

MYCOTAXON

Vol. XXXVII, pp. 353-361

April-June 1990

REEXAMINATION OF THE NOMENCLATURAL
TYPES OF POLYPORUS RIMOSUS
BERK. AND P. BADIUS BERK.

MICHAEL J. LARSEN

Center for Forest Mycology Research
USDA Forest Service
Forest Products Laboratory
One Gifford Pinchot Drive
Madison, WI 53705-2398 U.S.A.

ABSTRACT

Recent interpretations of the names Phellinus rimosus and P. badius are reviewed. The extant type material of P. rimosus was found to contain two different Phellinus species. Thus, P. rimosus is retypified, and an earlier name, Polyporus igniarius var. scaber (= Phellinus scaber), is used for the second species. Phellinus badius appears to be misapplied in a variety of senses, and, as proposed earlier, its application is restricted to the nomenclatural type.

Kotlaba and Pouzar (1978), upon reviewing the Phellinus rimosus complex, concluded that the application of the name P. badius (Berk.) Pilat should be restricted to the nomenclatural type. Furthermore, they lectotypified P. rimosus from available type material at K. The typification of P. rimosus is questioned as well as the application of the names P. rimosus and P. badius.

Data on microscopic characteristics were obtained from freehand vertical sections of basidiocarps mounted in 2 percent (w/v) KOH and stained with 1 percent (w/v) Phloxine B, Melzer's reagent (IKI) (Melzer 1924) and cotton blue (Johansen 1940). Herbarium designations are from Holmgren et al. (1981).

PELLINUS RIMOSUS

Berkeley described P. rimosus twice, first as Polyporus igniarius var. scaber Berk. (Berkeley 1839) and second as Polyporus rimosus Berk. (Berkeley 1845). In 1845, he treated P. igniarius var. scaber as a synonym of P. rimosus. My searches through Berkeley's polypore collections at K did not yield material collected by Drummond from Australia that could serve as type of P. rimosus. Nevertheless, two specimens referred to in the description of var. scaber--one from Tasmania (Van Diemen's Land), which has been distributed among three separate packets, and one from Mauritius--are extant. The individual pieces of the two collections could be partly and precisely reassembled, thereby providing additional information on the size and shape of the respective basidiocarps. However, one of the Tasmanian packets contains a portion of a different collection representing a different species. Bresadola (1913), Lloyd (1915), Cunningham (1965), and Ryvardeen (1976) concluded that the Tasmanian specimen is the type. Kotlaba and Pouzar (1978) accurately described the macroscopic and microscopic characteristics of what is referred to here as piece "c" (Fig. 1, 2) and is accompanied by their dated annotation. Piece "c" is not related in any way to specimen pieces "a, b, d, e" (Fig. 1). In the other two Tasmanian packets, piece "c" is part of the specimen represented by pieces f-h (Fig. 2) in the packet from Mauritius. Therefore, Kotlaba and Pouzar's (1978) descriptive data for Pellinus rimosus were derived from the Mauritius rather than the Tasmanian collection. Further confusion concerning the packet containing piece "c" is encountered by the occurrence of a specimen "shadow" (caused by gluing portions of specimens to small pieces of paper). This "shadow" does not match piece "c" but instead matches piece "d," suggesting strongly that this portion had been moved. Ryvardeen (1976) concluded that the specimens in question represented the same species, which is probably correct if he saw only pieces of the Mauritius collection.

Lowe (1957), Cunningham (1965), Ryvardeen (1976), and Ryvardeen and Johansen (1980) indicate that they examined the same lectotype from Tasmania. However, from their published information, it is not possible to determine if these authors actually looked at the Tasmanian specimen or were misled by the errant portion of the Mauritius specimen. Lloyd (1915, p. 249, Fig. 598) illustrated what he called

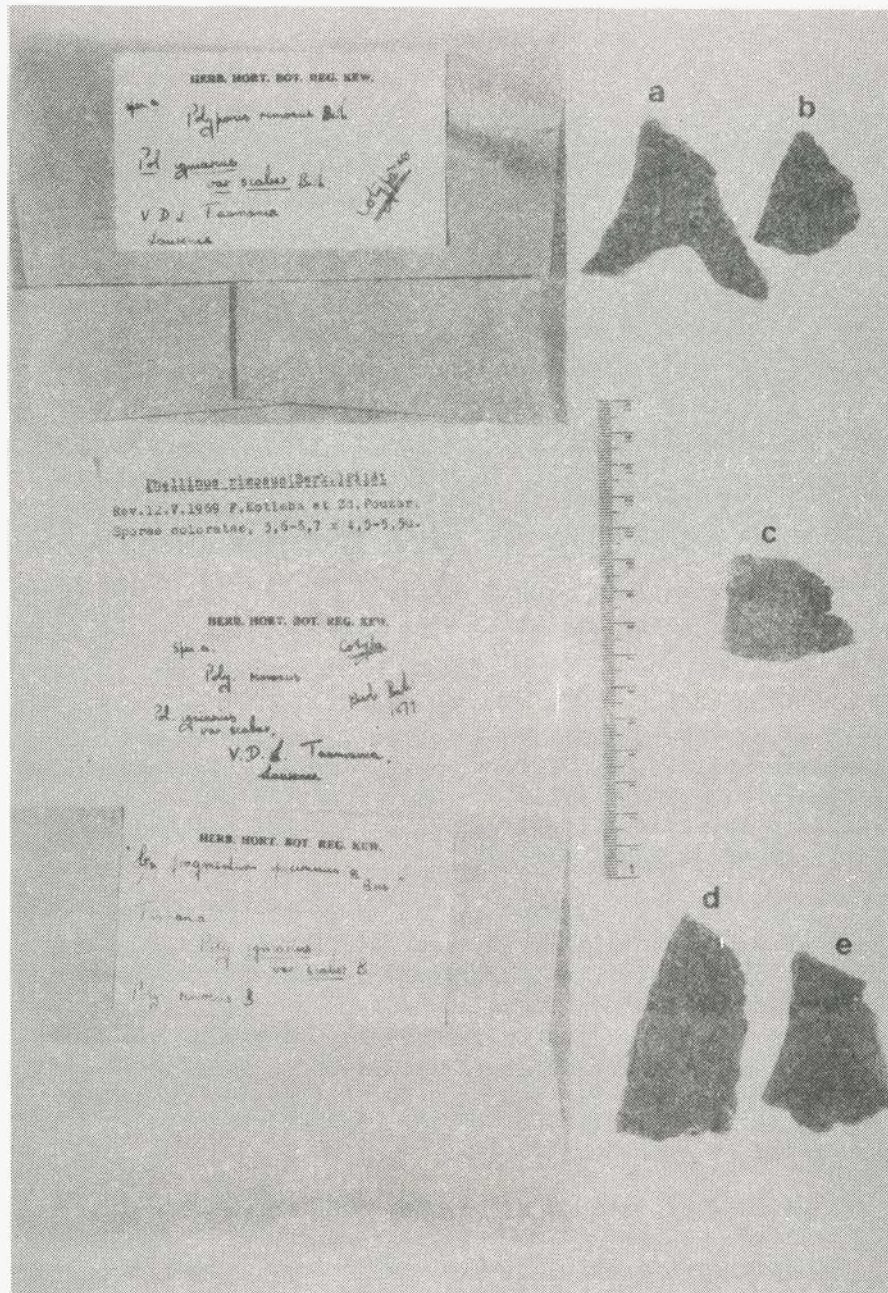


Figure 1 a-e--Type material of *Polyporus igniarius* var. *scaber* from Tasmania showing relative distribution of specimen pieces among packets (K).

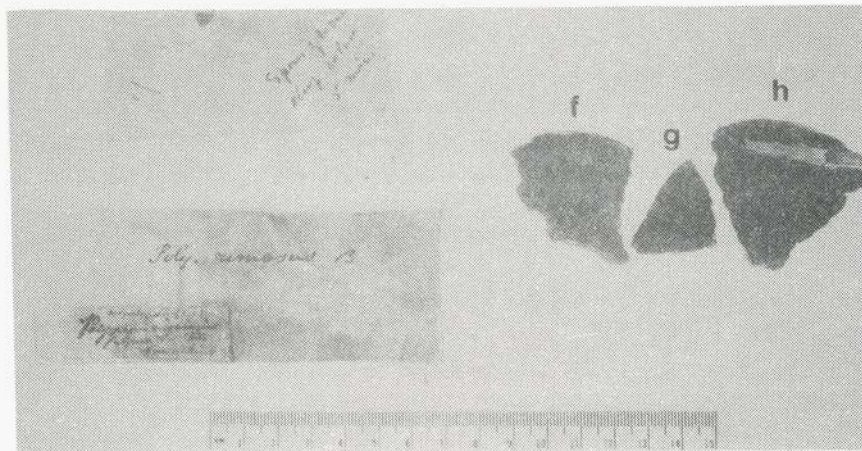


Figure 2 f-h--Type material of
Polyporus igniarius var. scaber
from Mauritius (K).

Fomes scaber (Berk.) Lloyd, based on a portion of the Tasmanian collection. This same portion is illustrated here as Figure 1a. Lloyd (1915) further ventured that the Mauritius specimen actually represented what had become widely known as Fomes rimosus.

Lloyd's (1915) interpretation is worthy of further consideration, especially in light of the absence of the original protologue for P. rimosus and Kotlaba and Pouzar's (1978) inadvertent lectotypification of P. rimosus with the Mauritius specimen. I propose that the Tasmanian collection be used to typify Polyporus igniarius var. scaber Berk. and that the Mauritius specimen be used as type for Polyporus rimosus Berk. Descriptions of the respective lectotypes and associated nomenclators follow.

Phellinus scaber (Berk.) M. Larsen, comb. nov.

≡ Polyporus igniarius var. scaber Berk., Ann. Nat.
Hist. 3:324. 1839 (Basionym).

≡ Fomes scaber (Berk.) Lloyd, Mycol. Writ. 4:249. 1915.

Lectotype--Tasmania (Van Diemen's Land), host unknown, coll. Lawrence (K). The specimen is represented by pieces a, b, d, e (Fig. 1).

BASIDIOCARP: (Partly reassembled) approximately 6-7 x 9-10 x 6 cm, strongly ungluate, perennial, indurate; UPPER SURFACE: Dull brownish gray to grayish black, cracking irregularly and becoming somewhat fissured, forming irregular plate-like scales and conspicuous in older portions; MARGIN: Obtuse, thick; HYMENIAL SURFACE: Mostly concave, in part irregular and undulate; PORE SURFACE: Dull chocolate brown, pores 5-6 per mm, round, TUBE LAYERS: Variable in length (0.5-2.0 cm), separated by a well defined black tissue layer. PRIMARY AND SECONDARY CONTEXT: Dull rusty brown, woody, with many fine black lines.

PRIMARY CONTEXT HYPHAE: Skeletal 5-7 μm diam, septate and with many adventitious septa, wall thickening noticeable, pale to dull brown, often irregular in form; contextual chlamydospores 10-14 x 7-10 μm , (?) terminal and intercalary, thick-walled, dark brown; generative 2.5-3 μm diam, branched, septate, pale yellowish to dull brown. SECONDARY CONTEXT HYPHAE: Skeletal apparently absent; generative 6-8.5 μm diam, parallel, frequently branched and septate, somewhat thick- to thin-walled, pale brown. TRAMAL HYPHAE: a mixture of somewhat parallel arranged generative and skeletal hyphae; skeletal hyphae 5-7.5 (-8) μm diam, thick-walled, with some adventitious septa present; generative hyphae 2-4 μm diam, frequently septate and branched, pale brown. SETAE: Not seen. BASIDIA: Not seen. BASIDIOSPORES: 7-7.5 (-7.7) x (5.0-) 5.5-6 μm , broadly ellipsoid to subglobose, eventually becoming thick-walled, pale yellowish brown to brown in KOH, hyaline to pale yellowish brown in IKI and H₂O.

Phellinus rimosus (Berk.) Pilat., Ann. Mycol. 38:80. 1940.

≡ Polyporus rimosus Berk., London J. Rot. 4:54. 1845.

≡ Fomes rimosus (Berk.) Fr., Nov. Symb., p. 66. 1851.

- = Fomes rimosus (Berk.) Cke. , Grevillea 14:18. 1885
(nom. superf.).
- = Scindalma rimosus (Berk.) O. Kuntze, Rev. Gen. Plant
3:519. 1898.
- = Xanthochrous rimosus (Berk.) Pat., Essai Tax.,
p. 101. 1900.
- = Phellinus rimosus (Berk.) Bond. et Sing., Ann. Mycol.
39:56. 1941 (nom. superf.).

Lectotype--Mauritius. host, collector and date unknown
(E). The specimen is represented by pieces c, f, g, and h
(Fig. 1, 2).

BASIDIOCARP: (Partly reassembled) unguate, perennial,
broadly attached to the substrate, hard and woody, 6 x 3.5 x
4.5 cm; UPPER SURFACE: Rimose, deeply fissured and cracked
and separating into course thick scales that are arranged
somewhat concentrically, becoming brownish black, forming a
distinct black pellicle approximately 0.1 mm thick; margin
narrow and abrupt; PORE SURFACE: Dark ferruginous brown to
umber, plane to slightly convex, pores 4-6 per mm, round,
mostly slightly dentate; TUBE LAYERS: Indistinctly
stratified, individual layers 2-4 mm thick, pale
ferruginous brown, these becoming stuffed with pale brown
mycelia. PRIMARY CONTEXT: Somewhat zonate, pale
ferruginous brown with some very faint pale colored streaks;
SECONDARY CONTEXT: Not well developed, appearing
concolorous.

PRIMARY CONTEXT HYPHAE of three kinds: Skeletal, 2.5-3 μ m
diam, arranged parallel, thick-walled, infrequently
branched, some secondary septa present, dark brown, often
with protuberances that resemble clamp connections;
generative 2-2.5 (-3) μ m diam, septate, branched, pale
yellowish brown; binding 2-3 μ m diam, aseptate,
thick-walled, conspicuously and intricately branched, dark
brown. SECONDARY CONTEXT HYPHAE: Poorly developed,
skeletal 4.5-5.5 μ m diam, arranged parallel, thick-walled,
septa infrequent, dull brown; generative 2-2.5 μ m diam,
septate, thin-walled, pale tan. TRAMAL HYPHAE: Skeletal
4-5 μ m diam, thick-walled, adventitious septa frequent,
dark brown, arranged parallel; generative 2.5-3 μ m diam,
septate, pale tan, thin-walled. SETAE: Not seen.
BASIDIA: Not seen. BASIDIOSPORES: 6-6.5 x 4.5-5.5 μ m,

broadly ellipsoid to ovoid to subglobose, becoming thick-walled, dull brown in KOH, pale yellow brown in H₂O, darkening slightly in IKI.

Remarks--The revised concept of P. rimosus proposed here differs from that projected by Kotlaba and Pouzar (1978), Cunningham (1965), and other authors. The former concept of P. rimosus was predicated on a series of misidentifications. I examined numerous collections named P. rimosus, which cannot presently be identified with any certainty with the Tasmanian or Mauritius lectotypes. Phellinus badius sensu Gilbertson et al. (1976) and Gilbertson and Ryvardeen (1987) do not fit this concept, an opinion that is contrary to that of Kotlaba and Pouzar (1978). Lowe (1957) and Cunningham (1965) indicate that the Mauritius specimen represents P. badius, but I disagree with this conclusion as does Ryvardeen (1976).

PHELLINUS BADIUS

Phellinus badius (Berk. ex Cke.) G. H. Cunn. New Zealand Dept. Sci. Ind. Res. Bull. 164:233. 1965.

- = Polyporus badius Berk., Ann. Mag. Nat. Hist. 7:453. 1841 (nom. illeg., non P. badius [Pers.] Schw. 1832).
- = Fomes badius Berk. ex Cke., Grevillea 14:18. 1885.
- = Trametes badia (Berk. ex Cke.) Pat., Essai, p. 93. 1900.
- = Polystictus badius (Berk. ex Cke.) Lloyd, Mycol. Notes 65:1038. 1921.
- = Phellinus badius (Berk. ex Cke.) Ahmad, Monogr. Biol. Soc. Pakistan 6:55. 1972 (non. superf.).

Lectotype--North America, (Cunningham believes that this specimen is probably from the West Indies and not Arctic America as labeled.) "Polyporus badius n. sp. No. 6 Suberoso lignosi, Dr. Richardson."

BASIDIOCARP: Perennial, ungluate, attached sublaterally and appearing somewhat pendant and narrowing to 2 x 4 cm at

point of attachment; UPPER SURFACE: Glabrous, brownish black, indurate, appearing in cross section as a black line 0.2 mm thick; MARGIN: Obtuse, paler than the pilear surface but eventually concolorous, with extremely small (visible at 50X) resinous-like granules that barely protude above the pilear surface; PORE SURFACE: Flat, glancing slightly, dark brown, sterile margin narrow, pores 5-6 per mm, mostly angular with 4-5 sides; TUBE LAYERS: Up to 7 mm thick each, individual layers not distinct, pale ferruginous brown; PRIMARY CONTEXT: Dull yellowish brown tissue, somewhat zonate, hard; SECONDARY CONTEXT: Yellowish brown, growth orientation apparent, turning upwards to 90 degrees towards the pilear surface.

PRIMARY CONTEXT HYPHAE: Skeletal 4.5-5 (-5.5) μm diam, becoming thick-walled, dull brown, infrequently branched and septate, some secondary septa present; generative infrequent, 2-4 μm diam, septate, pale brown. SECONDARY CONTEXT HYPHAE: Skeletal 2.5-4.5 μm diam, thick-walled, ferruginous brown, infrequently branched, septa infrequent; generative not discernible. TRAMAL HYPHAE: Skeletal 2.5-3 (-4) μm diam, arranged parallel, dark ferruginous brown, adventitious septa and branching infrequent; generative 2-3 μm diam, pale yellow brown, frequently septate and branched. SETAE: Absent. BASIDIA: Not seen. BASIDIOSPORES: 7 (6.5-) -7.5 x 5.5-6 (-6.5) μm , broadly ovoid to subglobose, wall thickening noticeable to thick-walled, yellowish brown to dark brown in KOH, pale yellowish brown in H_2O , darkening in IKI but not dextrinoid (wall thickening more apparent in H_2O and IKI).

Remarks--Kotlaba and Pouzar (1978) concluded from their studies of the type of P. badius that the application of this name should be limited to the type, and I agree. A series of named collections of P. badius has been examined from various localities, including material that forms the basis of interpretations of Gilbertson and Ryvardeen (1987), Gilbertson et al. (1976), and Lowe (1957), but none could be identified with certainty with the type of P. badius. Kotlaba and Pouzar (1978) referred material of these authors to P. rimosus.

ACKNOWLEDGMENTS

The curators of the Royal Botanic Gardens, Kew, particularly Dr. D.A. Reid, are gratefully acknowledged for their generous assistance during my recent stay.

LITERATURE CITED

- BERKELEY, M.J. 1839. Contribution toward a flora of Van Diemen's Land. *Ann. Mag. Nat. Hist.* 3:322-327.
- BERKELEY, M.J. 1845. Decades of Fungi. III-VII. Australian and North American Fungi. London *J. Bot.* 4:42-73, 298-315.
- BRESADOLA, A.J. 1913. Basidiomycetes Philippinenses. *Hedwigia* 53:46-80.
- CUNNINGHAM, G.H. 1965. Polyporaceae of New Zealand. New Zealand Dept. Sci. Ind. Res. Bull. 164:1-304.
- GILBERTSON, R.L., H.H. BURDSALL, and E.R. CANFIELD. 1976. Fungi that decay mesquite in southern Arizona. *Mycotaxon* 3: 487-551.
- GILBERTSON, R.L., and L. RYVARDEN. 1987. North American polypores 2: Megasporoporia - wrightoporia. p. 437-885.
- HOLMGREN, P.K., W. KUEKEN, and E.K. SCHOFIELD. 1981. Index herbariorum. Part I. The herbaria of the world. *Reg. Veget.* 106:1-452.
- JOHANSEN, D.A. 1940. Plant Microtechnique. McGraw-Hill Book Co., New York and London. 523 p.
- KOTLABA, F., and Z. POUZAR. 1978. Notes on Phellinus rimosus complex (Hymenochaetaceae). *Acta Bot. Croat.* 37 : 171-182.
- LLOYD, C.G. 1915. *Mycological Writings* 4. Synopsis of the genus Fomes: 209-288.
- LOWE, J.L. 1957. Polyporaceae of North America. The genus Fomes. State University College of Forestry at Syracuse Univ. Tech. Publ. 80. 97 p.
- MELZER, V. 1924. L'ornementation des spores des Russules. *Bull. Soc. Mycol. France* 40:78-81.
- RYVARDEN, L. 1976. Type studies in the Polyporaceae, 7. Species described by M. J. Berkeley from 1836 to 1843. *Kew Bull.* 31:81-103.
- RYVARDEN, L., and I. JOHANSEN. 3980. A preliminary polypore flora of East Africa. *Fungiflora*, Oslo. 636 p.

Errata

Page 354, lines 22 to 25, should read as follows:

annotation. Piece "c" is not related in any way to specimen pieces "a, b, d, e" (Fig. 1) in the other two Tasmanian packets. Piece "c" is part of the specimen represented by pieces f-h (Fig. 2) in the packet from Mauritius.