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A worldwide nomenclature revision of sequestrate *Russula* species

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Elasmomyces

Gymnomyces

Macowanites

Martellia

57 new combinations

34 new names

Russulaceae

Abstract: Before the application of molecular techniques, evolutionary relationships between sequestrate genera and their epigeous counterparts in the *Russulaceae* were unclear. Based on overwhelming evidence now available, personal observations, and consideration of the International Code for Nomenclature of Algae, Fungi and Plants, we combine the overlapping sequestrate generic names *Bucholtzia*, *Cystangium*, *Elasmomyces*, *Gymnomyces*, *Macowanites*, and *Martellia* with the agaricoid genus *Russula*. This nomenclatural action follows precedents set by earlier mycologists and continues an effort to create clarity in our understanding of the evolutionary affiliations among sequestrate fungi - particularly the *Russulaceae*. We also provide the first comprehensive list of described sequestrate species of *Russula*.

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INTRODUCTION

There are many compelling arguments suggesting that sequestrate fruiting habits in fungi resulted from adaptations to abiotic environmental factors and symbiotic associations with vertebrate and invertebrate spore dispersers (Thiers 1984, Cázares & Trappe 1994, Trappe & Claridge 2005, Galante *et al.* 2011, Gehring *et al.* 2014). These evolutionary pressures led to the convergence of fruiting macromorphologies in many fungal lineages; however, early mycologists chose to classify fungi with “gasteroid” or “secotioid” fruiting habits in the obsolete class “*Gasteromycetes*”. At the time, it was thought that this class was distantly related to non-sequestrate (agaricoid) fungi. The evolution of truffle-like fungi from non-sequestrate forms was recognized before the availability of molecular tools (Malençon 1931, Shaffer 1968, Heim 1971, Smith 1973, Trappe 1979, Thiers 1984) and later confirmed (Bruns *et al.* 1989, Hibbett *et al.* 1997, Krüger *et al.* 2001, Peintner *et al.* 2001, Binder & Bresinsky 2002, Geml 2004, Lebel *et al.* 2004, Vellinga 2004, Matheny *et al.* 2006, Albee-Scott 2007, Sheedy *et al.* 2016).

The spread of molecular approaches in mycology has taken this evolutionary perspective a step further by combining many sequestrate genera with closely affiliated non-sequestrate/gymnocarpic genera. For example, in the *Agaricaceae*, sequestrate species of *Amogaster*, *Cryptolepiota*, *Endoptychum*, *Gyrophragmium*, and *Longula* have been variously described in or transferred to *Agaricus*, *Chlorophyllum*, *Lepiota*, and *Macrolepiota* (Vellinga 2002, Geml 2004, Geml *et al.* 2004, Lebel & Syme 2012, Ge & Smith 2013, Lebel 2013, Lebel & Vellinga 2013, Kerrigan 2016). In the *Amanitaceae*, *Torrendia* and *Amarrendia* were combined with *Amanita* (Justo *et al.* 2010).

In the *Bolbitiaceae*, the sequestrate genus *Descomyces* and some members of the genera *Setchelliogaster* and *Timgrovea* have been combined with *Descolea* (Kuhar *et al.* 2017). In the *Boletaceae*, a new sequestrate species has been described in *Afroboletus*, and some *Gastroboletus* species have been combined with traditionally gymnocarpic genera (Nuhn *et al.* 2013, Wu *et al.* 2016, Han 2017). In the *Cortinariaceae*, *Thaxterogaster* and some species of *Protoglossum* have been combined with or described in *Cortinarius* (Peintner *et al.* 2002, Danks *et al.* 2010, Kuhar *et al.* 2017). In the *Entolomataceae*, the sequestrate genus *Richoniella* has been combined with *Entoloma* (Co-David 2009, Kinoshita *et al.* 2012). In the *Inocybaceae*, several sequestrate species have been placed in *Inocybe* (Braaten *et al.* 2013). In the *Physalacriaceae*, members of the sequestrate genus *Cribbea* have been combined with *Oudemansiella* (Lebel 2017). In the *Psathyrellaceae*, the sequestrate *Psathyrella secotioides* was described (Moreno *et al.* 2015). In the *Strophariaceae*, one species of the sequestrate genus *Nivatogastrium* has been placed in *Pholiota* and two species of the sequestrate genus *Weraroa* have been moved to *Leratiomyces* (Bridge *et al.* 2008). In the *Hymenogastraceae*, the sequestrate species *Weraroa novae-zelandiae* (previously in *Strophariaceae*) has been recombined and renamed *Psilocybe weraroa* (Borovička *et al.* 2011).

The wave of recent nomenclatural changes among sequestrate fungi is analogous to the “one fungus, one name” approach that is in use for revisions of pleomorphic fungus nomenclature (Hawksworth 2015). In the case of sequestrate fungi, it might be better termed “one fungus, several names.” In the next section, we follow the precedents set by these aforementioned mycologists to bring the genus *Russula* and

its associated sequestrate genera up to date with current understandings of sequestrate fungus nomenclature.

SEQUESTRATE SPECIES OF *RUSSULA*

Since the early 19th century, new sequestrate *Russulae* have been placed in one or more of several genera created expressly for them. In early observations of amyloid spore reactions to iodine solutions, Bucholtz (1901, 1903) linked the sequestrate genus *Elasmomyces* to the *Russula* lineage and *Arcangeliella* to *Lactarius*, even though the phylogenetic affinities were not well understood at the time. The number of sequestrate genera regarded as russuloid in pre-molecular times reached its zenith at five in the seminal paper by Singer & Smith (1960): *Cystangium*, *Elasmomyces*, *Gymnomyces*, *Macowanites*, and *Martellia*. A sixth, *Bucholtzia*, had been validly described by Lohwag (1924) but never accepted by the taxonomist community. Species in two other genera of sequestrate *Russulaceae*, *Arcangeliella* and *Zelleromyces*, are mostly resolved within the epigeous genus *Lactarius*, although some individual species may eventually be resolved within *Russula* or other genera in the *Russulaceae* (Buyck *et al.* 2008). Each of these 10 genera was circumscribed by characters thought to separate them from the others, but all show various degrees of intergradation (Calonge & Martin 2000, Trappe *et al.* 2002). Moreover, some sequestrate russuloid species had initially been erroneously assigned to families unrelated to the *Russulaceae*, including the *Agaricaceae*, *Boletaceae*, and *Hydnangiaceae*. The champion in nomenclatural complexity is *Russula krjukowensis*, which has been treated in seven genera (see the following species list for the formal new combination).

By the late 20th century, the phylogenetic relationship of sequestrate russuloid taxa to *Russula* was firmly demonstrated (Lebel & Trappe 2000, Lebel 2007). Morphological distinctions between some of those genera soon became blurred as additional new species proved to be morphological intermediates. Calonge & Martin (2000), Lebel & Trappe (2000, 2002), and Lebel (2007) attempted to sharpen the generic morphological distinctions, but phylogenetic analyses by Miller *et al.* (2001, 2006) clearly showed that the *Russulaceae* are monophyletic, and members of the six named sequestrate russuloid genera are nested among non-sequestrate *Russula* species with no consistent genetic relationship to each other or to any clade within *Russula*. The generic names erected to describe sequestrate morphologies of species we now combine with *Russula* have shown to be nomenclatural artifacts that in hindsight have little bearing on the phylogenetic positions of these taxa. No available phylograms provide evidence that any sequestrate *Russula* spp. belong to distinct lineages within the genus. The para- or polyphyly within phylogenies that include both sequestrate and non-sequestrate *Russula* spp. are nomenclatural relics, not genetics.

Over the last twenty years, multiple papers have been published to either describe new sequestrate species in *Russula* or *Lactarius*, recombine species from sequestrate genera with *Russula* or *Lactarius*, or suggest close or monophyletic relationships between species with the different morphologies (Martín *et al.* 1999, Miller *et al.* 2001, Desjardin 2003, Nuytinck *et al.* 2003, Eberhardt & Verbeken 2004, Lebel & Tonkin 2007, Li *et al.* 2013, Verbeken *et al.* 2014, Beenken *et al.* 2016, Lebel 2017, Looney *et al.* 2018). It has been widely suggested through published phylogenies that all remaining members

of *Bucholtzia*, *Cystangium*, *Elasmomyces*, *Gymnomyces*, *Macowanites*, and *Martellia* should be transferred to *Russula*. These combinations will reduce the confusion in the current “one fungus, several names” situation and will simplify how we refer to these fungi. Lebel (2007, 2017) did a meticulous job of combining all Australian sequestrate *Russulae* into *Russula*. Here we update the remaining described sequestrate *Russula* species. In an era of genetics, environmental sequencing, and analysis of ecological roles of fungi through sequencing of root tips, having multiple generic names representing fungi that share close genetic affinities leads to further confusion. As stated in the preamble to the 2012 International Code of Nomenclature for Algae, Fungi, and Plants: “The purpose of giving a name to a taxonomic group is not to indicate its characters or history, but to supply a means of referring to it and to indicate its taxonomic rank” (McNeill *et al.* 2012). Accordingly, we judge that the following nomenclatural revisions of the genus *Russula* provide the clearest and most accurate information to indicate their taxonomic rank. Some information is lost without the sequestrate generic names; however, this is easily remedied in phylograms by using an arbitrary symbol, colour, or font in association with sequestrate names in a list, caption, text, phylogram, etc., as done by Miller *et al.* (2001) and Hosaka *et al.* (2006).

METHODS

We considered genetics whenever possible, but it was impossible to source sequences of type specimens (or new enough specimens) collected from close to type localities to generate a full phylogeny of the species we cover. To resolve the nomenclatural issues in this study, we relied heavily on morphology and reviewed specimens and/or original descriptions of the species we combined to ensure that they belonged in *Russula*. With increased interest in the sequestrate *Russulaceae*, we hope that many of these taxa will be re-collected and sequenced to generate a world phylogeny of this group. Genetics would make it possible to resolve the placement of the sequestrate genera *Arcangeliella* and *Zelleromyces* within the closely affiliated gymnocarpic genera *Lactarius*, *Lactifluus*, and *Multifurca*.

All specific epithet headings are capitalized and arranged alphabetically in the list below. These species were originally published in the genera *Bucholtzia*, *Cystangium*, *Elasmomyces*, *Gymnomyces*, *Macowanites*, or *Martellia*, as listed in Index Fungorum (plus a few incorrectly placed in non-russuloid genera). In this way, readers can determine how and why an original sequestrate name has been converted to its corresponding *Russula* name. The protocols for these decisions follow Rossman (2014) and use an amended version of the format provided by Rossman *et al.* (2016). Sequestrate species with *Russula* names already or newly published herein are in boldface. The standard nomenclature abbreviation *comb. nov.* is used when the genus is being combined with *Russula* but the original specific epithet can still be retained; *nom. nov.* is used when a new name must be proposed to avoid creating a homonym with a previously described species of *Russula*. When a new name is needed to avoid producing *Russula* homonyms, its etymology and other relevant information are noted. MycoBank numbers are assigned and registered to each new combination or new name.

REVISED NOMENCLATURE OF SEQUESTRATE *RUSSULA* SPP.

Generic type species: *Russula emetica* (Schaeff.) Pers., *Observ. Mycol. (Lipsiae)* **1**: 100. 1796.

ABIETIS

Russula subabietis Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821258.

Replaced synonym: *Gymnomyces abietis* Trappe & Castellano, *Mycotaxon* **75**: 161. 2000, non *Russula abietum* (J. Blum) Bon, *Doc. Mycol.* **13** (no. 50): 27. 1983.

Note: *subabietis* (“almost of the fir”) to avoid confusion between *abietis* (“of the fir”) with the related epithet *abietum* (“of firs”).

ACRIS

Russula acerba Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821259.

Replaced synonym: *Macowanites acris* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**(3): 86. 1960, non *Russula acris* Steinhaus, *Hedwigia* **27**: 51. 1888.

Etymology and note: *acerba* (“bitter”) to avoid producing a homonym with the earlier *acris* (“sharp”) of *Russula acris* Steinhaus (1888).

AGARICINUS

Russula agaricina (Kalchbr. ex Berk.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB 825252.

Basionym: *Macowania agaricina* Kalchbr. ex Berk., *Gard. Chron.* **5**: 785. 1876.

Synonyms: *Macowanites agaricinus* (Kalchbr. ex Berk.) Kalchbr., *Grevillea* **10**(55): 107. 1882. *Russula agaricina* (Kalchbr. ex Berk.) T. Lebel, [as ‘(Kalchbr.) T. Lebel.’], *Austral. Syst. Bot.* **20**: 360. 2007, nom. inval. (Art. 41.5).

Note: *Macowinia agaricina* is a legitimate name although published under Kalchbrenner’s illegitimate genus name *Macowania* (Art. 55.1) and has to be considered in terms of priority issues (Art. 11.4). Lebel (in Lebel & Tonkin 2007) intended to reallocate this name to *Russula* but did not introduce a valid combination (basionym not cited). She only referred to *Macowanites agaricinus*, which is only an indirect reference to the true basionym and not sufficient to validate the combination (Art. 41.5).

ALBA

Russula stevemilleri Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821262.

Replaced synonym: *Hydnangium album* Harkn., *Proc. Calif. Acad. Sci., Ser. 3, Bot.* **1**: 251. 1899, non *Russula alba* Velen., *České Houby* **1**: 149. 1920.

Synonyms: *Martellia alba* (Harkn.) Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 41. 1961.

Gymnomyces albus (Harkn.) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 198. 2002.

Etymology and note: In honor of Dr. Steve Miller for his continuing research on taxonomy and phylogeny of sequestrate and other *Russula* species. This new name is erected to avoid producing a homonym with *Russula alba* Velen. (1920).

ALBIDIGLEBA

Russula albidigleba (Singer & A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821263.

Basionym: *Macowanites albidiglebus* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**(3): 85. 1960.

ALBIDOFLAVA

Russula albidoflava T. Lebel, *Austral. Syst. Bot.* **20**: 361. 2007. MycoBank MB532175.

ALBOBRUNNEA

Russula albobrunnea T. Lebel, *Austral. Syst. Bot.* **20**: 362. 2007. MycoBank MB532176.

ALPINUS

Russula alpicola Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821264.

Replaced synonym: *Macowanites alpinus* Zeller, *Mycologia* **39**: 291. 1947, non *Russula alpina* (A. Blytt & Rostr.) F.H. Møller & Jul. Schäff., *Ann. Mycol.* **38**(2/4): 333. 1940.

Synonym: *Elasmomyces alpinus* (Zeller) Zeller, *Mycologia* **40**: 643. 1948.

Etymology and note: *alpicola* (“dweller of alps”), to avoid producing a homonym with the earlier *Russula alpina* (A. Blytt & Rostr.) F.H. Møller & Jul. Schäff. (1940).

AMMOPHILUS

Russula ammophila (J.M. Vidal & Calonge) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821265.

Basionym: *Gymnomyces ammophilus* J.M. Vidal & Calonge, *Bol. Soc. Micol. Madrid* **24**: 66. 1999.

Synonym: *Macowanites ammophilus* (J.M. Vidal & Calonge) J.M. Vidal & Calonge, *Revista Catal. Micol.* **24**: 70. 2002.

ARENICOLA

Russula arenicola (S.L. Mill. & D. Mitch.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821266.

Basionym: *Macowanites arenicola* S.L. Mill. & D. Mitch., *Mycotaxon* **89**: 284. 2004.

BALPINEUM

Russula balpinea (Grgur.) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820015.

Basionym: *Cystangium balpineum* Grgur., *Larger Fungi of South Australia (Adelaide)*: 53 (1997).

BISPORUM

Russula bispora (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820016.

Basionym: *Cystangium bisporum* T. Lebel, *Austral. Syst. Bot.* **16**: 373. 2003.

BORANUPENSIS

Russula boranupensis (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820018.

Basionym: *Gymnomyces boranupensis* T. Lebel, *Austral. Syst. Bot.* **16**: 403. 2003.

BRUNNEONIGRA

Russula brunneonigra T. Lebel, *Austral. Syst. Bot.* **20**: 363. 2007. MycoBank MB532177.

BRUNNESCENS

Russula shafferi Trappe & T.F. Elliott, *nom. nov.* MycoBank MB821312.

Replaced synonym: *Martellia brunnescens* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**(3): 37. 1961, non *Russula brunnescens* Murrill, *Lloydia* **8**: 264. 1946 (1945).

Synonym: *Gymnomyces brunnescens* (Singer & A.H. Sm.) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 199. 2002.

Etymology and note: To honor Dr. Robert Shaffer for his important contributions to knowledge of North American *Russulae*. This new name is erected to avoid producing a homonym with the earlier *Russula brunnescens* Murrill (1945).

CALIFORNICA

Russula californica (Singer & A.H. Sm.) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB821336.

Basionym: *Martellia californica* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**(3): 33. 1961.

Synonym: *Gymnomyces californicus* (Singer & A.H. Sm.) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 199. 2002, non *Russula californiensis* Burl., *Mycologia* **28**: 262. 1936.

CANDIDUS

Note: Originally described as *Hydnangium candidum* Tul. & C. Tul. in 1843, this species was recombined by Zeller & Dodge (1935) as *Sclerogaster candidus* (Tul. & C. Tul.) Zeller & C.W. Dodge, and then by Vidal (2005) as *Macowanites candidus* (Tul. & C. Tul.) J.M. Vidal. According to Kirk (2010), *S. candidus* in the *Sclerogastraceae*, not the *Russulaceae*, is the correct name.

CAPITIS-ORAE

Russula capitis-orae (Dring) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820020.

Basionym: *Elasmomyces capitis-orae* Dring, in Dring & Pegler, *Kew Bull.* **32**(3): 564. 1978.

Synonym: *Cystangium capitis-orae* (Dring) T. Lebel, *Mycotaxon* **81**: 197. 2002.

CHLORINOSMUS

Russula chlorineolens Trappe & T.F. Elliott, *nom. nov.* MycoBank MB821355.

Replaced synonym: *Macowanites chlorinosmus* A.H. Sm. & Trappe, *Mycologia* **55**: 423. 1963, non *Russula chlorinosma* Burl., *Mycologia* **16**: 22. 1924.

Etymology and note: “*chlorineolens*” (smelling like chlorine), to avoid producing a homonym with the earlier, similarly smelling *Russula chlorinosmus* Burl. (1924).

CINNAMOMEA

Russula unicalifornica Trappe & T.F. Elliott, *nom. nov.* MycoBank MB821338.

Replaced synonym: *Gymnomyces cinnamomeus* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**(3): 51. 1960, non *Russula cinnamomea* Banning, *Bot. Gaz.* **6**(1): 166. 1881.

Etymology and note: “*unicalifornica*” contraction of “University of California” in reference to the site of the type collection to avoid producing a homonym with the earlier *Russula cinnamomea* Banning (1881).

CITRINA

Russula harknessii Trappe & T.F. Elliott, *nom. nov.* MycoBank MB821339.

Replaced synonym: *Octaviania citrina* Harkn., *Proc. Calif. Acad. Sci., Ser. 3, Bot.* **1**: 252. 1899, non *Russula citrina* Gillet, *Revue mycol., Toulouse* **3**(no. 11): 5. 1881, non *Macowanites citrinus* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**(3): 69. 1960.

Synonyms: *Hydnangium citrinum* (Harkn.) Zeller & C.W. Dodge, *Ann. Missouri. Bot. Gard.* **22**: 371. 1935.

Gymnomyces citrinus (Harkn.) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 199. 2002.

Etymology and note: In honor of H. W. Harkness, pioneer in taxonomy of North American sequestrate fungi. This new name is erected to avoid producing a homonym with the earlier *Russula citrina* Gillet (1881).

CITRINUS

Russula alleinstanleyae T.F. Elliott & Trappe, *nom. nov.* MycoBank MB823193.

Replaced synonym: *Macowanites citrinus* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**(3): 69. 1960, non *Russula citrina* Gillet, *Revue Mycol., (Toulouse)* **3**(no. 11): 5 (1881), non *Gymnomyces citrinus* (Harkn.) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 199. 2002.

Etymology and note: In honor of mycologist and educator Allein Stanley for her more than 40 years of dedicated service to the North American Mycological Association. This new name is erected to avoid producing a homonym with the earlier *Russula citrina* Gillet (1881).

CLAVATUM

Russula clavata (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820021.

Basionym: *Cystangium clavatum* T. Lebel, *Austral. Syst. Bot.* **16**: 375. 2003.

CLELANDII

Russula aurantirosea T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820058.

Replaced synonym: *Gymnomyces clelandii* T. Lebel, *Austral. Syst. Bot.* **16**: 404. 2003, non *Russula clelandii* O.K. Mill. & R.N. Hilton, *Sydowia* **39**: 128. 1987.

COMPACTA

Russula mattsmithii Trappe & T.F. Elliott, *nom. nov.* MycoBank MB821354.

Replaced synonym: *Gymnomyces compactus* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**(3): 53. 1960, non *Russula compacta* Frost, *Rep. (Annual) New York State Mus. Nat. Hist.* **32**: 32. 1879.

Etymology and note: In honor of Dr. Matt Smith for his extensive research on taxonomy and ecology of sequestrate fungi. This new name is erected to avoid producing a homonym with the earlier *Russula compacta* Frost (1879).

COSTATISPORUS

Russula costatispora (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820022.

Basionym: *Gymnomyces costatisporus* T. Lebel, *Austral. Syst. Bot.* **16**: 405. 2003.

CREMEA

Russula dodgei Trappe & T.F. Elliott, **nom. nov.** MycoBank MB824950.

Replaced synonym: *Arcangeliella cremea* Zeller & C.W. Dodge, *Ann. Missouri Bot. Gard.* **22**: 367. 1935, non *Russula cremea* (Murrill) Singer, *Lilloa* **22**: 711. 1951.

Synonyms: *Martellia cremea* (Zeller & C.W. Dodge) Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**(3): 45. 1961 (1960).

Gymnomyces cremeus (Zeller & C.W. Dodge) Trappe *et al.*, *Mycotaxon* **81**: 199. 2002.

Etymology and note: In honor of C.W. Dodge, who collaborated with S. M. Zeller in describing numerous new species of sequestrate fungi, including this taxon and to avoid confusion with *Russula cremea* (Murrill) Singer.

CRISTATA

Russula korystospora T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB821530.

Replaced synonym: *Gymnomyces cristatus* T. Lebel, *New Zealand J. Bot.* **40**: 491. 2002, non *Russula cristata* Romagn., *Bull. Mens. Soc. Linn. Soc. Bot. Lyon* **31**(1): 177. 1962.

DEPAUPERATUM

Russula depauperata (Singer & A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821344.

Basionym: *Cystangium depauperatum* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 69. 1960.

DOMINGUEZIAE

Russula laurae Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821357.

Replaced synonym: *Cystangium domingueziae* Nouhra & Trierv.-Per., *Mycologia* **107**: 94. 2014, non *Gymnomyces dominguezii* Mor.-Arr., J. Gómez & Calonge, *Mycol. Res.* **103**: 215. 1999.

Etymology and note: In honor of Argentine mycologist, Laura S. Dominguez after whom the species was originally named. This new name is erected to avoid producing a homonym with the earlier and similar name *Gymnomyces dominguezii* Mor.-Arr., J. Gómez & Calonge (see following entry).

DOMINGUEZII

Russula dominguezii (Mor.-Arr., J. Gómez & Calonge) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821346.

Basionym: *Gymnomyces dominguezii* Mor.-Arr., J. Gómez & Calonge, *Mycol. Res.* **103**: 215. 1999.

DURANGENSIS

Russula durangensis (Guzmán) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821358.

Basionym: *Macowanites durangensis* Guzmán, *Revista Mex. Micol.* **4**: 118. 1988.

EBURNEA

Russula eburnea (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820023.

Basionym: *Gymnomyces eburneus* T. Lebel, *Austral. Syst. Bot.* **16**: 408. 2003.

ECHINOSPORUS

Russula tombrunsii Trappe & T.F. Elliott, **nom. nov.** MycoBank MB823196.

Replaced synonym: *Macowanites echinosporus* Zeller & C.W. Dodge, *Ann. Missouri Bot. Gard.* **6**: 57. 1919, non *Russula echinospora* Singer, *Bull. Soc. Mycol. France* **55**: 270. 1940, non *Russula echinospora* R. Heim, *Rev. Mycol. (Toulouse)* **32**: 207. 1967, non *Cystangium echinosporum* (Zeller & C.W. Dodge) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 197. 2002, non *Elasmomyces echinosporus* Zeller & C.W. Dodge, *Ann. Missouri Bot. Gard.* **22**: 370. 1935.

Etymology and note: In honor of Dr. Tom Bruns for his career-long research on taxonomy, phylogeny and ecology of ectomycorrhizal fungi. This new name is erected to avoid producing a homonym of *R. echinospora* Singer (1940).

EILDONENSIS

Russula eildonensis (G.W. Beaton *et al.*) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820024

Basionym: *Gymnomyces eildonensis* G.W. Beaton *et al.*, *Kew Bull.* **39**: 680. 1984.

ELLIPSOSPORUM

Russula ellipsospora (Zeller) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821361.

Basionym: *Hydnangium ellipsosporum* Zeller, *Mycologia* **31**: 13. 1939.

Synonyms: *Martellia ellipsospora* (Zeller) Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 30. 1960.

Gymnomyces ellipsosporus (Zeller) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 199. 2002.

FALLAX

Russula similis Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821362.

Replaced synonym: *Martellia fallax* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 34. 1960, non *Russula fallax* (Schaeff.) Fr., *Hymenomyc. Eur.* (Upsaliae): 449. 1874.

Synonym: *Gymnomyces fallax* (Singer & A.H. Sm.) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 199. 2002.

Etymology and note: “*similis*” in reference to the similarity of the two epithets cited above, “*fallax*” (deceptive) deceiving their respective authors, and to avoid producing a homonym with the earlier *R. fallax* (Schaeff.) Fr. (1874).

FERRUGINASCENS

Russula ferruginascens (Singer & A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821363.

Basionym: *Gymnomyces ferruginascens* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 54. 1960.

FLAVOVIRENS

Russula olivaceoflava T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB821532.

Replaced synonym: *Cystangium flavovirens* T. Lebel, *Austral. Syst. Bot.* **16**: 377. 2003, non *Russula flavovirens* J. Bommer & M. Rousseau, *Bull. Soc. Roy. Bot. Belgique* **23**(1): 310. 1884.

FOETENS

Russula taetra Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821365.

Replaced synonym: *Martellia foetens* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 36. 1960, non *Russula foetens* Pers., *Observ. Mycol.* (Lipsiae) **1**: 102. 1796.

Synonym: *Gymnomyces foetens* (Singer & A.H. Sm.) Trappe *et al.*, *Mycotaxon* **81**: 199. 2002.

Etymology and note: *taetra* (“foul, offensive”), a related term to express the original epithet *foetens* (“stinking”) to avoid producing a homonym of the earlier *Russula foetens* Pers. (1796).

FRAGRANS

Russula aromatica Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821366.

Replaced synonym: *Martellia fragrans* A.H. Sm., *Mycologia* **55**: 437. 1963.

Synonym: *Gymnomyces fragrans* (A.H. Sm.) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 199. 2002, non *Russula fragrans* Romagn., *Bull. Mens. Soc. Linn. Soc. Bot. Lyon* **23**: 112. 1954.

Etymology and note: “aromatica”, a related term to express the original epithet *fragrans* “becoming fragrant” to avoid producing a homonym of the earlier *Russula fragrans* Romagn. (1954).

FULVESCENS

Russula vilgalysii Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821367.

Replaced synonym: *Macowanites fulvescens* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 84. 1960, non *Russula fulvescens* Burl., *N. Amer. Fl.* (New York) **9**: 229. 1915.

Etymology and note: In honor of Dr. Rytas Vilgalys for his research and teaching of all aspects of mycology. This new name is erected to avoid producing a homonym of the earlier *Russula fulvescens* Burl. (1915).

FULVISPORA

Russula fulvispora (A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821368.

Basionym: *Martellia fulvispora* A.H. Sm., *Mycologia* **55**: 438. 1963.

Synonym: *Gymnomyces fulvisporus* (A.H. Sm.) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 199. 2002.

FURCATISPINA

Russula furcatispina (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820025.

Basionym: *Gymnomyces furcatispinus* T. Lebel, *Austral. Syst. Bot.* **16**: 411. 2003.

FUSCOVIOLACEUS

Russula fuscoviolaceus (Singer & A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821371.

Basionym: *Macowanites fuscoviolaceus* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 87. 1960.

FUSCUS

Russula spinispora T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB821534.

Replaced synonym: *Gymnomyces fuscus* T. Lebel, *New Zealand J.*

Bot. **40**: 495. 2002, non *Russula fusca* Quél., *Compt. Rend. Assoc. Franç. Avancem. Sci.* **15**: 486. 1887.

GALBANA

Russula galbana T. Lebel, *Austral. Syst. Bot.* **20**: 365. 2007. MycoBank MB532179.

GALILEENSIS

Russula galileensis (M.M. Moser, Binyam. & Aviz.-Hersh.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821373.

Basionym: *Macowanites galileensis* M.M. Moser, Binyam. & Aviz.-Hersh., *Trans. Brit. Mycol. Soc.* **68**: 371. 1977.

GAMUNDIAE

Russula gamundiae (Nouhra & Trierv.-Per.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821374.

Basionym: *Cystangium gamundiae* Nouhra & Trierv.-Per., *Mycologia* **107**: 95. 2014.

GILKEYAE

Russula gilkeyae (Zeller & C.W. Dodge) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821375.

Basionym: *Hydnangium gilkeyae* Zeller & C.W. Dodge, *Ann. Missouri Bot. Gard.* **22**: 371. 1935.

Synonyms: *Octaviania gilkeyae* (Zeller & C.W. Dodge) Svrček, Fl. ČSR, B-1, *Gasteromycetes*: 192. 1958.

Martellia gilkeyae (Zeller & C.W. Dodge) Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 43. 1960.

Gymnomyces gilkeyae (Zeller & C.W. Dodge) Trappe *et al.*, *Mycotaxon* **81**: 199. 2002.

GLAREA

Russula glarea (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820026.

Basionym: *Gymnomyces glarea* T. Lebel, *Austral. Syst. Bot.* **16**: 412. 2003.

GRANDIHYPHATUM

Russula grandihyphata (Nouhra & Trierv.-Per.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821377.

Basionym: *Cystangium grandihyphatum* Nouhra & Trierv.-Per., *Mycologia* **107**: 96. 2014.

IDAHOENSIS

Russula idahoensis (Singer & A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821378.

Basionym: *Martellia idahoensis* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 43. 1960.

Synonym: *Cystangium idahoense* (Singer & A.H. Sm.) Trappe *et al.* [as ‘*idahoensis*’], *Mycotaxon* **81**: 197. 2002.

ILICIS

Russula vidalii Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821379.

Replaced synonym: *Gymnomyces ilicis* J.M. Vidal & Llistos., *Rivista Micol.* **38**: 160. 1995, non *Russula ilicis* Romagn. *et al.*, *Bull. Trimestriel Soc. Mycol. France* **88**: 33. 1972.

Etymology and note: In honor of J.D. Vidal, Spanish Catalanian mycologist who has specialized in taxonomy of sequestrate fungi. This new name is erected to avoid producing a homonym with the earlier *Russula ilicis* Romagn. (1972).

IODIOLENS

Russula iodiolens (A.H. Sm. & V.L. Wells) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821380.

Basionym: *Macowanites iodiolens*, A.H. Sm. & V.L. Wells, *Mycologia* **55**: 425. 1963.

JAVANICA

Russula boedijnii Trappe & T.F. Elliott, **nom. nov.** MycoBank MB823199.

Replaced synonym: *Hydnangium javanicum* Henn., *Hedwigia* **40**(Beibl.): 27. 1901, non *Russula javanica* Sacc. & P. Syd., *Syll. Fung. (Abellini)* **16**: 46. 1902.

Synonym: *Gymnomyces javanicus* (Henn.) M.E. Sm. & Schmull, *Mycol. Progr.* **10**: 253. 2011.

Etymology and note: In honor of Dutch mycologist K.B. Boedijn, who specialized in taxonomy of Indonesian fungi including hypogeous species. This new name is erected to avoid producing a homonym with the earlier *Russula javanica* Sacc. & P. Syd. (1902).

KERMESINA

Russula kermesina T. Lebel, *Austral. Syst. Bot.* **20**: 377. 2007. MycoBank MB531311.

Replaced synonym: *Macowanites carmineus* McNabb, *New Zealand J. Bot.* **9**: 359. 1971, non *Russula carminea* (Jul. Schäff.) Kühner & Romagn., in Romagnesi, *Russules d'Europe Afr. Nord*, Essai sur la Valeur Taxinomique et Specifique des Caracteres des Spores et des Revetements: 447. 1967.

KRJUKOWENSIS

Russula krjukowensis (Bucholtz) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823514.

Basionym: *Secotium krjukowense* Bucholtz, *Hedwigia* **40**: 314. 1901.

Synonyms: *Secotium michailowskianum* Bucholtz [as 'michailowskjanum'], *Hedwigia* **40**: 315. 1901.

Elasmomyces michailowskianus (Bucholtz) Sacc. & D. Sacc. [as 'michailowskjanus'], *Syll. Fung. (Abellini)* **17**: 218. 1905.

Elasmomyces krjukowensis f. *pleurotopsis* Bucholtz, *Bull. Soc. Imp. Naturalistes Moscou, ser. 2*, **24**: 463. 1907.

Bucholtzia krjukowensis (Bucholtz) Lohwag, *Oesterr. Bot. Z.* **73**(7-9): 173. 1924.

Arcangeliella krjukowensis var. *michailowskiana* (Bucholtz) Zeller & C.W. Dodge, *Ann. Missouri. Bot. Gard.* **22**: 368. 1935.

Arcangeliella krjukowensis (Bucholtz) Zeller & C.W. Dodge, *Ann. Mo. Bot. Gdn* **22**: 368. 1935. var. *krjukowensis*.

Hydnangium krjukowense (Bucholtz) Svrček, Fl. ČSR, B-1, *Gasteromycetes*: 206. 1958. var. *krjukowense*.

Macowanites krjukowensis (Bucholtz) Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 77. 1960.

LEUCOCARPUS

Russula leucocarpa (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820035.

Basionym: *Gymnomyces leucocarpus* T. Lebel, *New Zealand J. Bot.* **40**: 497. 2002.

LONGISPORUS

Russula longispora (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820036.

Basionym: *Gymnomyces longisporus* T. Lebel, *Austral. Syst. Bot.* **16**: 415. 2003.

LONGISTERIGMATUM

Russula longisterigmata (Nouhra & Trierv.-Per.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821384.

Basionym: *Cystangium longisterigmatum* Nouhra & Trierv.-Per., *Mycologia* **107**: 97. 2014.

LUTEIROSEA

Russula luteirosea (Bougher) T. Lebel, *Muelleria* **36**: 13 (2017). MycoBank MB822048.

Basionym: *Macowanites luteiroseus* Bougher, *Mycotaxon* **63**: 38. 1997.

Synonym: *Russula luteirosea* (Bougher) T. Lebel, *Austral. Syst. Bot.* **20**(4): 378. 2007, *nom. inval.*

LUTEORUNNEUM

Russula luteobrunnea (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820037.

Basionym: *Cystangium luteobrunneum* T. Lebel, *Austral. Syst. Bot.* **16**: 380. 2003.

LUTEOLUS

Russula luteola (Harkn.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821386.

Basionym: *Hydnangium luteolum* Harkn., *Proc. Calif. Acad. Sci., Ser. 3, Bot.* **1**: 251. 1899.

Synonym: *Gymnomyces luteolus* (Harkn.) Trappe et al., *Mycotaxon* **81**: 200. 2002, non *Macowanites luteolus* A.H. Sm. & Trappe, *Mycologia* **55**: 427. 1963.

LUTEOLA

Russula stricklandorum T.F. Elliott & Trappe, **nom. nov.** MycoBank MB821387.

Replaced synonym: *Macowanites luteolus* A.H. Sm. & Trappe, *Mycologia* **55**: 427. 1963, non *Russula luteola* (Harkn.) Trappe & T.F. Elliott (this paper, see preceding entry).

Etymology and note: *stricklandorum*, in honor of Bob and Babs Strickland for their support of the natural sciences and contributions to conservation. This new name is erected to avoid producing a homonym with the preceding *Russula luteola* (Harkn.) Trappe & T.F. Elliott (2017).

LYMANENSE

Russula lymanensis (Cázares & Trappe) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB821388.

Basionym: *Macowanites lymanensis* Cázares & Trappe, *Mycotaxon* **42**: 335. 1991.

Synonym: *Cystangium lymanense* (Cázares & Trappe) Trappe et al. [as 'lymanensis'], *Mycotaxon* **81**: 197. 2002.

MACROCYSTIDIUM

Russula macrocystidia (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820038.

Basionym: *Cystangium macrocystidium* T. Lebel, *Austral. Syst. Bot.* **16**: 380. 2003.

MACULATA

Russula extramaculata Trappe & T.F. Elliott, **nom. nov.** MycoBank MB821390.

Replaced synonym: *Martellia maculata* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 28. [1960] 1961, non *Russula maculata* Qué!, *Bull. Soc. Bot. France* **24**: 323. [1877] 1878.

Synonym: Cystangium maculatum (Singer & A.H. Sm.) Trappe *et al.*, *Mycotaxon* **81**: 197. 2002.

Etymology and note: extramaculatum (“outside *maculata*”) to avoid producing a homonym with the earlier *Russula maculata* Quél. (1878).

MATTIROLOANUS

Russula mattiroloana (Cavara) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820039.

Basionym: Elasmomyces mattiroloanus Cavara [as ‘mattirolianus’], *Malpighia* **11**(9–10): 426. 1897.

Synonyms: Secotium mattiroloanum (Cavara) E. Fisch., in Engler & Prantl, *Nat. Pflanzenfam., Teil. I (Leipzig)* **1**: 301. 1900.

Macowanites mattiroloanus (Cavara) T. Lebel & Trappe (as ‘mattirolianus’), *Mycologia* **92**: 1194. 2000.

MEDITERRANEA

Russula mediterranea (G. Moreno *et al.*) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB821392.

Basionym: Martellia mediterranea G. Moreno *et al.*, *Mycotaxon* **42**: 227. 1991.

MEDLOCKII

Russula medlockii (Trappe & Castellano) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB821393.

Basionym: Martellia medlockii Trappe & Castellano, *Mycologia* **78**: 918. 1986.

Synonym: Cystangium medlockii (Trappe & Castellano) Trappe *et al.*, *Mycotaxon* **81**: 197. 2002.

MEGASPORUS

Russula megaspora (Rodway) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820040.

Basionym: Gymnomyces megasporus Rodway, *Pap. & Proc. Roy. Soc. Tasmania ‘1925’*: 168. 1926 (1925).

Synonyms: Octaviania megaspora (Rodway) G. Cunn., *New Zealand J. Sci. Technol.* **22**: 300B. 1941.

Cystangium megasporum (Rodway) T. Lebel & Castellano, *Mycologia* **94**: 335. 2002.

MESSAPICOIDES

Russula messapicoides (Llistos. & J.M. Vidal) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB821395.

Basionym: Macowanites messapicoides Llistos. & J.M. Vidal, *Rivista Micol.* **38**: 155. 1995.

MEXICANUS

Russula guzmanii Trappe & T.F. Elliott, *nom. nov.* MycoBank MB821396.

Replaced synonym: Macowanites mexicanus Guzmán, *Revista Mex. Micol.* **4**: 116. 1988, non *Russula mexicana* Burl., *Mycologia* **3**: 26. 1911.

*Etymology and note: In honor of Prof. Gastón Guzmán, much accomplished Mexican mycologist and taxonomist. This new name is erected to avoid producing a homonym of the earlier *Russula mexicana* Burl. (1911).*

MISTIFORMIS

Russula mistiformis (Mattir.) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB821397.

Basionym: Martellia mistiformis Mattir., *Malpighia* **14**: 78. 1900. *Synonyms: Hydnangium mistiforme* (Mattir.) Zeller & C.W. Dodge, *Ann. Missouri Bot. Gard.* **22**: 372. 1935.

Octaviania mistiformis (Mattir.) Svrček, *Fl. ČSR, B-1, Gasteromycetes*: 192. 1958.

Gymnomyces mistiformis (Mattir.) T. Lebel & Trappe, *Mycologia* **92**: 1999. 2000.

MOLLIS

Russula castellanoi Trappe & T.F. Elliott, *nom. nov.* MycoBank MB821398.

Replaced synonym: Macowanites mollis Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 79. 1960, non *Russula mollis* Quél., *Compt. Rend. Assoc. Franç. Avancem. Sci.* **11**: 397. 1883 (1882).

Synonym: Elasmomyces mollis (Singer & A.H. Sm.) Pegler & T.W.K. Young, *Trans. Brit. Mycol. Soc.* **72**: 368. 1979.

*Etymology and note: In honor of Dr. Michael (Caz) Castellano for his career-long fascination with and research on sequestrate fungi. This new name is erected to avoid producing a homonym with the earlier *Russula mollis* Quél. (1882).*

MONOSPORA

Russula monospora (Boud. & Pat.) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB821399.

Basionym: Hydnangium monosporum Boud. & Pat., *J. Bot., Paris* **2**: 445. 1888.

Synonyms: Octaviania monospora (Boud. & Pat.) Lloyd, *Mycol. Writ.* **7**(Letter 67): 1141. 1922.

Martellia monospora (Boud. & Pat.) Astier & Pacioni, *Doc. Mycol.* **28**(nos 109–110): 9. 1998.

MONOSPORUS

Russula stewartii Trappe & T.F. Elliott, *nom. nov.* MycoBank MB821400.

Replaced synonym: Gymnomyces monosporus E.L. Stewart & Trappe, *Mycotaxon* **2**: 209. 1975.

*Etymology and note: In honor of Dr. Elwin L. Stewart, mycologist and plant pathologist, for his contributions to taxonomy of sequestrate fungi. This new name is erected to avoid producing a homonym of the earlier *Hydnangium monosporum* Boud. & Pat. (1888). See previous entry.*

MONTICOLA

Russula monticola (Harkn.) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB821401.

Basionym: Octaviania monticola Harkn., *Proc. Calif. Acad. Sci., Ser. 3, Bot.* **1**: 254. 1899.

Synonyms: Hydnangium monticola (Harkn.) Zeller & C.W. Dodge, *Ann. Missouri Bot. Gard.* **22**: 372. 1935.

Martellia monticola (Harkn.) Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 40. 1961 (1960).

Gymnomyces monticola (Harkn.) Trappe *et al.*, *Mycotaxon* **81**: 200. 2002.

NANJINGENSIS

Russula nanjingensis (B. Liu & K. Tao) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB823202.

Basionym: Martellia nanjingensis B. Liu & K. Tao, *Acta Mycol. Sin.* **12**: 103. 1993.

Synonyms: Gymnomyces nanjingensis (B. Liu & K. Tao) Trappe *et*

al., *Mycotaxon* **81**: 200. 2002.

Arcangeliella nanjingensis (B. Liu & K. Tao) J.M. Vidal, *Revista Catal. Micol.* **26**: 73. 2005 (2004).

NAUSEOSUS

Russula hunsuckeri T.F. Elliott & Trappe, **nom. nov.** MycoBank MB823515.

Replaced synonym: *Macowanites nauseosus* A.H. Sm., *Mycologia* **55**: 428. 1963, non *Russula nauseosa* (Pers.) Fr., *Epicr. Syst. Mycol. (Upsaliae)*: 363. [1836–1838] 1838.

Etymology and note: In honor of naturalist, mycologist, botanist, and philosopher Dr. Robert Hunsucker. This new name is erected to avoid producing a homonym with the earlier *Russula nauseosa* (Pers.) Fr. (1838).

NONDISTINCTA

Russula nondistincta (Trappe & Castellano) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823207.

Basionym: *Gymnomyces nondistincta* Trappe & Castellano, *Mycotaxon* **75**: 166. 2000.

NOTHOFAGI

Russula nothofagi (E. Horak) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823517.

Basionym: *Elasmomyces nothofagi* E. Horak, *Sydowia* **17**(1–6): 211. [1963] 1962.

Synonym: *Cystangium nothofagi* (E. Horak) Trappe *et al.*, *Mycotaxon* **81**: 198. 2002.

OCCIDENTALIS

Russula thiersii Trappe & T.F. Elliott, **nom. nov.** MycoBank MB823208.

Replaced synonym: *Martellia occidentalis* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 42. 1960, non *Russula occidentalis* (Singer) Singer, *Lilloa* **22**: 705. [1949] 1951, non *Russula occidentalis* Bon, *Doc. Mycol.* **12**(no. 46): 32. 1982, nom. illeg.

Etymology and note: In honor of Dr. Harry Thiers for his long interest in and taxonomic studies of fungi and the *Russulaceae*. This new name is erected to avoid producing a homonym with the earlier *Russula occidentalis* Singer (1951).

ODORATUS

Russula odorifera Trappe & T.F. Elliott, **nom. nov.** MycoBank MB823209.

Replaced synonym: *Elasmomyces odoratus* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 57. 1960, non *Russula odorata* Romagn., *Bull. Mens. Soc. Linn. Soc. Bot. Lyon* **19**: 76. 1950.

Synonym: *Macowanites odoratus* (Singer & A.H. Sm.) Trappe *et al.*, *Mycotaxon* **81**: 202. 2002.

Etymology and note: *odorifera* (bearing an odor), to avoid producing a homonym with the earlier *Russula odorata* Romagn. (1950).

OLIDUS

Russula olida (A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823210.

Basionym: *Macowanites olidus* A.H. Sm., *Mycologia* **55**: 428. 1963.

OREGONENSIS

Russula oregonensis (Zeller) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823211.

Basionym: *Hydnangium oregonense* Zeller, *Mycologia* **33**: 200. 1941

Synonyms: *Martellia oregonensis* (Zeller) Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 27. 1961 (1960).

Cystangium oregonense (Zeller) Trappe *et al.*, *Mycotaxon* **81**: 198. 2002.

PALLIDUS

Russula paneeroides T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB821533.

Replaced synonym: *Gymnomyces pallidus* Masee & Rodway, in Masee, *Bull. Misc. Inform. Kew*: 125. 1898, non *Russula pallida* P. Karst., *Hedwigia* **35**: 43. 1896.

Synonym: *Octaviania pallida* (Masee & Rodway) G. Cunn., *Proc. Linn. Soc. New South Wales* **60**: 119. 1935.

PARKSII

Russula parksii (Singer & A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823213.

Basionym: *Gymnomyces parksii* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 55. 1960.

PARVISAXOIDES

Russula parvisaxoides (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB822047.

Basionym: *Gymnomyces parvisaxoides* T. Lebel, *New Zealand J. Bot.* **40**: 498. 2002.

PHYMATODISPORUM

Russula phymatodispora (G.W. Beaton *et al.*) T. Lebel *Muelleria* **36**: 12. 2017. MycoBank MB820041.

Basionym: *Cystangium phymatodisporum* G.W. Beaton *et al.*, *Kew Bull.* **39**: 672. 1984.

PILA

Russula pila (Pat.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823216.

Basionym: *Hydnangium pila* Pat., *Bull. Soc. Mycol. France* **26**: 202. 1910.

Synonyms: *Octaviania pila* (Pat.) Svrček, *Fl. ČSR*, B-1, *Gasteromycetes*: 199. 1958.

Martellia pila (Pat.) J.M. Vidal, *Bull. Soc. Catalana Micol.* **14–15**: 172. 1991.

Gymnomyces pila (Pat.) Trappe, T. Lebel & Castellano, *Mycotaxon* **81**: 200. 2002.

PILOSUS

Russula pilosa (Zeller & C.W. Dodge) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823217.

Basionym: *Arcangeliella pilosa* Zeller & C.W. Dodge, *Ann. Missouri Bot. Gard.* **22**: 368. 1935.

Synonyms: *Elasmomyces pilosus* (Zeller & C.W. Dodge) Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 66. 1960.

Macowanites pilosus (Zeller & C.W. Dodge) Trappe *et al.*, *Mycotaxon* **81**: 202. 2002.

PILOSELLA

Russula pilosella T. Lebel, *Austral. Syst. Bot.* **20**: 379. 2007. MycoBank MB532181.

Replaced synonym: *Hydnangium tomentosum* J.W. Cribb, *Pap. Dept. Bot. Univ. Queensland* **3**: 251. 1958, non *Russula tomentosa* Buyck, *Bull. Jard. Bot. Natl. Belg.* **58**: 476. 1988.
Synonyms: *Martellia tomentosa* (J.W. Cribb) A.H. Sm., *Mycologia* **54**: 631. 1963.

PINETI

Russula pineti (Singer) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823218.

Basionym: *Cystangium pineti* Singer, *Mycol. Helv.* **1**: 417. 1985.

PINICOLA

Russula piniamans Trappe & T.F. Elliott, **nom. nov.** MycoBank MB823225.

Replaced synonym: *Macowanites pinicola* A.H. Sm., *Mycologia* **55**: 430. 1963, non *Russula pinicola* Murrill, *Lloydia* **6**: 213. 1943.

Etymology and note: *piniamans* ("friend of pine"), to avoid producing a homonym of the earlier *Russula pinicola* Murrill (1943)

PISIGLAREA

Russula pisiglarea (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820042.

Basionym: *Cystangium pisiglarea* T. Lebel, *Austral. Syst. Bot.* **16**: 383. 2003.

POLYCHROMUM

Russula collubrina T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820059.

Replaced synonym: *Cystangium polychromum* Trappe & Claridge, *Australas. Mycol.* **22**: 33. 2003, non *Russula polychroma* Singer ex Hora, *Trans. Brit. Mycol. Soc.* **43**: 457. 1960.

PSEUDOEMETICUS

Russula nancyweberae Trappe & T.F. Elliott, **nom. nov.** MycoBank MB823545.

Replaced synonym: *Macowanites pseudoemeticus* A.H. Sm., *Mycologia* **55**: 431. 1963, non *Russula pseudoemetica* Secr. ex Singer, *Hedwigia* **66**: 190. 1926.

Etymology and note: In honor of Dr. Nancy Weber, for her extensive research on taxonomy of epigeous Ascomycetes, especially the genus *Morchella*. This new name is erected to avoid producing a homonym with the earlier *Russula pseudoemetica* Secr. ex Singer (1926).

PTEROSPERMUS

Russula pterosperma (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820043.

Basionym: *Gymnomyces pterospermus* T. Lebel, *Austral. Syst. Bot.* **16**: 416. 2003.

PUMICOIDEA

Russula pumicoidea T. Lebel, *Austral. Syst. Bot.* **20**: 367. 2007. MycoBank MB532182.

REDDELLII

Russula reddellii T. Lebel, *Austral. Syst. Bot.* **20**: 369. 2007. MycoBank MB532183.

REDOLENS

Russula osphranticarpa T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820061.

Replaced synonym: *Octaviania redolens* G. Cunn., *New Zealand J. Sci. Technol.* **23B**: 172. 1942, non *Russula redolens* Burl., *Mycologia* **13**: 133. 1921.

Synonym: *Gymnomyces redolens* (G. Cunn.) Pfister, *Occas. Papers Farlow Herb. Cryptog. Bot.* **9**: 43. 1976.

RODWAYI

Russula leonardii T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820060.

Replaced synonym: *Gymnomyces rodwayi* T. Lebel, *Austral. Syst. Bot.* **16**: 418. 2003, non *Russula rodwayi* (Masse) T. Lebel, *Muelleria* **36**: 11. 2017.

Russula rodwayi (Masse) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820044.

Basionym: *Secotium rodwayi* Masse, *Bull. Misc. Inform. Kew*: 158. 1901.

Synonyms: *Elasmomyces rodwayi* (Masse) Zeller, *Mycologia* **40**: 642. 1948.

Cystangium rodwayi (Masse) A.H. Sm., *Mycologia* **54**: 633. 1963.

ROGERSII

Russula rogersii (Singer & A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823546.

Basionym: *Octavianina rogersii* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 12. 1960.

Synonym: *Gymnomyces rogersii* (Singer & A.H. Sm.) Trappe et al. *Mycotaxon* **81**: 201. 2002.

ROLFALEXII

Russula rolfalexii (Trappe et al.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823552.

Basionym: *Gymnomyces rolfalexii* Trappe et al., *Mycotaxon* **81**: 201. 2002.

Synonym: *Martellia parksii* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 32. 1960, non *Gymnomyces parksii* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 55. 1960. See *Russula parksii* (Singer & A.H. Sm.) Trappe & T.F. Elliott this publication.

ROSEIPES

Russula spatavorae Trappe & T.F. Elliott, **nom. nov.** MycoBank MB823547.

Replaced synonym: *Elasmomyces roseipes* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 64. 1960, non *Russula roseipes* Secr. ex Bres., *Fung. Trident.* **1**: 37. 1881.

Synonym: *Macowanites roseipes* (Singer & A.H. Sm.) Pegler & T.W.K. Young, *Trans. Brit. Mycol. Soc.* **72**: 363. 1979.

Etymology and note: In honor of Dr. Joey Spatafora for his teaching and extensive research on phylogeny and taxonomy of macrofungi. This new name is established to avoid producing a homonym with *Russula roseipes* Secr. ex Bres. (1881).

ROSEOMACULATUS

Russula roseomaculata (Singer & A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823548.

Basionym: *Gymnomyces roseomaculatus* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 50. 1960.

ROSTRATICYSTIDIA

Russula rostraticystidia T. Lebel, *Austral. Syst. Bot.* **20**: 371. 2007. MycoBank MB532184.

RUBROLUTEA

Russula rubrolutea (T. Lebel) T. Lebel, *Muelleria* **36**: 14. 2017. MycoBank MB822049.

Basionym: *Macowanites rubroluteus* T. Lebel, *New Zealand J. Bot.* **40**: 505. 2002.

Synonym: *Russula rubrolutea* (T. Lebel) T. Lebel, *Austral. Syst. Bot.* **20**: 378. 2007, *nom. inval.*

RUSSULOIDES

Russula russuloides (Setch.) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB823549.

Basionym: *Elasmomyces russuloides* Setch., *J. Mycol.* **13**: 240. 1907.

Synonym: *Macowanites russuloides* (Setch.) Trappe *et al.*, *Mycotaxon* **81**: 202. 2002.

SICHUANENSIS

Russula sichuanensis G.J. Li & H.A. Wen, *Mycotaxon* **124**: 179. 2013 MycoBank MB804645.

SEMINUDUS

Russula seminuda (Massee & Rodway) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820045.

Basionym: *Gymnomyces seminudus* Massee & Rodway, *Bull. Misc. Inform. Kew*: 125. 1898.

Synonyms: *Arcangeliella seminuda* (Massee & Rodway) Zeller & C.W. Dodge, *Ann. Missouri Bot. Gard.* **23**: 617. 1936.

Octaviania seminuda (Massee & Rodway) G. Cunn., *Trans. & Proc. Roy. Soc. New Zealand* **67**: 408. 1938.

Cystangium seminudum (Massee & Rodway) T. Lebel & Castellano, *Mycologia* **94**: 337. 2002.

SESSILE

Russula sessilis (Massee & Rodway) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820046.

Basionym: *Secotium sessile* Massee & Rodway, *Pap. & Proc. Roy. Soc. Tasmania '1911'*: 31. [1911] 1912 [var. *sessile*].

Synonyms: *Elasmomyces sessilis* (Massee & Rodway) Rodway, *Pap. & Proc. Roy. Soc. Tasmania '1924'*: 8. [1924] 1925.

Cystangium sessile (Massee & Rodway) Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 27. 1960.

SETCHELLIANUS

Russula setchelliana (Singer & A.H. Sm.) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB823550.

Basionym: *Macowanites setchellianus* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 92. 1960.

SETIGER

Russula setigera (Zeller) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB823551.

Basionym: *Hydnangium setigerum* Zeller, *Mycologia* **31**: 14. 1939.

Synonyms: *Martellia setigera* (Zeller) Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 39. 1960.

Gymnomyces setiger (Zeller) Trappe *et al.* [as *setigerus*], *Mycotaxon* **81**: 201. 2002.

SHULTZIAE

Russula shultziae (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820047.

Basionym: *Cystangium shultziae* T. Lebel, *Austral. Syst. Bot.* **16**: 385. 2003.

SICHUANENSIS

Russula sichuanensis G.J. Li & H.A. Wen, *Mycotaxon* **124**: 179. 2013. MycoBank MB804645.

SINUATA

Russula sinuata T. Lebel, *Austral. Syst. Bot.* **20**: 374. 2007. MycoBank MB532185.

SOLIDUS

Russula solida (Rodway) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB823522.

Basionym: *Gymnomyces solidus* Rodway, *Pap. & Proc. Roy. Soc. Tasmania '1921'*: 157. 1921.

SPARSUM

Russula sparsa (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820048.

Basionym: *Cystangium sparsum* T. Lebel, *Austral. Syst. Bot.* **16**: 388. 2003.

STIPITATUS

Russula stipitata (H.A. Peters) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB823523.

Basionym: *Elasmomyces stipitatus* H.A. Peters, *Mycologia* **54**: 112. 1962.

Synonym: *Macowanites stipitatus* (H.A. Peters) Trappe *et al.*, *Mycotaxon* **81**: 202. 2002.

SUBALPINUS

Russula orsonmilleri Trappe & T.F. Elliott, *nom. nov.* MycoBank MB823524.

Replaced synonym: *Martellia subalpina* A.H. Sm., *Mycologia* **55**: 439. 1963, non *Russula subalpina* O.K. Mill., *Arctic and Alpine Mycology, First International Symposium on Arcto-Alpine Mycology*, 1980 (Seattle): 136. 1982.

Synonym: *Gymnomyces subalpinus* (A.H. Sm.) Trappe *et al.*, *Mycotaxon* **81**: 201. 2002.

Etymology and note: In honor of Dr. Orson K. Miller Jr. for his wide ranging contributions to taxonomy of North American fungi, including sequestrate and subalpine species. This new name is erected to avoid producing a homonym with the earlier *Russula subalpina* O.K. Miller (1963).

SUBFULVUS

Russula subfulva (Singer & A.H. Sm.) Trappe & T.F. Elliott, *comb. nov.* MycoBank MB823525.

Basionym: *Martellia subfulva* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 35. 1960.

Synonym: *Gymnomyces subfulvus* (Singer & A.H. Sm.) Trappe *et al.*, *Mycotaxon* **81**: 201. 2002.

SUBLEVISPORUS

Russula andaluciana T.F. Elliott & Trappe, *nom. nov.* MycoBank MB823526.

Replaced synonym: *Gymnomyces sublevisporus* Mor.-Arr. et al., *Revista Catal. Micol.* **24**: 179. 2002, non *Russula sublevispora* (Romagn.) Kühner & Romagn., in Romagnesi, *Russules d'Europe Afr. Nord*, Essai sur la Valeur Taxinomique et Specifique des Caracteres des Spores et des Revetements: 299. 1967.

Etymology and note: In reference to Andalucia, the region where it was originally collected, and to avoid producing a homonym with *Russula sublevispora* (Romagn.) Kühner & Romagn (1967).

SUBOCHRACEUS

Russula subochracea (A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823527.

Basionym: *Martellia subochracea* A.H. Sm., *Mycologia* **55**: 440. 1963.
Synonym: *Gymnomyces subochraceus* (A.H. Sm.) Trappe et al., *Mycotaxon* **81**: 201. 2002.

SUBOLIVACEUS

Russula subolivacea (A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823528.

Basionym: *Macowanites subolivaceus* A.H. Sm., *Mycologia* **55**: 432. 1963.

SUBROSACEUS

Russula subrosacea (A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823529.

Basionym: *Macowanites subrosaceus* A.H. Sm., *Mycologia* **55**: 433. 1963.

TAPAWERA

Russula tapawera (T. Lebel) T. Lebel, *Austral. Syst. Bot.* **20**: 379. 2007. MycoBank MB531354.

Basionym: *Macowanites tapawera* T. Lebel, *New Zealand J. Bot.* **40**: 507. 2002.

THAXTERI

Russula thaxteri (Singer) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823530.

Basionym: *Martellia thaxteri* Singer, *Beih. Nova Hedwigia* **29**: 357. 1969.

Synonym: *Cystangium thaxteri* (Singer) Trappe et al., *Mycotaxon* **81**: 198. 2002.

THEODOROU

Russula theodoroui (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820049.

Basionym: *Cystangium theodoroui* T. Lebel, *Austral. Syst. Bot.* **16**: 390. 2003.

TRAPPEI

Russula trappei (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820050.

Basionym: *Cystangium trappei* T. Lebel, *Austral. Syst. Bot.* **16**: 392. 2003.

VARIABILISPORA

Russula variabilispora (Singer & A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823531.

Basionym: *Martellia variabilispora* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 27. 1960.

Synonym: *Cystangium variabilisporum* (Singer & A.H. Sm.) Trappe et al., *Mycotaxon* **81**: 198. 2002.

VARIISPORA

Russula variispora T. Lebel, *Austral. Syst. Bot.* **20**: 375. 2007. MycoBank MB532186.

VESICULOSA

Russula marshallorum T.F. Elliott & Trappe, **nom. nov.** MycoBank MB823553.

Replaced synonym: *Martellia vesiculosa* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**: 29. 1960, non *Russula vesiculosa* (Coker & Couch) Trappe & T.F. Elliott (this paper, see below).

Synonym: *Cystangium vesiculosum* (Singer & A.H. Sm.) Trappe et al., *Mycotaxon* **81**: 198. 2002.

Etymology and note: In honor of Australian truffle-growing Marshall family for their strong support of Australasian truffle research and conservation. This new name is erected to avoid producing a homonym with *Russula vesiculosa* (see following entry).

VESICULOSUS

Russula vesiculosa (Coker & Couch) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823554.

Basionym: *Gymnomyces vesiculosus* Coker & Couch, *Gasteromycetes of the Eastern U.S. and Canada* (Chapel Hill): 23. 1928.

Synonym: *Hydnangium vesiculosum* (Coker & Couch) Zeller, *Mycologia* **40**: 641. 1948.

VINACEODORUS

Russula vinaceodora (Calonge & J.M. Vidal) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823532.

Basionym: *Macowanites vinaceodorus* Calonge & J.M. Vidal, *Mycotaxon* **79**: 2. 2001.

VINICOLOR

Russula vinicolor (A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823533.

Basionym: *Macowanites vinicolor* A.H. Sm., *Mycologia* **55**: 434. 1963.

WESTRESII

Russula westresii (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820051.

Basionym: *Gymnomyces westresii* T. Lebel, *Austral. Syst. Bot.* **16**: 420. 2003.

WIRRABARENSIS

Russula wirrabarensis (Grgur.) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820052.

Basionym: *Gymnomyces wirrabarensis* Grgur., *Larger Fungi of South Australia* (Adelaide): 86. 1997.

XANTHOCARPUM

Russula xanthocarpa (T. Lebel) T. Lebel, *Muelleria* **36**: 12. 2017. MycoBank MB820053.

Basionym: *Cystangium xanthocarpum* T. Lebel, *Austral. Syst. Bot.* **16**: 394. 2003.

XANTHOSPORUS

Russula xanthospora (Hawker) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823534.

Basionym: *Hydnangium carneum* var. *xanthosporum* Hawker, *Trans. Brit. Mycol. Soc.* **35**: 281. 1952.

Synonym: *Gymnomyces xanthosporus* (Hawker) A.H. Sm., *Mycologia* **54**: 635. 1963.

XEROPHILUS

Russula xerophila (M.E. Sm. & Trappe) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823535.

Basionym: *Gymnomyces xerophilus* M.E. Sm. & Trappe, *Mycol. Res.* **110**: 577. 2006.

YUNNANENSIS

Russula zangii Trappe & T.F. Elliott, **nom. nov.** MycoBank MB823536.

Replaced synonym: *Macowanites yunnanensis* M. Zang, *Acta Bot. Yunnan.* **21**: 37. 1999, non *Russula yunnanensis* (Singer) Singer, *Mycologia* **34**: 72. 1942.

Etymology and note: In honor of M. Zang, original describer of the species. This new name is erected to avoid producing a homonym with the earlier *Russula yunnanensis* (Singer) Singer (1942).

ZELLERIANUS

Russula zelleriana (Singer & A.H. Sm.) Trappe & T.F. Elliott, **comb. nov.** MycoBank MB823537.

Basionym: *Elasmomyces zellerianus* Singer & A.H. Sm., *Mem. Torrey Bot. Club* **21**(3): 61. 1960.

Synonym: *Macowanites zellerianus* (Singer & A.H. Sm.) Trappe *et al.*, *Mycotaxon* **81**: 203. 2002.

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