ; St. Vincent, West Indies, lectotype "Guilding, St. Vincent, spec. unicum" (K).
- *A. coffeatum* (Berk.) Murr. ; Bull. Torr. Bot. Club 32:367, 1905.
- *G. coffeatum* (Berk.) Furt. ; Persoonia 4:383, 1967.
- *Hu. coffeatum* (Berk.) Stey. ; Persoonia 7:102, 1972.
Humphreya group. For a description see Furtado (1967b:383-385) under *G. coffeatum*. Reported throughout tropical America and South China.

colossus Fr., P. ; Nov. Symb. Mycol. 56-57, 1851 ; on *Cedrelae odoratae*, Puntarena, Costa Rica, lectotype "A.S. Oersted", s.n. (UPS, fragm. BR).
- *G. colossum* (Fr.) Baker ; Fungi. Malay.: 425, 1918.
- *G. colossum* (Fr.) Torr. ; Brotéria Bot. 18:37, 1920: Nomen illegit. non Baker 1918.
- *G. colossum* (Fr.) Bose ; Bull. Carmichael med. Coll. 2:3, 1921: Nomen illegit. non Baker 1918.
- *G. colossum* (Fr.) Pat. ; Bull. Mus. Hist. nat. Paris 27:376, 1921: Nomen illegit. non Baker 1918.
- *G. colossum* (Fr.) Cunn. ; Rec. of the Amer.-Austr. Scientif. Exped. to Arnhem Land 4:164, 1958: Nomen illegit. non Baker 1918.
= *Dendrophagus colossus* (Fr.) Murr. ; Bull. Torr. Bot. Club 32:473, 1905: Nomen illegit. non *Dendrophagus* Toum. 1900 (Murrill, 1905:197; Ryvarden, 1991:137).
= *Tomophagus colossus* (Fr.) Murr. ; Torreya 5:197, 1905.
The only species described in genus *Tomophagus*. For a description see Furtado (1965:979-984), Steyaert (1972:97-98) or Ryvarden and Johansen (1980:89). It is easily distinguished from other *Ganoderma* spp. by being soft and light when dry and having a thick and pale context. The soft context was the reason that led Murrill (loc.cit.) to create genus *Tomophagus* to accomodate this species. *Tomophagus* was neither accepted by Ryvarden (1991:229) nor by Steyaert (loc.cit), the latter author even suggested that *G. oregonense* may be a temperate variant of *G. colossum*. Recent molecular and morphological studies (Moncalvo et al., 1995c; Moncalvo, 1996) indicated little relationship between *G. colossus* and *G. oregonense* and supported a generic distinction of *Tomophagus*. Distribution: pantropical but not recorded from East Africa.

comorensis Henn, F. (G.) ; in Voeltzkow, Reise in Ostafrika 1903-1905, Band III, System. Arb. p. 24, 1908 ; on stump, Moheli, Miremani, Comores Is., lectotype "1903", s.n., lost in B.
- *G. comorense* (Henn.) Sacc. & Trott. ; Syll. Fung. 21:300, 1912.
Elfvingia group? Known only from the type locality. Hennings published this species with a very short Latin diagnosis and no modern description has been made before the type was destroyed in Berlin. From the original description, it may be a

species of the *G. applanatum - australe* complex. However, the spores were reported 3.5-4 x 3-3.5 µm: this suggests a confusion with spores from the ever-present *Cladosporium herbariorum*. The name should be dropped from consideration, at least until a specimen from the Comores Is. that matches Henning's description is designated as neotype. Known only from the type locality.

comphoratum Zang & Su, G. ; Acta Bot. Yunnaica 12:395, 1990 ; China, holotype in HMAS.
The species was based on a contaminated specimen of an *Antrodia* species, according to personal communication from Dr. Wu, Taiwan. The name should be excluded from *Ganoderma*.

confragosus v.d. Bijl, P. ; South Afr. J. Sci. 24:225, 1927 ; Zimbabwe, lectotype "Eyles 4111" (STE).
- *A. confragosum* (v.d. Bijl) Reid ; J. S. Afr. Bot. 39:156, 1973.
Amauroderma group. For a description see Reid (loc.cit.). Known only from the type locality.

congregatum Corner, A. ; Beheift. Nova Hedw. 75:70-71, 1983 ; on the ground in forest, Bukit Senaling, Negri Sembilan, Malaysia, holotype "Corner 890, 24 June 1930" (Herb. Corner, CGE or E).
Amauroderma group. See the original description, in which Corner stated that it can be mistaken with *A. rugosum* and *A. fasciculatum*. Known only from the type locality.

conicus Lloyd, P. ; Mycol. Writ. 4, Let. 48:3, 1913 ; Malagasy, lectotype "Pierrier de la Bathie" (BPI).
- *G. conicus* (Lloyd) Sacc. & Trott. ; Syll. Fung. 23:408, 1925.
- *A. conicum* (Lloyd) Torr. ; Brotéria Bot. 18:133, 1920.
- *A. conicum* (Lloyd) Ryv. ; Mycotaxon 38:88, 1990: Nomen illegit. non Torrend 1920.
Amauroderma group. For a description see Ryvarden and Johansen (1980:72); Furtado (1981:46-48) gave a good description of *A. expallens*, which is a synonym of *A. conicum* (Ryvarden 1990:88). It is a very distinctive African species having large pores. It somewhat resembles *A. boleticeum* in the neotropics. Reported from Malagasy, Uganda, Kenya, and Malawi.

conjunctus Lloyd, P. ; Mycol. Writ. 5:812, 1918 ; Ashanti, Ghana, lectotype "T. Hunter" (BPI, K).
- *A. conjunctum* (Lloyd) Torr. ; Brotéria Bot. 18:133, 1920.
Amauroderma group. Descriptions in Loyd (loc.cit.), Ryvarden and Johansen (1980:70) who noted that it is related to *A. sericatum*, and Furtado (1981:38-40)

who noted resemblance with *A. camerianum, A. elmerianum, A. sikorae* and *A. bataanense*. Torrend (1920:33) and Zhao (1989:135-136) respectively stressed similarities with *A. camerianum* and *A. elmerianum*. This species is distinguished by its spores: ellipsoid to sligthly oblong, wall only slightly thickened, and faint endosporic projections (nearly smooth). Reported from tropical Africa and Hainan Is.

corrugatum Stey., G. ; Bull. Jard. Bot. Bruxelles 31:81, 1961 ; on stump, Muebe, Kasai, Zaire, holotype "Steyaert 45061" (BR).
Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

costatus Lloyd, P. ; Mycol. Writ. 4, Let. 56:9, 1915 ; Philippines, lectotype "R.C. McGregor", Herb. Lloyd 27097 (BPI, isotype in K).
- *G. costatus* (Lloyd) Sacc. & Trott. ; Syll. Fung. 23:408, 1925.
- *A. costatum* (Lloyd) Torr. ; Brotéria Bot. 18:136, 1920.
= *A. longipes* (Lév.) Stey., teste Furtado (1967a:312-314).
= *Ha. longipes* (Lév.) Stey., teste Ryvarden and Johansen (1980:93).

crebrostriatum Zhao & Xu, G. ; Acta Mycol. Sin. 2:161, 1983 ; on dead wood of deciduous tree, Limushan forest, Hainan Is., China, holotype HMAS 42789.
Ganoderma group. For a description see Zhao (1989:69-70) who noted that it resembles *G. cochlear* but has larger spores. Known only from China.

cupreolaccatus Kalchbr., P. ; in Wettstein, Øster. Bot. Zeitschr. 35:81, 1885, Austria, Wien, lectotype. "A. Kerner", s.n. (W).
- *G. cupreolaccatum* (Kalchbr.) Igmándy ; Acta Phytopath. 3:234, 1968.
Ganoderma group. There has been some confusion with this name. Kalchbrenner named the species *P. laccatus* Kalchbr., being not aware that the epithet "*laccatus*" was preoccupied in *Polyporus* (*P. laccatus* (Timm.) Pers. = *G. lucidum*). Wettstein (loc.cit.), who published the species described by Kalchbrenner, changed the name to *P. cupreolaccatus* Kalchbr. but unfortunately he used the name *P. laccatum* Kalchbr. in the heading of the text. This confusion has mislead most authors and *P. cupreolaccatus* was largely overlooked until the study of Igmándy (loc.cit.) and Steyaert (1980). Steyaert (1980:138, 160) considered *G. cupreolaccatum* an earlier name for *G. pfeifferi*. However, the type specimen of *G. cupreolaccatum* has yet to be properly described for evaluation of the taxonomic status of this taxon. Known only from the type locality.

cupreus Fr., P. ; Nova Acta Reg. Soc. Sc. Upsal., ser. 3, 1:64, 1851; Guinea, holotype "Afzelius", s.n. (UPS): Nomen illegit. non Berk., Ann. Nat. Hist. 3:393, 1839.
The epithet was validated as:

- *G. cupreum* Bres. ; Annals Mycol. 9:268, 1911.
= *G. chalceum* (Cooke) Stey., teste Steyaert (1967a:481), but if so Steyaert overlooked the fact that for priority reason *G. cupreum* is the valid name.
Ganoderma group, in the *G. chalceum* complex: a species complex pantropical in distribution and related to the *G. lucidum* group (Steyaert, 1967a:481-485; Corner, 1983:126-132). Reported from Guinea and Philippines (Lloyd, Ap.Pol.:372, 1915).

curranii Murr., G. ; Bull. Torrey Bot. Club 35:411, 1908 ; on dead wood, Lamao, Bataan Prov., Luzon Is., Philippines, lectotype "H.M. Curran 7544, Sept. 1907" (NY).
Ganoderma group. See the original description in which Murrill reported the spores 8-10 x 6-7 µm. Ryvarden (1985:179), however, reported that the type is sterile and belongs to the *G. lucidum* species complex. Corner (1983:132-134) identified sterile collections from South East Asia as *G. ?curranii*, described them in the details, and created var. *dimiticum* for a collection with a dimitic context similar to that of *Humphreya* species. Known only from South East Asia.

curtisii Berk., P. ; Hook. J. Bot. & Kew Misc. 1:101-102, 1849 ; South Carolina, U.S.A., lectotype "Curtis 335" (K) no longer extant (Steyaert 1980:147); neotype selected by Steyaert (1980:143): "Coker", s.n., Chapel Hill, North Carolina, U.S.A. (K, fragm. BR).
- *G. curtisii* (Berk.) Murr. ; North Amer. Flora 9:120, 1908 ; emended by Steyaert (1980:141-146).
- *G. curtisii* (Berk.) Hariot & Pat. ; Bull. Soc. Mycol. Fr. 26:206, 1910: Nomen illegit. non Murrill 1908.
Ganoderma group, in the *G. lucidum* complex. For a description see Steyaert (loc.cit.). Murrill (1902:602) first considered *P. curtisii* Berk. a synonym of *G. lucidum*, then (Murril, 1908:120) a distinct species. Lloyd (Stip.:102, 1912; Let. 66:9, 1917) considered the species distinct from *G. lucidum* because it has a yellowish, not strongly laccate crust; Lloyd (loc.cit.) also stated that the species is frequent in the South of the United States up to New Jersey, and in Africa. Steyaert (loc.cit.) did not find the lectotype in K, and considered that among specimens labeled *G. curtisii* in K there were two different species. Therefore, Steyaert designated a neotype and emended *G. curtisii*, and described a new species: *G. ravenelii* Stey. The taxonomic status of these two species remains unclear: both were absent from recent studies of North American *Ganoderma* (Gilbertson and Ryvarden, 1986; Adaskaveg and Gilbertson, 1986, 1988, 1989). Reported from North America, Japan (Imazeki, 1939), China (Zhao, 1989), India (Lloyd, Let. 39:5, 1912), and Africa (Lloyd, loc.cit.).

dahlii Henn., F. ; Bot. Jahrb. 25:499, 1898 ; Gazelle Peninsula, New Britain Is. (now Rabaul Is., Papua New Guinea), lectotype "leg. Dahl", s.n. (lost in B, fragm.

BPI).
- *G. dahlii* (Henn.) Aoshima ; in Kobayashi et al., Bull. Nat. Sci. Mus. Tokyo 14:429, 1971.
Ganoderma group. Lloyd (Ap.Pol.:373, 1915) saw the type in B which is sessile and "resembles a *Ganodermus* but its spores are of *Amaurodermus*", and reported the species in section *Amaurodermus*. Aoshima (loc.cit.) examined a fragment of the type in BPI and concluded that it is a *Ganoderma* species. Furtado (1981:98-99) examined the same fragment but could not reach a clear idea about this taxon. Zhao (1989:70-71) and Corner (1983:126) followed Aoshima's concept of this species. Zhao (loc.cit.) described specimens from South China which, he said, correspond with Aoshima's description and also followed Aoshima in recognizing *G. balabacense* a synonym of *G. dahlii*. *G. dahlii* is a possible synonym of *G. chalceum* in Corner (loc.cit.) while *G. balabacense* is a synonym of *G. chalceum* in Ryvarden (1985:179). Therefore, *G. dahlii* possibly belong to the *G. chalceum* complex and may have an earlier name. However, a reassessement of the type is necessary. Reported from Papua New Guinea and subtropical China.

daiqingshanense Zhao, G. ; Acta Mycol. Sin. 8:25, 1989 ; rotten wood of deciduous tree, Longjin Xian, Daiqingshan, Guangxi, China, holotype HMAS 30877.
Ganoderma group. For a description see Zhao (1989:30-31). Known only from China.

dayaoshanense Zhao & Zhang, A. ; Acta Mycol. Sin. 6:5, 1987 ; on dead wood, Dayaoshan, Guangxi, China, holotype HMAS 48283.
Amauroderma group. For a description see Zhao (1989:136-137) who noted that it is similar to *A. insulare* and may be an intermediate species between *Amauroderma* and *Ganoderma*. Known only from South China.

dejongii Stey., G. ; Persoonia 7:74, 1972 ; on *Albizia* sp., Bogor, Java, Indonesia, holotype "de Jong" (BO 14994, fragm. K, BR).
Elfvingia group. See the original description, in which Steyaert stated that it is close to *G. philippii*. Known only from the type locality.

densizonatum Zhao & Zhang, G. ; Acta Mycol. Sin. 4:86-88, 1986 ; on dead wood, Bawangling, Hainan Is., China, holotype HMAS 47610.
Elfvingia group. For a description see Zhao (1989:108-110) who noted that it is a very distinctive species, and may be related to *G. koningsbergii* and *G. limushanense*. Known only from China.

diabolicus Berk., P. ; Hook. J. Bot & Kew Misc. 8:174, 1856 ; Panure, Amazonas State, Brazil, lectotype "Spruce 195" (K).

- *G. diabolicum* (Berk.) Torr. ; Brotéria Bot. 18:38, 1920.
Accepted species in *Polyporus* s.stricto, teste Ryvarden (1984:338).

diaoluoshanense Zhao & Zhang, G. ; Acta Mycol. Sin. 6:1-2, 1987 ; on stump of deciduous tree, Diaoluoshan, Hainan Is., China, holotype HMAS 47699.
Elfvingia group. For a description see Zhao (1989:110-111) who noted that it is close to *G. philippii*. Known only from South China.

donkii Stey., G. ; Persoonia 7:75-77, 1972 ; s.hosp., s.loc., West Java, Indonesia, lectotype "M.A. Donk 13598" (L, fragm. BR).
Elfvingia group. See the original description. Known only from West Java.

dorsalis Lloyd, P. ; Myc. Writ. 5:658, 1915 ; Brazil, lectotype "J. Rick" (BPI).
- *G. dorsale* (Lloyd) Torr. ; Brotéria Bot. 18:32, 1920.
- *G. dorsale* (Lloyd) Rick; Brotéria Bot. 21:7, 1924: Nomen illegit. non Torr. 1920.
- *G. dorsale* (Lloyd) Humph. ; Mycologia 30:333, 1938: Nomen illegit. non Torr. 1920.
Ganoderma group, in the *G. lucidum* complex (Ryvarden, 1990:88). In the original description, Lloyd (loc.cit.) stated that he distinguished this species from *G. lucidum* only because the stipe was dorsally attached. Common in Brazil, also reported from Philippines (Lloyd, Let. 67:8, 1918; vol.6:1005, 1921) and Malaysia (Corner, 1983:37).

dubiocochlear Lloyd, P. ; Myc. Writ. 4, Let. 43:2, 1912 ; Malagasy, lectotype "leg. Perrier de la Bathie" (BPI).
- *G. dubiocochlear* (Lloyd) Sacc. & Trott. ; Syll. Fung. 23:401, 1925.
Elfvingia group. Ryvarden (1990:88) classified the species in the *G. lucidum* complex but may have mistaken the type, because in the original description Lloyd (loc.cit.) clearly stated that it is a non-laccate, stipitate *Ganodermus* close to *F. applanatus* in Europe. Known only from the type locality.

dubiopansus Lloyd, P. ; Mycol. Writ. 3, Stip.:125, 1912 ; Ouro Preto, Serra do Frazao, Minas Gerais State, Brazil, lectotype "L. Dalmazio", Herb. Lloyd 36121 (BPI).
- *A. dubiopansum* (Lloyd) Dennis ; Fung. Fl. Venezuela p. 117, 1970.
= *A. sprucei* (Pat.) Torr., teste Furtado (1981:88-89), teste Ryvarden (1990:88).
Amauroderma group. Corner (1983:51-52) described collections from Brazil and followed Dennis (loc.cit.) in distinguishing the species from *A. sprucei*. However, apparently neither Corner nor Dennis had examined the type. Corner (loc.cit.) reported strongly dextrinoid skeletal hyphae from his collections, a reaction rare in the family that has probably never been investigated in the types of *A. dubiopansum*

and *A. sprucei*. Known from Venezuela and Brazil.

duroporus Lloyd, P. ; Myc. Writ. 6:1076, 1921, Zhejiang, China, lectotype "H.H. Hu" (BPI).
- *G. duropora* Lloyd ; in Zhao et al. (1981:37) and Zhao (1989:71): The name is invalid because Lloyd published *P. duroporus* in genus *Polyporus* sect. *Ganodermus* but not in genus *Ganoderma*. The combination in *Ganoderma* has still to be made.
Ganoderma group. For a description see Zhao (1989:71-73) who examined the type and related it to *G. mastoporum* and *G. sinense*. Ryvarden (1990:88) also examined the type and referred it to the *G. lucidum* complex. Known only from China.

dussii Pat., G. ; Bull. Soc. Myc. Fr. 15:198, 1899 ; Guadeloupe, lectotype "Duss 887" (FH).
Ganoderma group. Patouillard (loc.cit.) noted that it is morphologically similar to *G. fulvellum* but differs in having larger, sub-spherical basidiospores. However, according to Ryvarden (1983:16) the type is sterile and belongs to the *G. lucidum* complex. Known only from the type locality.

ealaensis Beeli, P. ; Bull. Soc. Bot. Belg. 62:60, 1929 ; Eala, Zaire, lectotype "Goossens-Fontana 439" (BR).
- *A. ealaensis* (Beeli) Ryv. ; Norw. J. Bot. 19:230, 1972.
Amauroderma group. For a description see Ryvarden and Johansen (1980:71-72) who noted as distinctive characters the infundibuliform fruit body with a hairy cover, and decurrent, fragile and large pores. It is related to *A. oblongisporum* and *A. argenteofulvum* (Ryvarden 1974:69). The species is apparently restricted to the lowland rain forest from West Africa to Uganda.

elmeri Murr., E. ; Bull. Torr. Bot. Club. 34:476, 1907 ; Philippines, lectotype "Elmer 6961" (NY).
- *G. elmeri* (Murr.) Sacc. & Trott. ; Syll. Fung. 21:295, 1912.
= *F. pachyphloeus* Pat., teste Bresadola (1913:59).
= *Phellinus pachyphloeus* (Pat.) Fidalg., teste Ryvarden (1985:176).

elmerianum Murr., A. ; Bull. Torr. Bot. Club 34:475-476, 1907 ; Palo, Luzon Is., Philippines, lectotype "A.D.E. Elmer 7210" (NY).
- *G. elmerianum* (Murr.) Sacc. & Trott. ; Syll. Fung. 21:305, 1912.
Amauroderma group. For a description see Furtado (1981:40-43) who noted that it resembles *A. conjunctum* and is related to *A. subrugosum*, *A. bataanense* and *A. sikorae*. Ryvarden (1985:171) considered it a synonym of *A. rugosum*. Reported from Philippines, Malaysia, and Hainan Is.

eminii Henn., F.; Engl. Bot. Jahrb. 17:24, 1893 ; Pangani, Tanzania, lectotype "Stuhlmann 34, May 1890" (S).
- *G. eminii* (Henn.) Torr.; Brotéria Bot. 18:34, 1920.
- *Hu. eminii* (Henn.) Ryv. ; Prel. Pol. Fl. East Af. p. 95, 1980.
Humphreya group. It is a very distinctive species well described in Ryvarden and Johansen (1980:95-97). Distribution: tropical Africa.

endertii Stey., Hu. ; Persoonia 7:101-102, 1972 ; s.hosp., West Koetai, Kalimantan, Indonesia, lectotype "F.H. Endert" (BO 6268, fragm. L, BR).
Humphreya group. See the original description, in which Steyaert stated that it resembles *Hu. lloydii* but the pileus is lighter and not velvety. Corner (1983:171-172) tentatively identified a Malaysian collection as *Hu. ?endertii*, otherwise known only from the type locality.

endochrum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:101, 1962 ; on *Piptadenia africana*, Botanical Garden, Entebbe, Uganda, holotype "Maitland 322" (K, fragm. BR).
Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

europaeum Stey., G. ; Bull. Jard. Bot. Bruxelles 31:70-71, 1961 ; on *Rhus succedanea*, Bruxelles, holotype "Lawalree", s.n. (BR).
= *G. australe* (Fr.) Pat., teste Steyaert (1972:67) who mistook *G. adspersum* as the valid name, teste Ryvarden and Gilbertson (1993:271).

exilis Berk., P. ; Hook. J. Bot. & Kew Misc. 8:173, 1856 ; Panure, Amazonas State, Brazil, lectotype "Spruce no. 31" (K).
- *G. exile* (Berk.) Pat. ; Bull. Soc. Mycol. Fr. 5:77, 1889.
- *A. exile* (Berk.) Torr. ; Brotéria Bot. 18:142, 1920.
- *A. exile* (Berk.) Wakefield ; Kew Bull. 1934:242, 1934: Nomen illegit. non Torr. 1920.
- *A. exile* (Berk.) Rick ; Iheringia Bot. 7:211, 1960: Nomen illegit. non Torr. 1920.
Amauroderma group. For a description see Furtado (1981:43-46) who noted that it is easily confused with *A. schomburgkii* f. *schomburgkii* and can also be mistaken with *A. pseudoboletum* and *A. calcigenum*. Corner (1983:52-53) identified as *A. exile* Brazilian and Peruvian collection having dextrinoid skeletal hyphae and dextrinoid spores. The reaction, rare in the family, was not reported from the type but has probably not been examined. Reported from tropical America, Indonesia and Yunnan (tropical China).

expallens Bres., G. (A.) ; Mycologia 17:72-73, 1925 ; on trunk, Uganda, lectotype "T.D. Maitland", s.n. (K, BPI - ex Herb. Weir 20219).

- *A. expallens* (Bres.) Furt. ; Rev. Gen. *Amauroderma* (Polyp.). Est. Bas. Micr. Basid. p. 170, 1968.
= *A. conicum* (Lloyd) Torr., teste Ryvarden (1990:88).

fasciatus Pat., G. ; Journ. Bot. 17:11, 1903 ; Java, Indonesia, collector unknown but probably Junghuhn, type not found.
Unknown identity: the name was made by Patouillard based on a herbarium name by Léveillé. This name should be dropped as nomen confusum.

fasciatus Swartz., B. ; Prodr. p. 149, 1788 ; Jamaica, lectotype lost.
- *P. fasciatus* Swartz.: Fr. Syst. Mycol. 1:373, 1821.
- *E. fasciata* (Swartz.: Fr.) Murr. ; Bull. Torrey Club 30:298, 1903.
- *Elfvingiella fasciata* (Swartz.: Fr.) Murr. ; Tropical Polypores p. 90, 1915: Nomen illegit., *Elfvingiella* being a typonym of *Fomes* (Fr.) Fr. (Ryvarden 1991:142).
- *Fomes fasciatus* (Schw.: Fr.) Cke ; Grevillea 14:21, 1885.
For a modern description of this accepted species in *Fomes*, see Gilbertson and Ryvarden (1986:263).

fasciculatum Pat., G. ; in Patouillard and Lagerheim, Bull. Soc. Myc. Fr. 11:86-87, 1895 ; s.hosp., s.loc., ex-Congo, lectotype "Dybowski, 1893" (fragm. PC, FH, BPI).
- *A. fasciculatum* (Pat.) Torr., Brotéria Bot. 18:139, 1920.
Amauroderma group. For a description see Furtado (1981:48-50). The former authors noted that it resembles *A. preussii* but has larger and coarsely reticulated spores. The note on this species in Ryvarden (1983:18-19) should be overlooked as it was based on a wrongly assumed type specimen. Reported throughout tropical Africa.

fassii Stey., G. ; Bull. Jard. Bot. Bruxelles 31:72-76, 1961 ; on trunk of *Gilbertiodendron dewevrei*, Gwaka, Ubangi, ?Central African Republic or Zaire (ex-Congo), holotype "Fassi 804" (BR).
Ganoderma group. See the Latin diagnosis (detailed). Steyaert (1961) described six varieties, all from the same locality. Known only from the type locality.

fassioides Stey., G. ; Bull. Jard. Bot. Bruxelles 31:80-81, 1961 ; Yangambi, Zaire, holotype "Fassi 229" (BR).
Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

ferreus Berk., P. ; Hooker J. Bot. 6:502, 1847 ; Sri Lanka, lectotype "leg. Gardner" (K): Nomen illegit. non Persoon 1825.

The epithet was validated as:
- *G. ferreum* Over. & Steinm.; Arch. Rubbercult. Nederl. Indie 7:453, 1923.
= *Fomitopsis rhodophaeus* (Lév.) Imaz., teste Ryvarden (1977b:220).

fici Pat., G. ; Expl. Sci. Tunisie 4:4, 1892 ; on the basis of the trunk of an old *Ficus carica,* Gafsa, Tunisia, lectotype s.coll., "21 mars 1871", s.n. (FH).
Ganoderma group, in the *G. lucidum* complex (Ryvarden 1983:19). Known only from the type locality.

flabellata Imaz., E. ; Bull. Govt. Forest. Exp. Sta. Tokyo 57:103, 1952 ; Roemabatoe, Irian Jaya, Indonesia, lectotype "Iziri and Nitmutra 213813" (TNS).
= *G. mastoporum* (Lév.) Pat., teste Aoshima (1971:431).

flabelliformis Scop., B. ; Flora Carniolica 2:466, 1772 ; Austria, type lost: Nomen illegit. non *B. flabelliformis* Leyss. 1761.
The epithet was validated as:
- *G. flabelliforme* Murr. ; Journ. Myc. 9:94, 1903.
= *G. applanatum* (Pers.) Pat. in the European literature.

flaviporum Murr., A. ; North Am. Flora 9:116-117,1908 ; on *Melicocca bijuga*, Hope Mine, Jamaica, lectotype "F.S. Earle 105, Oct. 25, 1902" (NY).
- *G. flaviporum* (Murr.) Sacc. & Trott. ; Syll. Fung. 21:304, 1912.
= *G. coffeatum* (Berk.) Furt., teste Furtado (1967b:383).
= *Hu. coffeatum* (Berk.) Stey., teste Ryvarden (1985:171).

flexipes Pat., G. ; Bull. Soc. Myc. Fr. 23:75, 1907 ; on rotten trunk, Tonkin, Vietnam, lectotype "Eberhardt LBA 101" (FH).
Ganoderma group. For a description see Steyaert (1972:82-83), Ryvarden (1983:19) or Zhao (1989:31-33). The type specimen is characterized by having a long and thin stipe, which varies to a great extent in length and breadth in other collections (Steyaert loc.cit.). Reported from Vietnam, Nepal, Pakistan, North India and South China.

fomentarius L., B. ; L. Species Plant. p.1176, 1753 ; Sweden, no authentic specimen is known. The specimen on plate 133 in Sowerby 1798 was designated as lectotype by Gilbertson and Ryvarden (1986:263).
- *P. fomentarius* L.: Fr. ; Syst. Mycol. 1:374, 1821.
- *F. fomentarius* (L.: Fr.) Kickx ; Fl. Crypt. Flandern 2:237, 1862.
- *E. fomentaria* (L.: Fr.) Murr. ; Bull. Torrey Bot. Club 30:298, 1903.
This species is the type species of *Fomes* Kickx. For a modern description see Gilbertson and Ryvarden (1986:263).

formosanum Chang & Chen, G. ; Trans. Br. Mycol. Soc. 82:731, 1984 ; on *Liquidambar formosana*, Shan Ming, Tauyen, Taiwan, holotype "T.T. Chang 8002" (TAI).
= *G. sinense* Zhao et al., teste Moncalvo and Hseu (unpublished).

formosissimus Speg., P. ; Fung. Guaranitici Pug. 1:19, 1883 ; Balansa, Paraguay, type lost.
- *G. formosissimum* (Speg.) Speg. ; Bol. Acad. nac. Cienc. Córdoba 23:409, 1919.
- *G. formosissimum* (Speg.) Torr. ; Brotéria, Ser. Bot. 18:31, 1920: Nomen illegit. non Spegazzini 1919.
Furtado (1981:99) wrote: "The situation involving this species is somewhat confused. [...] According to Bresadola, as cited by Lloyd, it would be identical to *P. renidens* [= *A. renidens*]. Later Lloyd corrected his former position and mentioned that the species was a member of *Ganodermus*". Indeed, Lloyd (Let. 68:11, 1918) also stated that the taxon resembles *G. lucidum* but is subsessile and comes close to *P. capensis*. This name should be abandoned.

fornicatus Fr., P. ; Epicr. Mycol. p. 433, 1838 ; Guyana, type probably lost (not in UPS).
- *G. fornicatum* (Fr.) Pat. ; Bull. Soc. Mycol. Fr. 5:71, 1889.
- *G. fornicatum* (Fr.) Bres. ; Bull. Soc. Mycol. Fr. 6:41, 1890: Nomen illegit. non Patouillard 1889.
- *G. fornicatum* (Fr.) Rick ; Iheringia Bot. 7:209, 1960: Nomen illegit. non Patouillard 1889.
Ganoderma group. Zhao (1989:73) followed Patouillard (1889:70) and classified this species in the vicinity of *G. amboinense* and *G. cochlear*, which are two problematic names. Torrend (1920:33) considered it as a form of *G. dorsale*. Reported from Guyana, Brazil, Sri Lanka throughout East Asia including South China, Japan, Taiwan and Australia. However, a neotypification is necessary ortherwise the name should be abandoned.

frondosum Pat., G. ; in Heim, Bull. Soc. Myc. Fr. 42:292-293, 1926 ; on *Guazuma ulmifolia*, near Guasdualito, Venezuela, lectotype ? not found in FH by Ryvarden (1983:19).
The status of this species is unknown.

fujianense Zhao, Xu & Zhang, A. ; Acta Microbiol. Sin. 19:275, 1979 ; on dead wood, Fujian, China, lectotype "Zhao, Xu & Zhang no 68" (HMAS).
Amauroderma group. For a description see Zhao (1989:140-142) who noted the laccate pileus, large basidiospores (7.5-13.5 x 6.7-12 µm), and a pilear crust formed by several layers as diagnostic characteristics of this species. He added that it resembles *A. leptopus*. Known only from South China.

fulvellum Bres., G. ; in Patouillard, Bull. Soc. Mycol. Fr. 5:69, 1889 ; Cameroon, lectotype "Joh. Braun" (fragm. B, FH).
Ganoderma group, in the *G. lucidum* complex (Ryvarden 1988b:310). No modern description has been found. Patouillard (loc.cit.) indicated that he created *G. fulvellum* Bres. to replace *P. umbraculus* Thüm. 1878 (nomen illegit. non Fries 1828) as he stated that the type of the latter belongs to *G. fulvellum*; however, Patouillard did not make a nomen novum for *P. umbraculus* Thüm. but described a new species because he designated a type for *G. fulvellum* different than the type of *P. umbraculus* Thüm. Patouillard (loc.cit.) wrote that *G. fulvellum* resembles a sessile *G. lucidum* but is distinguished by the color of the context ("fulvo-tabacinus"), of the cap ("fulvo-rufescens"), and of the growing margin ("albido luteolo"). Bresadola (1911:267) stated that it resembles *G. tumidum*, which may be a synonym of *G. zonatum* (Steyaert, 1967a:473; Ryvarden, 1988b:325). Lloyd (Ap.Pol.:370, 1915) reported collections from Java and Dutch Guyana, and noted only slight differences with *P. (G.) tropicus*. Zhao (1989:75-76) examined a so-called neotype (?) in K and referred Chinese collections to this species. Recorded from Cameroon, Java, subtropical China, and Guyana.

fuscatus Lloyd, P. ; Mycol. Writ. 6:942, 1920 ; Angola, lectotype "T.D. Maitland", Lloyd Herb. 27132 (BPI): Nomen illegit. non Fries 1821.
The epithet was validated as:
- *A. fuscatum* Otieno ; Sydowia 22:175, 1968.
Amauroderma group. The validation of the epithet by Otieno (loc.cit.) was overlooked by Furtado (1981:59) who introduced the superfluous name *A. oblongisporum* for *P. fuscatus* Lloyd non Fr. For a description of this taxon see under *A. oblongisporum* in Furtado (1981:59-62) or Ryvarden and Johansen (1980:77-78). The latter authors noted that macroscopically it resembles *A. preussii* but differs in having elongated basidiospores. It is related to *A. argenteofulvum* and *A. ealaensis* (Ryvarden 1974:69). Reported throughout tropical Africa.

fuscoporia Wakef., A. ; in Wakefield and Talbot, Bothalia 6:948, 1948 ; Harare, Zimbabwe, lectotype "J.C.F. Hopkins no. 4441, 20-03-1939" (K).
Amauroderma group. For a description see Ryvarden and Johansen (1980:75) who noted that it may be a synonym of *A. preussii*. Known only from the type locality.

fuscum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:102, 1962 ; Kaniama, Shaba Prov. (formerly Bas-Katanga), Zaire, s.hosp., holotype "Massart", s.n. (BR).
Ganoderma group, in the *G. lucidum* complex. See the Latin diagnosis (detailed). Known only from the type locality.

galegensis Mont., P. ; Ann. Sci Nat. ser. 2, 15:274, 1841 ; Galega Is., Indian Ocean, lectotype s.coll., "Galega prope Mauritius", s.n. (P).

- *G. galegense* (Mont.) Pat. ; Bull. Soc. Myc. Fr. 5:74, 1889.
Ganoderma group. According to Ryvarden (1982:78) the type is sterile and is close to *G. amboinense* sensu Steyaert (1972:88), which belongs to the *G. chalceum* complex. Cunningham (1965:259) had a different concept of this taxon: he considered it a synonym of *E. tornata,* probably following Lloyd (Fom.:265, 1915) who stated that the taxon is doubtfully distinct from *F. applanatus*. Known only from the type locality if we do not follow Lloyd's concept of this species.

ghesquierei Stey., G. ; Bull. Jard. Bot. Bruxelles 32:90-91, 1962 ; on dead tree, Lukoleka, ?Zaire (ex-Congo), holotype "Ghesquière", s.n. (BR).
Ganoderma group. See the Latin diagnosis (detailed), in which Steyaert stated that it is related to *G. vanmeelii* in the *G. lucidum* group. Known only from the type locality.

gibbosus Blume & Nees: Fr., P. ; Elench. Fung. 1:77, 1828 [1821] ; Java, Indonesia, lectotype "Blume", not found. There are various combinations in the literature attributing the name either to Nees alone, Blume & Nees or Fries alone, which are all invalid: this name was cited by Fries in Elenchus Fungorum and was based on *Polyporus gibbosus* Blume & Nees in Nova Acta Acad. Caes. Leop. Carol. 13:19, 1826, therefore, the correct basionym for this taxon is *P. gibbosum* Blume & Nees: Fr.
- *G. gibbosum* (Blume & Nees: Fr.) Pat.; Ann. Bot. Buitenz. 8:114, 1897.
- *G. applanatum* (Pers.) Pat. var. *gibbosum* (Blume & Nees: Fr.) Teng ; Chinese Fungi p. 450, 1963.
Elfvingia group in the *G. applanatum - australe* complex. Fries (loc.cit.) reported the species as non-laccate and stipitate. Later, Patouillard (loc.cit.), Lloyd (Let. 55:3-4, 1915), Teng (loc.cit.), and Zhao (1989:111-113) referred many tropical, non-laccate and stipitate collections as *G. gibbosum*. Lloyd (loc.cit.) gave a good illustration of a specimen from Brazil which "could be considered an annual, stipitate form of *Fomes leucophaeus*" (= *G. applanatum* in the modern literature), and later (Lloyd 1919:859) wrote that it is the same as *G. applanatus*. It has been stated by various authors that in the tropics individuals of the *G. applanatum - australe* complex can develop a stipe; this may therefore be an adaptive feature. In laboratory experiments, Hseu (pers.comm.) was able to induce stipe formation from strains of *G. applanatum - australe*. Reported from Indonesia, China and Brazil.

gilletii Stey., G. ; Bull. Jard. Bot. Bruxelles 32:95, 1962 ; s.hosp., Moanda, ?Zaire (ex-Congo), holotype "Gillet", s.n. (BR).
Ganoderma group. Latin diagnosis detailed. Known only from the type locality.

gossweilerii Lloyd, P. ; Mycol. Writ. 5, Let. 67:14, 1918 ; Loanda, Angola, lectotype "leg. Gossweiler" Herb. Lloyd 23954? (BPI).

Ganoderma group, but the combination in *Ganoderma* has yet to be done. In the original description Lloyd (loc.cit.) described the species as being non-laccate, and to be compared with *P. dubiocochlear*. Ryvarden (1990:89), however, classified the type in the *G. lucidum* complex. There might be a confusion surrounding the identity of the type. Known only from the type locality.

guadeloupense Pat., G. ; Bull. Soc. Mycol. Fr. 15:198, 1899 ; Camp Jacob, Guadeloupe, lectotype "Duss 111" (FH).
= *G. intermedium* Bres. & Pat., teste Bresadola.
= *A. rude* (Berk.) Torr. var. *intermedium* (Bres. & Pat.) Furt., teste Furtado (1981:75).
= *A. rude* (Berk.) Torr., teste Ryvarden (1983:20).
Amauroderma group. In the original description Patouillard already noted that it is in the vicinity of *G. intermedium*. Known only from the type locality.

guangxiense Zhao & Zhang, A. ; Acta Mycol. Sin. 5:221, 1986 ; on dead wood, Longgang, Guangxi, China, holotype "Wei Beng-Gang 790115" (HMAS 47796).
Amauroderma group. For a description see Zhao (1989:142-143) who noted as diagnostic characters of this species the large and laccate pileus, short and thick stipe, and broadly ellipsoid or subglobose basidiospores. It may be related to *A. longgangense*. Known only from South China.

guinanense, Zhao & Zhang, G. ; Acta Mycol. Sin. 5:221, 1986; on dead wood, Longgang, Guangxi, China, holotype HMAS 48282.
Ganoderma group. For a description see Zhao (1989:76-78) who stated that it may be intermediate between *Ganoderma* and *Amauroderma*. Known only from South China.

guizhouense He, G. ; in He and Wang, Acta Mycol. Sin. 7:8, 1988 ; on wood, Bijie, Qingshuipu, Guizhou Prov., China, holotype "He Shao-Chang 39" (HMAS). Description in Chinese. Known only from the type locality.

gusmanianum Torr., A. ; Brotéria Bot. 18:129, 1920 ; Cachoeira de Belem, Bahia State, Brazil, isotypes "Torrend ex Herb. Weir 30598 and 30599" (BPI).
= *A. schomburgkii* (Mont. & Berk.) Torr. f. *gusmanianum* (Torr.) Furt. ; Rev. Gen. *Amauroderma* (Polyp.). Est. Bas. Microestr. Basid. p. 274, 1968.
Amauroderma group. For a modern description see Furtado (1981:82-84). In the original description, Torrend (loc.cit.) wrote (translated from French): "[*A. gusmanianum*] is considered distinct from *A. torrendii* by Lloyd but is, in our opinion, only a variety collected few meters away". Furtado (1981:31) considered *A. torrendii* a synonym of *A. calcigenum* and *A. gusmanianum* a form of *A. schomburgkii* (Furtado, 1968:274, 1981:82). This, together with other remarks in

Torrend (1920) and Furtado (1981, e.g. page 84), suggests the existence of a species complex that lumps *A. schomburgkii* and *A. calcigenum*, of which the taxonomy can probably not be solved by morphological studies alone. Known only from Brazil.

hainanense Zhao, Xu & Zhang, G. ; Acta Microbiol. Sin. 19:269, 1979 ; on deciduous tree, Bawangling, Hainan Is., China, HMAS 37994.
Ganoderma group. For a description see Zhao (1989:33-34) who noted that it resembles *G. atrum* and *G. calidophilum*. Known only from South China.

henningsii Lloyd, P. ; Mycol. Writ. 3, Stip.:105, 1912 ; s.loc., Africa, lectotype "Stuhlman", ?lost in B, fragm. in BPI as stated by Furtado (1981:99-100) but not found by Ryvarden (1990:91): Nomen illegit. non Bres. 1891.
The type specimen belongs to the Ganodermataceae and has yet to be given a valid name. Lloyd (loc.cit.) included this fungus among members of *Polyporus* Stirpe *Ganodermus*, and stated that Hennings confused this species with *P. eminii*. Furtado (1981:99-100) examined a fragment of the type in BPI but could not reach any taxonomic conclusion, because it has both *Amauroderma*-type and *Ganoderma*-type basidiospores: one type is believed to be an accidentally mixed contaminant. Known only from the type locality.

heteromorphus Lév., P. ; Ann. Sci. Nat. Bot. III 5:123, 1846 ; French Guyana, lectotype in PC, fragm. BPI.
- *A. heteromorphum* (Lév.) Torr. ; Brotéria Bot. 18:139, 1920.
= *A. schomburgkii* (Mont. & Berk.) Torr., teste Furtado (1968:268), teste Ryvarden (1981:181).

hildebrandii Henn., G. ; in Patouillard, Bull. Soc. Mycol. Fr. 5:69, 1889 ; on the ground, Comores Is., lectotype "leg. Hildebrand" (K, ex B), only a small fragment remains.
Ganoderma group. For a description see Moncalvo and Ryvarden (1995). It is a thin, slender laccate species growing on the ground and having dextrinoid skeletal hyphae, a reaction unusual in *Ganoderma*. It is related to *G. leucocreas*. Known only from tropical Africa.

hinnuleum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:96-98, 1962 ; on trunk of *Scorodophloeus zenkeri*, Yangambi, Zaire, holotype "Fassi 1008" (BR).
Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

hoehnelianum Bres., G. ; Annals Mycol. 10:502, 1912 ; on trunk, Tjibodas, Java, Indonesia, lectotype in FH.

Elfvingia group, "*Ganodermati umbrino* videtur affine" in the original description. For a modern description see Ryvarden (1988b:314) who noted that macromorphologically it resembles *G. ostracodes* but has longer spores and a very different crust. Known only from the type locality.

hollidayi Stey., G. ; Bull. Jard. Bot. Bruxelles 32:99-100, 1962 ; Tio Barbas, Rio Vaupes, Columbia, holotype "P. Holliday PH.51" (K and BR).
Ganoderma group. See the Latin diagnosis (detailed) in which Steyaert stated that it is related to *G. bibadiostriatum* (in the *G. parvulum* complex). Known only from the type locality.

hongkongense Fan & Liu, A. ; Acta Mycol. Sin. 9:202, 1990 ; on dried wood in forest, Hong Kong, holotype "MHSU 1801" (MHSU).
Amauroderma group. Known only from the type locality.

hoploides Stey., G. ; Bull. Jard. Bot. Bruxelles 31:82-83, 1961 ; on dead trunk, Abyalose river, Albert National Park, Zaire, holotype "De Witte 10991" (BR).
Ganoderma group, in the *G. lucidum* complex. See the Latin diagnosis (detailed). Known only from the type locality.

hypoxanthus Bres., P. ; Annals Mycol. 10:494, 1912 ; Tjibodas, Java, Indonesia, lectotype in S or FH?
- *G. hypoxanthum* (Bres.) Humphr. ; Mycologia 30:332, 1938.
= *Fomitopsis spraguei* (Berk.) Gilb. & Ryv., teste Ryvarden (1988b:314).
A confusion surrounds the lectotype material: Humphrey (loc.cit.) made the combination in *Ganoderma* from a "lectotype" in S (fragm. K) whereas Ryvarden (loc.cit.) made the synonymy with *Fomitopsis spraguei* from a "lectotype" in FH, both collections being from the same locality. However, the fact that Bresadola did not describe the species in genus *Ganoderma* strongly suggests that the lectotype is the material examined by Ryvarden in FH, which corresponds fairly well with the short latin diagnosis in Bresadola (loc.cit.).

impolitum Corner, G. ; Beheift. Nova Hedw. 75:158-159, 1983 ; on rotten trunk, Cameron Highlands, Pahang, Malaysia, holotype "E.J.H. Corner, 5 Aug. 1934", s.n. (Herb. Corner, CGE or E).
Elfvingia group. See the original description, in which Corner stated that it may be a non-laccate ally of *G. pfeifferi*, and suggested further comparison with *G. pfeifferi* var. *borneense* (Corner 1983:140), *G. brownii, G. kosteri, G. manoutcherii*, and, indeed (!, loc.cit.) *G. tropicum*. Recorded only in peninsular Malaysia and Borneo.

incrassatus Berk., P. ; J. Linn. Soc. 11:41, 1878 ; Somerset, Cap York, Australia, lectotype "Challenger" (K).

- *G. incrassatum* (Berk.) Bres. ; Hedw. 56:295, 1915.
= *G. applanatum* (Pers.) Pat., teste Ryvarden (1984).
Elfvingia group. Bresadola (loc.cit.) described a forma *substipitata* and wrote "forma valde *Ganodermati gibboso* var. *pulchella* Bres. affinis". However, Bresadola wrote on the sheet attached to the lectotype that he also had identified the specimen as *G. applanatum* (Ryvarden, loc.cit.). Known only from the type locality.

incrustatus Fr., F. ; Nov. Symb. 60, 1851 ; Costa Rica, lectotype "Oersted", lost.
- *G. incrustatum* (Fr.) Bres. ; Bot.-zool. Ergebnisse von den Samoa u. Salomon Inseln p. 2, 1910.
Ganoderma group. Bresadola (loc.cit.) made the combination in *Ganoderma* as he described *G. incrustatum* forma *bilopbum*. The short Latin diagnosis indicates that it is a laccate and stipitate species related to *G. lucidum* s.lato. Torrend (1920:33) suggested a comparison with *G. dorsale*, *G. boninense* and *G. lorenzianum*. We suggest to abandon this name since no type can be traced, as already stated by Lloyd (Stip.:109, 1912).

infulgens Lloyd, P. ; Mycol. Writ. 5:656, 1917 ; Bahia State, Brazil, lectotype "Torrend, 1923" (Herb. Lloyd 23406, BPI).
- *A. infulgens* (Lloyd) Torr., Brotéria Bot. 18:134, 1920.
- *G. infulgens* (Lloyd) Sacc. & Trott. ; Syll. Fung. 23:407, 1925.
= *G. coffeatum* (Berk.) J. Furt., teste Furtado (1967b:383), teste Ryvarden (1990:91).

infundibuliforme Wakef., A. ; Bull. Misc. Inf. Kew 1917:309, 1917 ; on base of dead tree, Bumpenge Forest, Uganda, type "T.D. Maitland 24a, Jan. 1915" (K, BPI, fragm. BR).
- *G. infundibuliforme* (Wakef.) Sacc. & Trott. ; Syll. Fung. 23:406, 1925.
- *M. infundibuliforme* (Wakef.) Stey. ; Persoonia 7:112, 1972.
Amauroderma group. For a description see Ryvarden and Johansen (1980:76), Furtado (1981:50-52), or Steyaert (1972:112). Reported from Uganda and Kenya.

inopinus Lloyd, P. ; Mycol. Writ. 5:802, 1918 ; Rio Grande, do Sul State, Brazil, lectotype "J. Rick", Herb. Lloyd 23592 (BPI).
- *A. inopinum* (Lloyd) Torr. ; Brotéria Bot. 18:138, 1920.
- *A. inopinum* (Lloyd) Rick ; Iheringia Bot. 7:211, 1960: Nomen illegit. non Torr. 1920.
= *A. camerarium* (Berk.) Furt., teste Furtado (1981:35-38).

insulare, Har. & Pat., G. (sect. A.) ; J. Bot. 17:11, 1903 ; Pine Is. (about 50 km SE of New Caledonia), Pacific, lectotype "Iles des Pins, Tahiti, Pancher Sep. 1901" (FH).

- *A. insulare* (Har. & Pat.) Torr. ; Brotéria Bot. 18:139, 1920.
Amauroderma group. For a description see Furtado (1981:52-55). Known only from the type locality.

intermedium Bres. & Pat., G. (sect. A.) ; in Patouillard, Bull. Soc. Myc. Fr. 5:76, 1889 ; Brazil, lectotype in FH (ex B).
- *A. intermedium* (Bres. & Pat.) Torr. ; Brotéria Bot. 18:128, 1920.
= *A. rude* (Berk.) Torr. var. *intermedium* (Bres. & Pat.) Furt. ; Rev. Gen. *Amauroderma* (Polyp.). Est. Bas. Microestr. Basid. p. 251, 1968.
Amauroderma group. For a description see Furtado (1981:75-77). Furtado (loc.cit.) and Ryvarden (1983:21) noted that neotropical collections of *A. rude* (i.e., *A. rude* var. *intermedium*) are somewhat darker and have smaller spores than paleotropical collections (*A. rude* var. *rude*). The two varieties might eventually represent two distinct species. Reported throughout the neotropics.

japonicus Fr., P. ; Epicr. 442, 1838 ; Thunberg, Japan, type probably lost (not in UPS). Fries was apparently reluctant to name this species since he did not number it as he did for the other species.
- *G. lucidum* (W.Curt.: Fr.) Karst. var. *japonicum* (Fr.) Bres. ; Annals Mycol. 10:500, 1912.
- *G. japonicum* (Fr.) Sawada ; Formosa Gov. Res. Inst., Dept. Agric. Rep. 51:76, 1931.
- *G. japonicum* (Fr.) Kawam. ; Icones of Japanese Fungi 2:201, 1954: Nomen illegit. non Sawada 1931.
Ganoderma group, in the *G. lucidum* complex. Bresadola (loc.cit.) reported that it differs from European *G. lucidum* by having larger spores. By stating that *G. japonicum* is a darker form of *G. lucidum*, Lloyd (cited in Torrend, 1920:30) may be at the origin of the confusion associates with black, laccate and stipitate *Ganoderma* in the Orient: Imazeki (1939:35) stated that Sawada misinterpreted *P. japonicus* Fr. and accepted the Friesian species as a synonym of *G. lucidum*, whereas he referred *G. japonicum* [non Fr.] Sawada as a new species: *G. neojaponicum* Imazeki (Imazeki, 1939:37). Later, Zhao et al. (1979:272, in Zhao 1989:90-91) described a new species, *G. sinense*, to name a common Chinese fungus generally identified as *G. japonicum*. Because the specimen examined by Fries has probably been lost, we will never know the true identity of *P. japonicus* Fr.: the name should be dropped from consideration.

jiangxiense Zhao & Zhang, A. ; Acta Mycol. Sin. 6:202, 1987 ; on dead wood, Ji'an Xian, Jiangxi, China, holotype HMAS 50418.
Amauroderma group. For a description see Zhao (1989:143-144) who noted that it resembles *G. duropora* but has typical *Amauroderma* spores. Known only from China.

juriense Henn., *P. sacer* var. ; Hedwigia 43:180, 1904 ; Rio Juruci, Acre, Brazil, lectotype "Ule" lost in B.
- *A. juriense* (Henn.) Torr. ; Brotéria Bot. 18:142, 1920.
Amauroderma group? Torrend (loc.cit.) stated that it is very different from *P. sacer* and gave a very short description which does not help to fix this species. Known only from the type locality. No authentic specimen has been preserved; this name should be abandoned.

juxtarugosus Lloyd, P. ; Mycol. Writ. 6:1096, 1921 ; Kochi, Japan, lectotype "Yoshinaga", Herb. Lloyd 27116 (BPI).
- *A. juxtarugosum* (Lloyd) Imaz. ; Bull. Sci. Mus. Tokyo 6:100, 1943.
= *A. subrugosum* (Bres. & Pat.) Torr., teste Furtado (1981:91), teste Ryvarden (1990:92).

koningsbergii Lloyd, F. ; Mycol. Writ. 4, Fom.:270, 1915 ; Java, Indonesia, lectotype in BPI.
- *G. koningsbergii* (Lloyd) Teng ; Fungi of China, p.450, 1963.
= *G. australe* (Fr.) Pat., teste Ryvarden (1989:233).

kosteri Stey., G. ; Persoonia 7:68-69, 1972 ; on *Pterocarya* sp., Zuid-Holland, Gouda, The Netherlands, holotype "M.S. Koster" (L 968.302-783, fragm. BR).
Elfvingia group, in the *G. applanatum - australe* complex. See the original description in which Steyaert stated that it is related to *G. adspersum*. Recorded only in the Netherlands and not mentioned in the monograph of European polypores in Ryvarden and Gilbertson (1993).

kunmingense Zhao, G. ; Acta Mycol. Sin. 8:27, 1989 ; on dead wood, Kunming, Yunnan, China, holotype HMAS 17575.
Ganoderma group. For a description see Zhao (1989:33-36) who noted that it resembles *G. flexipes* and *G. lucidum* but has a thinner pileus and wood-colored context. Known only from South China.

kwiluensis Beeli, *Polystictus* ; Bull. Jard. Bot. Etat. Bruxelles 8:250, 1930 ; Kwango, Kwilu, Zaire, lectotype "Vanderyst, 1911", s.n. (BR).
- *A. kwiluensis* (Beeli) Ryv. ; Bull. Jard. Bot. Nat. Belg. 44:70, 1974.
Amauroderma group. For a description see Ryvarden and Johansen (1980:77). Its closest relatives seem to be *A. sikorae* and *A. sericatum* (Ryvarden 1974:70). Known only from the type locality.

laccatus Timm., B. ; Fl. megalop. Prodr. p. 269, 1788; Germany. Type not known.
- *P. laccatus* (Timm.) Pers. ; Mycol. Europ. p. 54, 1825.

- *G. laccatum* (Timm.) Pat. ; Ann. Bot. Buitenz. 8:11, 1897.
= *G. lucidum* (W.Curt.: Fr.) P. Karst., teste Steyaert (1972:93-95) who examined *P. laccatus* (Timm.) Pers. in Herb. Persoon (L 910.263-590). Fries (1821:353) already considered *B. laccatus* a synonym of *P. lucidus*.

laccatus Kalch, P. ; Oest. Bot. Zeitschr. 35:81, 1885: Nomen illegit. non Persoon 1825.
- *G. laccatum* Bourdot & Galzin ; Bull. Soc. Myc. Fr. 41:185, 1925: Nomen illegit. non Patouillard 1897. Combination introduced by Bourdot and Galzin as nomen novum to replace *P. laccatum* Kalch. 1885 non Pers. 1825.

lamaoense Stey., G. ; Persoonia 7:89-90, 1972 ; s.hosp., Lamao river alt. 150 m., Luzon Is., Philippines, holotype R.S. Williams? "no. 153" (NY, fragm. BR).
Ganoderma group. See the original description. Steyaert (loc.cit.) found two collections in NY labeled "no. 153" which are marked "type" but are not named. He recognized one collection as the holotype of *G. subtornatum*, and described the other collection as *G. lamaoense* Stey. Corner (1983:128) did not distinguished this taxon from *G. chalceum*. Known only from the type locality.

lauterbachii Henn., F. ; Bot. Jahrbuch. 25:499, 1898 ; New Guinea, lectotype "Lauterbach 801a", Herb. Lloyd 23968 (BPI, fragm. BR).
= *G. rivulosum* Pat., teste Aoshima (1971:428).
Ganoderma group, but the combination in *Ganoderma* has never been formally made: Hennings (loc.cit.) published *Fomes (Ganoderma) lauterbachii*, therefore, it is a mistake to write *G. lauterbachii* P. Henn. as did several authors. According to Steyaert (1972:79, 115) *G. rivulosum* is a synonym of *G. weberianum*, whereas "*G.*" *lauterbachii* resembles *G. weberianum* but differs in the absence of gasterospores in the context. Corner (1983:149) apparently did not examine the types but considered "*G.*" *lauterbachii* and *G. rivulosum* synonyms of *G. weberianum*. *G. microsporum* is related to the taxa of this group. Known only from the type locality.

leptopus Pers., P. ; in Gaudichaud, Voy. aut. Monde p. 169, 1826 [1827] ; Lawak Is., near Irian Jaya, Indonesia, lectotype "Gaudichaud", Herb. Lloyd 29176 (PC, fragm. BPI and BR).
- *G. leptopus* (Pers.) Graf. ; Bull. Torr. Bot. Club 48:289, 1921.
- *A. leptopus* (Pers.) Furt. ; Bull. Jard. Bot. Nat. Belg. 37:310, 1967.
Amauroderma group. For a description of this laccate *Amauroderma* species see Furtado (loc.cit. or 1981:55-56), who noted that distinction with *A. renidens* is tentative and will rest on further collections. *A. picipes* and *G. umbraculum* are related taxa. Known only from the type locality; but the species is also present in West Africa if *G. umbraculum* is a synonym, as proposed by Patouillard (1889:75)

and Furtado (loc.cit.).

leucocreas Pat. & Har., G. ; Bull. Soc. Myc. Fr. 28:281, 1912 ; on the ground, Loango, Zaire, lectotype s.coll., "1905", s.n. (FH).
Ganoderma group. For a description see Moncalvo and Ryvarden (1995). It is related to *G. hildebrandii* but has larger basidiospores and longer pilocystidia. It looks intermediate between *Ganoderma* and *Amauroderma*. Reported throughout tropical Africa.

leucophaeus Mont., P. ; Syll. Crypt. p. 157, 1856 ; s.hosp., Ohio, U.S.A., lectotype "Sullivant", s.n. (P).
- *G. leucophaeum* (Mont.) Pat. ; Bull. Soc. Myc. Fr. 5:73, 1889.
- *G. leucophaeum* (Mont.) Bres. [as "*leucopheum*"] ; Bull. Soc. Mycol. Fr. 6:41 , 1890: Nomen illegit. non Pat. 1889.
= *G. applanatum* (Pers.) Pat., teste Ryvarden (1982:79).
Elfvingia group, in the *G. applanatum - australe* complex. Patouillard (1889:73) stated that it is intermediate between *G. applanatum* and *G. australe*. Murrill (1908:114) and Bresadola (1913:53) considered it a synonym of *E. megaloma*, which is a synonym of *G. applanatum* in the American literature (e.g., Atkinson, 1908:189; Lowe and Gilbertson, 1961:505). Lloyd (Fom.:264, 1915) distinguished *Fomes (G.) leucophaeus* from *F. (G.) applanatus* in stating that *F. leucophaeus* has a harder and paler crust, and reported this species worldwide and being more common than *F. (G.) applanatus*.

leucosporum Corner, A. ; Beheift. Nova Hedw. 75:72-73, 1983 ; on the ground in forest, Reservoir Jungle, Singapore, holotype Corner "4 April 1931", s.n. (Herb. Corner, CGE or E).
Amauroderma group. See the original description in which Corner characterized this species as follows: small and stipitate pileus, dextrinoid and very minutely punctuate spores (6.5-7 x 6-6.5 mm), and dextrinoid skeletal hyphae. Known only from the type locality.

leytense Stey., G. ; Persoonia 7:90-91, 1972 ; s.hosp., Palo, Leyte, Philippines, holotype "Elmer 7213" (K, fragm. BR; different from Elmer 7213 in NY).
Ganoderma group. See the original description. Steyaert (loc.cit.) examined two collections labeled Elmer 7213, one in K and one in NY, both identified *G. subtornatum* by Murrill: he concluded that the two collections are not *G. subtornatum* and belong to two different species. He identified the NY collection as *G. chalceum* and described the K collection as *G. leytense*. Corner (1983:128) did not distinguished this taxon from *G. chalceum*. Reported from Philippines and Indonesia.

lignicola Lloyd, *Polystictus* ; Mycol. Writ. 5:696, 1917 ; Bahia, Brazil, lectotype "C. Torrend 667" (BPI).
- *Amauroderma* sp.? teste Ryvarden (1992:131).
An immature and sterile specimen of unknown identity, but probably an *Amauroderma* species (Ryvarden, loc.cit.). The name should be abandoned.

lignosum Pat., G. ; Bull. Soc. Myc. Fr. 40:165, 1924 ; on trunk, Victoria Falls, Zimbabwe, lectotype "M. Buisson, Février 1923" (FH).
= *G. sculpturatum* (Lloyd) Ryv., teste Ryvarden (pers. obs., unpublished).

limushanense Zhao & Zhang, G. ; Acta Mycol. Sin. 5:219-221, 1986 ; on dead wood, Limushan, Hainan Is., China, holotype HMAS 47605.
Elfvingia group. For a description see Zhao (1989:113-114) who noted that it resembles *G. mastoporum*. Known only from the type locality.

lingua Blume & Nees: Fr., P. ; Elench. Fung. 1:77, 1828 [1821] ; on wood, Java, Indonesia, lectotype "Blume", not found, no authentic specimen has been preserved (Steyaert 1967a:480). There are various combinations in the literature attributing the name either to Nees alone, Blume & Nees or Fries alone, which are all invalid: this name was cited by Fries in Elenchus Fungorum and was based on *Polyporus lingua* Blume & Nees in Nova Acta Acad. Caes. Leop. Carol. 13:15, 1826, therefore, the correct basionym for this taxon is *P. lingua* Blume & Nees: Fr.
- *G. lingua* (Blume & Nees: Fr.) Pat. ; Bull. Soc. Mycol. Fr. 5:70, 1889.
- *G. amboinense* (Lam.: Fr.) Pat. f. *lingua* (Blume & Nees: Fr.) Pat. ; Philipp. J. Sci. 10:96, 1915.
Ganoderma group. Patouillard (1889:70, 72) noted that it resembles *G. amboinense* and *G. boninense*, and later considered it as a form of *G. amboinense* (Patouillard, 1915:96). It may belong to the *G. chalceum* complex and antedate one or several names. However, this taxon has yet to be correctly typified. In BPI there is a fertile specimen labeled "*G. lingua* Blume et Nees, Java, Junghuhn" (Bresadola's handwriting) which may be selected as neotype in future studies. Known only from the type locality.

linhartii Kalch., P. ; in Linhart, Fung. Hung. No. 252, 1884 ; on *Populus nigra*, Altenburg, Hungary, authentic specimen "Linhart", s.n. (BP, fragm. BR).
- *G. linhartii* (Kalch.) Igmandy ; Acta Phytopath. 3:237, 1968.
= *G. australe* (Fr.) Pat., in Patouillard (1889:71), teste Steyaert (1972:67) who mistook *G. adspersus* as the valid name.

lionnetii Roll., G. ; Bull. Soc. Myc. Fr. 17:180, 1901; on *Mango*, Panama, lectotype "Lionnet", not located.
- *E. lionnetii* (Roll.) Murr. ; Bull. Torrey Club 30:301, 1903.

According to Murrill (loc.cit.) this species belongs to the *Elfvingia* group, but Torrend (1920:32) indicated relationships to the *Ganoderma* group. We did not find any description of the crust to take a decision. If no authentic specimen can be found, this name should be dropped as nomen confusum.

lipsiensis Batsch., B. ; Elench. Fung. Contin. Prima p. 183-186, 1786 ; Germany, no authentic specimen has been preserved.
- *E. lipsiense* (Batsch.) Murr. ; Bull. Torr. Bot. Club 30:297, 1903.
- *G. lipsiense* (Batsch.) Atk. ; Annals Mycol. 6:189-190, 1908.
Elfvingia group, in the *G. applanatum-australe* complex. Atkinson (1908:189) included *G. applanatum* in the numerous synonyms of this species. However, Persoon (1801) indicated with doubt whether it was a synonym of *Boletus applanatus*. No authentic specimen remains: therefore, we propose to abandon this name.

lloydii Pat. & Har., G.; Bull. Soc. Mycol. Fr. 28:281, 1912 ; s.loc., Africa, s.coll., lectotype in PC, fragm. FH.
- *Hu. lloydii* (Pat. & Har.) Stey. ; Persoonia 7:99-100, 1972.
Humphreya group and the type species of the genus *Humphreya*. For a description see Furtado (1967b:385-386), Steyaert (1972:99-101) or Ryvarden and Johansen (1980:97). It is a well characterized species having a dull, dark brown and finely velvety stipitate basidiocarp, and reticulate spores. Distribution: throughout tropical Africa.

lobatoideum Stey., G. ; Bull. Jard. Bot. Nat. Belg. 50:168-170, 1980 ; on top of fallen log, Essequibo river, Moraballi creek, near Bartica, Guyana, holotype "Martyn 604" (K, fragm. BR).
Elfvingia group. See the original description in which Steyaert stated that it is distinguished from *G. lobatum* by having smaller basidiospores and a more Southern distribution: tropical America up to Mississippi and New Orleans. However, this taxon was absent from recent studies of *Ganoderma* in North America (Gilbertson and Ryvarden, 1986; Adaskaveg and Gilbertson, 1986, 1988, 1989).

lobatum Schw., P. ; Trans. Amer. Phil. Soc. II 4:157, 1832 ; s.hosp., Salem, North Carolina, U.S.A., lectotype "Schweinitz", s.n. (NY, fragm. BR).
- *E. lobata* (Schw.) Murr. ; N. Am. Fl. 9:114, 1908.
- *G. lobatum* (Schw.) Atk. ; Annals Mycol. 6:190, 1908.
- *G. lobatum* (Schw.) Lowe ; N.Y. State Col. Forestry Syracuse Univ. Tech. Publ. 60:116, 1942: Nomen illegit. non Atkinson 1908.
Elfvingia group. For a description see Steyaert (1980:167-168) or Gilbertson and Ryvarden (1986:296-297). Reported from North America and China. Batista (in Da Silva and Minter, 1995) reported *E. renifomis* from Brazil (miscombined as *G.*

reniformis Morgan in Lloyd) which is probably a synonym.

longganggense Zhao & Zhang, A. ; Acta Mycol. Sin. 5:222, 1986 ; on dead wood, Longgang, Guangxi, China, holotype ? (HMAS).
Amauroderma group. For a description see Zhao (1989:145-146) who noted that it differs from *A. guangxiense* only by its pilear crust. These two species are similar to *G. sinense* but have the spores of *Amauroderma*. They may be intermediate between *Amauroderma* and *Ganoderma*. Known only from South China.

longipes Lév., P. ; Ann. Sci. Nat. ser 3, 5:124, 1846 ; on trunk, s.loc., French Guyana, lectotype s.coll., s.n. (PC, fragm. BR), isotype in BPI.
- *G. longipes* (Lév.) Pat. ; Bull. Soc. Myc. Fr. 5:75, 1889.
- *A. longipes* (Lév.) Torr. ; Brotéria Bot. 18:135, 1920.
- *A. longipes* (Lév.) Lloyd ex Wakef. ; Kew Bull. 1934:243, 1934: Nomen illegit. non Torr. 1920.
- *Ha. longipes* (Lév.) Stey. ; Persoonia 7:109, 1972.
Haddowia group, type species of genus *Haddowia*. For a description of this very distinctive species see Steyaert (1972:109), Ryvarden and Johansen (1980:93-94), Furtado (1967a:312-314, 1981:56-59) or Corner (1983:166-168). Distribution: pantropical.

lorenzianum Kalch., F. ; Sitzber. Gomb. p. 21, 1879 ; Conception, Uruguay, lectotype lost.
- *G. lorenzianum* (Kalch.) Pat. ; Bull. Soc. Mycol. Fr. 5:70, 1889.
Ganoderma group. No modern description has been found. Bazzalo and Wright (1982:311-312) stated that it may be an earlier name for *G. resinaceum*. The name should be abandoned, or could be neotypified with a specimen examined by Patouillard (loc.cit.) when he did the combination in *Ganoderma*. Reported from Uruguay, Paraguay, and Brazil.

lucidus W.Curt., B. ; Fl. Lond. t. no. 224, 1781 ; on *Corylus avellana,* Peckham, London, England, no authentic specimen remains ; Steyaert (1961a) designated Curtis' plate as neotype.
Type species of *Ganoderma*.
- *P. lucidus* W.Curt.: Fr. ; Syst. Mycol. 1:353, 1821.
- *G. lucidum* (W.Curt.: Fr.) P. Karst. ; Rev. Mycol. 3:17, 1881.
Karsten (loc.cit.) mistakenly attributed the epithet *lucidus* to von Leysser and this error has been perpetuated in numerous subsequent publications. We have intentionally omitted all such incorrect combinations.
Ganoderma group. *G. lucidum* is a species complex. Lloyd (Stip.:109, 1912) did not distinguished between *P. lucidus, P. valesiacum,* and *P. tsugae.* In Europe, distinction with *G. resinaceum* was unclear until Steyaert's works (1967b,

1972:93-97, 1980:170-180). The concept of *G. lucidum* s.stricto in Europe was discussed by Steyaert (1967b:197-204, 1972:93-95), Ryvarden and Gilbertson (1993:275-277), and Ryvarden (1995), and descriptions are found in these papers. *G. lucidum* has been reported worldwide, but might be restricted to Europe as revealed by molecular data (Moncalvo et al., 1995b).

lusambilaense Stey., G. ; Bull. Jard. Bot. Bruxelles 32:92, 1962 ; on *Antrocaryon nannanii,* Yangambi, Zaire, holotype "Fassi 1446" (BR).
= *G. multiplicatum* (Mont.) Pat., teste Steyaert (1980).
Ganoderma group. Steyaert (loc.cit.) adopted a very large species concept for *G. multiplicatum*, which may need reconsideration. Known only from the type locality.

luteicinctum Corner, G. ; Beheift. Nova Hedw. 75:159-160, 1983 ; on fallen dead trunk in the forest, Reservoir Jungle, Singapore, holotype "Corner, 25 May 1932", s.n. (Herb. Corner, CGE or E).
Elfvingia group. See the original description, in which Corner stated that it is close to *G. philippii* but also shares characters with *G. tropicum*. He also suggested comparison with *G. dejongii* and *G. donkii*. Known only from Singapore.

luteomarginatum Zhao, Xu & Zhang, G. ; Acta Microbiol. Sin. 19:274, 1979 ; on stump of deciduous tree, Haikou Shi, Hainan Is., China, holotype HMAS 37719.
Ganoderma group. For a description see Zhao (1989:78-80) who noted similarities with *G. sinense* and *G. austrofujianense*. Known only from South China.

luteum Stey., G. ; Bull. Jard. Bruxelles 31:82, 1961 ; on dead trunk, Yangambi, Zaire, holotype "Ghesquière 349" (BR).
= *G. multiplicatum* (Mont.) Pat., teste Steyaert (1980).
Ganoderma group. Steyaert (loc. cit.) adopted a very large species concept for *G. multiplicatum*, which may need reconsideration. It should also be compare with *G. lusambilaense*. Known only from the type locality.

macer Berk., P. ; Hook. J. Bot. & Kew Misc. 8:176, 1856 ; Panure, Amazonas State, Brazil, lectotype "Spruce", s.n. (K).
- *G. macer* (Berk.) Pat. ; Bull. Soc. Mycol. Fr. 5:79, 1889.
- *A. macer* (Berk.) Torr. ; Brotéria Bot. 18:140, 1920.
- *A. macrum* (Berk.) Wakef. ; Kew Bull. 1934:243, 1934: Nomen illegit. non Torrend 1920. Wakefield's conjugation of the epithet is based on a misunderstanding of the gender of *Ganoderma.*
= *A. exile* (Berk.) Torr., teste Furtado (1981:43).

macrosporum Furt., A. ; Rev. Gen. *Amauroderma* (Polyp.). Est. Bas. Microestr. Basid. p. 203, 1968 ; on roots, Instituto de Botanica, Parque do Estado, Sao Paulo,

Brazil, holotype "K. Fidalgo and J. Furtado, Feb. 1960" (SP 47598).
Amauroderma group. For a description see Furtado (1981:59) who noted that it resembles *A. calcigenum* but basidiospores are different. It is a possible synonym of *A. aurantiacum* (Furtado 1981:59). Known only from Brazil.

magniporum Zhao & Zhang, G. ; Acta Microbiol. Sin. 3:15, 1984 ; on deciduous tree, Nugang, Guangxi, China, holotype HMAS 42696.
Ganoderma group. For a description see Zhao (1989:79-80) who noted the large pores (2-2.5 per mm) and the small pileus as diagnostic characters of this species. Known only from South China.

maitlandii Stey., G. ; Bull. Jard. Bot. Bruxelles 31:77, 1961 ; Sese Is., Uganda, holotype "Maitland", s.n. (K, fragm. BR).
= *G. subfornicatum* Murr., teste Steyaert (1980).
Ganoderma group, in the *G. chalceum* complex. Steyaert (loc.cit.) also described *G. maitlandii* var. *ellipsosporum* which was later considered a synonym of *G. chalceum* (Steyaert, 1967a:481-482). Corner (1983:127) did not distinguish *G. chalceum* from *G. subfornicatum*. Known only from the type locality.

malayanum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:103-104, 1962 ; on dead trunk, Maquiling, Prov. Laguna, Philippines, holotype "C.F. Baker, Fungi Malayana 234" (P, fragm. BR).
Ganoderma group. See the Latin diagnosis (detailed). Corner (1983:128) did not distinguished this taxon from *G. chalceum*. Known only from the type locality.

malesianum Corner, A. ; Beheift. Nova Hedw. 75:73-75, 1983 ; on the ground in forest, Johore, Malaysia, holotype "Sing. F.N. 23725" (Herb. Corner, CGE or E).
Amauroderma group. See the original description, in which Corner stated that it is unlikely that this common and widespread species has not already been described, but because he was unable to identify it satisfactorily ("it may be *A. buloloi*") decided to describe a new species (!). Corner (1983:79) reported two varieties, one being close to *A. fuscoporia*. Reported from Malaysia, Singapore, Borneo and the Solomon Islands.

mangiferae Lév., P. ; Ann. Sci. Nat. ser. 3, 5:130 ; Mahe Is., Tahiti, lectotype "M. Perville, 1841" (PC).
- *G. mangiferae* (Lév.) Pat. ; Bull. Soc. Myc. Fr. 5:74, 1889.
Ganoderma group. No modern description has been found. This species seems to belong to the *G. chalceum* complex, according to the short description in Bresadola (1911:268). It was reported from Malaysia by Chipp (in Corner, 1983:37), Malagasy (Lloyd, Let. 39:3, 1912), and various localities in Africa (Lloyd, Let. 66:4, 1917; other Letters).

manoutchehrii Stey., G. ; Persoonia 7:71-72, 1972 ; on *Acacia* sp., Ramsar, Mazanderan, Iran, holotype "A. Manoutcheri", s.n. (?, fragm. BR).
Ganoderma group. See the original description, in which Steyaert noted that it is close to *G. pfeifferi* but differs in the cutis anatomy. Known only from the type locality.

marasmioides Berk., P. ; Hooker J. Bot. 8:173, 1856; Rio Negro, Amazonas State, Brazil, lectotype "Spruce", ?s.n. (K).
- *A. marasmioides* (Berk.) Torr. ; Brotéria Bot. 18:142, 1920.
= *A. exile* (Berk.) Torr., teste Furtado (1981:43).
Torrend (loc.cit.) already noted that *A. marasmioides* is a smaller form of *A. exile*.

mastoporus Lév., P. ; Ann. Sci. Nat. ser. 3, 2:182, 1844 ; Singapore, lectotype "Singapore, Fév. 1832" (PC, authentic specimens in BPI).
- *G. mastoporum* (Lév.) Pat. ; Bull. Soc. Mycol. Fr. 5:71, 1889.
- *E. mastopora* (Lév.) Imaz. ; Bull. Govt. Forest. Exp. Sta. Tokyo 57:104, 1952.
Ganoderma or *Elfvingia* group? Cunningham (1965:258) followed Imazeki (loc.cit.) and classified this species in *Elfvingia*, but Zhao (1989:80-82) examined an authentic specimen in BPI and reported the cutis of hymenoderm type, therefore, classified the species in subgenus *Ganoderma*. Corner (1983:135-136) described Malaysian collections and reported that the cutis is a defective hymenoderm because pilocystidia are formed but disappear in the mature crust. Humphrey and Leus (1931:501), Corner (loc.cit.), and Zhao (loc.cit.) indicated that *G. subtornatum* may be a synonym. Reported throughout Asia including Australia and New Zealand, and from Africa (Lloyd, Stip.:104, 1912; Let. 65:1, 1917).

mediosinense Zhao, G. ; Acta Mycol. Sin. 7:205, 1988 ; on dead wood, Jiangxi, China, holotype HMAS 42779.
Ganoderma group. For a description see Zhao (1989:82-84) who reported it as a distinctive species somewhat similar to *G. fulvellum*. Known only from China.

megaloma Lév., P. ; Ann. Sci. Nat. ser. 3, 5:128, 1846 ; New York, U.S.A., the type was not found by Ryvarden (1981:182).
- *E. megaloma* (Lév.) Murr. ; Bull. Torrey Bot. Club 30:300, 1903.
- *G. megaloma* (Lév.) Bres. ; Hedwigia 53:54, 1919.
= *G. applanatum* (Pers.) Pat. in the American literature: see Atkinson (1908:189) and Lowe and Gilbertson (1961:505).

megalosporum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:93, 1962 ; Forest near Nairobi, Kenya, holotype "Maitland", s.n. (K, fragm. BR).
Ganoderma group. In the original description Steyaert stated that it resembles *G. namutambalaense* but has larger spores. Known only from the type locality.

meijiangense Zhao, G. ; Acta Mycol. Sin. 7:16, 1988 ; on dead wood, Meijiang Xian, Yunnan, China, holotype HMAS 28751.
Elfvingia group. For a description see Zhao (1989:116-117) who stated that it resembles *G. williamsianum*. Known only from South China.

melanophaeum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:94, 1962 ; on stump, Arboretum de l'Etoile, Lubumbashi (formerly Elisabethville), Shaba Prov. (formerly Haut-Katanga), Zaire, holotype "D. Soyer 247a" (BR).
Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

meredithae Adask. & Gilb., G. ; Mycotaxon 31:251-257, 1988 ; on *Pinus taeda*, Pineville, Grant Parish, Louisiana, U.S.A., holotype "R. Summers, JEA 345" (BPI).
Ganoderma group. See the original description. Known only along the Gulf Coast region from East Texas to Georgia, and apparently restricted to pines.

mexicanum Pat., G. ; Bull. Soc. Myc. Fr. 14:54, 1898 ; Tepalcingo, Mexico, lectotype "D. de Jonacatepec, Oct. 22, 1890" (FH).
Ganoderma group, in the *G. lucidum* complex (Ryvarden 1983:25). Known only from the type locality.

microsporum Hseu, G. ; in Hseu, Chen and Wang, Mycotaxon 35:35-40, 1989 ; on dead trunk of *Salix babylonica*, Taipei, Taiwan, holotype TAI 9021 (in the author's collection).
Ganoderma group. See the original description. Peng (1990) suggested that *G. microsporum* is a synonym of *G. weberianum* but the former has smaller spores and the context is free of gasterospores. It should also be compared with *G. lauterbachii*. Known only from the type locality.

mindoroi Lloyd, P. ; Myc. Writ. 7:1261, 1924; on stem of *Areca catechu*, Davao, Mindanao, Philippines, lectotype "E.B. Copeland 380" (K, PC, fragm. BR).
- *G. mindoroi* (Lloyd) Humph. ; Mycologia 30:333, 1938.
= *G. cupreum* Bres., teste Bres. (in Steyaert 1967a:485).
= *G. chalceum* (Cke) Stey., teste Steyaert (1967a:481).
Ganoderma group, in the *G. chalceum* complex. The species should have been named "mindanaoi" because the type was from Mindanao Is. and not Mindoro Is. According to Humphrey (loc.cit.), the taxon is widely distributed in the Philippines and has probably an earlier name. Steyaert (loc.cit.) proposed synonymy with *G. cupreum* and *G. chalceum* but, if so, mistook the latter name as the valid name. Reported only from the Philippines.

miniatocinctum Stey., G. ; Bull. Jard. Bot. Nat. Belg. 37:477, 1967 ; on *Elaeis guineensis*, Malaysia, holotype "Oil Palm 18" (BANT, fragm. BR).
Ganoderma group. See the Latin diagnosis (detailed), in which Steyaert stated that it is very close to *G. boninense*. Corner (1983:126) considered the two species being possible synonyms of *G. chalceum*. Distribution: Malaysia, Singapore, Solomon Is.

miquelianum Mont., S. ; Tijdschr. Wis. Natturk. Wetensch. 4:203, 1851 ; Surinam, lectotype "Focke 948" (U).
- *A. miquelianum* (Mont.) Reid ; Persoonia 2:135, 1962.
= *A. calcigenum* (Berk.) Torr., teste Furtado (1981:31-35).
The type is a steroid and immature basidiocarp. Furtado did not examine the type but referred to Reid's (loc.cit.) description to reduce it as synonym of *A. calcigenum*. Known only from the type locality.

mirabilis Lloyd, F. ; Myc. Writ. 3, Let. 33:3, 1911 ; Straits Settlements, Singapore, lectotype "C.B. Ussher 12", Lloyd Herb. 38731 (BPI, fragm. BR).
- *G. mirabile* (Lloyd) Humph. ; Mycologia 30:332, 1938.
Elfvingia group. For a description of this massive fungus see Steyaert (1972:72), Ryvarden (1983:5-6) or Corner (1983:160-161). Reported from Malaysia, Singapore, and Philippines.

mirivelutinum Zhao, G. ; Acta Mycol. Sin. 7:206, 1988 ; on dead wood, Wuzhishan, Hainan Is., China, holotype HMAS 19397.
Ganoderma group. For a description see Zhao (1989:84-85). The velvet on the pileus surface is formed with very numerous clavate, thick-walled and brownish cells and is a diagnostic character for this species. Known only from South China.

mollicarnosus Lloyd, P. ; Mycol. Writ. 4, Let. 60:11, 1915 ; Durban, Natal, South Africa, holotype "I.B. Pole Evans no. 58" (fragm. BPI and PRE).
- *G. mollicarnosum* (Lloyd) Sacc. & Trott. ; Syll. Fung. 23:401, 1925.
= *Navisporus floccosus* (Bres.) Ryv., teste Ryvarden (1990:92).
For a description see Reid (1974:224) or Ryvarden and Johansen (1980:442-443). It has a very soft and spongy context with light color; although Lloyd (loc.cit.) described the spores being smooth, he classified this species in *Polyporus* section *Ganodermus* and stated that it is close to *P. (G.) colossus* because of its context. Steyaert (1980:157) stated that it is morphologically indistinguishable from *G. colossus* but has basidiospores similar to those of *G. oregonense*; however, Steyaert had not examined the type and his statement has to be overlooked.

mongolicum Pilát, G. ; Annals Mycol. 38:78, 1940 ; on wood, "Wei Tchang, Mongolia orientalis" in the original description, located by Zhao (1989:38) in Hebei

Prov., China; isotypes labeled "Licent 14-VI-1927, no. 1324" and "Siao Wan Keou 17-VI-1927, no. 1301" in the original description; Steyaert (1980:149) found in PR (fragm. BR) a specimen labeled "Wei Tchang, Licent 14-VI-1927", s.n., which is certainly an isotype.
= *G. tsugae* Murr., teste Steyaert (1980:148).
However, Steyaert (loc.cit.) stated that further research on Asian species may modify his conclusion. Zhao (1989:38-39) described an authentic specimen (HMAS 1053) collected by Licent also in Hebei province: he distinguished that collection from *G. tsugae* and tentatively identified it as *G. mongolicum*. Known only from the type locality.

mosselmanii Torr., A. ; Brotéria Bot. 18:137, 1920 ; Agua Preta, near Ilheus, Brazil, lectotype "Mosselman du Chesnoy" (URM).
= *A. schomburgkii* (Mont. & Berk.) Torr., teste Furtado (1981:80).

multipilea Hou, G. ; Quart. J. Taiwan Mus. 3:101-104, 1950 ; on stump, Taichung, Taiwan, holotype "Yeu-Fei Yu, Sept. 7, 1949" (Taiwan Museum).
Ganoderma group. This is a doubtful species known only from the type specimen, which looks like a monstrosity with many pilei growing together and many protuberances. It certainly belongs to a species of the *G. lucidum* complex.

multiplicatus Mont., P. ; Ann. Sci. Nat. ser. 4, 1:128, 1854 ; on trunk, French Guyana, lectotype "Leprieur 867, Crypt. Guyan. 357" (K, fragm. BR).
- *G. multiplicatum* (Mont.) Pat. ; Bull. Soc. Fr. 5:74, 1889.
Ganoderma group. Corner (1983:127-128) considered the taxon undistinguishable from *G. chalceum*. For a description see Steyaert (1980:150-156), who reduced to synonymy three species he previously described from Africa (*G. luteum* and *G. lusambilaense*) and India (*G. wynaadense*). In doing that, Steyaert allowed wide morphological variations for this species. Zhao (1989:39-40) examined two authentic specimen (in BR) and reported the species from Hainan Island (South China). From Steyaert's (loc.cit.) concept, *G. multiplicatum* is pantropical and subtropical, as already indicated by Lloyd (Ap.Pol.:371, 1915) who reported collections from Tahiti, New Guinea, Egypt, and even one collection from Washinton D.C. in the U.S.A. (!?).

namutambalaense Stey., G. ; Bull. Jard. Bot. Bruxelles 32:90, 1962 ; on dead tree, Namutambala forest, Uganda, holotype "Maitland 12A" (K, fragm. BR).
Ganoderma group. See the Latin diagnosis (detailed) in which Steyaert stated that it resembles *G. megalosporum*. Known only from the type locality.

neglectum Pat., G. ; Journ. Bot. (Morot) 1:169, 1887 ; on trunk, Nicaragua, holotype in PC.

- *A. neglectum* (Pat.) Torr. ; Brotéria Bot. 18:139, 1920.
Murrill (1908:124), Lloyd (Stip.:109, 1912), Steyaert (1980:184) and Ryvarden (1983:26) all noted that the type in Paris is in very bad condition, therefore, it is not possible to describe properly this taxon without additional material. A so-called authentic specimen in PC is doubtful because the spores are different from those described by Patouillard in the original description. We agree with Murrill (loc.cit.) that the name should be dropped from consideration as nomen dubium.

neojaponicum Imaz., G. ; Bull. Tokyo Sci. Mus. 1:35-37, 1939 ; on coniferous stump, Mt. Takawo, Tokyo Pref., Japan, lectotype "Y. Kobayasi, Aug. 1935" (TNS 200762).
Ganoderma group. For a description see Hattori and Ryvarden (1994:39). Imazeki (loc.cit.) stated that Sawada misinterpreted *P. japonicus* Fr., therefore, described *G. neojaponicum* to accomodate *G. japonicum* [non Fr.] Sawada. Reported only from Japan and Taiwan.

neurosporum Furt., G. ; Persoonia 4:386, 1967 ; Buenos Aires, Panama, lectotype "Myer 18-VII-1945" (BPI and SP), paratypes "Malme 15-VI-1894" (BPI), "B. Maguire et al. 29390" (NY and SP), and "Dodge et al. 5668" (BPI).
- *Ha. neurospora* (Furt.) Teixeira ; Rev. Bras. Bot. 15:126, 1992.
Haddowia group. See the original description or Teixeira (loc.cit.). Reported throughout tropical America.

nevadense Murr., G. ; North Amer. Flora 9:119, 1908 ; on dead spruce trunk, Marlette Lake, Nevada, lectotype "C.F. Baker 1489, Dec. 28, 1902" (NY, fragm. K., BR).
= *G. oregonense* Murr., teste Steyaert (1980:156), teste Ryvarden (1985:179).

niger Lloyd, P. ; Mycol. Writ. 6:881, 1919 ; on rotten tree, Bijinidi, Cameroon, lectotype "G. Zenker", Lloyd Herb. 29165 (BPI): Nomen illegit non Berk. 1845 (Ryvarden 1990:93).
The epithet was validated as:
- *A. nigrum* Rick ; Iheringia Bot. 7:211, 1960.
Amauroderma group. According to Furtado (1981:91) it is a synonym of *A. subrugosum* (= ? *A. rugosum*). On the other hand Zhao (1989:158-160), who also examined both the type of *P. niger* Lloyd and of *A. subrugosum*, concluded that they represent two distinct species. However, Zhao mistook the name *A. niger* Lloyd instead of *A. nigrum* Rick. The taxonomic status of this species needs a re-evaluation. Reported only from Cameroon and China.

nigrocrustosus Lloyd, P. ; Mycol. Writ. 4, Ap. Pol.:373, 1915 ; Dodabetta, India, lectotype "H. Val. Ryan", Herb. Lloyd 54590 (BPI).

Ganoderma group, but the epithet has not yet been combined in the genus. No modern description has been found. Ryvarden (1990:95) indicated that the taxon has probably an earlier name and suggested comparison with *G.* cf. *amboinense*, i.e., with species of the *G. chalceum* complex. Known only from the type locality.

nigrolaccatus Cke, P. ; Grevillea 9:97, 1881 ; Mauritius Is., lectotype in K.
= *G. galegense* (Mont.) Pat. pro parte and *G. applanatum* (Pers.) Pat. pro parte, teste Bresadola (1912:313).
As seen above, the type collection is mixed and a revised typification is needed to fix the taxonomic concept of the epithet, or the name should be abandoned. The epithet given by Cooke suggests that this species was described from a black and laccate basidiomata, hitherto belonging to the *Ganoderma* group; however Lloyd (Fom.:265, 1915), who was aware that the type was mixed and consisted of two different species, applied the name for tropical forms of *G. applanatus* (*Elfvingia* group) with "a slight, black, resinous exudation on the crust. Such we think should be called *Fomes nigrolaccatus* [...] as Cooke named several collections [...]"; but Lloyd also added that none of Cooke's "technical type" is *Fomes nigrolaccatus* (!). Following his concept of the species, Lloyd reported collections from Africa, India, New Zealand, ?Japan, Cuba, etc... (Let. 38:8, 1911; Fom.:265, 1915; Let. 63:7, 1916; see also other Letters). The name is absent from the modern literature.

nigrolucidum Lloyd, P. ; Mycol. Writ. 6:925, 1920 ; Durban, Natal, South Africa, lectotype "leg. P. Van der Bijl" Herb. Lloyd 22888 (BPI) or "Van der Bijl 13941" (PRE).?
- *G. nigrolucidum* (Lloyd) Reid ; Bothalia 11:221-230, 1974.
= *G. hildebrandii* Henn., teste Moncalvo and Ryvarden (1995:176).
There is an uncertainty about the type which is either Van der Bijl's specimen in BPI or PRE (see Reid, 1974:224). However, both specimens are very similar and have *G. hildebrandii* as earlier name.

nitens Fr., P. ; Linnea 5:537, 1830 ; Brazil, lectotype "Rudolph", s.n., apparently lost (not in UPS).
- *G. nitens* (Fr.) Pat. ; Bull. Soc. Myc. Fr. 5:67, 1889.
- *G. nitens* Laz.; Rev. Real Acad. Cienc. Exact. Nat. Madrid 14:104, 1916: Nomen illegit. non (Fr.) Pat. 1889.
Ganoderma group. No modern description has been found. Known only from the type locality. This name should be abandoned.

nitidum Murr., G. ; North Amer. Flora 9:123, 1908 ; on dead trunk in the forest, Rio Esperanza, Puerto Sierra, Honduras, lectotype "P. Wilson 607, Feb. 28, 1903" (NY).
= *G. resinaceum* Boud., teste Bazzalo and Wright (1982:310).

Ganoderma group, in the *G. lucidum* complex (Ryvarden 1985:179). Known only from the type locality.

noukahivense Pat., G. ; Bull. Soc. Myc.. Fr. 5:72, 1889 ; s.hosp., Taipi-Vai, Nouka-Hiva Is., Marquises Is., lectotype "E. Jardin", s.n. (PC, fragm. BR)
= *G. lucidum* var. *noukahivense* Pat. ; Bull. Soc. Mycol. Fr. 3:168. 1887:
= *G. boninense* Pat., teste Steyaert (1967a:479).

nutans Fr., P. ; Nov. Symb. p. 61, 1851 ; San Jose, Costa Rica, lectotype "Oersted", s.n., lost (not in UPS).
- *G. nutans* (Fr.) Pat. ; Bull. Soc. Mycol. Fr. 5:68-69, 1889.
- *A. nutans* (Fr.) Murr. ; North Am. Flora 9:117, 1908.
No modern description has been found. It is hard to have an idea about this taxon either from Patouillard's (loc.cit.) or Murrill's (loc. cit.) descriptions. In addition, the two authors had a different concept about this Friesian species. Furtado (1981:101) examined a specimen in NY which he considered being a "merotype" but gave no details about the collection; he classified that collection in *Ganoderma*. Lloyd (Stip.:109, 1912) already stated that no type exists and that the identity of this species is unknown, adding that specimens identified as such in P, B, and K are all different from each other. This name should be abandoned.

oblongisporum Furt., A. ; Rev. Gen. *Amauroderma* (Polyp.). Est. Bas. Microestr. Basid. p. 208, 1968 ; Angola, lectotype "T.D. Maitland", Lloyd Herb. 27132 (BPI) as *P. fuscatus* Lloyd in Mycol. Writ. 6:942, 1920: Superfluous name. Furtado was not aware that Lloyd's illegitimate epithet had previousely been validated as *A. fuscatum* Otieno (see under "*fuscatus*").

obockense Pat., G. ; Bull. Soc. Mycol. Fr. 3:119, 1887, on *Mimosa* sp., Obock, Djibouti, Somalia, lectotype "M. Farrot" (PC).
= *G. colossum* (Fr.) Baker, in Lloyd, Murrill, Patouillard, Torrend, all cited in Furtado (1965), teste Steyaert (1972:97) and Ryvarden and Johansen (1980:89).

ocellatus Berk., P. ; Hook. J. Bot. 8:172, 1856 ; on the ground, Caatingas, Panure, Amazonas State, Brazil, lectotype "Spruce 189" (K, fragm. NY, BPI).
- *A. ocellatum* (Berk.) Torr., Brotéria Bot. 18:140, 1920.
- *A. ocellatum* (Berk.) Wakef. ; Kew Bull. 1934:243, 1934: Nomen illegit. non Torrend 1920.
= *A. schomburgkii* (Mont. & Berk.) Torr., teste Furtado (1981:80).

ochrolaccatus Mont., P. ; Ann. Sci. Nat. 18:241, 1842 ; s.hosp., Manila, Philippines, lectotype "Cumings no. 1979" (isotypes in K and FH).
- *G. ochrolaccatum* (Mont.) Pat. ; Bull. Soc. Fr. 5:68, 1889.

Ganoderma group, assignable to *Humphreya* group (Corner, 1983:31)? For a description see Ryvarden (1982:80). It is characterized by very large basidiospores (28-32 x 18-21 µm). Corner (1983:136-138) described a collection from Papua New with minutely reticulated basidiospores as those of *Hu. eminii*. Zhao (1989:84-87) referred to this species Chinese specimens with smaller spores than the type. Reported by these authors from Philippines, Malaysia, New Guinea and South China, but also from Singapore, Australia and the Solomon Is. by Lloyd (Let. 63:11, 1916; vol.6:957, 1920); the species is also present in Zaire if *G. buissonii* is a synonym, as proposed by Ryvarden (1983:9).

oerstedii Fr., P. ; Nova Acta Soc. Sci. Upsal. Ser. 3:1, 1851 ; San Juan, Puerto Rico, lectotype "Oersted", lost. There is in UPS (fragm. BPI, ?S) an authentic specimen also labelled "Oersted" which is from Costa Rica, and was considered as being the lectotype by Steyaert (1980:159) and Bazzalo and Wright (1982:318). We therefore propose to select this specimen as neotype: Costa Rica, neotype "Oersted" (UPS).
- *G. oerstedii* (Fr.) Murr. ; Bull. Torrey Club 29:606, 1902.
- *G. oerstedii* (Fr.) Torr. ; Brotéria Bot. 17:37, 1920: Nomen illegit. non Murrill 1902.
Ganoderma group. Steyaert (loc.cit.) and Bazzalo and Wright (loc.cit.) examined the type but reached different conclusions: the species is close to *G. pfeifferi* in Steyaert, but related to *G. lucidum* in Bazzalo and Wright. There has been some confusion with the original citation of the name, e.g., Steyaert (loc.cit) and Bazzalo and Write (loc.cit.) cited as basionym *Fomes orstedii* Fr., Symb. Myc. p.63, 1855. The species was clearly described in *Polyporus* in 1851. The confusion arose when Fries published in 1855 a paper with the title "Novae Symbolae Mycologicae" without mention that the paper already appeared with the same title in Nova Acta Soc. Sci. Upsal. Ser. 3, 1851; also, Fries described the species in Stirps *Fomentarii* and wrote *P. (Foment.) oerstedii*, but this can not be use as combination in *Fomes*. Lloyd (Let. 39:7, 1912) reported a collection from Pakistan, and considered the taxon as a tropical, sessile form of *P. lucidus* which comes close to European *P. resinaceus* and North American *P. sessilis*. Commonly reported from South and Central America including the Caribbean Islands.

ohiensis Berk., T. ; Grevillea 1:66, 1872 ; Waynesville, Ohio, U.S.A., lectotype in K.
- *G. ohiensis* (Berk.) Coker ; Journ. Elisha Mitch. Sci. Soc. 43:133, 1927.
= *Perenniporia ohioensis* (Berk.) Ryv., teste Ryvarden (1984:349).

omphalodes Berk., P. ; Hook. J. Bot. & Kew Misc. 8:172, 1856 ; Panure, Amazonas State, Brazil, isotypes "Spruce 32" and "Spruce 194" (NY).
- *G. omphalodes* (Berk.) Pat. (in sect. A.) ; Bull. Soc. Myc. Fr. 5:77, 1889.

- *A. omphalodes* (Berk.) Torr. ; Brotéria Bot. 18:131, 1920.
- *A. omphalodes* (Berk.) Imaz. ; Bull. Tokyo Sci. Mus. 6:100, 1943: Nomen illegit. non Torrend 1920.
Amauroderma group. For a description see Furtado (1981:62-65), who noted resemblance with *A. sprucei, A. camerarium* and *A. praetervisum*. Reported throughout tropical America.

opacus Berk. & Mont., P. ; Ann. Sci. Nat. ser. 3, 11:236, 1849 ; Bahia, Brazil, lectotype "B. & M. no. 32" (K).
- *G. opacum* (Berk. & Mont.) Pat. ; Bull. Soc. Mycol. Fr. 5:67, 1889.
Ganoderma group. No modern description has been found. Ryvarden (1977:223) examined the type specimen and accepted the species in *Ganoderma*. Furtado (1967b:383) and Steyaert (1972:102) mistook as lectotype a collection by Blanchet (K and BPI) from Bahia, Brazil, and both authors considered the species a synonym of *P. coffeatus*. Known only from the type locality.

orbiformis : Bazzalo and Wright (1982:323) wrote that *G. orbiforme* Fr. (sic) was reported in Argentina by Spegazzini in Bol. Acad. Nac. Cienc. Cordoba 28:278,1926. However, this name was never published by Fries and is invalid.

oregonense Murr., G. ; North Amer. Flora 9:119, 1908 ; on old log of *Picea sitchensis*, Kirkwood, Tillamook coast, lectotype "1905", s.coll., s.n. (NY, fragm. BR).
Ganoderma group. For a description see Steyaert (1980:156-158) or Gilbertson and Ryvarden (1986:301-303). Steyaert (loc.cit.) stated that it may be a temperate variant of *G. colossus*. In contrast, Gilbertson and Ryvarden (loc.cit.) noted that it is doubtfully distinct from *G. tsugae*, although morphological differences between the two taxa exist (Adaskaveg and Gilbertson, 1988). Known from the Pacific Northwest and California; we found one old record from Japan also on conifer (Lloyd, Let.54:5, 1915), but the taxon has not otherwise been recorded in Japan (e.g., see Imazeki, 1939; Hongo and Izawa, 1994).

oroflavus Lloyd, F. ; Mycol. Writ. 4, Fom.:265, 1915 ; syntypes "rev. James Wilson", Australia, and "C.N. Forbes", Hawaii, not found in BPI by Ryvarden (1989:234) who selected a neotype: Berkeley, California, U.S.A., "S.P. Parish", Herb. Lloyd 13958 (BPI).
- *G. oroflavum* (Lloyd) Humph. ; Philipp. J. Sci. 45:503, 1931.
- *G. oroflavum* (Lloyd) Teng ; Fungi of China p. 449, 1963: Nomen illegit. non Humphrey 1931.
= *G. annularis* (Fr.) Gilb., teste Ryvarden (1989:234), which is an illegitimate name (see "*annularis* Fr.").
Elfvingia group, in the *G. applanatum - australe* complex. Steyaert (1975:461,

466) mistook as lectotype a collection from Malagasy labelled "H. Pierrier de la Bathie", Herb. Lloyd 34373 (BPI, fragm. BR) which he considered synonym of *G. australe*. The neotype selected by Ryvarden (California) may not represent very well the taxon that Lloyd described from specimens from Australia and Hawaii because in the original description Lloyd (loc.cit.) wrote: "We have several collections from the United States (particularly from California) which we refer to *Fomes applanatus* that have yellow pore mouths, but they are not the deep yellow of the tropical plant [*F. oroflavus*]" although later Lloyd (vol.7:1289, 1924) included Californian collections in this taxon. This name should be reconsidered in the context of an evaluation of the non-laccate *Ganoderma* with yellow pores in Australia and the Pacific Is. and a reassessement of *G. annularis* and *G. brownii* in U.S.A., within a comprehensive biogeographic study of the *G. applanatum - australe* complex.

oroleucum Pat. & Har., G. ; Bull. Soc. Myc. Fr. 22:118, 1906 ; Java, Indonesia, lectotype coll. P. Serre "Java, Serri" (FH), labeled in pencil "= *tropicum* Jungh." (Ryvarden 1983:27).
= *G. tropicum* (Jungh.) Bres., according to Lloyd (Ap. Pol.:370, 1915) and Steyaert (1972:78).
Ganoderma group. It is not known who wrote "= *tropicum* Jungh." on the sheet attached to the type in FH. Steyaert (loc. cit.) apparently had not examined the type. Ryvarden (loc.cit.) placed the taxon in the *G. lucidum* complex until a comprehensive revision of the laccate species. Known only from the type locality.

ostracodes Pat., G. ; Bull. Soc. Myc. Fr. 29:208, 1913 ; La Pho, Tonkin, Vietnam, lectotype "Demange 328" (FH).
Ganoderma group. For a description see Ryvarden (1983:27-28), who stated that macromorphologically it resembles *G. hoehnelianum* but has smaller spores and a very different crust (Ryvarden 1988b:314). Known only from the type locality.

ostreatum Laz., G. ; Rev. Real Acad. Ciencias Exact. Nat. Madrid. 14:110, 1916 ; Linares, Jaen, Spain, lectotype "leg. Montero Villas" (Univ. Madrid).
= *G. lucidum* (W.Curt.: Fr.) Karst., teste Ryvarden and Calonge (1976:159).

pallens Pat., G. (in sect. A.) ; Bull. Soc. Myc. Fr. 39:52-53, 1923 ; Compong Chanang, Cambodia, Jul. 1921, lectotype "M. Petelot" (FH).
= *Cystostiptoporus violaceocinerascens* (Petch.) Ryv., teste Ryvarden (1983:28).

papillatus Lloyd, P. ; Mycol. Writ. 4, Notes 41:567, 1916 ; Bahia State, Brazil, lectotype "C. Torrend" (URM), fragm. Herb. Lloyd 27107 (BPI).
- *A. papillatum* (Lloyd) Torr. ; Brotéria Bot. 18:126, 1920.
- *G. papillatum* (Lloyd) Sacc. & Trott. ; Syll. Fung. 23:408, 1925.
= *A. schomburgkii* (Mont. & Berk.) Torr., teste Furtado (1981:80).

parasiticum Corner, A. ; Beheift. Nova Hedw. 75:79-81, 1983 ; on living trunk of *Knemae* (Myristicaceae) in swamp-forest, Mandai Road, Singapore, holotype "Corner, 9 Aug. 1940", s.n. (Herb. Corner, CGE or E).
Amauroderma group. See the original description, in which Corner stated that it is clearly related to *A. subresinosum* and somewhat resembles *G. trengganuense*. Known only from the type locality.

partitus Berk., P. ; Hook. J. Bot. & Kew Misc. 8:170, 1956 ; Panure, Amazonas State, Brazil, lectotype "Spruce 200" (K, fragm. BPI ?).
- *A. partitum* (Berk.) Wakef. ; Kew Bull. 1934:242, 1934.
= *A. calcigenum* (Berk.) Torr., teste Furtado (1981:31-35).
Amauroderma group. The type of this species has a steroid basidiocarp. However, Furtado (loc.cit.) included it in the synonymy of *A. calcigenum*. Known only from the type locality.

parviungulatum Zhao & Zhang, G. ; Acta Mycol. Sin. 5:88, 1986 ; on dead wood buried under ground, Bawangling, Hainan Is., China, holotype HMAS 47611.
Ganoderma group. For a description see Zhao (1989:87-88), who noted that it resembles *G. multipilea*. Both species are characterized with elongate forked stipe and pendulous pileus, which are reminiscent of anomalous growth produced by several *Ganoderma* species in artificial conditions (Chen, 1993; Hseu, pers. comm.). It may be a doubtful species. Known only from the type locality.

parvulum Murr., G. ; Bull. Torrey Club 29:605-606, 1902 ; on decayed wood, Nicaragua, lectotype "C.L. Smith, 1891", s.n. (NY, fragm. BR).
Ganoderma group. For a description see Murrill's original paper or Steyaert (1980:181). Steyaert (1980:180-183) noted similarities with *G. bibadiostriatum* and *G. stipitatum*, and discussed the three species in the *G. parvulum* complex. Known only from the type locality.

passerinus Berk, P. ; Hook. J. Bot. & Kew Misc. 8:175, 1856 ; Caatingas, Panure, Amazonas State, Brazil, lectotype in K.
- *A. passerinum* (Berk.) Torr. ; Brotéria Bot. 18:141, 1920.
= *A. exile* (Berk.) Torr., teste Furtado (1981:31), teste Ryvarden (1984:350).

pediforme Fr., P. ; Epicrisis p. 463, 1836 ; Guinea, lectotype "Afzelius", apparently lost (not found in UPS by Ryvarden).
- *G. pediforme* (Fr.) Pat. ; in Bresadola (1899:155).
The name is generally absent from the literature, and given the lack of authentic specimen it should be abandoned.

pernanum Pat., G. ; Bull. Soc. Myc. Fr. 40:163-164, 1924 ; on soil, Maromandia, Malagasy, lectotype "R. Decary, 24.2.1923" (FH).
= *Ha. longipes* (Lév.) Stey., teste Ryvarden (1983:29).

perplexum Corner, A. ; Beheift. Nova Hedw. 75:82-85, 1983 ; on dead trunk in the forest, near Danau, Sedili river, Johore, Malaysia, holotype "Sing F.N. 24467, 17 Feb. 1931" (Herb. Corner, CGE or E).
Amauroderma group. See the original description, in which Corner stated that this species is characterized by the presence of cystidia, which is unique in the Ganodermataceae. Corner (loc. cit.) described two varieties. Known only from Malaysia.

perturbatus Lloyd, P. ; Mycol. Writ. 5, Let. 68:11, 1918 ; Brazil, lectotype "J. Rick" (BPI).
- *G. perturbatum* (Lloyd) Torr. ; Brotéria Bot. 18:34, 1920.
Ganoderma group, in the *G. lucidum* complex (Ryvarden 1990:95). In the original (short) description, Lloyd (loc.cit.) stated that it could be referred as a form of *P. lucidus*. Steyaert (1967b:198) considered it a synonym of *G. dorsale* but apparently did not examined the type. Known only from the type locality.

perzonatum Murr., G. ; North Amer. Flora 9:121 ; on *Mango* log, Santiago de Las Vegas, Cuba, lectotype "F.S. Earle 309, Nov. 8, 1904" (NY).
= *G. parvulum* Murr., according to a note from Steyaert in herb. NY (Ryvarden 1985:179).

petchii Lloyd, F. ; Mycol. Writ. 4, Fom.:268, 1915 ; Sri Lanka, coll. Petch, type lost as stated by Steyaert (1972:86) and Ryvarden (1989:234); Steyaert (loc.cit.) found in K a basidiomata collected by Petch in Sri Lanka and designated this collection as neotype (mistakenly reported as lectotype in his 1972 paper): s.hosp., Hagkala, Sri Lanka, neotype "Petch 3238" (K, fragm. BR).
- *G. petchii* (Lloyd) Stey.; Persoonia 7:86-87, 1972.
Ganoderma group. The neotype is described in Steyaert (loc.cit.), who stated that it is remarkably similar with the lost lectotype in Lloyd's figure. Steyaert (loc.cit.) also noted that it is similar to *G. boninense* in the outer morphology but has different spores. Reported from Sri Lanka and Java.

pfeifferi Bres., G. ; in Patouillard, Bull. Soc. Mycol. Fr. 5:70, 1889 ; on *Abies*, Frankfurt am Main, Germany, lectotype "E. Pfeiffer" (S).
= *G. cupreolaccatum* (Kalchbr.) Igmandy, in Steyaert (1980:138).
Ganoderma group. Steyaert (1980:138, 160) did the synonymy with *G. cupreolaccatum* without mentioning if he examined the type specimens. As stated earlier, *G. cupreolaccatum* is a forgotten name and the type needs to be re-examined

and described properly. For a description of *G. pfeifferi* see Ryvarden and Gilbertson (1993:277-278), who noted that the wrinkled resinous layer on the pileus and the dark brown context distinguish this species from the other laccate *Ganoderma* in Europe. Although the type specimen was collected on *Abies*, the species is usually reported from *Fagus* throughout Europe. Corner (1983:139-140) described var. *borneense* from Mt Kinabalu (Borneo) where Fagaceae are common.

philippii Bres. & Henn., F. ; in Saccardo, Syll. Fung. 9:180, 1881 ; s.hosp., Mergui, Burma, lectotype "T. Philippi", s.n. (B, fragm. BR).
- *G. philippii* (Bres. & Henn.) Bres. ; Iconogr. Mycol. 21 Pl. 1014, 1932.
Elfvingia group. For a description see Steyaert (1972:72-74), who noted that the morphology of the basidiomata is variable when several collections are compared, but anatomy, spores and context color are constant. Corner (1983:113, 161-163) studied this species and emphasized that its distinctive features are in the living coloring. Reported throughout South East Asia including West Bengal, Hainan Is. and Yunnan. The report by Lloyd (Ap.Pol.:372, 1915) of a collection from Florida should be overlooked because Lloyd had a misconcept of this species.

picipes Torr., A. ; Brotéria Bot. 18:132-133, 1920 ; Gongugy Forest, Bahia, Brazil, lectotype not located (lost?).
Amauroderma group. No modern description has been found in the literature. This taxon is absent in Furtado's monograph of *Amauroderma* (1981). Here follows Torrend's description (translated from French): "Pileus orbicular, slightly depressed in the center, about 3 cm in diameter, regular, brownish black, margin inflected; stipe 6-7 cm x 3 mm, shiny, black, cinnamon in section; context color cinnamon; tubes 2-3 mm long, cinnamon, becoming pale brown near the pore surface; spores smooth, yellow, spherical, 10-12 µm; conidiospores [gasterospores] present, spherical, 4-5 µm." It should be compared with *A. leptopus, A. renidens* and *A. nigrum*. Known only from the type locality.

pisachapani Nees, P. ; Syll. Pl. Nov. 1:241, 1824 ; Java, lectotype "Nees", apparently lost.
- *G. pisachapani* (Nees) Pat. & Demange ; Bull. Soc. Myc. Fr. 26:47, 1910.
= *G. cochlear* (Bl. & Nees) Murr. f. *pisachapani* (Nees) v. Over. ; in Heine, De Nuttige Planten van Nederlandsch Indie, 2e Druck, I:56, 1927.
Ganoderma group. No modern description has been found. Steyaert (1972:83) noted that it may be conspecific with *G. flexipes*. Known only from the type locality.

placopus Lév., P. ; Ann. Sci. Nat. ser 3, 5:124, 1846 ; Java, lectotype "Junghuhn" (S).
- *G. placopus* (Lév.) Bres. ; Annals Mycol. 8:586, 1910.
Ganoderma group, in the *G. lucidum* complex (Ryvarden 1981a:183).

platense Speg., G. ; Bol. Acad. Nac. Cienc. Cordoba 28:363, 1926 ; on trunk, Prov. Buenos Aires, Argentina, lectotype in LPS.
= *G. resinaceum* Boud., teste Bazzalo and Wright (1982:310).

plicatum Pat., G. ; Phillip. J. Sci. 10:96, 1915 ; Mt. Maquiling, Prov. Laguna, Luzon Is., Philippines, lectotype lost? (not found by Ryvarden in FH).
The status of this species is unknown. Known only from the type locality.

polychromus Copel, P. ; Annals Mycol. 2:507, 1904 ; on *Quercus lobata*, Searsville, California, U.S.A., lectotype "E.B. Copeland, X-1902" (NY).
- *G. polychromum* (Copel.) Murr. ; North Amer. Flora 9:119, 1908.
= *G. resinaceum* Boud., teste Steyaert (1972:95).
Ganoderma group. No modern description has been found. The name is absent from the monograph of North American polypores by Gilbertson and Ryvarden (1986) and in Adaskaveg and Gilberston (1986, 1988, 1989), as is *G. resinaceum*. Lloyd (Ap.Pol.:372, 1915) recognized this species in the western United States, and stated that it looks very much like *G. curtisii*, another taxon not treated by Gilbertson and his collaborators (loc.cit.) in the recent studies of North American *Ganoderma*. Known only from the western United States.

polymorphum Cleland, G. ; Toadst. and Mushr. of S. Aust. p. 203, 1934 ; on timber, Moorilyanna, N.W. of Oodnadatta, South Australia, lectotype "Mrs. Brumby, 28.I.1931" (AD 1361).
= *E. applanata* (Pers.) Karst., in Cunningham (1965:257).
= *G. resinaceum* Boud., teste Buchanan and Ryvarden (1993:222).

polyzonata Imaz., E. ; Bull. Govt. Forest. Exp. Sta. Tokyo 57:105, 1952 ; Waoboe, Irian Jaya, Indonesia, lectotype "Satake 213" (TNS).
= *G. mastoporum* (Lév.) Pat., teste Aoshima (1971:431).

polyzonus Lloyd, F. ; Mycol. Writ. 4, Fom.:269, 1915 ; Indonesia, Java, lectotype "C.B. Ussher", Herb. Lloyd 30800 (BPI).
- *G. polyzonum* (Lloyd) Torr. ; Brotéria Bot 18:41, 1920.
= *G. australe* (Fr.) Pat., teste Ryvarden (1989:234).
Elfvingia group, in the *G. applanatum - australe* complex. Lloyd (loc.cit.) reported the species from Java and Brazil and being close to *F. leucophaeus*.

praelongum Murr., G. ; North Amer. Flora 9:121, 1908 ; on dead wood, Alto Cedro, Prov. Santiago de Cuba, Cuba, lectotype "F.S. Earle and W.A. Murrill 536, March 19, 1905" (NY, fragm. BR).
= *G. resinaceum* Boud., teste Steyaert (1972:95), Bazzalo and Wright (1982:310), and Ryvarden (1985:179).

praetervisum Pat., G. (in sect. A.) ; Bull. Soc. Myc. Fr. 5:78, 1889 ; Brazil, lectotype "Weddel" (BPI).
- *A. praetervisum* (Pat.) Torr., Brotéria Bot. 18:131, 1920.
Amauroderma group. In the original description Patouillard (loc.cit.) described two varieties: var. *praetervisum* and var. *mesopoda*. Furtado (1981:91) considered var. *mesopoda* a synonym of *A. subrugosum*, and accepted *A. praetervisum* s.stricto (Furtado, 1981:65-67); he gave a good description of this taxon and noted resemblance with *A. sprucei, A. omphalodes, A. pseudoboletum* and *A. schomburgkii* f. *schomburgkii*. Various authors have considered *A. praetervisum* a synonym of *A. auriscalpius*. This fungus belongs to a species complex distributed throughout the neotropics.

preussii Henn., G. ; Engl. Bot. Jahrb. 14:342, 1891 ; on trunk, Barombi Station, Cameroon, lectotype "Preuss", s.n. (B, fragm. BR).
- *A. preussii* (Henn.) Stey. ; Persoonia 7(1):107-108, 1972.
Amauroderma group. For a description see Steyaert (1972:107-108) or Ryvarden and Johansen (1980:80). These authors considered *A. sikorae* a synonym, but the two species are distinguished by Furtado (1981). Reported throughout tropical Africa; also present in Papua New Guinea and China if *A. sikorae* is a synonym.

procerus Berk., P. ; Hooker J. Bot. 8:171, 1856 ; Panure, Amazonas State, Brazil, lectotype "Spruce 165" (K).
- *A. procerum* (Berk.) Bres. ; Annals Mycol. 14:238, 1916.
= *A. exile* (Berk.) Torrend, teste Furtado 1981:43.

pseudoboletus Jacq., Ag. ; Flor. Austr. 1:26-27, 1773 ; Gatterholz, Austria, lectotype selected here: The specimen shown on plate 41.
- *G. pseudoboletus* (Jacq.) Murr. ; Bull. Torr. Club 29:602, 1902.
= *G. lucidum* (W.Curt.: Fr.) Karst. throughout the literature .

pseudoboletus Speg., P. ; Fung. Guaranitici Pug. 1:16, 1883 ; Guarapi, Paraguay, lectotype "Spegazzini 3362, 1879" (NY).
- *A. pseudoboletus* (Speg.) Furt. ; Rev. Gen. *Amauroderma* (Polyp.). Est. Bas. Microestr. Basid. p. 230, 1968.
- *G. pseudoboletus* (Speg.) Pat. ; in Spegazzini, An. Mus. Nat. Hist. Nat. Buenos Aires 19:274, 1906: Nomen illegit. non *G. pseudoboletus* (Jacq.) Murr. (see above).
Amauroderma group. For a description see Furtado (1981:67-69), who noted that it is related to *A. rude* var. *intermedium, A. calcigenum, A. exile* and *A. macrosporum*. Reported throughout tropical America.

pseudoferreus Wakef., F. ; Bull. Misc. Inf. Kew 1918:208, 1918 ; s.hosp., Selangor, Malaysia, lectotype "W.N.C. Belgrave, 1917" (K, fragm. BR).

- *G. pseudoferreum* (Wakef.) Over. & Steinm.; in Overeem, Bull. Jard. Bot. Buitenz. ser. 3, 7:437, 1925.
= *G. philippii* (Bres. & Henn.) Bres., teste Steyaert (1972:72).

puberulum Pat., G. (in sect. A.) ; Bull. Soc. Myc. Fr. 30:343-344, 1914 ; on the ground in the forest, Doungout, Zaire, lectotype "Baudon no. 1964, 3 avril 1912" (FH).
= *A. sikorae* (Bres.) Furt., teste Furtado (1981:84-87).
= *A. preussii* (Henn.) Stey., teste Steyaert (1972:107), teste Ryvarden and Johansen (1980:80).

pudens Berk., P. ; Hook. J. Bot. & Kew Misc. 6:138, 1854 ; Myrong, Assam, India, lectotype "nr. 18" (K).
- *A. pudens* (Berk.) Ryv. ; Norw. J. Bot. 24:225, 1977.
Amauroderma group. For a description see Ryvarden (loc.cit.). Known only from the type locality.

puglisii Stey., G. ; Persoonia 7:77, 1972 ; s.hosp., Potenza, Faggeto, Italy, lectotype "Puglisi 1" (BR).
Ganoderma group. See the original description, in which Steyaert noted that it is very close to *G. kosteri* but the cutis is more like in *G. pfeifferi*. He added that the large basidiospores (12-14 x 8-9 µm) are the distinctive feature of this species. It was not mentioned by Bernicchia (1990) in her monograph of Polyporaceae s.l. in Italy nor by Ryvarden and Gilbertson (1993) in their monograph of European polypores. Known only from the type locality.

pullatus Berk. ex Cooke, F. ; Grevillea 15:21, 1886 ; on the ground, Hong Kong, lectotype in K.
- *G. pullatum* (Berk. ex Cooke) Pat. ; Bull. Soc. Myc. Fr. 5:75, 1889.
- *A. pullatum* (Berk. ex Cooke) Cunn. ; Proc. Linn. Soc. N. S. Wales 75:238, 1950.
= *A. rude* (Berk.) Torr., teste Furtado (1981:73-74).

pulverulentum Murr., G. ; North Amer. Flora 9:121-122, 1908 ; on dry manchineel, Grenada Is, West Indies, lectotype "W.E. Broadway, Sept. 4, 1905" (NY).
= *G. resinaceum* Boud., teste Bazzalo and Wright (1982:310), teste Ryvarden (1985:179).

pygmoideum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:103, 1962 ; on wood, Beberibe-Recife, Brazil, holotype "C. Ferreira, Fungos do Brazil 660", IPA 3034 (URM, fragm. BR).

Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

rachodes Pat., G. ; Bull. Soc. Myc. Fr. 30:343, 1914 ; between Fort Sibut and Bangui, Republic Centrafrica (ex-Congo), lectotype "Baudon 2221, juin 1913" (FH).
Elfvingia group. For a description see Ryvarden (1983:31). Known only from the type locality.

ramosii Murr., A. ; Bull. Torrey Bot. Club 35:408, 1908 ; on dead roots, near Bosoboso, Rizal Prov., Luzon Is., Philippines, lectotype "M. Ramos, July 1906, Bur. Sci. 1211" (NY, fragm. BPI).
- *G. ramosii* (Murr.) Sacc. & Trott. ; Syll. Fung. 21:305, 1912.
= *A. subrugosum* (Bres. & Pat.) Torr., teste Furtado (1981:91).
= *A. rugosum* (Bl. & Nees: Fr.) Torr., teste Bresadola (1912:500) and Ryvarden (1985:171).

ramosissimum Zhao, G. ; Acta Mycol. Sin. 8:29, 1989 ; on dead wood, Xishuangbanna, Yunnan, China, holotype HMAS 32874.
Ganoderma group. For a description see Zhao (1989:41-42) who noted that it resembles *G. amboinense* but has larger spores and a branched stipe. Branched stipes ("dear-horn shape") have been obtained in artificial culture of several *Ganoderma* species by Chen (1993) and Hseu (pers.comm.). Known only from South China.

ravenelii Stey. G. ; Bull. Jard. Bot. Nat. Belg. 50:146-148, 1980 ; on the ground, Aiken, South Carolina, U.S.A., holotype "Ravenel 2936" (K, fragm. BR).
Ganoderma group. For a description see Steyaert (1980:146-148) who stated that it is similar to *G. curtisii* but differs in having longer basidiospores and lacking melanoid substances in the context. Steyaert (loc.cit.) reported the taxon from South Carolina and Florida but it is absent in the monograph of North American polypores in Gilbertson and Ryvarden (1986).

regulicolor Berk. ex Cooke, F. ; Grevillea 15:21, 1886 ; Cuba, lectotype in K, fragm. NY.
- *A. regulicolor* (Berk. ex Cooke) Murr. ; Bull. Torrey Bot. Club 32:367, 1905.
= *A. schomburgkii* (Mont. & Berk.) Torr., teste Bresadola (noted on the sheet attached to the type), teste Ryvarden (1988a:56); Furtado (1981:80) accepted the synonymy.

renatus Berk., P. ; Hook. J. Bot. & Kew Misc. 8:170, 1856 ; on the ground, Caatingas, Panure, Amazonas State, Brazil, lectotype "Spruce 169, Feb./53" (K).

- *A. renatum* (Berk.) Murr. ; North Am. Flora 9:117, 1908.
- *A. renatum* (Berk.) Torr. ; Brotéria Bot. 18:141, 1921: Nomen illegit. non Murrill 1908.
= *A. exile* (Berk.) Torr., teste Furtado (1981:43), as already suggested by Bresadola (1916:238).

renidens Bres., G. ; Hedwigia 35:280, 1896 ; on wood, Blumenau, Santa Catarina State, Brazil, lectotype "Muller 305" (B), isotype in S, fragm. in BR.
- *A. renidens* (Bres.) Torrend ; Brotéria Bot. 18:136, 1920.
Amauroderma group. For a description see Furtado (1967a:314-316, 1981:69-70), who tentatively distinguished this species from *A. leptopus*. According to Furtado, the species is known only from the type locality since other records relied on misidentification.

reniformis Morg., P. ; Journ. Cincinn. Soc. Nat. Hist. 8:103, 1885 ; Ohio, U.S.A., lectotype "Morgan", s.n., lost?
- *E. reniformis* (Morg.) Murr.; Bull. Torrey Bot. Club 30:299, 1903.
= *G. lobatum* (Schw.) Atk. in Atkinson (1908:190) and Murrill (1908:114, as *E. lobata)*.
Elfvingia group. Reported from Brazil by Battista (in Da Silva and Minter, 1995).

resinaceum Boud., G. ; in Patouillard, Bull. Soc. Mycol. Fr. 5:72, 1889 ; s.hosp., Blois, France, lectotype "J.L.E. Boudier" (PC, fragm. BR).
Ganoderma group. For a description of *G. resinaceum* in Europe see Ryvarden and Gilbertson (1993:279-280). Steyaert (1972:95-97, 1980:170-180) discussed *G. resinaceum* and related species. Lloyd (Ap.Pol.:370, 1915) stated that it is a sessile form of *P. lucidus* in Europe and United States. The species was absent from the monograph of North American polypores by Ryvarden and Gilbertson (1986), however, Adaskaveg and Gilbertson (1986:700) have shown that the North American taxon identified *G. lucidum* is interfertile European *G. resinaceum*. A wide species concept has lead many authors to recognize several synonyms for *G. resinaceum*, which then may have *G. lorenzianum* as an earlier name (Bazzalo and Wright, 1982:311-312). Reported from Europe, America, and China.

resinosum Schrad., B. ; Spic. p. 168, 1794 ; Germany, type lost: Nomen illegit. non Rubel 1778.
The epithet was validated as:
- *P. resinosus* Fr. ; Syst. Mycol. 1:361, 1821.
- *G. resinosum* (Fr.) Torr. ; Brotéria Bot. 18:35, 1920.
- *Ischnoderma resinosum* (Fr.) Karst. ; Med. Soc. Fauna Fl. Fenn. 3:38, 1879.
This species is the type of *Ischnoderma* Kart. emend. Dom. & Orl. (Ryvarden, 1991:168).

reticulatosporus v.d. Bijl, P. ; S. Afr. J. Sci. 24:225, 1927 ; Harare, Zimbabwe, lectotype "Eyles 4121" (STE).
- *G. reticulatosporum* (v.d. Bijl) Reid ; J. So. African Bot. 39:161, 1973.
Ganoderma group, assignable to *Humphreya* group? For a description see Reid (loc.cit.). Known only from South Africa.

rivulosum Pat. & Har., G. ; Bull. Soc. Myc. Fr. 32:119, 1906 ; Java, Indonesia, lectotype "M. Serre" (FH).
- *A. rivulosum* (Pat. & Har.) Torr. ; Brotéria Bot. 18:139, 1920.
= *G. weberianum* (Bres. & Henn.) Stey., teste Steyaert (1972:79-82), teste Ryvarden (1983:32), synonymy accepted in Corner (1983:149).

rothwellii Stey., G. ; Bull. Jard. Bot. Nat. Belg. 50:158-159, 1980 ; on *Cassia* sp., s.loc., Rhodesia, holotype "Rothwell 12823, Herb. I.M.I. 59536" (K, fragm. BR).
Ganoderma group. For a description see Steyaert (1980:158-159) who stated that gasterospores in the context are a distinctive feature of this species: gasterospores are subhyaline to yellow, variously shaped or sub-spherical, 9.5-14 x 7-8 µm, usually with a single 6 µm refringent globule. Known only from the type locality.

rotundatum Zhao, Xu & Zhang, G. ; Acta Microbiol. Sin. 19:267, 1979 ; on stump of deciduous tree, Bawangling, Hainan Is., China, holotype HMAS 37717.
Ganoderma group. For a description see Zhao (1989:44-46). Known only from South China.

rubeolum Bres., G. (A.) ; Mycologia 17:73, 1925 ; on trunk, Magomba Forest, Uganda, lectotype "T.D. Maitland 398", Herb. Weir 20217 (BPI, K, fragm. BR).
- *A. rubeolum* (Bres.) Otieno ; Sydowia 22:177, 1968.
= *A. preussii* (Henn.) Stey., teste Steyaert (1972:107-108), teste Ryvarden and Johansen (1980:80) and Ryvarden (1988b:321).

rubiginosus Schrad., B. ; Spic. p. 168, 1794 ; Ducat. Brunsvicen, Germany, type lost: Nomen illegit. non Retz. 1769.
The epithet was validated as:
- *G. rubiginosum* Bres. ; Atti I.R. Accad. Agiati Roveroto Sez. 3, vol. 3:10(74), 1897.
Elfvingia group, in the *G. applanatum* complex according to Bresadola (loc.cit.). This is a forgotten name lacking authentic material: it should be abandoned.

rubra Laz., *Friesia* ; Rev. Real. Acad. Cienc. exact. Madrid 14:590, 1916 ; Salinas de Aviles, Asturias, Spain, holotype s.coll., s.n., "September 1912": Nomen illegit. as *Friesia* Laz. is an illegitimate homonym of *Friesia* Sprengel

1818 (Ryvarden, 1991:149).
The epithet was validated as:
- *G. rubrum* Sacc. & Trott. ; Syll. Fung. 23:402, 1925.
= *Fomitopsis pinicola* (Sw.: Fr.) Karst., teste Ryvarden and Calonge (1976:159).

rudis Berk., P. ; Ann. Mag. Nat. Hist. 3:323, 1839 ; Tasmania, lectotype "R. Gunn, ex herb. Sir W. Hooker" (K., fragm. FH, BPI).
- *G. rude* (Berk.) Pat. (sect. *A.*) ; Bull. Soc. Myc. Fr. 5:76, 1889.
- *A. rude* (Berk.) Torr. ; Brotéria Bot. 18:127, 1920.
- *A. rude* (Berk.) Cunn. ; Proc. Linn. Soc. N. S. Wales 75:239, 1950: Nomen illegit. non Torrend 1920.
Amauroderma group. For a description see Furtado (1981:71-77) who recognized two varieties: var. *rude* and var. *intermedium* (Bres. & Pat.) Furt., the former being paleotropical and the latter neotropical. Neotropical specimens are slightly darker than paleotropical collections. Ryvarden (1983:21) accepted the two varieties defined by Furtado but stressed that further studies might show that the neotropical taxon should be given the species rank. Corner (1983:53-56) described Brazilian collections tentatively identified as *A. ?rude* A and *A. ?rude* B. Zhao (1989:146-148) reported this species from South China, and Otieno (1968:74) from Kenya. *A. rude* is a species complex requiring a taxonomic revision.

rufoalbus Bres. & Pat., *Ptychogaster* ; in Patouillard, Bull. Soc. Myc. Fr. 5:79, 1889 ; St. Thoma Is., West Indies, lectotype in FH (ex B).
- *G. rufoalbum* (Bres. & Pat.) Pat. ; Bull. Soc. Myc. Fr. 30:343, 1914.
Ganoderma group. The species belongs to the *G. lucidum* complex, but there are smooth and golden brown gasterospores in the context (Ryvarden, 1988b:321). Known only from the type locality.

rufobadium Pat., G. (in sect. A.) ; Bull. Soc. Myc. Fr. 5:78, 1889 ; on *Proztium tacamahaca*, Port Zanuro, Orenoco river, Venezuela, lectotype "A. Gaillard 283" (FH).
= *A. exile* (Berk.) Torr., teste Furtado (1981:43), teste Ryvarden (1983:34).

rugosissimus Lloyd, P. ; Mycol. Writ. 4, Let. 48:3, 1913 ; Malagasy, lectotype "H.P. Bathie 1316" (BPI).
- *A. rugosissimum* (Lloyd) Torr. ; Brotéria Bot. 18:127, 1920.
- *G. rugosissimus* (Lloyd) Sacc. & Trott. ; Syll. Fung. 23:407, 1925.
= *A. preussii* (Henn.) Stey., teste Ryvarden (1990:97).
In the original description, Lloyd (loc.cit.) considered that this species may also be held as a variety of *P. rugosus*. Furtado (1981) did not treated *P. rugosissimus* in his monograph. Known from the type locality and an unspecified location in West Africa (Lloyd, 1919:855)..

rugosum Berk., *Porotheleum* ; Hook. J. Bot. & Kew Misc. 8:237, 1856 ; s.hosp., Panure, Amazonas State, Brazil, lectotype "Spruce 44" (NY, fragm. BPI, PC, BR).
- *G. sprucei* Pat. ; Bull. Soc. Mycol. Fr. 10:75, 1894. Patouillard changed the name *Porotheleum rugosum* to *G. sprucei* because the epithet "*rugosum*" was already preoccupied in *Ganoderma* (see Furtado, 1964).
= *A. sprucei* (Pat.) Torr. ; Brotéria Bot. 18:125, 1920.
See comments of this taxon under "*sprucei*".

rugosus Blume & Nees: Fr., P. ; Elench. Fung. 1:74, 1828 [1821] ; Java, Indonesia, lectotype "Blume", probably lost. There are various combinations in the literature attributing the name either to Nees alone, Blume & Nees or Fries alone, which are all invalid: this name was cited by Fries in Elenchus Fungorum and was based on *Polyporus rugosus* Blume & Nees in Nova Acta Acad. Caes. Leop. Carol. 13:21, 1826, therefore, the correct basionym for this taxon is *P. rugosus* Blume & Nees: Fr.
- *G. rugosum* (Bl. & Nees: Fr.) Pat. ; Bull. Soc. Myc. Fr. 5:68, 1889.
- *A. rugosum* (Bl. & Nees: Fr.) Torr. ; Brotéria Bot. 18:127, 1920.
There are many other combinations found in the literature, which are all illegitimate, e.g.:
- *G. rugosum* (Bl. & Nees: Fr.) Bres.; Annals Mycol. 8:586, 1910: Nomen illegit. non Pat. 1889.
- all the following combinations in *Amauroderma* are Nomen illegit. non Torr. 1920: Bresadola, Annals Mycol. 8:586, 1910; Bose, Annals Mycol. 35:131, 1937; Doidge, Bothalia 5:503, 1950; Cunningham, Proc. Linn. Soc. N.S. Wales 75:240, 1950; Imazeki, Bull. For. Expt. Sta. Tokyo 57:99, 1952.
Amauroderma group. One of the most cited name in *Amauroderma* (Furtado 1981:102) and reported throughout the tropics. However, Furtado (loc.cit.) stated that lacking authentic material, it is impossible to reach any taxonomic conclusion about this species. Patouillard (1889:68) described it from Leprieur's specimen 862 collected in French Guyana and wrote "*Ganoderma*, but close to *Amauroderma*". Steyaert (1972:105-107) neither located an authentic specimen nor Leprieur's specimen described by Patouillard, and selected *Porotheleum rugosum* Berk. (name validated as *G. sprucei* Pat.) as neotype. According to Furtado (1981:102-103) and Ryvarden and Johansen (1980:82) it is very unlikely that *Porotheleum rugosum* Berk. is conspecific with *P. rugosus* Blume & Nees. Therefore, a considerable confusion exists concerning the identity of this species and an appropriate neotypication needs to be done, otherwise the name should be abandoned. Many authors have proposed that *A. subrugosum* is a synonym.

salebrosus Lloyd, P. ; Mycol. Writ. 4, Let. 42:14, 1912 ; s.loc., ex-Congo (probably Zaire), lectotype "H. Vanderyst", Herb. Lloyd 26585 (BPI).
- *A. salebrosum* (Lloyd) Otieno ; Sydowia 22:177, 1968.

= *A. preussii* (Henn.) Stey., teste Steyaert (1972:107), teste Ryvarden and Johansen (1980:80).

salisburiensis v.d. Bijl, P. ; S. Afr. J. Sci. 24:226, 1927 ; Harare, Zimbabwe, lectotype "Eyles 4220" (STE).
- *A. salisburiense* (v.d. Bijl) Reid ; J. So. African Bot. 39:163, 1973.
Amauroderma group. For a description see Reid (loc.cit.). Known only from the type locality.

sanmingense Zhao & Zhang, G. ; Acta Mycol. Sin. 6:2, 1987 ; on dead wood of deciduous tree, Sanmig Shi, Fujian, China, holotype HMAS 48212.
Elfvingia group. For a description see Zhao (1989:119-120) who noted that it is a very distinctive species characterized by a thin pileus and a very hard context with most binding hyphae branched at right angle. Known only from South China.

sarasinii Stey., G. ; Bull. Jard. Bot. Bruxelles 31:80, 1961 ; Yate, New Caledonia, holotype "F. Sarasin 197" (K, fragm. BR).
Ganoderma group. See the Latin diagnosis (detailed). Corner (1983:128) considered this species in the *G. chalceum* complex. Known only from the type locality.

sceleton Fr., P.; Kong. Vetenskap. Akad. Hand. p. 134, 1848. Natal, South Africa, lectotype "Wahlberg", not in UPS (probably lost).
- *G. sceleton* (Fr.) Bres. ; in Spegazzini, Bol. Acad. Nac. Cienc. Cordoba 28:365, 1926.
Identity unknown.

schomburgkii Mont. & Berk., P. ; London J. Bot. 8:331, 1844 ; Guyana, lectotype "Schomburgk" (NY).
- *G. schomburgkii* (Mont. & Berk.) Pat. Bull. Soc. Myc. Fr. 5:77, 1889.
- *A. schomburgkii* (Mont. & Berk.) Torr. ; Brotéria Bot. 18:140, 1920.
- *A. schomburgkii* (Mont. & Berk.) Lloyd ex Wakef. ; Kew Bull. 1934:243, 1934: Nomen illegit. non Torrend 1920.
Amauroderma group. For a description see Furtado (1981:77-84) who recognized two forms: f. *schomburgkii* and f. *gusmanium* (Torr.) Furt., the latter having larger pores. Several synonyms have been associated with f. *schomburgkii*, and *P. auriscalpius* could be an earlier name. It is a species complex. Torrend (1920:129) wrote (translated from French): "[*A. gusmanianum*] is considered distinct from *A. torrendii* by Lloyd but is, in our opinion, only a variety collected few meters away." Furtado considered *A. torrendii* a synonym of *A. calcigenum* and reduced *A. gusmanianum* as a form of *A. schomburgkii*. Corner (1983:56-59) described Brazilian collections tentatively identified as *A. schomburgkii* "A" and *A. schomburgkii* "B". Zhao (1989:150-151) reported collections from South China.

scleropodius Lév., P. ; Ann. Sci. Nat. ser. 3:123, 1846 ; Bourbon Is., La Réunion, lectotype in BPI.
- *G. scleropodium* (Lév.) Pat (in sect. A.) ; Bull. Soc. Myc. Fr. 5:75, 1889.
= *Lignosus sacer* (Fr.) Ryv., teste Ryvarden (1981b:183).

scopulosus Berk., P. ; Hook. Lond. J. Bot. 6:143, 1854 ; Sikkim, India, lectotype "Hooker" (K).
- *A. scopulosum* (Berk.) Imaz. ; Bull. For. Expt. Sta. Tokyo 57:99, 1952.
= *Trametes scopulosus* (Berk.) Bres., teste Ryvarden (1991:319).

sculpturatus Lloyd, F. ; Myc. Writ. 4, Let. 39:2, 1912; Malagasy, lectotype "H. Perrier de la Bathie", Herb. Lloyd 17478 (BPI).
= *G. sculpturatum* (Lloyd) Ryv. ; Mycotaxon 35:235, 1989.
Ganoderma group, for its cutis is an hymenoderm; but it is a non laccate and sessile species resembling those of the *Elfvingia* group. For a description see Ryvarden and Johansen (1980:91) under *G. neurosporum* Furt. The two species are very similar and easy to recognize because of the sculptured context, but the latter has spores of *Haddowia*. Common in Central Africa.

secedens Corner, A. ; Beheift. Nova Hedw. 75:89-90, 1983 ; from dead roots in a sandy bank in the forest, Cameron Highlands (alt. 1200 m.), Pahang, Malaysia, lectotype "Corner, 30 July 1934", s.n. (Herb. Corner, CGE or E).
Amauroderma group. See the original description, in which Corner stated that apart from the spores it would pass as a dimitic polypore. Known only from the type locality.

septatum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:93-94, 1962 ; on fallen trunk of *Grevillea* sp., Kivu, ?Zaire (ex-Congo), holotype "Goossens-Fontana 5291" (BR).
Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

sequoiae Murr., G. ; North Amer. Flora 9:119, 1908 ; on a redwood trunk, Sequoia Canyon, California, lectotype "A. Eastwood 40" (NY, fragm. in K, BR).
= *G. oregonense* Murr., teste Lowe and Gilbertson (1961:506), Steyaert (1980:156), and Ryvarden (1985:179).

sericatus Lloyd, *Polystictus* ; Mycol. Writ. 3, Stip.:120, 1912 ; Old Calabar, SE Nigeria, lectotype " J.H. Holland" (K).
- *A. sericatum* (Lloyd) Wakef. ; Kew Bull. 1917:6, 1917.
- *A. sericatum* (Lloyd) Otieno ; Sydowia 22:176, 1968: Nomen illegit. non Wakef. 1917.
Amauroderma group. For a description see Ryvarden and Johansen (1980:82-83)

who noted that it resembles *A. conjunctum* (1980:70). Reported throughout tropical Africa.

sessile Murr., G. ; Bull. Torrey Club 29:604, 1902 ; New York, no type mentioned in the original description ; Steyaert (1972:96) noted that a collection in NY labeled *G. sessile* is marked "type": s.loc., on dead fallen trees of *Liquidambar styraciflora*, s.coll., Timber and Forest Disease Survey 12123. Ryvarden (1985:179) was not aware that Steyaert found a type and designed a superfluous neotype: s.hosp., Bedford Park, New York, s.coll., "1 Jan 1902" (NY).
= *G. resinaceum* Boud., teste Steyaert (1972:95), teste Bazzalo and Wright (1982:310), teste Ryvarden (1985:179).
Although the typification was open to doubt Steyaert and Ryvarden reached the same conclusion and considered *G. sessile* a synonym of *G. resinaceum*.

sessiliforme Murr., G. ; Bull. New York Bot. Gard. 8:149, 1912 ; on dead wood, near Cuernavaca, Mexico, lectotype "W.A. & E.L. Murrill 392, Dec. 24-27, 1909" (NY).
Ganoderma group, in the *G. lucidum* complex (Ryvarden 1985:179). In the original description Murrill noted that it resembles *G. sessile*. Known only from the type locality.

shandongense Zhao & Xu, G. ; Acta Mycol. Sin. 5:90, 1986 ; on log buried under ground, Changqing Xian, Shandong, China, holotype HMAS 47613.
Ganoderma group. For a description see Zhao (1989:46). Known only from South China.

shangsiense Zhao, G. ; Acta Mycol. Sin. 7:13, 1988 ; on deciduous tree, Shangsi Xian, Guangxi, China, holotype in HMAS.
Elfvingia group. For a description see Zhao (1989:120-122) who noted that it resembles *G. limushanense*. Known only from China.

sichuanense Zhao & Zhang, G. ; Acta Mycol. Sin. 2:159-161, 1983 ; on deciduous tree, Dokou Shi, Sichuan, China, holotype HMAS 42798.
Ganoderma group. For a description see Zhao (1989:46-48) who noted that it comes close to *G. curtisii* and *G. resinaceum*. Known only from South China.

sikorae Bres., G. ; in Zahlbr., Ann. Natur. Hofmus. Wien 26:157, 1912 ; on trunk, Antananarivo, Malagasy, lectotype "J. Sikora" (W), authentic material in S, BPI, NY and BR.
- *A. sikorae* (Bres.) Furt. ; Rev. Gen. *Amauroderma* (Polyp.). Est. Bas. Microestr. Basid. p. 280, 1968.
= *A. preussii* (Henn.) Stey., teste Steyaert (1972:107), teste Ryvarden and Johansen

(1980:80).
Amauroderma group. Furtado (1981:84-87) described *A. sikorae* and distinguished a coriaceous group and a woody group. Furtado (loc.cit.) did not examine the type of *A. preussii* and refrained to follow Steyaert (loc.cit.) and Ryvarden and Johansen (loc.cit.) who synonymized the two names. Zhao (1989:152-153) reported *A. sikorae* from sub-tropical China, otherwise known throughout tropical Africa, Malagasy and Papua New Guinea.

silveirae Torr., G. ; Brotéria Ser. Bot. 8:132, 1909, Madeira, Brazil, lectotype "P.M. Silveira" (?LISU).
Unknown identity.

simaoense Zhao, G. ; Acta Mycol. Sin. 7:209, 1988 ; on dead wood, Simao, Yunnan, China, holotype HMAS 23626.
Ganoderma group. For a description see Zhao (1989:88-90) who noted that it resembles *G. fulvellum*. Known only from South China.

simulans Wakef., G. ; Bull. Misc. Inf. Kew 5:161, 1922 ; Uganda, Mwachi River, Mazeras, lectotype "T.D. Maitland 556" (K and Herb. Lloyd 26833 in BPI).
- *P. simulans* (Wakef.) Lloyd ; Mycol. Writ. 7:1259, 1924: Nomen illegit. non *P. simulans* Blonsky 1889.
= *G. subresinosum* (Murr.) Humph., teste Steyaert (1972:112-114) and Ryvarden (1977a:333).

sinense Zhao, Xu & Zhang, G. ; Acta Microbiol. Sin. 19:272, 1979 ; on trunk, Jianfengling, Hainan Is., China, holotype HMAS 37722.
Ganoderma group. For a description see Zhao (1989:90-91). Zhao (loc.cit.) wrote that the species was described to clear up the confusion with *G. japonicum* to which is was mistaken. Reported only from China and Taiwan (as *G. formosanum* in Taiwan).

solomonense Corner, A. ; Beheift. Nova Hedw. 75:90-92, 1983 ; on the ground in the forest, Solomon Is., holotype "RSS 1232" (Herb. Corner, CGE or E).
Amauroderma group, tending to *Humphreya* by the endospore marked with an irregular, often interrupted reticulum. See the original description, in which Corner stated that this species resembles *Hu. endertii* and *Hu. lloydii* but the spores agree with those of *A. fasciculatum*. Known only from Solomon Islands but locally common.

soniense Stey., G. ; Bull. Jard. Bot. Bruxelles 31:71-72, 1961 ; on *Quercus* sp., Forêt de Soignes, Belgium, holotype "Rousseau", s.n. (BR).
= *G. pfeifferi* Bres., teste Steyaert (1967b:204).

soyeri Stey., G. ; Bull. Jard. Bot. Bruxelles 31:78-79, 1961 ; on dead trunk, Arboretum de l'Etoile, Lubumbashi (formerly Elisabethville), Shaba Prov. (formerly Haut-Katanga), Zaire, holotype "D. Soyer 247b" (BR).
Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

sprucei Pat., G. ; Bull. Soc. Myc. Fr. 10:75, 1894 ; s.hosp., Panure, Amazonas State, Brazil, lectotype "Spruce 44" (NY, fragm. BPI, PC, BR). This is *Porotheleum rugosum* Berk.: Patouillard changed this name to *G. sprucei* because the epithet "*rugosum*" was already preoccupied in *Ganoderma.*
- *A. sprucei* (Pat.) Torr. ; Brotéria Bot. 18:125, 1920.
- *A. sprucei* (Berk.) Rick ; Iheringia Bot. 7:210, 1960: Nomen illegit. non Torrend 1920.
Amauroderma group. For a description see Furtado (1981:88-90). Steyaert (1972:105) considered it a synonym of *A. rugosum* (Bl. & Nees: Fr.) Torr., a controversial name for which authentic material is lacking. Furtado (1981:103) did not accept the synonymy and noted resemblance with *A. boleticeum, A. camerianum, A. macrosporum, A. omphalodes* and *A. praetervisum,* all being neotropical and having a light colored context during some stage of the development. The species certainly belongs to a species complex. Corner (1983:59-63) described Brazilian collections as *A. sprucei* "A" and *A. sprucei* "B". Reported throughout the neotropics.

staneri Stey., G. ; Bull. Jard. Bot. Bruxelles 31:79-80, 1961 ; on dead wood, Koli-Koli, Eala, Mbandaka (formerly Coquilhatville), Zaire, holotype "Staner 229" (BR).
= *G. subfornicatum* Murr., teste Steyaert (1980).

stipitatum Murr., F. ; Bull. Torrey Club 30:229, 1903 ; on dead wood, Nicaragua, lectotype "Smith", s.n. (NY, fragm. BR).
- *G. stipitatum* (Murr.) Murr. ; North Amer. Flora 9:122, 1908.
Ganoderma group. For a description see Murrill (1908:122) or Steyaert (1980:181-182). The latter author discussed this species in the *G. parvulum* complex. Reported throughout the neotropics.

stratoideum He, G. ; in He and Yu, Acta Mycol. Sin. 8:285, 1989 ; on stump of deciduous tree, Sandu Xian, Dujiang Zhen, Guizhou Prov., China, holotype "He 1253" (HMAS).
Ganoderma group. Known only from China.

subamboinense P. Henn., F. ; Hedwigia 43:175, 1904 ; Brazil, lectotype "Ule 2748", lost in B, fragment in S according to Bazzalo and Wright (1982:304).

- *G. subamboinense* (P. Henn.) Bazz. & Wright ; comb. nov., following Bazzalo and Wright (1982;302). Bazzalo and Wright (loc.cit.) did not formally propose a comb. nov. but wrote in the heading "*G. subamboinense* P. Henn.", followed with "(sub *Fomes (Ganoderma) subamboinensis* P. Henn.)". This is a delicate situation regarding ICBN Article 33, therefore, we propose to validate the combination of Bazzalo and Wright.
Ganoderma group. Bazzalo and Wright (1982:302-305) examined a fragment of the type in S which has ornamented gasterospores, and described *G. subamboinense* var. *laevisporum* for collections which only differ from the type in having smooth gasterospores. These authors also stated that the species seems close to *G. multiplicatum* (Mont.) Pat. var. *vitalii* Steyaert (1962:104), which was also described from Brazil, but they did not examine the type of the latter. Lloyd (Stip.:108, 1912) wrote that the species is the same to *P. lauterbachii,* which he considered a tropical form of *P. lucidus.* Reported throughout tropical America to Argentina.

subfornicatum Murr., G. ; North Amer. Flora 9:121, 1908 ; on dead wood, Belize, lectotype "M.E. Peck, 1906", s.n. (NY, fragm BR).
Ganoderma group. For a description see Steyaert (1980:160-163) who noted marked variation in the size and shape of basidiospores among different collections. Corner (1983:127) included this taxon in *G. chalceum* s.lato. Reported throughout the tropics.

subfulvus Cke, P. ; Trans. Bot. Soc. Edinburgh 13:153, 1879: Nomen nudum. The name appeared in a long list, without description and followed with the words "*rudis* Lév." in parenthesis. To validate the name, one might consider that Cooke was willing to make a nomen novum to replace *Polyporus rudis* Lév. 1846 non Berk. 1839; if so, then the type of Léveillé's nomen nudum becomes the type of Cooke's nomen novum, which is a specimen of *Fomitella supina* (Swartz.: Fr.) Murr. (Ryvarden 1981:183).
- *G. subfulvum* (Cooke) Pat. ; Bull. Soc. Myc. Fr. 5:68, 1889: Nomen invalidum, based on an invalid name.

subincrustatum Murr., G. ; North Amer. Flora 9:122, 1908 ; on log, Hope Gardens, Jamaica, lectotype "F.S. Earle 176, Oct. 26, 1902" (NY).
= *G. resinaceum* Boud., teste Bazzalo and Wright (1982:310).
Ganoderma group, in the *G. lucidum* complex (Ryvarden 1985:179). Known only from the type locality.

sublucidus Beeli, P. ; Bull. Soc. Roy. Bot. Belg. 62:62, 1929 ; Eala, Zaire, lectotype "Goossens-Fontana 49" (BR).
- *G. sublucidum* (Beeli) Stey. ; Bull. Jard. Bot. Bruxelles 31:79, 1961.

Ganoderma group. No modern description has been found. It is related to *G. staneri* in Steyaert (loc.cit.). Known only from the type locality.

subperforatum Atk., G. ; Bot. Gaz. 46:337, 1908 ; growing among *Datura stramonium,* Chillicote, Ohio, U.S.A., lectotype "M.E. Haid and G.F. Atkinson" (CUP 19560, fragm. BR).
= *G. lucidum* (W.Curt.: Fr.) Karst., according to Atkinson (Overholts, 1915:711).
= *G. resinaceum* Boud., teste Steyaert (1972:95).

subrenatum Murr., A. ; North Am. Flora 9:117, 1908 ; on the ground, Belize (British Honduras), lectotype "M.E. Peck, 1906" (NY, BPI).
- *G. subrenatum* (Murr.) Sacc. & Trott. ; Syll. Fung. 21:304, 1912.
= *A. camerarium* (Berk.) Furt., teste Furtado (1981:35-38) and Ryvarden (1985:171).

subresinosus Murr., F. ; Bull. Torr. Bot. Club 35:410, 1908 ; Philippines, lectotype "Foxworthy 1628" (NY).
- *G. subresinosum* (Murr.) Humph. ; Mycologia 30:332, 1938.
- *Tr. subresinosum* (Murr.) Imaz. ; Bull. Govt. Forest. Exp. Stn. Japan 57:119, 1952.
- *M. subresinosum* (Murr.) Stey. ; Persoonia 7:112, 1972.
- *A. subresinosum* (Murr.) Corner ; Beih. Nova Hedwigia 75:93, 1983.
- *A. subresinosum* (Murr.) Teixeira ; Rev. Bras. Bot. 15:125, 1992: Nomen illegit. non Corner 1983.
Amauroderma group. For a description see Steyaert (1972:112-113) who designed this species as the type of the genus *Magoderna*. Corner (1983:93-95) and Zhao (1989:153-155) described collections referring to this species but apparently did not examine the type. Both Corner and Zhao reported two kinds of basidiospores which characterize this species: one kind is typical *Amauroderma* spores whereas the other kind resembles *Fomitopsis* spores. Reported from tropical Asia and tropical Africa.

subrugosum Bres. & Pat., G. ; in Patouillard, Bull. Soc. Myc. Fr. 5:77, 1889 ; Samoa Is., lectotype "Weber" (Lloyd Herb. 27138 in BPI, ?FH).
- *A. subrugosum* (Bres. & Pat.) Torr. ; Brotéria Bot. 18:128, 1920.
- *A. subrugosum* (Bres. & Pat.) Aosh. ; Bull. Nat. Sci. Mus. Tokyo 14:435, 1971: Nomen illegit. non Torrend 1920.
= ? *A. rugosum* (Blume & Nees: Fr.) Torr.; see below.
Amauroderma group. For a description see Furtado (1981:91-95). In the original description Patouillard (loc.cit.) noted the possibility of a synonymy with *P. rugosus* var. *guineensis* Fr. Several authors, including Aoshima (1971:435), Ryvarden (1980:35), Corner (1983:74, 85) and Zhao (1989:148-150), considered *A. rugosum* an earlier name for this taxon. However, Furtado (1981:93, 102-103)

argued that *A. rugosum* is insufficiently known to make any statement about the synonymy between the two species. Bresadola (1920:60) distinguished the two species as follows: "*G. subrugosum* vegetum est totum coloratum, sc. luride luteum, dum e contra *G. rugosum* est fuscidulum, fere nigrum; substantia pilei in nostro crassior et mollior, laetius colorata, sporae rarius globosae etc." Reported throughout the tropics, including South China and Japan (Hongo and Izawa 1994:258).

subtornatum Murr., G. ; Bull. Torrey Bot. Club 34:477, 1907 ; on decayed trunk, Lamao river, Prov. Bataan, Luzon Is., Philippines, lectotype "R.S. Williams, November 1903" (NY, fragm. BR); syntypes "A.D.E. Elmer 6943, November 1904" (Mt. Mariveles, Luzon Is., Philippines) and "A.D.E. Elmer 7213, January 1906" (Palo, Leyte Is., Philippines).
Ganoderma group, related to *G. lucidum* s.lato in Ryvarden (1985:179); but may also be related with species of the *G. chalceum* complex. For a description see Murrill's original paper, in which the species is clearly described as being a black, laccate *Ganoderma*: in the same paper, Murrill described non-laccate taxa in *Elfvingia*. However, Bresadola (1913, Extracta p. 760) and Lloyd (Fom.:269, 1915) considered the taxon being non-laccate except that "young specimens sometimes show a slight black, laccate exudation, similar to that of *F. nigrolaccatus*" (Lloyd, loc.cit.); for these authors, the taxon is common in the Philippines. Humphrey and Leus (1931:501), Corner (1983:135-136) and Zhao (1989:80-82) considered *G. subtornatum* a synonym of *G. mastoporum*, which was classified in *Elfvingia* by some authors. Finally, Steyaert (1972:89-90) found two collections in NY labeled "no. 153" and marked "type" and assumed that one collection is Murrill's type of *G. subtornatum*, and described the other collection as *G. lamaoense*. Steyaert stated that many specimens in NY identified by Murrill as *G. subtornatum* differ significantly from the original description; in particular, Steyaert (1972:89) considered that Elmer's collection no. 6943 (NY) and no. 7213 (NY and K), which are syntypes, belong to different species. A proper reassessment of this species is necessary. Reported from tropical and subtropical Asia; also from New Zealand by Cunningham but probably misidentified (see Buchanan and Wilkie, 1995), and from New Zealand and Madagascar by Lloyd (Fom.:269, 1915) although here also the concept of this species may have been misunderstood by Lloyd.

subtuberculosum Murr., G. ; Lloydia 7:326, 1944 ; on dead or dying *Casuarina cunninghamiana*, South Bay, Palm Beach Co., Florida, U.S.A., lectotype "Don Plank, 27 Nov. 1939 (F.18722)" (NY).
= *G. resinaceum* Boud., teste Ryvarden (1985:179).

subumbraculum Imaz., G. ; Bull. Tokyo Sci. Mus. 1:38-39, 1939 ; s.hosp., Hane-yama, Koti Pref., Japan, holotype "leg. K. Ogawa, Sept. 1908" (TNS

206977).
Ganoderma group, in the *G. lucidum* complex (Hattori and Ryvarden, 1994:43). Zhao (1989:49) reported one collection from Hebei Prov. in China and stated that it is a very distinctive species having a context with several layers and spores without echinules, although he also noted difference with the type (which he apparently had not examined). Known from Japan and China, by a single collection in both regions.

sulcatum Murr., G. ; Bull. Torrey Bot. Club 29:607, 1902 ; on *Sabal palmetto*, Florida, U.S.A., lectotype "C.G. Lloyd, Jan. 1897", s.n. (NY, fragm. BR).
= *G. zonatum* Murr., teste Steyaert (1967a:473).
Ganoderma group. Saccardo (1905:125) transferred this taxon to *Fomes* and changed its name to *Fomes aratus* Sacc. because the epithet "*sulcatum*" was preoccupied in *Fomes* by *F. sulcatus* Cooke 1885.

tenue Zhao, Xu & Zhang, G. ; Acta Microbiol. Sin. 19:271, 1979 ; cultivated specimen, Beijing, holotype HMAS 37891.
Ganoderma group. For a description see Zhao (1989:51-52) who noted that this species is similar to *G. capense*. The holotype is a basidiocarp grown in artificial culture (pharmaceutical fungus) and the original wild basidiocarp was lost before an adequate description could be made. Known only from China.

testaceus Lév., P. ; Ann. Sci Nat. ser. 3, 5:126, 1846 ; Brazil, lectotype "Dupré, 1842" (PC).
- *G. testaceum* (Lév.) Pat. ; Bull. Soc. Myc. Fr. 5:67, 1889.
- *G. applanatum* (Pers.) Pat. var. *testacea* (Lév.) Rick. ; Iheringia Bot. 7:210, 1960.
Ganoderma group, in the *G. lucidum* complex according to Ryvarden (1981b:184). From Rick's (loc.cit.) and Lloyd's (Fom.:270, 1915) statements the species would belong to the *Elfvingia* group but these authors never examined the lectotype; therefore, their identifications have to be rejected. No modern description has been found. Known only from the type locality.

theaecolum Zhao, G. ; Acta Mycol. Sin. 3:16, 1984 ; on root of tea, Qingzhong Xian, Hainan Is., China, holotype HMAS 42788.
Ganoderma group. For a description see Zhao (1989:52-54) who stated that it is pathogenic on tea but also found on wood of *Acacia confusa*. Known only from South China.

tibetanum Zhao & Zhang, G. ; Acta Mycol. Sin. 2:162, 1983 ; on dead wood, Xizang, Tibet, holotype HMAS 41261.
Ganoderma group. For a description see Zhao (1989:91-92) who reported as

diagnostic characters the large spores (10.4-14 x 7.4-8.7 µm) and a hard peridium with limited context and tubes. Known only from Tibet.

tornatus Pers., P. ; in Gaudichaud, Voy. aut. Monde p. 173, 1826 ; Mariana Is. (Pacific), lectotype "C. Gaudichaud", s.n. (PC, fragm. BR).
- *E. tornata* (Pers.) Murr. ; Bull. Torrey Club 30:301, 1903.
- *G. tornatum* (Pers.) Bres. ; Hedwigia 53:55, 1912.
= *G. australe* (Fr.) Pat., teste Steyaert (1975:461), Murrill (1908:115) and Ryvarden and Johansen (1980:85-88).
Elfvingia group, in the *G. applanatum-australe* complex. Steyaert (1967a:485-487) considered it a distint species, then (Steyaert, 1975:461) a synonym of *G. australe* but mistook *G. tornatum* as the valid name. As already stated in Ryvarden and Johansen (loc.cit.), although *P. tornatus* Pers. (1826) formally antedates *P. australis* Fr. which was published in Elechus Fungarium (Fries, 1828), the latter has been defined in Art. 13 of the International Code of Botanical Nomenclature as part of Systema Mycologicum and being published on 1 January 1821. Therefore, *P. australis* becomes the valid name.

torosum Stey., G. ; Bull. Jard. Bot. Bruxelles 32:100-101, 1962 ; Nakhawn Srithamarat, Thailand, holotype "Phloenchitt 763" (BR).
Ganoderma group. See the Latin diagnosis (detailed). Known only from the type locality.

torrendii Lloyd, P. ; Mycol. Writ. 4, Let. 54:4, 1915 ; Belem, Bahia State, Brazil, lectotype "Torrend", Herb. Lloyd 27135 (BPI).
- *A. torrendii* (Lloyd) Torr. ; Brotéria Bot. 18:128-129, 1920.
- *G. torrendii* (Lloyd) Sacc. & Trott. ; Syll. Fung. 23:408, 1925.
= *A. calcigenum* (Berk.) Torr., teste Furtado (1981:31-35) and Ryvarden (1990:99).
Torrend (loc.cit.) wrote that *A. gusmanianum* is a variety of *A. torrendii* which was collected few meters away. Lloyd (cited in Torrend) distinguished the two species. Furtado considered *A. torrendii* a synonym of *A. calcigenum* and reduced *A. gusmanianum* as a form of *A. schomburgkii*. This strongly suggests that *A. schomburgkii* - *A. calcigenum* is a species complex of which the taxonomy can not be solved by morphological studies alone. Known only from the type locality.

trengganuense Corner, G. ; Beheift. Nova Hedw. 75:141-143, 1983 ; on dead trunk in forest, Kemaman, Trengganu, Malaysia, holotype "leg Sing. F.N. 26015" (Herb. Corner, CGE or E).
Described in *Ganoderma* but "assignable to *Humphreya*" (Corner 1983:31). See the original description, in which Corner stated that basidiospores are truncated as in *Ganoderma* and reticulate as in *Humphreya*, and that the fungus has a dimitic hyphal structure as in *Amauroderma* (Corner 1983:141). Corner noted that it comes

close to *G. oregonense* and can be mistaken with *A. parasiticum*. Known only from the type locality.

triangulum Zhao & Xu, G. ; Acta Mycol. Sin. 3:18, 1984 ; on dead wood, Bawangling, Hainan Is., China, holotype HMAS 43715.
Elfvingia group, in the *G. applanatum - australe* complex. For a description see Zhao (1989:122-123). Known only from South China.

trichodematum Furt., A. ; Rev. Gen. *Amauroderma* (Polyp.). Est. Bas. Microestr. Basid. p. 311, 1968 ; Mata do Curusamba, Obidos, Para State, Brazil, holotype "P. Occhioni, Nov. 1927" (SP).
Amauroderma group. For a description see Furtado (1981:95) who noted that it is the only species known in the genus with a fascicled trichoderm. Known only from the type locality.

triviale Bres., G. ; Annals Mycol. 10:501, 1912 ; on trunk, Bogor, Java, Indonesia, lectotype "Van Höhnel 127" (FH and S), ?isotype in BPI according to Aoshima (1971:429).
= *G. dahlii* (Henn.) Aoshima, teste Aoshima (1971:429).
= *G. subfornicatum* Murr., teste Steyaert (1980:160) and Ryvarden (1988b:325).
Ganoderma group. No modern description has been found. Aoshima (loc.cit.) examined a so-called isotype in BPI and made the synonymy with *G. dahlii* whereas Steyaert (loc.cit.) and Ryvarden (loc.cit.) examined the type in FH to make the synonymy with *G. subfornicatum*. In his monograph, Corner (1983) did not mention *G. triviale* but included both *G. dahlii* and *G. subfornicatum* in *G. chalceum* s.lato (Corner, 1983:126-127). Known only from Java.

tropicus Jungh., P. ; Verh. Batav. Genootsch 17:63, 1838 ; s.hosp., s.loc., Java, Indonesia, lectotype "F.W. Junghuhn" in L (no. 910.222-3540, fragm. BR) as stated in Steyaert (1972:78-79), or in BPI (no. US0236950, noted "Orig!" by Bresadola), as stated in Ryvarden (1981a:371-372).
- *G. tropicum* (Jungh.) Bres. ; Annals Mycol. 8:586, 1910.
Ganoderma group. Steyaert (loc. cit.) and Ryvarden (loc. cit.) described different specimens both labeled "Java, Junghuhn" and both considered as lectotype, one in L and the other in BPI. There are slight differences between the two descriptions, notably in the spore size. Zhao (1989:93-94) examined both specimens and confirmed these differences. If the two collections are not conspecific, there is little chance to retrieve which specimen Junghuhn had in hand when he created *P. tropicus*; but since Bresadola examined the BPI collection when he made the combination *G. tropicum*, then the BPI collection could be chosen as type in case of conflict. The present concept of this species, however, encompasses both Steyaert and Ryvarden descriptions: Corner (1983:143-147) stated that the taxon commonly

occurs in the Malay peninsula and Indonesia, and considered it as a species aggregate with many varieties, pantropical in distribution. Reported from Indonesia, Malaysia, Japan, Taiwan (Imazeki, 1939; Peng, 1991) and Hainan Is. (Zhao, 1989).

trulla Stey., G. ; Persoonia 7:83-84, 1972 ; s.hosp., Bogor, Java, Indonesia, holotype s.coll. (BO 5511, fragm. L, BR).
Ganoderma group. See the original description. Corner (1983:148) stated that distinction with *G. trulliforme* is doubtful. Known only from the type locality.

trulliforme Stey., G. ; Persoonia 7:85-86, 1972 ; s.hosp., Gunung Kantjana, Pengalengan, Priangan, Java, Indonesia, holotype "A. Maitland" (BO 11047, fragm. L, BR).
Ganoderma group. See the original description. Corner (1983:147-149) reported collections from Mt Kinabalu in Borneo (1300-1700 m.), and stated that this species resembles *G. chalceum* but also comes close to the temperate *G. lucidum*. Known only from Java and Borneo. In a nomenclature point of view, it is unfortunate that Steyaert selected an epithet which already exists in the family (see below), although in another genus: if future study classifies the two species in the same genus, the name of this taxon should be changed.

trulliformis Lloyd, P. ; Mycol. Writ. 4, Let. 42:16, 1912 ; Cameroon, lectotype "G. Zenker", Herb. Lloyd 23434 (BPI, K).
- *A. trulliforme* (Lloyd) Torr., Brotéria Bot 18:139, 1920.
= *A. fasciculatum* (Pat.) Torr., teste Ryvarden and Johansen (1980:73), teste Furtado (1981:48).
Amauroderma group. Lloyd (loc.cit.) stated resemblance with *P. auriscalpius* in the neotropics. Reported from Brazil (in Da Silva and Minter, 1995) but miscombined as *A. trulliforme* Lloyd. Otherwise known only from the type locality.

tsugae Murr., G. ; Bull. Torrey Bot. Club. 29:601, 1902 ; on *Tsuga canadensis*, New York City, U.S.A., lectotype "Coll. 69" (NY, fragm. BR).
Ganoderma group. For a description see Murrill's original paper, Steyaert (1980:148-150) or Gilbertson and Ryvarden (1986:303-305). Murrill described it as occurring only on *Tsuga canadensis*. It was later reported on *Abies* and *Picea* in North America (Adaskaveg and Gilbertson, 1986), mainly on *Larix* in China (Zhao, 1989), and on other coniferous trees in Japan (Imazeki, 1939). Based on morphological and cultural studies, Adaskaveg and Gilbertson (1988:506) eventually reported the species from hardwood in North America. Bourdot and Galzin (1928:483) and Stalpers (1978) considered it a synonym of *G. valesiacum* Boud. Molecular studies showed that *G. tsugae* and *G. valesiacum* are closely related to *G. lucidum* s.stricto (Moncalvo et al., 1995b); interestingly, Lloyd (Stip.:109, 1912) stated that *P. tsugae* and *P. valesiacus* are conspecific with *P.*

lucidus. A taxonomic revision of the group will necessitate a comprehensive study in a biogeographic framework. Reported from North America, Japan, China and Taiwan.

tsunodae (Yas. ex Lloyd), P. ; Lloyd Mycol. Writ. 5:792, 1918 ; Ikeda, Kozuke, Japan, lectotype "leg. K. Tsunoda, 8-VII-1917" (BPI US0307263).
In the literature the basionym has often been attributed to Lloyd alone, although in the original description Lloyd made it clear that the species was named by Yasuda from the name of the collector (K. Tsunoda). The following combinations are therefore correct:
- *G. tsunodae* (Yas. ex Lloyd) Trott. ; Syll. Fung. 23:139, 1925.
- *E. tsunodae* (Yas. ex Lloyd) Imaz. ; Bull. Tokyo Sci. Mus. 6:102, 1943.
- *Tr. tsunodae* (Yas. ex Lloyd.) Imaz. ; Bull. Gov. Forest. Exp. Sta. 57:97, 1952: Nomen illegit., non *Trachyderma* Norm. 1853 (Ryvarden, 1991:230).
Elfvingia group, but may well represent a distinct group for its several particularities. For a description see Hattori and Ryvarden (1994:44), or Zhao (1989:95-96). In the original description, Lloyd (loc.cit.) stated that if *Polyporus* has to be split up, a new genus will have to be created for this species which represent "a new type of the section *Ganodermus*", and this foolish McGinty proposed "*Inopinatus tsunodae*". Later, Imazeki (1939:49) created subgen. *Trachyderma* to accomodate this species, then proposed *Trachyderma* at the genus level (Imazeki, 1952:97) but overlooked that the name was preoccupied (Ryvarden, 1991:230). Known only from Japan and China.

tuberculosum Murr., G. ; North Amer. Flora 9:123, 1908 ; on dead wood, s. loc., Belize (British Honduras), lectotype "M.E. Peck, 1906", s.n. (NY, fragm. BR).
= *G. oerstedii* (Fr.) Torr., teste Steyaert (1980:159), teste Bazzalo and Wright (1982:314).

tumidum Bres., G. ; Annals Mycol. 9:267, 1911 ; on trunk, Kisantu, Zaire, lectotype "Vanderyst", s.n. (BPI, fragm. BR).
= *G. zonatum* Murr., teste Steyaert (1967a:473), teste Ryvarden (1988b:325).
In the original description Bresadola stated: "*Ganodermati fulvello* Bres. proximum". Known only from the type locality.

umbraculus Fr., P. ; Elench. Fung. 1:74, 1828 ; s.hosp., Sierra Leone, lectotype "Afzelius", not found in UPS by Ryvarden (in the original description Fries wrote that he saw the specimen in "Museo Thünberg").
- *G. umbraculum* (Fr.) Pat. ; Bull. Soc. Mycol. Fr. 5:75, 1889.
- *G. umbraculum* (Fr.) Bres. ; Annls Mycol 14:239, 1916: Nomen illegit. non Pat. 1889.
= *A. leptopus* (Pers.) Furt., in Furtado (1967a:310, 1981:55).

Some confusion surround *P. umbraculus* Fr. and *P. leptopus* Pers., as discussed in Furtado (1967a:310-312, 1981:55-56). Patouillard (1889:75) considered the two names as synonyms, a conclusion also reached by Furtado in spite of the lack of authentic specimen for *P. umbraculum*. However, if the proposed synonymy is correct, then "*umbraculus*" would be the valid epithet for this taxon. But since the epithet "*leptopus*" has been used by many authors and no authentic material is known for *P. umbraculus*, the latter name can be dropped from consideration as a nomen ambigum.

umbraculus Thüm., P. ; Exccita Mycotheca Universalis no 708, 1878 ; lectotype "Mycot. Univ. no. 708", not located: Nomen illegit. non Fries 1828 [1821].
The taxon was replaced by *G. fulvellum* Bres. by Patouillard (1889:69), who indicated that the type of *P. umbraculus* Thüm. non Fries belongs to *G. fulvellum* Bres.

umbrinum Bres., G. ; Annals Mycol. 10:501-502, 1912 ; on trunk, Bogor, Java, Indonesia, lectotype in BPI.
Ganoderma group, although in the original description Bresadola noted affinity with *G. gibbosum* (*Elfvingia* group). We believe that Bresadola misunderstood *G. gibbosum*. Ryvarden (1988b:325) looked at the type and suggested to compare this species with *G. zonatum*. No modern description has been found. Known only from the type locality.

ungulatum Zhao & Zhang, G. ; Acta Mycol. Sin. 3:19, 1984 ; on stump of deciduous tree, Limushan forest, Hainan Is., China, lectotype HMAS 42787.
Elfvingia group. For a description see Zhao (1989:123-125), who noted a thick context with many black crustose layers and binding hyphae similar to Bovista-type as diagnostic characteristics of this species. Known only from South China.

unilaterus Lloyd, P. ; Mycol. Writ. 3, Stip.:117, 1912; Rio Negro, Amazonas State, Brazil, lectotype "Spruce 207" (K).
- *A. unilaterum* (Lloyd) Torr. ; Brotéria Bot. 18:138, 1920.
- *A. unilaterum* (Lloyd) Ryv. ; Mycotaxon 38:100-101, 1990: Nomen illegit. non Torrend 1920.
Amauroderma group. For a description see Ryvarden (loc.cit.). Known only from the type locality.

valesiacum Boud., G. ; Bull. Soc. Mycol. Fr. 11:28, 1895 ; on *Larix*, Haute-Nendaz, Valais, Switzerland, lectotype "Laronde et Garnier" (PC).
Ganoderma group. For a description see Ryvarden and Gilbertson (1993:281-282) who stated that distinction with *G. lucidum* remains tentative. In Europe, it seems to follow *Larix* natural stands in higher altitude but was also reported from other

conifers (Pegler and Young, 1973:353). It may be conspecific with North American *G. tsugae*. Reported from Europe, China (Zhao 1989:55-56), and Japan (Hongo and Izawa 1994:257).

vanheurnii Stey., G. ; Persoonia 7:69-71, 1972 ; s.hosp., Probolinggo, Bromo, Java, Indonesia, lectotype "W.C. van Heurn", Herb. M.A. Donk 13596 (L, fragm. BR).
Elfvingia group. See the original description. Known only from the type locality.

vanmeelii Stey., G. ; Bull. Jard. Bot. Bruxelles 31:77-78, 1961 ; on sandy soil, Tembwe, Shaba Prov. (formerly Haut-Katanga), Zaire, lectotype "Van Meel 545" (BR).
Ganoderma group, in the *G. lucidum* complex. See the Latin diagnosis (detailed), in which Steyaert noted that it is related to *G. ghesquierei*. Known only from the type locality.

vansteenisii Stey., M. ; Persoonia 7:114-115, 1972 ; s.hosp., Lemboeh (Gunung Goh), Atjeh, Sumatra, Indonesia, lectotype "C.G.G.J. van Steenis 10170" (BO 16679, fragm. L, BR).
- *A. vansteenisii* (Stey.) Teixeira ; Rev. Bras. Bot. 15:125, 1992.
Amauroderma group. See the original description, in which Steyaert classified this species in *Magoderna*. Corner (1983:85-86) considered it (misspelled as "*M. steenisii*") a synonym of *A. rugosum*, but did not examined the types. Reported from Sumatra and Solomon Is, and ?Brazil (see Teixeira loc.cit.).

variabilis Berk., P. ; Hook. J. Bot. 8:193, 1856 ; on the ground in the forest, Panure, Amazonas State, Brazil, lectotype "Spruce 57" (K) in Lloyd (Stip.:189, 1912) and Ryvarden (1984:360), but "Spruce 207" (K) in Furtado (1981:36).
- *G. variabile* (Berk.) Pat. ; Bull. Soc. Myc. Fr. 5:76, 1889.
- *A. variabile* (Berk.) Torr ; Brotéria Bot. 18:138, 1920.
- *A. variabile* (Berk.) Wakef. ; Kew Bull. 1934:243, 1934: Nomen illegit. non Torrend 1920.
= *A. camerarium* (Berk.) Furt., teste Furtado (1981:35-38), teste Ryvarden (1984:360),
Although they selected different specimens as lectotype, Furtado (loc.cit.) and Ryvarden (loc.cit.) reached the same conclusion about this taxon.

vegetus Fr., P. ; Epicr. p.464, 1838 ; Halland, Sweden, type lost (not found in UPS by Ryvarden).
- *G. vegetum* (Fr.) Bres., Ann. Roy. Inst. Bot. 6:178, 1896.
= *G. applanatum* (Pers.) Pat., from Fries own comments and also supported by the fact that this is the only species of the *Elfvingia* group that occurs in Sweden.

weberianus Bres. & Henn., F. ; in Sacc., Syll. Fung. 9:174, 1891 ; s.hosp., Samoa Is., lectotype "G. Weber" (B, fragm. BR).
- *G. weberianum* (Bres. & Henn.) Stey. ; Persoonia 7:79-82, 1972.
Ganoderma group. For a description see Steyaert (loc.cit.). Corner (1983:149-151) did not examine the type but gave a detailed description of Singapore and Malaysian specimens. *G. rivulosum* and *G. lauterbachii* are possible synonyms, and *G. microsporum* comes close. Reported from Samoa Island, Indonesia, Singapore, Malaysia, Taiwan.

williamsianum Murr., G. ; Bull. Torrey Bot. Club. 34:478, 1907 ; s.hosp., Lamao river, Mt. Mariveles, Prov. Bataan, Luzon Is., Philippines, lectotype "R.S. Williams 152" (NY, fragm. BR).
- *E. williamsiana* (Murr.) Imaz. ; Bull. Govt. For. Exp. Sta. Tokyo 57:106, 1952.
Elfvingia group. For a description see Steyaert (1972:74-75) who noted that it has a very distinctive cutis anatomy. Corner (1983:165) suggested comparison with *G. brownii* from California. Reported from Philippines, Indonesia, and Malaysia.

wuhuense Ren, G. ; Acta Mycol. Sin. 13:25-27, 1994 ; Wuhu, Anhui, China, lectotype "Ren 9021" (ANUB).
Elfvingia group. Good Latin diagnosis in the original paper [in Chinese]. From the author's description, this species is similar to *G. densizonatum* and *G. applanatum*. Known only from the type locality.

wuzhishanense Zhao, A. ; Acta Mycol. Sin. 6:208, 1987 ; on dead wood, Hainan Is., China, holotype HMAS 19311.
Amauroderma group. For a description see Zhao (1989:155-156) who noted resemblance with *A. infundibuliforme*. Known only from the type locality.

wynaadense Stey., G. ; Bull. Jard. Bot. Bruxelles 32:98-99, 1962 ; on *Mesua ferrea*, Wynaad Division, India, lectotype s.coll., s.n. (DD, fragm. BR).
= *G. multiplicatum* (Mont.) Pat., teste Steyaert (1980:150).
Ganoderma group. Steyaert (loc.cit.) did the synonymy with *G. multiplicatum* although, as he stated, the basidiospores of *G. wynaadense* are distinctively smaller. Known only from the type specimen.

xanthocreas Pat., G. ; in Heim, Bull. Soc. Myc. Fr. 43:30, 1927 ; on dead wood, Dong Tri, Quang Tri Prov., Annam, Vietnam, isotypes "Poilane 10986" and "Poilane 10330", probably lost (Ryvarden 1983:37).

xingyiense He, G. ; Acta Mycol. Sin. 8:284, 1989 ; on stump in deciduous forest, Baiwayao, Xingyi Xian, Guizhou Prov., China, lectotype "He 534" (HMAS).
Ganoderma group. Known only from the type locality.

xylodes Berk., P. ; Hook. J. Bot. 8:171, 1856 ; Panure, Amazonas State, Brazil, lectotype "Spruce 56" (K).
- *G. xylodes* (Berk.) Pat., Bull. Soc. Myc. Fr. 5:77, 1889.
= *A. schomburgkii* (Mont. & Berk.) Torr., teste Furtado (1981:80).

xylonoides Stey., G. ; Bull. Jard. Bot. Bruxelles 31:76, 1961 ; on *Gilbertiodendron dewevrei*, Bongabo, Zaire, lectotype "Fassi 1048" (BR, isotype in YBI).
Ganoderma group. For a description see Steyaert (1967a:489-490) who reported several collections from tropical Africa.

yunnanense Zhao & Zhang, A. ; Acta Mycol. Sin. Suppl. 1:268, 1986 ; on dead wood, Xishou Xian, Yunnan, China, HMAS 48231.
Amauroderma group. For a description see Zhao (1989:157-158), who noted that it is a very distinctive species characterized by the pileus and stipe covered with densely brown velvet, a thin and fragile crust with irregular palisade, and a pallid context. Known only from South China.

zambesianus Lloyd, P. ; Mycol. Writ. 3, Stip.:128, 1912 ; Zambesi, Zimbabwe, lectotype "Buchanan, 1881", s.n. (K).
- *A. zambesianum* (Lloyd) Reid ; Contr. Bolus Herb. 7:37, 1975.
= *A. preussii* (Henn.) Stey., teste Ryvarden (1990:102).

zhenningense He, G. ; in Hee and Xie, Acta mycol. Sin. 14:24, 1995 ; on dried wood, Guizhou Prov., China, holotype "He 1425, HMBAG HI 1425".
Unknown to us. Probably only known from the type locality, as many taxa in China.

zonatum Murr., G. ; Bull. Torr. Bot. Club 29:606, 1902 ; on decayed wood, Florida, U.S.A., lectotype "L.M. Underwood", s.n. (NY, fragm. BR).
Ganoderma group. For a description see Steyaert (1967a:473-477) or Gilbertson and Ryvarden (1986:305-306). It usually grows on palm trees. Corner (1983:122-123) collected specimens in Brazil and in Peru which may refer to this species, and noted similarities with *G. chalceum*. Reported from Florida, ?South America (see Corner 1983:122-123), Java (Lloyd, Let. 53:7, 1914), and throughout tropical Africa (Steyaert 1967a:473-477).

7. TAXONOMIC AND GEOGRAPHIC SUMMARY

Taxa listed in the preceeding Chapter were largely circumscribed on the basis of morphological comparisons alone, and each authority clearly has applied rather

subjective species concepts for taxonomic circumscription and ranking. Application of different species concept leads to different views in biodiversity and biogeographic studies. For instance, in his earlier papers Steyaert (1961, 1962) held a narrow species concept and described many species from single collections from central Africa, South East Asia, and the neotropics. Later (Steyaert, 1972, 1980), he changed his attitude and synonymized many of his earlier "species", which, in some cases, resulted in the recognition of pantropical species rather than geographically restricted species. Also, because most species in *Ganoderma* are poorly defined it was not possible here to evaluate the biogeographic distribution of species. However, in order to summarize the geographic information available for the described taxa, we have scored below reported locations of names. This is a conservative evaluation since we have not done an exhaustive literature search (see references). We have also summarized below synonymies proposed in the literature, nomen nudum, etc. We have used the following geographic circumscriptions and abbreviations:

AFR : Africa.
EUR : Europe.
CHJ : Temperate Asia (China, Japan, India, Iran, etc.) including subtropical regions of China (Yunnan, Hainan Is., etc.). Taiwan has been included in this area when it marks the reported southern limit of a taxon (as for *G. sinense*), and in Sout East Asia when it marks the reported northern limit (as for *G. weberianum*).
SEA : South East Asia, including Sri Lanka (tropical Asia).
PAC : Pacific region, including Papua New Guinea but not Irian Jaya, Australia and New-Zealand.
SAM : Central and South America.
NAM : North America.
*! : Species described from, and apparently only represented by one or few collections all restricted to the type locality and adjacent regions.
* : Species described from, and reported by different authors in geographically distant localities.
+ : Species reported from.
^ : Taxon of which the type is poorly known or typification is controversial; however, these taxa were not proposed here as nomen ambigum because the name is in use in the literature (e.g., *A. rugosum*), and/or because a reassessement of the type is apparently still possible from original material (e.g., *G. dubiocochlear*).
~ : Taxon proposed as synonym of the taxon cited in the line above (taxa for which different synonymies were proposed have been reported only once in the Table).

7.1 Illegitimate names:

P. annularis Fr.
P. henningsii Lloyd
A. oblongisporum Furt.
P. orbiforme Fr.
P. subfulvus Cke
P. umbraculus Thüm.

7.2 Taxa excluded from Ganodermataceae:

A. (G.) brittonii
G. clemensiae
G. comphoratum
G. diabolicum
G. elmeri
G. fasciatus
E. fasciata
G. ferreum
E. fomentaria
G. hypoxanthum
G. mollicarnosum
G. ohiensis
G. pallens
G. resinosum
G. rubrum
G. scleropodium
A. scopulosum

7.3 Nomen ambigum:

No original material has been preserved for these taxa, which are either forgotten names or have controversial definition. These names should be abandoned, unless it is shown that it is still possible to neotypify a name from a collection which agrees with the original material.

	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
G. africanum	*!						
G. comorense	*!						
P. gossweilerii	*!						
G. pediforme	*!						
G. sceleton	*!						
G. umbraculum	*!						
G. laccatum		*					
G. lipsiense		*					+
G. rubiginosum		*!					

- nomen ambigum: cont. -	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
G. japonicum			*				
G. xanthocreas				*!			
G. lingua				*!			
G. pisachapani				*!			
G. amboinense			+	*	+		
G. cochlear			+	*			
G. fornicatum			+	+	+	*	
G. aurantiacum						*!	
G. formosissimum						*!	
G. frondosum						*!	
G. incrustatum						*!	
A. juriense						*!	
Polystictus lignicola						*!	
G. lionnetii						*!	
G. lorenzianum						*	
G. (A.) neglectum						*!	
G. nitens						*!	
G.(A.) nutans						*	
A. picipes						*!	
7.4 *Haddowia* group:							
Ha. longipes	+		+	+	+	*	
~ *A. costatum*				*!			
~ *G. pernanum*	*!						
Ha. aetii				*!			
Ha. neurosporum						*	
7.5 *Humphreya* group:							
G. reticulatosporum	*!						
Hu. eminii	*						
Hu. lloydii	*						
Hu. endertii				*!			
? *G. trengganuense*				*!			
? *G. asperulatum*				*			
Hu. coffeatum			+			*	
~ *A. (G.) augustum*						*!	
~ *A. (G.) flaviporum*						*!	
~ *A. (G.) infulgens*						*!	

	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
7.6 *Tomophagus* group:							
G. colossum	+			+	+	*	
~ *G. obockense*	*!						
7.7 *Elfvingia* group:							
G. applanatum	+	*	+	+	+	+	+
~ *G. leucophaeum*	+	+	+	+	+	+	*
~ ^ *G. gibbosum*			+	*		+	
~ ^ *G. flabelliforme*		*!					+
~ ^ *G. vegetus*		*!					
~ *G. incrassatum*					*!		
~ ^ *G. megaloma*							*!
^ *G. australe*	+	+	+	+	*	+	+
~ *G. tornatum*	+			+	*	+	
~ *G. adspersum*		*					
~ *G. linhartii*		*!					
~ *G. europaeum*		*!					
~ *G. annulare*	*!		+!				
~ *G. koningsbergii*				*			
~ *G. brownii*			+				*
~ *G. polyzonum*				*!			
~ *G. oroflavum*	+		+		*!		+
~ ^ *G. "annularis"* ss. Gilb.			+				*
^ *G. dubiocochlear*	*!						
G. rachodes	*!						
G. kosteri		*!					
G. bawanglingense			*!				
G. densizonatum			*!				
G. diaoluoshanense			*!				
G. limushanense			*!				
G. meijiangense			*!				
G. sanmingense			*!				
G. shangsiense			*!				
G. triangulum			*!				
G. ungulatum			*!				
G. wuhuense			*!				
G. tsunodae			*				
G. donkii				*!			
G. dejongii				*!			
G. hoehnelianum				*!			

- *Elfvingia* group: cont. -	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
G. luteicinctum				*!			
G. vanheurnii				*!			
G. impolitum				*			
G. mirabile				*			
~ *G. bakeri*				*!			
G. williamsianum				*			
G. philippii			+	*			
~ *G. pseudoferreum*				*			
G. amazonense				?		*	
G. chilense						*!	
G. lobatoideum						*	+
G. lobatum			+				*
~ *E. reniformis*						+	*
Elfvingia or *Ganoderma* group?							
G. mastoporum	+		+	*	+		
~ *E. flabellata*				*!			
~ *E. polyzonata*				*!			

7.8 *Ganoderma* group:

We have refrained from grouping together the names given to the laccate taxa with pale context which belong to the *G. lucidum* complex sensu lato (see Chapter 6).

G. alluaudii	*
G. aureolum	*!
G. chonoides	*!
G. corrugatum	*!
G. endochrum	*!
G. fassii	*!
G. fassioides	*!
G. fici	*!
G. fuscum	*!
G. ghesquierei	*!
G. gilletii	*!
G. hinnuleum	*!
G. hoploides	*!
G. megalosporum	*!
G. melanophaeum	*!
G. namutambalaense	*!
G. rothwellii	*!
G. septatum	*!

- *Ganoderma* group: cont. -	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
G. soyeri	*!						
^ *G. sublucidum*	*!						
G. vanmeelii	*!						
G. baudonii	*!						
G. hildebrandii	*						
~ *G. nigrolucidum*	*!						
G. leucocreas	*						
G. sculpturatum	*						
~ *G. lignosum*	*						
G. xylonoides	*						
G. capense	*!		+				
^ *G. fulvellum*	*		+	+		+	
^ *G. lucidum*	+	*	+	+	+	+	+
~ *G. ostreatum*		*!					
~ ^ *G. pseudoboletus*		*!					
G. carnosum		*					
~ *G. atkinsonii*		*!					
G. puglisii		*!					
^ *G. cupreolaccatum*		*!					
~ *G. pfeifferi*		*		+			
~ *G. soniense*		*!					
G. valesiacum		*	+				
~ *G. mongolicum*			*!				
~ *G. tsugae*			+				*
G. ahmadii			*				
G. neojaponicum			*				
G. sinense			*				
~ *G. formosanum*			*!				
G. subumbraculum			*				
G. albimarginatum			*!				
G. austrofujianense			*!				
G. atrum			*!				
G. calidophilum			*!				
G. hainanense			*!				
G. cantharelloideum			*!				
G. chenghaiense			*!				
G. crebrostriatum			*!				
G. daiqingshanense			*!				
P. duroporus			*				
G. guinanense			*!				
G. kunmingense			*!				

- *Ganoderma* group: cont. -	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
G. luteomarginatum			*!				
G. magniporum			*!				
G. manoutchehrii			*!				
G. mediosinense			*!				
G. mirivelutinum			*!				
G. multipilea			*!				
G. parviungulatum			*!				
G. ramosissimum			*!				
G. rotundatum			*!				
G. shandongense			*!				
G. sichuanense			*!				
G. simaoense			*!				
G. stratoideum			*!				
G. tenue			*!				
G. theaecolum			*!				
G. tibetanum			*!				
G. xingyiense			*!				
G. torosum				*!			
P. armadillus				*!			
G. bruggemanii				*!			
G. ostracodes				*!			
G. placopus				*!			
^ *G. umbrinum*				*!			
^ *G. curranii*				*			
^ *G. subtornatum*				*			
^ *G. tropicum*			+	*			
~ *G. oroleucum*				*!			
G. ochrolaccatum			+	*	+		
~ *G. buissonii*	*!						
G. flexipes			+	*			
G. microsporum				*!			
G. weberianum				+	*		
~ *G. rivulosum*				*!			
~ *G. lauterbachii*					*!		
G. cervinum					*!		
G. multiplicatum	+		+	+	+	*	?
~ *G. lusambilaense*	*!						
~ *G. luteum*	*!						
~ *G. wynaadense*			*!				
G. subamboinense						*	
G. dorsale				+		*	

- *Ganoderma* group: cont. -	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
G. oerstedii			+			*	
~ *G. tuberculosum*						*!	
^ *G. barrettii*						*!	
G. bibadiostriatum						*	
G. stipitatum						*	
G. opacum						*!	
G. dussii						*!	
G. hollidayi						*!	
G. mexicanum						*!	
G. parvulum						*!	
~ *G. perzonatum*						*!	
G. perturbatum						*!	
G. pygmoideum						*!	
G. rufoalbus						*!	
G. sessiliforme						*!	
^ *G. testaceum*						*!	
G. resinaceum		*	+			+	+
~ *G. polymorphum*					*!		
~ *G. chaffangeonii*				+		*	
~ *G. areolatum*						*!	
~ *G. argillaceum*						*!	
~ *G. nitidum*						*!	
~ *G. platense*						*!	
~ *G. praelongum*						*!	
~ *G. pulverulentum*						*!	
~ *G. subincrustatum*						*!	
~ *G. subtuberculosum*							*!
~ *G. polychromum*							*!
~ *G. sessile*							*!
~ *G. subperforatum*							*!
G. meredithae							*!
G. ravenelii							*!
G. oregonense			+!				*!
~ *G. nevadense*							*!
~ *G. sequoiae*							*!
^ *G. curtisii*	+		+				*
G. zonatum	+			+		?	*
~ *G. sulcatum*							*!
~ *G. tumidum*	*!						

- *Ganoderma* group: cont. -	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
G. chalceum - boninense complex:							
G. cupreum	*			+			
~ *G. chalceum*	*			+	+	+	
~ *G. albocinctum*	*!						
~ *G. baumii*	*!						
~ *G. cacainum*	*!						
~ ^ *G. dahlii*			+		*		
~ *G. balabacense*				*!			
~ *G. mindoroi*				*!			
G. subfornicatum	+			+		*	
~ *G. maitlandii*	*!						
~ *G. staneri*	*!						
~ ^ *G. triviale*				*!			
^ *G. galegense*	*!						
~ ^ *P. nigrolaccatus*	*!						
P. nigrocrustosus			*!				
G. malayanum				*!			
G. lamaoense				*!			
G. petchii				*!			
G. trulla				*!			
G. trulliforme				*			
G. leytense				*			
G. miniatocinctum				*	+		
G. mangiferae	+			+	*		
G. sarasinii					*!		
G. boninense			+	+	*		
~ *G. noukahivense*					*!		
G. bibadiostriatum						*	

7.9 *Amauroderma* group:

P. arenosobasus	*!
A. confragosum	*!
A. fuscoporia	*!
A. kwiluensis	*!
A. salisburiense	*!
A. argenteofulvus	*
A. conicum	*
~ *A. expallens*	*
A. ealaensis	*
A. fasciculatum	*

- *Amauroderma* group: cont.	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
~ *A. trulliforme*	*!					+	
A. fuscatum	*						
A. infundibuliforme	*						
A. sericatum	*						
A. preussii	*						
~ *A. sikorae*	*		+		+		
~ *G. puberulum*	*!						
~ *A. rubeolum*	*!						
~ *A. salebrosum*	*						
~ *A. zambesianum*	*!						
A. conjunctum	*		+				
A. pudens			*!				
A. amoiense			*!				
A. austrosinense			*!				
A. dayaoshanense			*!				
A. fujianense			*!				
A. guangxiense			*!				
A. hongkongense			*!				
A. jiangxiense			*!				
A. longganggense			*!				
A. wuzhishanense			*!				
A. yunnanense			*!				
A. subresinosum	+		+	*			
~ *G. simulans*	*!						
A. bataanense			+	*			
A. malesianum				*	+		
^ *A. rugosum*	+		+	*	+	+	
~ *A. subrugosum*	+		+	+	*	+	
~ *A. atrum*				*	+		
~ *A. elmerianum*			+	*			
~ *G. bavianum*				*!			
~ *A. juxtarugosum*			*!				
~ *A. nigrum*	*		+				
~ *A. ramosii*				*!			
A. congregatum				*!			
A. leptopus	?			*!			
A. leucosporum				*!			
A. parasiticum				*!			
A. perplexum				*!			
A. secedens				*!			
A. vansteenisii				*	+		

- *Amauroderma* group: cont.	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
A. buloloi					*!		
A. insulare					*!		
A. solomonense					*!		
A. rude	+		+	+	*	+	
~ *A. intermedium*						*	
~ *A. guadeloupense*						*!	
~ *A. pullatus*			*!				
A. exile			+	+		*	
~ *A. macer*						*!	
~ *A. marasmioides*						*!	
~ *A. passerinum*						*!	
~ *A. procerum*						*!	
~ *A. renatum*						*!	
~ *G. rufobadium*						*!	
~ *A. rugosissimum*	*!						
A. auriscalpium				+		*	
~ *F. auriscalpioides*						*!	
A. calcigenum				+		*	
~ *A. miquelianum*						*!	
~ *A. partitum*						*!	
~ *A. torrendii*						*!	
A. schomburgkii	+		+			*	
~ *A. gusmanianum*						*!	
~ *A. heteromorphum*						*!	
~ *A. mosselmanii*						*!	
~ *A. ocellatum*						*!	
~ *A. papillatum*						*!	
~ *A. regulicolor*						*!	
~ *G. xylodes*						*!	
A. boleticeus						*	
A. camerarium						*	
~ *A. inopinum*						*!	
~ *A. subrenatum*						*!	
~ *A. variabile*						*!	
A. omphalodes						*	
A. pseudoboletus						*	
A. renidens						*!	
A. sprucei						*	
~ *A. avellaneum*						*!	
~ *A. dubiopansum*						*	
A. macrosporum						*!	

- *Amauroderma* group: cont.	AFR	EUR	CHJ	SEA	PAC	SAM	NAM
A. trichodematum						*!	
A. unilaterum						*!	
A. praetervisum						*	
~ *A. chaperi*						*!	

7.10 Unclassified taxa:

Material and description unknown to us.

G. bicharacteristicum			*!				
G. guizhouense			*!				
G. zhenningense			*!				
G. plicatum				*!			
G. silveirae						*!	

8. CONCLUSIONS

In this study we have recorded 386 names used to circumscribe species in the Ganodermataceae: 6 names were illegitimate, 17 taxa were excluded from the Ganodermataceae, and 27 names have been considered as nomen ambigum and should be abandoned. The 336 retained names were roughly classified as follows

- *Haddowia* group: 5 names (2 names proposed as synonyms in earlier studies);
- *Humphreya* group: 10 names (3 proposed as synonyms);
- *Tomophagus* group: 2 names (1 proposed as synonym);
- *Elfvingia* group: 51 names (21 proposed as synonyms);
- *Ganoderma* group: 166 names (48 proposed as synonyms);
- *Amauroderma* group: 96 names (41 proposed as synonyms);
- 5 names were not classified.

In summary, 116 names out of the retained 336 names have been proposed as synonyms (approximately one third). If the proposed synonymies are correct, this means that there is presently 220 "species" recognized in the Ganodermataceae; 118 of them belong to *Ganoderma* subgen. *Ganoderma*.

The large majority of taxa have been described from tropical and subtropical regions. In particular, there is no record of *Amauroderma* from temperate areas. The Table in Chapter 7 showed that most names are known only from the type locality and adjacent regions. This striking observation may be a consequence of the genetics of these fungi, but may also result from three phenomena: (1) application of an excessively narrow species concept based solely on morphology, and lack of discernment between heritable and adaptive characters; (2) lack of knowledge of the works of others; and (3) the sake of adding for the posterity of the authority name a nomenclatural binomial.

In conclusion, we would recommend that no new species be described in the Ganodermataceae without careful consideration of the existing names. We would also recommend the use of comparative morphological, cultural, genetic and molecular studies in a phylogenetic context in future systematic works of the Ganodermataceae.

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10. REFERENCES

Adaskaveg, J.E., and Gilbertson, R.L. 1986. Cultural studies and genetics of sexuality of *Ganoderma lucidum* and *G. tsugae* in relation to the taxonomy of the *G. lucidum* complex. Mycologia 78:694-705.

Adaskaveg, J.E., and Gilbertson, R.L. 1988. Basidiospores, pilocystidia, and other basidiocarp characters in several species of the *Ganoderma lucidum* complex. Mycologia 80:493-507.

Adaskaveg, J.E., and Gilbertson, R.L. 1989. Cultural studies of four North American species in the *Ganoderma lucidum* complex with comparisons to *G. lucidum* and *G. tsugae*. Mycol. Res. 92:182-191.

Aoshima, K. 1971. Mycological reports from New Guinea and the Solomon Islands. 5. *Ganoderma* and *Amauroderma*. Bull. Nat. Sci. Mus. Tokyo 14:428-437.

Atkinson, G.F. 1908. On the identity of *Polyporus "applanatus"* of Europe and North America. Annals Mycol. 6:179-191.

Bakshi, B.K. 1971. Indian Polyporaceae. Indian Coucil of Agricultural Research, New Delhi.

Baxter, A.P., and Eicker, A. 1995. Preliminary synopsis: recorded taxa of Southern African Ganodermataceae. p. 3-5 *In* P.K. Buchanan, R.S. Hseu & J.M. Moncalvo (eds.). *Ganoderma:* Systematics, Phytopathology and Pharmacology. Proc. Contr. Symp. 59A,B, 5th Int. Mycol. Congr., Vancouver, 14-21 August 1994.

Bazzalo, M.E., and Wright, J.E. 1982. Survey of the Argentine species of the *Ganoderma lucidum* complex. Mycotaxon 16:293-325.

Bernicchia, A. 1990. Polyporaceae s.l. in Italia. Istituto di Patologia Vegetale, Univ. Bologna, Bologna, 594 pp.

Bilgrami, K.S., Jamaluddin, S., and Rizwi, M.A. 1991. Fungi of India. List and references. TTP Printers & Publishers, New Dehli, 798 pp.

Blume, C., and Nees von Esenbeck, T.F.L. 1826. Fungi javanici, editi conjunctis studis et opera. Nova Acta Acad. Caes. Leop. Carol. 13:9-22.

Bresadola, G. 1881-1926. Omnia Bresadoliana Extracta in unum collecta. Gruppo Micologico G. Bresadola, Museo Tridentino di Scienze Naturali, Trento, 1979.

Buchanan, P.K., and Ryvarden, L. 1993. Type studies in the Polyporaceae. 24. Species described by Cleland, Rodway and Cheel. Aust. Syst. Bot. 6:215-235.

Buchanan, P.K., and Wilkie, J.P. 1995. Taxonomy of New Zealand *Ganoderma*. Two non-laccate species. p. 7-17 *In* P.K. Buchanan, R.S. Hseu & J.M. Moncalvo (eds.). *Ganoderma:* Systematics, Phytopathology and Pharmacology. Proc. Contr. Symp. 59A,B, 5th Int. Mycol. Congr., Vancouver, 14-21 August 1994.

Buchanan, P.K., Hseu, R.S., and Moncalvo, J.M. (eds). 1995. *Ganoderma:* Systematics, Phytopathology and Pharmacology. Proc. Contr. Symp. 59A,B, 5th Int. Mycol. Congr., Vancouver, 14-21 August 1994. Taipei, 135 pp.

Corner, E.J.H. 1983. Ad Polyporaceas I. *Amauroderma* and *Ganoderma*. Beheift. Nova Hedw. 75:1-182.

Chang, T.T., and Chen, T. 1984. *Ganoderma formosanum* sp. nov. on Formosan sweet gum in Taiwan. Trans. Br. mycol. Soc. 82:731-733.

Cunningham, G.H. 1965. Polyporaceae of New Zealand. New Zealand Dept. Sci. Industr. Res. Bull. 164:1-304.

Da Silva, M., and Minter, D.W. 1995. Fungi from Brazil recorded by Batista and co-workers. Mycological Papers of the International Mycological Institute, No. 169:1-585.

Dennis, R.W.G. 1970. Fungus flora of Venezuela and adjacent countries. Kew Bull. add. ser. 3, J. Cramer.

Donk, M. A. 1974. Checklist of European polypores. Verhand. Konn. Nederl. Akad. Wet. Afr. Naturk. Ser. 2 Part 62:1-469.

Fraaye, R.H.B., and Fraaye, M.W. 1995. Miocene bracket fungi (Basidiomycetes, Aphyllophorales) from the Netherlands. Contr. Tert. Quatern. geol. 32:27-33.

Fries, E.M. 1821. Systema Mycologicum. Lund. Johnson Reprint Corporation, New York, 1952.

Fries, E.M. 1828 [1821]. Elenchus Fungorum. Greifswald. Johnson Reprint Corporation, New York, 1952.

Fries, E.M. 1851. Novae Symb. Mycologicum. Nova Acta Soc. Sci. Upsal. ser I.

Furtado, J.S. 1962. Structure of the spore of Ganodermatoideae Donk. Rickia 1:227-241.

Furtado, J.S. 1964. Taxonomic and nomenclatural status of *Porotheleum rugosum*. Mycologia 56:923-926.

Furtado, J.S. 1965. *Ganoderma colossum* and the status of *Tomophagus*. Mycologia 57:979-984.

Furtado, J.S. 1967a. Species of *Amauroderma* Murr. with the laccate appearance of *Ganoderma* Karst. Bull. Jard. Bot. Nat. Belg. 37:309-317.

Furtado, J.S. 1967b. Some tropical species of *Ganoderma* (Polyporaceae) with pale context. Persoonia 4:379-389.

Furtado, J.S. 1981. Taxonomy of *Amauroderma* (Basidiomycetes, Polyporaceae). Mem. New York Bot. Gard. 34:1-109.

Gilbertson, R.L., and Ryvarden, L. 1986. North American polypores. Part 1. Fungiflora, Oslo, Norway, 433 pp.

Gillet, C.G. 1878. Hymenomycètes de France. Paris.

Gottlieb, A.M., Saidman, B.O., and Wright, J.E. 1995. Characterization of six isoenzymatic systems in Argentine representatives of two groups of *Ganoderma*. p. 25-29 *In* P.K. Buchanan, R.S. Hseu & J.M. Moncalvo (eds.). *Ganoderma:* Systematics, Phytopathology and Pharmacology. Proc. Contr. Symp. 59A,B, 5th Int. Mycol. Congr., Vancouver, 14-21 August 1994.

Hansen, L. 1958. On the anatomy of the Danish species of *Ganoderma*. Bot. Tidsskr. 54:333-352.

Hattori, T., and Ryvarden, L. 1994. Type studies in the Polyporaceae 25. Species described from Japan by R. Imazeki and A. Yasuda. Mycotaxon 50:27-46.

Heim, R. 1962. L'organisation architecturale des spores des Ganodermes. Rev. mycol. Paris 27:199-212.

Hein, B. 1988. Liste der Arten und infraspecischend Taxa von P. Hennings. Englera 10:1-374.

Hennings, P. 1908. Fungi von Madagaskar, den Comoren und Ostafrika. pp. 15-33 *In* A. Voeltzkow: Reise in Ostafrika in den Jahren 1903-1905. Band III. Systematische Arbeiten.

Hibbett, D.S., and Donoghue, M.J. 1995. Progress toward a phylogenetic classification of the Polyporaceae through parsimony analyses of mitochondrial DNA sequences. Can. J. Bot. 73:s853-s861.

Holmgren, P.K., Holmgren, N.H., and Barnett, L.C. 1990. Index Herbariorum. Part I: The Herbaria of the world. 8ght ed. New York Botanical Garden, Bronx, New York.

Holmgren, P.K., and Holmgren, N.H. 1994. Additions to Index Herbariorum (Herbaria), Edition 8 - Third series. Taxon 43:325-328.

Hongo, T., and Izawa, M. 1994. Yama-Kei Field Books no. 10, Yama-Kei, Tokyo, 384 pp. [in Japanese].

Hseu, R.S. 1990. An identification system for cultures of *Ganoderma* species. Ph.D. dissertation, National Taiwan University, Taipei, Taiwan, 169 pp. [in Chinese].

Humphrey, C.J., and Leus, S. 1931. A partial revision of the *Ganoderma applanatum* group, with particular reference to its oriental variants. Philipp. J. Sci. 45:483-589.

Humphrey, C.J. Notes on some basidiomycetes from the Orient. Mycologia 30:327-335.

Igmándy, Z. 1968. Die Porlinge Ungarns und ihre phytopathologische Bedeutung (Polypori Hungariae). Acta Phytoph. Acad. Sci. Hung. 3:229-239.

Imazeki, R. 1939. Studies on *Ganoderma* of Nippon. Bull. Nat. Sci. Mus. Tokyo 1:29-52. [in Japanese].

Imazeki, R. 1952. A contribution to the fungus flora of Dutch New Guinea. Bull. Govt. Forest. Exp. St. Tokyo 57:87-128.

Index of Fungi Vol. 1-6. 1941-1995. Commonwealth Mycol. Inst., Ferry Lane, Kew, Richmond, Surrey, England.

Jahn, H., Kotlaba, F., and Pouzar, Z. 1980. *Ganoderma atkinsonii* Jahn, Kotl. et Pouz., spec. nova, a parallel species to *Ganoderma lucidum*. West. Pilz. 11:97-121.

Jühlich, W. Higher taxa of basidiomycetes. Bibliotheca Mycologica 85, J.Cramer, Vaduz, 485 pp.

Karsten, P.A. 1881. Enumeratio Boletinearum et Polyporearum Fennicarum, Systemate novo Dispositarum. Rev. Mycol. 3:16-19.

Kotlaba, F., and Pouzar. Z. 1983. Taxonomic and nomenclatural notes on *Trametes cervina* and *Ganoderma atkinsonii*. Cesk. Mykol. 37:49-51.

Lloyd, C.G. 1898-1925. Mycological Writings. Vols 1-7. Cincinnati, Ohio, U.S.A.

Lowe, J.L., and Gilbertson, R.L. 1961. Synopsis of the Polyporaceae of the Western United States and Canada. Mycologia 53:474-509.

Merriam-Webster, A. 1972. Webster's new geographical dictionary. G. & C. Merriam Co., Springfield, Massachusetts, 1370 pp.

Moncalvo, J.M., and Ryvarden, L. 1995. *Ganoderma hildebrandii*, a forgotten species. Mycotaxon 56:175-180.

Moncalvo, J.M., Wang, H.H., and Hseu R.S. 1995a. Phylogenetic relationships in *Ganoderma* inferred from the internal transcribed spacers and 25s ribosomal DNA sequences. Mycologia 87:223-238.

Moncalvo, J.M., Wang, H.F., and Hseu, R.S. 1995b. Gene phylogeny of the *Ganoderma lucidum* complex. Comparison with traditional taxonomic characters. Mycol. Res. 99:1489-1499.

Moncalvo, J.M., Wang, H.F., Wang, H.H., and Hseu, R.S. 1995c. The use of rDNA nucleotide sequence data for species identification and phylogeny in the Ganodermataceae. p. 31-44 *In* P.K. Buchanan, R.S. Hseu & J.M. Moncalvo (eds.). *Ganoderma:* Systematics, Phytopathology and Pharmacology. Proc. Contr. Symp. 59A,B, 5th Int. Mycol. Congr., Vancouver, 14-21 August 1994.

Moncalvo, J.M. 1996. A cladistic approach to biodiversity in the Ganodermataceae. pp. 75-90 *In* J. Royse (ed.). Proc. 2nd Int. Conf. Mushr. Biol. Prod., June 9-12, 1996, Pennsylvania State University.

Murrill, W.A. 1902. The Polyporaceae of North America. I. The genus *Ganoderma*. Bull. Torr. Bot. Club 29:599-608.

Murrill, W.A. 1905a. The Polyporaceae of North America XI. A synopsis of the brown pileate species. Bull. Torrey Club 32:353-371.

Murrill, W.A. 1905b. *Tomophagus* for *Dendrophagus*. Torreya 5:197.

Murrill, W.A. 1907. Some Philippine Polyporaceae. Bull. Torr. Bot. Club 34:465-481.

Murrill, W.A. 1908. North American Flora. Vol. 9:113-124.

Murrill, W.A. 1908b. A collection of Philippine polypores. Leaf. Philipp. Bot. 1:266-270.

Murrill, W.A. 1908c. Additional Philippine Polyporaceae. Bull. Torr. Bot. Club 35:391-416.

Murrill, W.A. 1910. Polyporaceae of Jamaica. Mycologia 2:183-197.

Murrill, W.A. 1912. The Polyporaceae of Mexico. Bull. NY Bot. Gard. 8:137-153.

Murrill, W.A. 1915. Tropical polypores. New York.

Murrill, W.A. 1915b. Southern polypores. New York.

Murrill, W.A. 1919. Cuban polypores and agarics. Mycologia 11:22-32.

Murrill, W.A. 1920. Corrections and additions to the Polypores of temperate North America. Mycologia 12:6-24.

Otieno, N.C. 1968. Polyporaceae of Eastern Africa: II. The genus *Amauroderma* Murrill. Sydowia 22:173-178.

Overholts, *. 1915. Comparative studies in the Polyporaceae. Ann. Miss. Bot. Gard. 2:667-731.

Patouillard, N. 1876-1924. Collected mycological papers. Asher, Amsterdam.

Patouillard, N. 1889. Le genre *Ganoderma*. Bull. Soc. Mycol. Fr. 5:64-80.

Pegler, D.N., and Young, T.W.K. 1973. Basidiospore form in the British species of *Ganoderma* Karst. Kew Bull. 28:351-364.

Peng, J.T. 1990. Identification and culture conservation of the wild *Ganoderma* species in Taiwan. Publ. Taiwan Agric. Res. Inst. (TARI), Wufeng, Taichung, Taiwan, 155 pp. [in Chinese].

Persoon, C.H. 1801. Synopsis methodica fungorum. Gottingae, 706 pp.

Petrak's lists of Fungi. [1920] 1935-1940. Botanisher Jahresbericht.

Pfister, D.H. 1977. Annotated index to fungi described by N. Patouillard. Contr. Reed herb. 25:1-211.

Pfister, D.H. 1980. Additions and corrections to the annotated index to fungi described by N. Patouillard. Mycotaxon 11:435.442.

Reed, C.F., and Farr, D.F. 1993. Index to Saccardo's Sylloge Fungorum Volumes I-XXVI in XXIX (1882-1972). Contr. no. 31 Reed Libr. Herb. 31, Darlington, Maryland.

Reid, D. 1974. A reappraisal of type and authentic material of the larger Basidiomycetes in the Pretoria Herbarium. Bothalia 11:221-230.

Ryvarden, L. 1973. Type studies in the Polyporaceae. 1. Tropical species described by C.H. Persoon. Persoonia 7:305-312.

Ryvarden, L. 1974. Type studies in the Polyporaceae. 2. Species described by M. Beeli. Bull. Jard. Bot. Nat. Belg. 44:65-76.

Ryvarden, L. 1976. Type studies in the Polyporaceae. 7. Species described by J.M. Berkeley from 1836 to 1843. Kew Bull. 31:81-103.

Ryvarden, L. 1977a. Type studies in the Polyporaceae. 9. Species described by E.M. Wakefield. Mycotaxon 5:331-336.

Ryvarden, L. 1977b. Type studies in the Polyporaceae. 10. Species described by J.M. Berkeley, either alone or with other authors, from 1844 to 1855. Norw. J. Bot. 24:213-230.

Ryvarden, L. 1982. Type studies in the Polyporaceae. 11. Species described by J.F.C. Montagne, either alone or with other authors. Nord. J. Bot. 2:75-84.

Ryvarden, L. 1981a. Type studies in the Polyporaceae. 12. Species described by F.W. Junghuhn. Persoonia 11:369-372.

Ryvarden, L. 1981b. Type studies in the Polyporaceae. 13. Species described by J.H. Léveillé. Mycotaxon 13:175-186.

Ryvarden, L. 1983. Type studies in the Polyporaceae. 14. Species described by N. Patouillard, either alone or with other mycologists. Occas. pap. Farlow Herb. 18:1-39.

Ryvarden, L. 1984. Type studies in the Polyporaceae. 16. Species described by J.M. Berkeley, either alone or with other mycologists from 1856 to 1886. Mycotaxon 20:329-363.

Ryvarden, L. 1985. Type studies in the Polyporaceae. 17. Species described by W.A. Murrill. Mycotaxon 23:169-198.

Ryvarden, L. 1988a. Type studies in the Polyporaceae. 19. Species described by M.C. Cooke. Mycotaxon 31:45-58.

Ryvarden, L. 1988b. Type studies in the Polyporaceae. 20. Species described by G. Bresadola. Mycotaxon 33:303-327.

Ryvarden, L. 1989. Type studies in the Polyporaceae. 21. Species described by C.G. Lloyd in *Cyclomyces, Daedalea, Favolus, Fomes* and *Hexagonia*. Mycotaxon 35:229-236.

Ryvarden, L. 1990. Type studies in the Polyporaceae. 22. Species described by C.G. Lloyd in *Polyporus*. Mycotaxon 38:83-102

Ryvarden, L. 1991. Genera of Polypores. Nomenclature and taxonomy. Synopsis Fungorum 5, Fungiflora, Oslo, Norway, 363 pp.

Ryvarden, L. 1992. Type studies in the Polyporaceae. 23. Species described by C.G. Lloyd in *Lenzites, Polystictus, Poria* and *Trametes*. Mycotaxon 44:127-136.

Ryvarden, L. 1995. Can we trust morphology in *Ganoderma*? p.19-24 *In* P.K. Buchanan, R.S. Hseu & J.M. Moncalvo (eds.). *Ganoderma:* Systematics, Phytopathology and Pharmacology. Proc. Contr. Symp. 59A,B, 5th Int. Mycol. Congr., Vancouver, 14-21 August 1994.

Ryvarden, L., and Calonge, F.D. 1976. Type studies in the Polyporaceae. 5. Species described by Lazaro e Ibiza. Nov. Hedw. 27:155-164.

Ryvarden, L., and Johansen, I. 1980. A preliminary polypore flora of East Africa. Fungiflora, Oslo, Norway, 636 pp.

Ryvarden, L., and Gilbertson, R.L. 1993. European polypores. Part. 1. Synopsis Fungorum 6, Fungilora, Oslo, Norway, 387 pp.

Saccardo, P.A., and others. 1882-1928. Sylloge Fungorum omnium hurscusque cognitorum. Vol. I-XXVI. Johnson Reprint Corporation, New York.

Saccardo, P.A., and Trotter, A., by E.K. Cash. 1972. Sylloge Fungorum omnium hurscusque cognitorum. Vol. XXVI Suppl. Johnson Reprint Corporation, New York.

Sarkar, A. 1959. Developmental anatomy and differentiation of tissue systems of *Ganoderma lucidum* (Leyss. ex Fries) Karst. Phyton 13:89-104.

Stalpers, J.A. 1978. Identification of wood-inhabiting fungi in pure culture. Stud. Mycol. 16:1-248.

Stevenson, J. A., and Cash, E. K. 1936. The new fungus names proposed by C.G. Lloyd. Bull. Lloyd Library 35:1-208.

Steyaert, R.L. 1961a. Note on the nomenclature of fungi and incidently of *Ganoderma lucidum*. Taxon 10:251-252

Steyaert, R.L. 1961b. Genus *Ganoderma* (Polyporaceae). Taxa Nova I. Bull. Jard. Bot. Bruxelles 31:69-83.

Steyaert, R.L. 1962. Genus *Ganoderma* (Polyporaceae). Taxa Nova II. Bull. Jard. Bot. Bruxelles 32:89-104.

Steyaert, R.L. 1967a. Les *Ganoderma* palmicoles. Bull. Jard. Bot. Nat. Belg. 37:465-492.

Steyaert, R.L. 1967b. Considération générale sur le genre *Ganoderma* et plus spécialement sur les espèces européennes. Bull. Soc. Roy. Bot. Belg. 100:189-211.

Steyaert, R.L. 1972. Species of *Ganoderma* and related genera mainly of the Bogor and Leiden herbaria. Persoonia 7:55-118.

Steyaert, R.L. 1975. The concept and circumscription of *G. tornatum*. Trans. Br. mycol. Soc. 65:451-467.

Steyaert, R.L. 1980. Study of some *Ganoderma* species. Bull. Jard. Bot. Nat. Belg. 50:135-186.

Teixeira, A.R. 1962. The taxonomy of the Polyporaceae. Biol. Rev. 37:51-81.

Torrend, C. 1920. Les Polyporacées du Brésil. Brotéria Bot. 18:23-142.

Wang, B.C., and Hua, J. 1991. A cultural atlas of some *Ganoderma* cultures. Publ. Food Industr. Res. Developm. Inst. (FIRDI), Hsinchu, Taiwan, 131 pp.

Yeh, X.Y. 1990. Taxonomic study of *Ganoderma australe* complex in Taiwan. Ph.D. dissertation, National Taiwan University, 110 pp. [in Chinese].

Yeh, X.Y., Chen, Z.C., and Kimbrough, J.W. 1994. *Ganoderma australe* (Fr.) Pat. from Florida. p. 32 *In* Abstracts of the 11th Annual Meeting of the Mycological Society of Rep. of China.

Zhao, J.D. 1989. The Ganodermataceae in China. Bibliotheca Mycologica 132:1-176.

Zhao, J.D., Xu, L.W., and Zhang, X.Q. 1981. Ganodermatoideae of China. Science Press, Beijing.