



Cortinarius vanduzerensis, unmistakable with its slimy dark brown cap, and slimy lilac-purple stem, right? Alas, it is now postulated that this species is only known

from the type locality in Oregon, and the species, growing with *Pseudotsuga*, *Tsuga* and *Abies* in Oregon, Washington, and British Columbia has been described as *Cortinarius seidliae*. Images courtesy of M. G. Wood and N. Siegel.

A MYCOLEGIUM OF LITERATURE

THE NEW NORTH AMERICA MUSHROOM SPECIES OF 2015

Else C. Vellinga

Around 30 new North American species of macrofungi saw the light in 2015 – leaving 2014 as the top year with 58 species. In 2015, 14 new *Cortinarius* species, an *Entoloma*, one wax cap, two *Russulas*, one bolete, several polypores, two *Craterellus* species, one *Geastrum*, an *Auricularia*, and a number of *Tremella* species were presented as new, plus two *Otidea* species representing the Ascomycota. As in 2014, many of the new taxa were published in *Index Fungorum*, without any supporting illustrations and without phylogenetic trees showing the placement of the new species. This is especially frustrating for new *Cortinarius* species, as

they are in general very difficult to recognize anyway; without pictures for comparison it is just impossible.

To speed up the description of new species, several journals now offer the opportunity to publish single species descriptions as part of a much bigger article in which many different authors each describe only one or a few new species. Several of the new *Cortinarius* and *Russula* species were published as part of these big community efforts. For the individual author this is advantageous, as there will be more citations of the whole article than for a single species article. For the researcher who is only interested in one particular

group of fungi, this way of publishing is a nuisance, as one has to download a 300 MB article for just one description.

It is always a little subjective which species to include in this overview, and which ones to leave out. Only species for which the type collection was found in the USA or Canada are included here; *Cortinarius* species for which the type was collected in Europe, but which also occur in North America are not listed. I did include *Tremella* species that live on lichens and are not very visible to the naked eye, but two *Hypocrea*-like ascomycetes that live on mosses have not been included (Döbbeler et al., 2015).

One of the reasons I give these overviews each year, is to highlight what is new, and to stress that some parts of the USA definitely need more research. But, I also want to emphasize that we stand on the shoulders of all who came before us; Charles H. Peck in New York, Alexander H. Smith in Michigan, Hesler in Tennessee, and Murrill in New York and later in Florida, are just a few of the great mycologists of the late 19th and 20th centuries. They investigated and published on many different mushroom groups. But as time went on, many of the species names they introduced got forgotten or went unnoticed. It might well be worthwhile to look at these older names and see whether they can be applied to the species we encounter nowadays. Knowing the past is the first step into the future!

Hygrophorus subaustralis is such a forgotten name; it was given to a white wax cap species from the Great Smoky Mountains National Park (Smith and Hesler, 1942), and Hesler kept collecting it every so often into the 1970s. But then, it was forgotten for more than 30 years. During inventories this

century (Matheny and Vellinga, 2009) we picked up a strange white mushroom, that kept us guessing after its identity, till Brandon Matheny had a brain wave and connected the dots – it perfectly fit the description of *H. subaustralis*! In the meantime Marisol Sánchez-García had produced the molecular data for this species, which showed that this does not anywhere come close to *Hygrophorus* and it got it a place in its own new genus, *Albomagister* (Sánchez-García et al., 2014). We called this white mushroom “mystery white” in the field to distinguish it from the “small mystery white,” and the “grey scaly,” also unnamed puzzling species from our first trip in the Smokies. With time, “mystery white” got changed into “Mister White,” which became Latinized as *Albomagister* for the new genus.

From Mycoportal records and an extensive literature search I could make a list of more than 700 mushroom species that were described from California – a list full of names we use on a daily basis (for instance, *Amanita velosa* and *Lactarius xanthogalactus*), but then there is *Verpa chicoensis*, one of those forgotten, non-loved names, a name that probably should be used for one of the western *Verpa* species!

Compiling lists of the mushrooms from your area, mining the literature available on and off line, followed up by looking in the field specifically for those species, that is the type of research and observations so urgently needed, not only to broaden our knowledge basis, also, or perhaps in particular, for conservation purposes.

So here follows the overview of the 2015 species that are new for North America; references to all articles with the full descriptions etc. are given at the end. Open access articles



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Cortinarius

Just as in 2014, the genus *Cortinarius* is represented with a high number of new species, especially from the western part of North America. We thought that we could name at least one species of *Cortinarius*, *C. vanduzerensis*, with its slimy dark brown cap, and slimy lilac-purple stem. Alas, it is now postulated that this species is only known from the type locality in Oregon, and the species, growing with *Pseudotsuga*, *Tsuga* and *Abies* in Oregon, Washington, and British Columbia has been described as *C. seidliae* to honor Michelle Seidl who is a *Cortinarius* expert. It seems that the specimens we encounter here in California still are in need of some research and naming. Other new western species are *C. albobrunneus* for *C. collinitus* var. *olympianus*, and *C. putorius* named so because of its bad smell (Ariyawansa et al., 2015). Five more *Cortinarius* species were described from California: *C. adonis*, *C. amabilis*, *C. intricatus*, *C. perplexus*, and *C. vellingae* (Index Fungorum 247). *Cortinarius atrotomentosus* from Florida is a dark velvety species in the *C. violaceus* group (Harrower et al., 2015b). *Cortinarius violaceus* is the type species of the genus, though it is rather atypical because of the velvety appearance of the cap and the abundance of prominent cheilocystidia (sterile cells on the gill edges); this widespread species, occurring in Europe and in North America, has siblings in Costa Rica, and further afield in Australia and New Zealand (Harrower et al., 2015a). Another *Cortinarius* study researched the three western species of subgenus *Phlegmacium* that grow with *Populus* (poplar, cottonwood, aspen) (Cripps et al., 2015). The surprising outcome of that study was that these three species also occur in Europe, and that some of the European names have to be replaced by a name originally given to an American species.

Entoloma

Was the surprise in the *Populus*-associated *Cortinarius* study that species have a wide distribution, this is in other groups not often the case. Morgado et al. (2013) already showed that *Entoloma bloxamii* and *E. madidum* are European species, and that similar-looking species in western North America are different. This western species now got named as the “midnight blue entoloma,” *Entoloma medianocte* (Index Fungorum 220/221).

Hygrocybe

The name of the new waxcap, *Hygrocybe jackmanii*, is a tribute to Captain William Jackman from Labrador, Canada. “Captain William Jackman swam back and forth from shore 27 times to save 27 persons from a storm-grounded ship. *Hygrocybe jackmanii* fruits during the same stormy early October on the same Labrador shores where Jackman’s heroic feat took place.” This brownish orange-red waxcap with yellow gills and a dry cap grows in open sand close to *Empetrum* (craneberry) and other dune plants. It has strikingly cylindrical spores, and so far is only known from its type locality in eastern Canada (Crous et al., 2015).

Russulas and boletes

Two new Russulas were described: *Russula cortinarioides* occurs in pine and pine-oak woods in Texas, and *R.*

katarinae – a fishy-smelling orange russula from the *Xerampelina*-group growing under *Pinus strobus*, from the state of New York (Liu et al., 2015; Adamčík et al., 2015.)

One new bolete species was described in 2015: *Lanmaoa roseocrispans*, a blue-staining, pinkish capped bolete (Index Fungorum 259). Unfortunately there is no information on the ecology or distribution of this new taxon.

Polypores

Three new *Antrodia* species in the *Antrodia crassa*-group and one new *Daedalea* were introduced; surprisingly, one of the new *Antrodia* species came from Massachusetts, the other two from Arizona and California respectively, and the *Daedalea* from Florida (definitely an under-researched region of the USA).

Geastrum

A very nice and thorough study examined *Geastrum* sect. *Geastrum*; a combination of a set of gene sequences and morphological characters were submitted to statistical analyses, and based on those the new North American species *G. thanatophilum* was described (Zamora et al., 2015). It was found on a cemetery in Wisconsin, and this is reflected in the name: the Greek roots of the word “thanatophilum” indicate that the species loves the God of Death.

Craterellus

Two new species were described from California – the very common “black trumpet” was named *C. calicornucopeioides*, and the much less common fleshier species with blunt gills *C. atrocinerus*, which resembles the European *C. cinereus* (Index Fungorum 249). The sequence data from the first species are very close to *C. cornucopeioides* [that is “calicornucopeioides” without the “cali”] from Europe, and as there is no phylogenetic tree provided in the publication, I hesitate to use the new name for the West Coast species. *Craterellus atrocinerus* is indeed quite different from species whose ITS region has been sequenced, but again, there is no supporting evidence in the form of figures, phylogenetic trees, etc.

Jelly Fungi

There are so many more *Tremella* species than the obvious yellow-orange *T. mesenterica* (parasitizing *Peniophora*) and *T. aurantia* (often found on top of its host, *Stereum*). But most are quite a bit less showy and conspicuous than those orange ones. Some live within the fruitbodies of their host, and do not get to go outside. The three new species of 2015, all from Florida, grow on lichens, but are hardly visible as the hosts do not seem to show any ill effects of them, no galls, no nothing (Ariyawansa et al., 2015).

From Connecticut hauls a new *Auricularia* species, *A. angiospermarum* (Wu et al., 2015).

Otidea

Two thorough and interesting *Otidea* papers came out in 2015: one on the phylogeny of the genus, and the second one a monographic treatment of the species (Hansen and Olariaga, 2015; Olariaga et al., 2015). The latter is the most interesting for us here in the context of new taxa for North America: *O. oregonensis* and *O. pseudoleporina* are new, and can be found in California, Oregon, and Washington. *Otidea oregonensis* is a pale species with a wide ear, and

O. pseudoleporina resembles the brown *O. leporina* in the long shape of the ears, but differs in the paler colors. *Otidea leporina* also occurs in western North America. Not only are all accepted species exhaustively described and illustrated, all names that have been published in *Otidea* are critically examined; some of those appear to belong to other genera (e.g. *Peziza* or *Phillipsia*), others might be a later synonym of another species (*Otidea microspora* is speculated to be the same as *O. rainierensis*).

We have already seen some new species in 2016, so keep your eyes open, you might be the one who discovers the next new species!

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The list for Index Fungorum is as follows; all are free to download from www.indexfungorum.org:

- Index Fungorum 220/221 – *Entoloma medianox/medianocte*, and its f. *eos* [open access]
- Index Fungorum 241 – *Cortinarius albidolilacinus*, *C. anetholens*, *C. aurescens*, and *C. beugii* [open access]
- Index Fungorum 247 – *Cortinarius adonis*, *C. amabilis*, *C. intricatus*, *C. perplexus*, and *C. vellingae* [open access]
- Index Fungorum 249 – *Craterellus atrocinerus* and *C. calicornucopioides* [open access]
- Index Fungorum 252 – *Cortinarius subsulfurinus* [open access]
- Index Fungorum 259 – *Lanmaoa roseocrispans* [open access] †

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