
A nomenclatural revision of the genus *Alnicola* (*Cortinariaceae*)

Pierre-Arthur Moreau*

Herbarium Z+ZT. Geobotanisches Institut ETH. Zollikerstrasse 107. CH-8008 Zürich. Current address : Département de Botanique. Faculté des Sciences Pharmaceutiques et Biologiques. B.P. 83. F-59006 Lille Cedex. France

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Some nomenclatural points are discussed as a prodrom of a taxonomic revision of the genus *Alnicola* (= *Naucoria sensu Moser*). Lectotypifications of *Alnicola* and *Agaricus* "tribe" *Naucoria* are critically analyzed. *Alnicola luteolofibrillosa* is proposed as a new lectotype of *Alnicola*; *Ag. pannosus* is proposed as a new lectotype for *Ag.* "tribe" *Naucoria*. A critical check-list of taxa published so far in the genus *Alnicola* is provided. The usual names *Alnicola* (*Naucoria*) *alnetorum* and *Alnicola* (*Naucoria*) *langei* are invalid and must be replaced by *A. inculta* and *A. macrospora* respectively. *Alnicola* (*Naucoria*) *dasyopus* is an earlier synonym of *Pholiotina* (*Conocybe*) *subnuda* according to type revision. Lectotypes are designed for *Agaricus melinoides*, *A. scolecinus*, *Alnicola macrospora*, *Naucoria amarescens* and *Naucoria dasyopus*. Four new combinations are introduced: *Alnicola zonata*, *Galerina albotomentosa*, *G. clavuligera*, *Pholiotina dasyopus*.

Key words: Basidiomycota, *Galerina*, *Naucoria*, *Pholiotina*, taxonomy, typification.

Introduction

The genus *Alnicola* has been introduced by Kühner (1926), in order to isolate a homogenous group of species from the nebulous *Agaricus* "tribe" *Naucoria* of Fries (1821, 1836-1838). All are characterized by warty spores, sterile gill edge, differentiated pileipellis and strict association with *Alnus* spp. (alder trees). It was initially made up of 4 species briefly mentioned in a short key by Kühner (*loc. cit.*), *Alnicola* includes presently 60 specific taxa, all mycorrhizal and mainly associated with *Betulaceae* and *Salicaceae*, most of them originally described from Europe.

Up to now this genus has never been misinterpreted, but a significant number of modern authors (Moser, 1955; Orton, 1960; Reid, 1984; Døssing, 1992; etc.) prefer to use the name *Naucoria* (Fr.: Fr.) P. Kumm. It was created by Fries (1821: 260) as a tribe of *Agaricus*, in order to group together collybioid, ochre-spored gill fungi which could not be classified in the closely

* Corresponding author: P.A. Moreau; e-mail: pierre-arthur.moreau@univ-lille2.fr

related tribes *Inocybe* and *Galera*. 'Trib. *Naucoria*' (Fries, 1821), which initially included 7 species (according to current systematic: 1 *Agrocybe*, 1 *Alnicola*, 2 *Flammulaster*, 1 *Tubaria*, 2 not interpreted), is so heterogenous that the first modern systematists (Fayod, 1889; Scherffel, 1897; Earle, 1909; Kühner, 1926; Heim, 1931) split it into a number of smaller genera. Only the residual species remaining in *Naucoria* could justify the use of this name, which each author used to do according to his own conception. Amongst them, Moser (1955) was the first restricting *Naucoria* to a strict synonym of *Alnicola*; he was followed in this way by Reid (1984), Døssing (1992) and Ludwig (2000, 2001), whereas others like Kühner and Romagnesi (1953, 1957), Locquin (1956), Orton (1960) or Malençon and Bertault (1970) used *Naucoria* as a "default" genus grouping all brown-spored species of undefined or doubtful systematic affinities.

The typification of *Alnicola* and *Naucoria*, already discussed by Donk (1962), Singer (1975, 1986), Kühner (1980, 1987) and Moser (1985-2003), is a critical point in this debate. Because of the fact that different interpretations of Fries' texts (all more or less equally acceptable according to the value attributed to various arguments) lead to opposite conclusions, at this stage a somewhat arbitrary choice seems unavoidable in order to solve the recent but recurrent dilemma between *Alnicola* and *Naucoria* for current use. Lectotypifications are clearly proposed here in order to adopt a stable nomenclature for these genera, based on an exegesis of Fries' texts and on Moser's and Kühner's arguments, but also taking into account traditions, usages and comparative disturbances of all alternatives. Finally the name *Alnicola* is adopted here, along the lines of a mainly West-European tradition formalized by Kühner (1987) and discussed, according to the arguments developed below.

Even if the generic definition of *Alnicola* does not constitute a problem, the nomenclatural status of a number of taxa at specific or infraspecific rank needs to be revised, independently of their taxonomical treatment. The aim of this paper is to prepare a taxonomic revision of the genus *Alnicola* by stating on some nomenclatural points, according to the International Code of Botanical Nomenclature, Saint-Louis (Greuter *et al.*, 2000). It is assumed that the classification of several mentioned taxa in *Alnicola* is only provisionally accepted, and is likely to be modified according to molecular data in a near future.

Typification of *Alnicola*

Alnicola Kühner, *Botaniste* 17 (1-4): 175 (1926).

≡ *Naucoria* subg. *Alnicola* (Kühner) R. Heim, genre *Inocybe*: 74 (1931).

≡ *Naucoria* sect. *Alnicola* ('*Alnicolae*') (Kühner) J.E. Lange, Dansk bot. Ark. 9 (6): 21 (1938).

≡ *Hebeloma* subg. *Alnicola* (Kühner) Kühner, Hyménom. agaricoïdes: 228 (1980).

= *Naucoria* ss-g. *Cytocutis* J.E. Lange, Dansk bot. Ark. 9 (6): 21 (1938) (inval., art. 36.1).

?= *Cystocybe* Velen., České Houby I: 495 (1921) (*vide* Singer, 1942: 342, 1950a: 412)

Original diagnosis: 'Petites espèces grêles, à spores ventruées, en amande ou en fuseau, à paroi jaune épaissie et grenelée ponctuée avec le sommet atténué et à membrane souvent amincie mais sans pore germinatif.' (Kühner, 1926: 175).

Original species: *Alnicola submelinoides* Kühner, *A. luteolofibrillosa* Kühner, *A. badia* Kühner, *A. melinoides* (Bull. : Fr.) Kühner.

Typifications

Konrad (1934: 176, as a subgenus of *Naucoria*): ***Agaricus escharoides*** Fr. : Fr., an incorrect neotype, out of the original names of species (Art. 10.2) (a synonym of *A. melinoides* Bull. : Fr. ss. Kühner for Konrad, see taxonomic discussion below).

Singer (1936: 342): ***Alnicola submelinoides*** Kühner, followed by Singer (1949: 538) and Kühner (1980: 228), acceptable.

Horak (1968: 73): ***Agaricus melinoides*** Bull. : Fr. ss. Kühner, already suggested by Donk (1962: 19), followed by Singer (1975: 582; 1986: 612) and Bon (1992: 8), acceptable.

Discussion

Kühner (1926) originally described 4 species in his new genus *Alnicola*: 3 were introduced as new, the fourth being *A. melinoides*, identified following Ricken's flora (1915). Later, Kühner (1931) provided extensive descriptions of his taxa, but he finally abandoned the name *A. melinoides* after 1926, even in his personal notes. Kühner never published any description of "his" *A. melinoides*, but one collection (V-85, la Dent-du-Villard, herb. R. Kühner, G) is probably (date not indicated) the one used for his key of 1926. This collection from *Alnus viridis*, which is at present difficult to interpret, is not likely identical to *A. escharoides* ss. Lange.

Before 1926, Kühner collected all his *Alnicola* species under *Alnus viridis* in the subalpine zone of the Alps (La Dent du Villard, Savoie, F; R. Kühner's unpublished notes, G), an habitat where most taxa differ consistently from the lowland species described e.g. by Konrad and Maublanc (1926), Lange (1938), Romagnesi (1942) or Orton (1960) (Moreau, unpublished). Kühner's unpublished notes (G) prove that the synonymies this author admitted to later between lowland and subalpine taxa (e.g. Kühner, 1942; in Kühner and Romagnesi, 1953) were strongly influenced by

M. Jossierand and R. Maire (unpublished correspondence, herb. Kühner, G, and private coll. D. Lamoure) and by Lange (1938). None of these last authors was experienced in orophilic species which the genus *Alnicola* is originally based on. In fact, the synonymies admitted by Kühner (1942, 1980, 1987) were only based on the interpretations of his senior correspondents, respectfully trusted, but never on comparative studies or critical taxonomic discussion. This has important consequences on several usually admitted synonymies, and especially on 2 already proposed lectotypes of *Alnicola*: *Ag. escharoides* and *Ag. melinoides*.

Konrad's (1934) earlier (neo)typification (*Ag. escharoides*) was justified by the synonymy with *A. melinoides* explicited in Konrad and Maublanc (1926, pl. 175 II). But this synonymy is based on a personal interpretation of Kühner's own interpretation of *Ag. melinoides* (see below, list of species names). *A. escharoides* ss. Konrad (= *A. melinoides* ss. Ricken) is a common European species usually associated with *Alnus glutinosa* but not confirmed under *A. viridis*, and not susceptible to have been included in Kühner's original list of taxa for his genus *Alnicola* (contradiction with recomm. 9A3). However, as indicated above, Konrad's neotype must be superseded because of the existence of original species.

Donk (1962) also discussed *Ag. melinoides* as a possible lectotype for *Alnicola*, but was aware of the taxonomic and nomenclatural problems associated with this selection. Consequently he did not recommend it formally in order to allow more documented alternatives. This choice has been formalized by Horak (1968), who gave as a reference some personal collections of "*Alnicola melinoides*" from *Alnus incana* (preserved in ZT), which undoubtedly belong to *Alnicola* but which cannot be considered as identical with Bulliard's taxon (most likely a *Galerina*).

A. submelinoides, proposed as a lectotype by Singer (1936), is the first species mentioned by Kühner (1926), and was the only species found by him to have clavate cystidia and hymeniform pileipellis. It cannot be proved that for his designation, Singer (1936) used, the "first species method" in an arguable way (this method was not constantly used in Singer's work); here, as the first species keyed out by Kühner (loc. cit.) was logically the less typical one, this method would have been clearly unadequate. Kühner (1980) himself recommended *A. submelinoides* as a lectotype for *Alnicola*, but for another reason: he esteemed *Alnicola* and *Hebeloma* to be synonyms and, speculating on their phylogenetic relations, stated that *A. submelinoides* was the most distant taxon from *Hebeloma* because of its hymeniform pileipellis.

Kühner's phylogenetic hypothesis is not confirmed by recent molecular studies (Moreau *et al.*, 2005), which tend to prove that *A. submelinoides* and *A.*

inculta form a distinct group not directly related to any other *Alnicola* and closer to (but distinct from) *Hebeloma*. Because it appears necessary to segregate both taxa in an independent genus in a near future (Moreau and Peintner, unpublished), in order to keep *Alnicola* as a monophyletic genus in the broadest traditional sense (in order to limit the number of new combinations), it is proposed here to reject *A. submelinoides* as a lectotype for *Alnicola* ss. str.

Consequently, two specific taxa considered by Kühner (1926, 1931) as typical of his genus *Alnicola* (Moreau and Peintner, unpublished) can be designated as lectotypes: *A. luteolofibrillosa* and *A. badia*. The first is also the best documented in literature and is not an ambiguous taxon. If this lectotype came to be contested, it would be necessary to propose the conservation of *Alnicola* with a *typus conservandus*, which could be *A. luteolofibrillosa*. At present the situation of *Alnicola* does not seem to justify such a procedure.

Lectotype proposed here: *Alnicola luteolofibrillosa* Kühner 1926, Botaniste 17:175.

Typification of *Agaricus* "tribe" *Naucoria*

Agaricus* "tribe" *Naucoria Fr., Syst. mycol. 1: 261 (1821): Fr.

≡ *Ag.* subgen. *Naucoria* (Fr. : Fr.) Loud., Encycl. pl.: 1002 (1829).

≡ *Naucoria* (Fr. : Fr.) P. Kumm., Führer Pilzk.: 22, 76 (1871).

Original diagnosis: "Char.: Velum cum integumento (epidermide) pilei squamuloso homogenum, fugacissimum. Stipes subfistulosus, aequalis, tenuis, squamulosus, intus flocculosus. Pileus carnosomembranaceus, e campanulato-planiusculus, squamulis l. fibrillis innatis adpressis, raro secedentibus, tectus. Lamellae cinnamomeae. Obs.: Fungi minores, gregarii, epiphyti (in stipulis, lignis, foliis, humo limoso etc.), persistentes, fragiles, inodori. Statura quidem Collybiae; sed velum ejusdem inodolis ac Lepiotarum, naucum (unde nomen) referens.- Spec. 1-3 pileo subcarnoso obtuso, lamellis adfixis secedentibus; 4-6 pileo submembranaceo minute umbonato, lamellis adnexis; 7-8 pileo subcarnoso demum umbilicato, lamellis subdecurrentibus & c. dignoscuntur.- Accedunt aliae species pileo glabro." (Fries, 1821: 260).

Original species: *Ag. escharoides* Fr. (currently: *Alnicola*); *Ag. conspersus* Fr. (currently: *Tubaria*); *Ag. siparius* Fr. (currently: *Flammulaster*); *Ag. pannosus* Fr. (not interpreted); *Ag. graminicola* Nees [= *Crinipellis scabella* (Alb. & Schwein. : Fr.) Murrill, after Gillot and Lucand, 1891: 238]; *Ag. furfuraceus* Fr. (currently: lectotype of *Tubaria*); *Ag. segestrius* Fr. (currently: *Tubaria*).

Typifications

Earle (1909): ***Ag. melinoides*** Bull. : Fr. Not acceptable, mentioned by Fries (1821) out of the 'Genuini' group of his *Naucoria* "tribus", and transferred in his XXIX *Galera* "tribus" in Elenchus (1828).

Singer (1936, 1949), Singer and Smith (1946), Horak (1968): *Ag. centunculus* Fr. : Fr. (*Simocybe*). Not acceptable, mentioned by Fries (1821: 262) in the unnamed sect. ††, not in the 'Genuini', and in tribe *Galera* later (1828: 35).

Romagnesi (1950: 78, 1979: 18): *Ag. carpophilus* Fr. (*Flammulaster*). Not acceptable, not mentioned by Fries (1821).

Donk (1962: 196), Moser and Jülich (1985-2003): proposal for *Ag. escharoides* Fr.: Fr. (acceptable; now *Alnicola* in the sense of Konrad and Maublanc, 1926; Lange, 1938).

Kühner (1980: 322, 898, 932), Romagnesi (1950): *Ag. siparius* Fr.: Fr. (acceptable; *Flammulaster* in the sense of Orton, 1960).

Discussion

Fries (1821: 261) created the small "tribus" xxvii *Naucoria* for 14 taxa, considered as the "correspondent" of *Collybia* in brown-spored groups of *Agaricus*. 7 species constitute the group "Genuini" (considered by Fries as typical) and 7 other taxa mentioned in an unnamed section, transient towards "tribe" xxviii *Galera* (transferred in *Galera* later, Fries, 1828: 33). Many authors have criticized the heterogeneity of the tribe *Naucoria* according to modern knowledge on their anatomy (Kühner, 1926, 1980; Donk, 1962; Singer, 1962, 1975, 1986); for this reason all subsequent authors have proposed to restrict *Naucoria* to a small part of its initial components (see table 1). This point has been extensively discussed by Kühner (1980, 1987), who pointed out the necessity of choosing an adequate lectotype of *Naucoria* in order to stabilize its taxonomic situation.

The lectotype must be chosen amongst the 7 taxa initially mentioned by Fries (1821) in his "Genuini" group. It must be noticed that Fries obviously classified his species by decreasing importance of veil, the most veiled taxon being *Ag. escharoides*. In his following works, Fries (1836-1838: 201) emends *Ag. escharoides* and seems to transfer the most veiled elements in the following taxon, *Ag. conspersus*. This modified interpretation of *Ag. escharoides* matches the diagnosis of *Naucoria* and more closely corresponds to Konrad and Maublanc (1926), Lange (1939) and nowadays interpretation of this taxon.

Kühner (1942, 1980, 1987) and Singer (1986: 612) refused the typification of *Naucoria* by *Ag. escharoides* as a doubtful taxon. But Moser (1985-2003) defends *Ag. escharoides* as an interpretable taxon and reliable lectotype for *Naucoria*, according to his own visits in Fries' localities (Femsjö, Sweden); one of his collections from Femsjö (74/264, IB) has been labelled as "Naucoria escharoides" by himself. This collection 74/264, studied by the

Table 1. Interpretations of *Naucoria* in literature.

Authors	Modern genera included in <i>Naucoria</i>	Name used for <i>Alnicola</i>
Fries (1874)	<i>Agrocybe</i> pp., <i>Alnicola</i> , <i>Flammulaster</i> , <i>Galerina</i> pp.,	<i>Naucoria</i>
Konrad (1934)	<i>Macrocystidia</i> , <i>Phaeocollybia</i> , <i>Phaeomarasmius</i> ,	
Lange (1938)	<i>Phaeonematoloma</i> , <i>Simocybe</i>	
Pilát (1951)		
Heim (1931)	<i>Alnicola</i> , <i>Flammulaster</i> , <i>Phaeomarasmius</i> , <i>Simocybe</i>	<i>Naucoria</i>
Kühner and Romagnesi (1953, 1957)	<i>Alnicola</i> , <i>Flammulaster</i> , <i>Phaeomarasmius</i> , <i>Simocybe</i> , <i>Tubaria</i>	<i>Naucoria</i>
Locquin (1956)		
Malençon and Bertault (1970)	<i>Alnicola</i> , <i>Descolea</i> , <i>Flammulaster</i> , <i>Phaeomarasmius</i> , <i>Simocybe</i> , <i>Tubaria</i>	<i>Naucoria</i>
Singer (1936, 1946, 1949, 1950a, etc.)	<i>Simocybe</i>	<i>Alnicola</i>
Horak (1968)		
Romagnesi (1942)	<i>Flammulaster</i> , <i>Phaeomarasmius</i> , <i>Simocybe</i>	<i>Alnicola</i>
Favre (1948)		
Romagnesi (1950)	<i>Flammulaster</i> , <i>Phaeomarasmius</i>	<i>Alnicola</i>
Orton (1960)	<i>Alnicola</i> , <i>Galerina</i> pp., <i>Phaeogalera</i> , <i>Simocybe</i>	<i>Naucoria</i>
Romagnesi (1977)	<i>Flammulaster</i> pp., <i>Tubaria</i>	<i>Alnicola</i>
Kühner (1980)	<i>Flammulaster</i> , <i>Phaeogalera</i> , <i>Phaeomarasmius</i> , <i>Tubaria</i>	<i>Hebeloma</i>
Pegler and Young (1968)	<i>Alnicola</i>	<i>Naucoria</i>
Reid (1984)		
Moser (1955)		
Døssing (1992)		
Singer (1962, 1975, 1986)	Rejected	<i>Alnicola</i>
Kühner (1987)		

author, seems somewhat different from continental collections usually reported as *A. escharoides* (it gets closer to *A. diplocystis* Sing.); it is not a significantly veiled collection.

Moser's interpretation is certainly the interpretation which comes closest to the one put forward by Fries (1828) redefinition of *Ag. escharoides*; but originally (1821), *Ag. escharoides* is a veiled taxon probably based mainly on *A. luteolofibrillosa* (as Moser (1985-2003) and before him Kühner (1942) pointed out), and probably partly on collections of *Tubaria* (Singer, 1986). In order to select a lectotype, only the *Systema Mycologicum* (Fries, 1821) should be considered as an original document, and *Ag. escharoides* should then be

taken in his original sense, where it is not the most representative member of *Naucoria* but the first cited. Nevertheless its designation as lectotype cannot be considered as an automatic choice and cannot be rejected for this only reason.

If considered an *Alnicola*, *Ag. escharoides* would be the only *Alnicola* species included in *Naucoria Genuini* by Fries all over his opera, all the others belonging to other "tribes". The choice of this lectotype for *Naucoria* would drive to a complete amending of *Naucoria* according to Fries' (1821) concept, which excludes all initial taxa but one, and moreover not the most representative one. Finally, *Ag. escharoides* has already been proposed as a neotype of *Alnicola* (Konrad, 1934). For all these reasons the author proposes to reject *Ag. escharoides* as a lectotype for *Naucoria*.

It should be mentioned that 3 other collections from Femsjö were collected by M. Moser, labelled as "*Naucoria* sp.", and another identified "*Naucoria sphagneti* P.D. Orton" (herb. Moser, IB). This illustrates the diversity of Swedish *Alnicola*, not perceptible in Fries' opera who probably could not separate them reliably on macroscopical characters only. This is also illustrated by a plate of *Ag. escharoides* directed by Fries (S) in 1854, which might represent *Inocybe calospora* Quél.

Agaricus conspersus Fr.: Fr. is eligible as lectotype of *Naucoria*, but has never been proposed. Unless Fries has modified his acceptance of this taxon after 1821 (Fries, 1836-1838: 210; see above, *Ag. escharoides*), it is now considered by all authors as a member of the genus *Tubaria* (W.G. Sm.) Gillet. As *Tubaria* has been the first genus separated from *Naucoria* (Gillet, 1876: 540) and contains presently more than 60 taxa worldwide, a lectotypification of *Naucoria* by *Ag. conspersus* would uselessly force to introduce a considerable number of new combinations, against the recommendations of the Code of Nomenclature regarding nomenclatural stability. This possibility is rejected here.

Agaricus siparius Fr.: Fr. has been proposed by Romagnesi (1950), on the basis of his own interpretation of this taxon (Romagnesi, 1942; in Kühner and Romagnesi, 1957). According to Romagnesi (loc. cit.), *N. siparia* ss. Romagn. might be a synonym of *N. ferruginea* R. Maire (now *Tubaria*, *Phaeomarasmius* or *Flammulaster*: Watling, 1967; Horak and Moreau, 2005). According to Orton (1960) and Vellinga (1994), it is an autonomous species of *Flammulaster*. *Agaricus siparius* is the closest species matching Fries' diagnosis of *Naucoria* (1821: 261) and would certainly be the best candidate for an orthodox lectotypification of *Naucoria*. But considering the still uncertain interpretation and systematic position of *Ag. siparius*, and the nomenclatural consequences of such an uncertain choice, it is proposed not to adopt it.

Ag. pannosus Fr. : Fr. has not been interpreted in the recent literature, but fits in well with the original diagnosis of *Naucoria*; the only restriction is that the cap is described “*squamis destituto*” and therefore classified in the 4th group of *Naucoria* sect. *Lepidoti*, when *Ag. escharoides*, *Ag. siparia* and *Ag. conspersus* are classified in the 3rd section (Fries, 1836-1838, 1874). However, this is not contradictory with the protolog and it has always been considered by Fries, from 1821 to 1874, as a typical member of *Naucoria* (sect. *Lepidoti*). Therefore it figures as a perfect residue according to the recomm. 9A5. It is not risky to propose *Ag. pannosus* as a lectotype of *Naucoria*, since it should not destabilize any of the well-defined and currently accepted genera *Alnicola*, *Flammulaster* or *Tubaria*.

Lectotype proposed here: *Agaricus pannosus* Fr. 1821, Syst. mycol. I: 261, : Fr.

Nomenclature of supraspecific taxa

Amarescens (stirps)

Status: invalid (art. 36.1). Original species: *Alnicola amarescens* (Quél.) R. Heim & Romagn., *A. chamiteae* Kühner, *A. tantilla* (J. Favre) Romagn., *A. cholea* Kühner.

Original name: *Alnicola* (subgen. *Alnicola*) stirpe *Amarescens* Kühner, Trav. sci. Parc natl Vanoise 11: 114 (1981) (inval.).

Melinoideae (sect.)

Status: valid, not typified. Original species: *Alnicola luteolofibrillosa* Kühner, *A. umbrina* (Maire) Kühner, *A. suavis* (Bres.) Kühner, *A. melinoides* (Bull. : Fr.) Kühner.

Basionym: *Alnicola* sect. *Melinoideae* Singer, Rev. Mycol. (Paris) 4 (1-2): 68 (1939).

Accepted name: ***Alnicola* sect. *Alnicola*** (art. 22.1) (if *A. luteolofibrillosa* accepted as lectotype of *Alnicola*).

Salicicolae (sect.)

Status: invalid (art. 36.1). Original species: *Naucoria scorpioides* (Fr.) J.E. Lange ss. Lange (= *A. bohémica* Velen.), *N. macrospora* J.E. Lange.

Original name: *Naucoria* (subgenus *Cyotocutis*) sect. *Salicicolae* J.E. Lange, Dansk Bot. Ark. 6 (9): 21(1938); Fl. Agar. Danica 3: 22 (1939).

= *Alnicola* subgen. *Salicicolae* ("*Salicicolae*") (J.E. Lange) Kühner, Trav. sci. Parc natl Vanoise 11: 129 (1981) (inval.).

Submelinoideae (sect.)

Status: valid. Holotype: not designed. Original species: *Alnicola submelinoides* Kühner, *A. bohémica* (Velen.) Kühner, *A. lignicola* Singer, *A. fulgens* (J. Favre & R. Maire) Singer.

Basionym: *Alnicola* sect. *Submelinoideae* Singer, Rev. Mycol. (Paris) 4(1-2): 68 (1939).

Accepted name: ***Alnicola* sect. *Submelinoideae*** Singer.

Nomenclature of specific and infraspecific taxa

albotomentosa

Status: valid. Holotype (visited): UK, Oversley Wood, Warwicks, 11-II-1973, leg. A.W.Brand (K). Substrate: soil and bark chips, rotten wood.

Basionym: *Naucoria albotomentosa* D.A. Reid, Trans. Brit. mycol. Soc. 82 (2): 195 (1984).

≡ *Alnicola albotomentosa* (D.A. Reid) Courtec., Doc. mycol. 16 (61): 48 (1985).

Notes: This taxon is based on two abundant collections (K) but poorly documented concerning its macroscopy. According to the study of these collections, E. Horak and the author are convinced that this species belongs in the genus *Galerina*, close to *G. clavuligera* which also owns cystidioid clavate hairs on pileipellis and weakly punctuate, fusiform and undextrinoid spores. It cannot be considered as related to *Alnicola*.

Accepted name: ***Galerina albotomentosa*** (D.A. Reid) E. Horak & P.-A. Moreau, **comb. nov.**

alnetorum

Status: invalid (art. 34.1b). Authentic material in herb. R. Kühner (G), M. Jossierand (G) and R. Maire (MPU) + pl. X fig. 7-16 (Maire 1930). Host: *Alnus glutinosa*.

Original names (alternative names): *Alnicola alnetorum* R. Maire ex Kühner, Bull. Soc. mycol. France 47: 243 (1931) (provisional name for *A. submelinoides* ss. R. Maire, Bull. Soc. mycol. France 47: 223 (1930), inval.); *Naucoria submelinoides* var. *alnetorum* R. Maire ex Kühner, Bull. Soc. mycol. France 47: 243 (1931), inval. (provisional name for *A. submelinoides* ss. R. Maire, Bull. Soc. mycol. France 47: 223 (1930), inval.).

= *Alnicola alnetorum* (R. Maire) Romagn., Bull. Soc. mycol. France 58: 122 (1942) (inval.).

= *Naucoria alnetorum* (R. Maire) Kühner & Romagn., Fl. anal. Champ. sup.: 238 (1953) (inval.).

= *Alnicola submelinoides* var. *alnetorum* (R. Maire) Konrad & Maubl., *Agaricales*: 164-165 (1948) (inval.).

Notes: although this name has been used widely in European literature, it has never been validly published. The earliest and valid name for the species appears to be *Alnicola inculta* (Singer, 1955: 406).

Accepted name: ***Alnicola inculta*** (Peck) Singer.

amarescens

Status: valid, not typified. Automatic lectotype (designed here): Quélet, Champ. Jura Vosges I pl. VII fig. 3 (1872) (as "*Galera ravidata*"). Host: not precised (on charcoal).

Basionym: *Naucoria amarescens* Quél., Assoc. Fr. Av. Sci. 1882: 8 (1883), based on *Galera ravidata* Fr. ss. Quél., Champ. Jura Vosges I: 103 (1872).

≡ *Alnicola amarescens* (Quél.) R. Heim & Romagn., Bull. Soc. mycol. France 50 (3): 179 (1934).

≡ *Hylophila amarescens* (Quél.) Quél., Enchir. Fung.: 101 (1886).

Notes: a well-documented taxon thanks to several extensive descriptions

and good iconography (Quélet, 1872; Boudier, 1905 pl. 127; Heim and Romagnesi, 1932; Favre, 1948: 130; Krieglsteiner, 1980; Kühner, 1981), but possibly collective according to perceptible discrepancies between some of these descriptions, especially on spore size and smell.

Accepted name: Alnicola amarescens (Quélet) R. Heim & Romagn.

badia

Status: valid, not typified. Original material from the type locality (Praz Joseph, Savoie, F) in G. Host: *Alnus viridis*.

Basionym: *Alnicola badia* Kühner, Bull. Soc. mycol. France 47 (3-4): 239 (1931).

≡ *Naucoria phaea* Kühner → R. Maire & Kühner in Maire, Bull. Inst. bot. Barcelona 3 (4): 101 (1937) (nomen novum, not *Naucoria badia* Murrill).

≡ *Alnicola phaea* (Kühner → R. Maire & Kühner) Romagn., Bull. Soc. mycol. France 58: 126 (1942) (comb. superfl.).

Notes: a good species described from *Alnus viridis* (well illustrated by Breitenbach and Kränzlin, 2000, n° 136 as "*A. sphagneti*", and n° 138 as "*A. subconspersa*"), but still not very well circumscribed and possibly collective.

Accepted name: Alnicola badia Kühner.

badiolateritia

Status: valid. Holotype (not visited): UK, Norfolk, Surlingham, Marsh Cottage Carr, 8 Sep. 1972 (Orton 4425, E). Host: *Salix* sp.

Basionym: *Naucoria badiolateritia* P.D. Orton, Notes Royal Bot. Gard. Edinburgh 41 (3): 598 (1984).

≡ *Alnicola badiolateritia* (P.D. Orton) Courtec. 1985, Doc. mycol. 16 (61): 48

Notes: E. Horak has studied a collection labelled "*Naucoria badiolateritia*" at E (Orton n° 4426), but this belongs to *A. clavuligeroides*, as quoted by Orton himself (1984: 600).

Accepted name: Alnicola badiolateritia (P.D. Orton) Courtec.

bohemica

Status: valid, not typified. Original material not found in PRM and Brno. Host: unknown.

Basionym: *Naucoria bohemica* Velen., Česke Houbý: 527 (1921) (basionyme).

≡ *Alnicola bohemica* (Velen.) Kühner, genre *Galera*: 12 (1935).

Notes: the combination of this well-known species in the genus *Alnicola* has been reported erroneously in literature, attributed to Kühner & Maire (Romagnesi, 1937; Reid, 1984) or Singer (Singer, 1949, 1986). None of them has been effectively published. Looking for cryptic combinations, Kühner's (1935) publication is the oldest the author could trace, valid thanks to the indication "*Alnicola (Naucoria) bohemica* (Velen.)", which refers explicitly to *Naucoria bohemica* Velen.

Accepted name: Alnicola bohemica (Velen.) Kühner.

brevicystis

Status: invalid, art. 36.1. No original material could be found in Métrod's collections (PC). Host: unknown.

Original name: *Alnicola brevicystis* Métrod, Bull. Soc. Natur. Oyonnax 14-15 [1962 (1960-1961)]: 144.

Notes: According to the description and unpublished notes by Métrod (PC), this singular species should be compared with *A. zonata*, but this last has much smaller spores.

cedriolens

Status: valid. Holotype (not visited): D, nordöstlich Gotezenalm, 1600 m, 12-9-1979, n° 175, MB 8444/3 (indicated as preserved in herb. M by Schmid-Heckel, 1985). Host: *Alnus viridis*.

Basionym: *Naucoria cedriolens* Bresinsky & Schmid-Heckel in Schmid-Heckel, National Park Berchtesgaden 8: 163 (1985).

≡ *Alnicola cedriolens* (Bresinsky & Schmid-Heck.) Bon, Doc. mycol. 21 (83): 37 (1990).

Notes: the type material could not be traced in the Botanische Staatssammlung München, and therefore could not be revised. According to the author's own experience of subalpine alder shrubs, this taxon is nothing but a fragrant forma of *A. luteolofibrillosa*, this last being very common under *Alnus viridis* but not reported by Schmid-Heckel (1985: 163).

Accepted name: ***Alnicola cedriolens*** (Bresinsky & Schmid-Heck.) Bon (if different from *A. luteolofibrillosa* Kühner).

celluloderma

Status: valid. Holotype (visited): UK, Downwood, Shobdon, Herefordshire, 31-X-1959 (K). Host: *Alnus* sp.

Basionym: *Naucoria celluloderma* P.D. Orton, Trans. Brit. mycol. Soc. 43 (2): 314 (1960).

≡ *Alnicola celluloderma* (P.D. Orton) Svrček, Česká Mykol. 20: 41 (1966).

≡ *Alnicola celluloderma* (P.D. Orton) Romagn., Bull. Fed. mycol. Dauphiné-Savoie 74: 19 (1979) (comb. superfl.).

≡ *Alnicola alnetorum* var. *celluloderma* (P.D. Orton) Bon, Doc. mycol. 20 (78): 40 (1990).

≡ *Alnicola alnetorum* var. *celluloderma* (P.D. Orton) Krieglst., Verbreitungsatlas Grosspilze Deutschl. 1B: 422 (1991) (comb. inval., art. 33.3).

Notes: the differences between *A. celluloderma* and *A. inculta* are mainly organoleptic, as already pointed out by Reid (1984) and Bon (1992: 15). No reliable differences could be found so far.

Accepted name: ***Alnicola inculta*** (Peck) Singer, *s.l.*

chamiteae

Status: valid. Holotype: F, Col de l'Iseran, le Pays désert, 2650 m, 21-8-1971 (herb. Kühner n° K.71.70, G). Host: *Salix herbacea*.

Basionym: *Alnicola chamiteae* Kühner, Trav. Sci. Parc natl Vanoise 11: 133 (1981).

≡ *Naucoria chamiteae* (Kühner) Senn-Irlet, Mycol. helvetica 2 (1): 47 (1986).

Notes: Kühner described *A. chamiteae* by misinterpreting *A. tantilla*, as already suggested by De Haan (2000). Revision of original collections of both taxa reveal a complete identity (Moreau, unpublished).

Accepted name: ***Alnicola tantilla*** (J. Favre) Romagn.

cholea

Status: valid. Holotype (visited): F, Pralognan-la-Vanoise, cirque du Gény, (herb. Kühner n° G K.62.36). Host: *Salix* spp.

Basionym: *Alnicola cholea* Kühner, Trav. Sci. Parc natl Vanoise 11: 133 (1981).

Note: a rare but very distinctive species of arctic-alpine distribution.

Accepted name: ***Alnicola cholea*** Kühner.

clavuligera

Status: valid. Holotype: F, Sens, Yonne, 10-IX-1941 (PC). Substrate: *Alnus glutinosa* or *Salix* sp., on wood.

Basionym: *Alnicola clavuligera* Romagn., Bull. Soc. mycol. France 58 (2): 148 (1942).

≡ *Naucoria clavuligera* (Romagn.) Pilát, Klíč: 271 (1951).

≡ *Naucoria clavuligera* (Romagn.) Kühner & Romagn., Fl. Anal. Champ. Sup.: 236 (1953) (comb. inval., art. 33.3).

≡ *Hebeloma clavuligerum* (Romagn.) P. Collin, Doc. mycol. 19 (74): 61 (1988).

Notes: according to the study of holotype (absence of differentiated subpellis and thick-walled, undextrinoid spores), this species most likely belongs to *Galerina*. The suprapellis with typically capitate cystidia-like terminal hyphae is analogous to *G. albotomentosa* (spores punctuate) and *G. permixta* (spores smooth). It is probably identical to *Naucoria salicetorum* D.A. Reid (see under this name).

Accepted name: ***Galerina clavuligera*** (Romagn.) P.-A. Moreau, **comb. nov.**

clavuligeroides

Status: valid. Holotype (visited by E. Horak): UK, Norfolk, Surlingham, Parish Marsh - 9 Oct. 1971, Orton 4186 (E). A spore print (visited) is deposited in K. Host: not precised (*Corylus*, *Alnus*, *Salix*).

Basionym: *Naucoria clavuligeroides* P.D. Orton, Notes Royal Bot. Gard. Edinburgh 41 (3): 599 (1984) (based on *N. clavuligera* ss. Orton in sched. (K); ss. Reid 1984: 199).

≡ *Alnicola clavuligeroides* (P.D. Orton) Courtec., Doc. mycol. 16 (61): 48 (1985).

Notes: according to E. Horak's personal notes on the holotype, this species is clamped with hymeniform pileipellis; but another collection (Orton 4426, Parish Marsh, 6-IX-1972, E), also studied by E. Horak, has a pileipellis of *A. salicis*-type, more conform to Orton's (1984: 600) description. *A.*

clavuligeroides still has an ambiguous systematic position, possibly close to *A. erebia* (Huijsm.) Romagn. It may also be an *Hebeloma*, if clamp connections are confirmed. So far only known from the type locality.

Accepted name: Alnicola clavuligeroides (P.D. Orton) Courtec.

dasypus

Status: valid, not typified. **Lectotype (designed here):** F, Paris, jardin du Muséum de Paris, novembre 1934 (herb. H. Romagnesi, PC; ½ specimen). Host: unknown (amongst dead leaves), probably not mycorrhizal.

Basionym: *Naucoria dasypus* Romagn., Bull. Soc. mycol. France 53: 121 (1937).

≡ *Alnicola dasypus* (Romagn.) Romagn., Bull. Soc. mycol. France 58: 126 (1942).

≡ *Hebeloma dasypus* (Romagn.) Singer, Lilloa 23: 536, 538 (1949 [1952]).

≡ *Hebeloma dasypus* (Romagn.) Bon, Docum. Mycol. 21 (83): 37 (1991) (comb. superfl.).

Description (lectotype): *spores* 9-13,5 × 5,5-7 μm, ochre yellow, distinctly verruculose with large supra-apicular plage, with distinct pore 0,8-1 μm large. *Basidia* (2-)4-spored, 22-35 × 8-10 μm, shortly clavate or with more or less tapering base. Subhymenium pseudoparenchymatous. *Cheilocystidia* not observed (due to strongly parasited gill edge), clavate-capitate 27-40 × 10-14 μm according to Romagnesi (1937: 122). *Suprapellis* an (ixo?)hymenoderm of cylindro-clavate to pyriform articles, 20-32 × 8-17 μm, thin- to slightly thick-walled, smooth. *Subpellis* filamentous, thin, smooth. *Caulocystidia* numerous all over the stipe, often in fascicles, cylindro-clavate, sometimes septate, 35-75 × 9-17 μm. *Pileal and hymenial trama* heteromerous, with strongly inflated to almost globulose hyphae × 30-45 μm, mixed with cylindrical, very long hyphae up to 1000 × 8-10 μm, and inconspicuous generative hyphae × 2,5-4 μm. *Clamp connections* small and not conspicuous but present at all septa.

Notes: only one collection, here designed as lectotype, could be found in Romagnesi's personal herbarium (PC). Gill edge and pileipellis are parasited and can hardly be observed, and Romagnesi's description of pileipellis is erroneous due to the parasit ("laticifères ramifiés, sinueux"). In fact intact parts of the pileipellis can be found and are typically hymeniform. Romagnesi himself wrote later on his pack: "Serait *Conocybe subnuda* R. Maire selon Kühner", was is confirmed here. This collection presents particularly ornamented spores, but falls into the high variability of *Pholiotina subnuda* as reevaluated by Hausknecht (1993) and Meusers (1996); Romagnesi's name becomes the older valid name for this species. In a more restricted sense (Kühner, 1935; Bon, 1992), *Naucoria dasypus* comes closer to *P. subnuda* ss. str. by cystidial shape (according to Romagnesi, 1937: 122), but sporal ornamentation is as conspicuous as in *P. subverrucispora*, which should have partly fusiform cystidia.

Accepted name: Pholiotina dasypus (Romagn.) P.-A. Moreau, **comb. nov.**

Taxonomic synonym : *Conocybe subnuda* R. Maire ex Kühner & Watling in Watling 1983, Roy. bot. Gard. Edinburgh 40 (3): 553, = *Pholiotina subnuda* (Kühner ex Kühner & Watling) Bon 1991, Doc. mycol. 21 (83): 39.
(for exhaustive synonymy see Hausknecht, 1993)

devia

Status: valid. Holotype (not visited): ARG, prov. Buenos Aires, Punta Lara, 9-VI-1949 (R. Singer n° S111, LIL). Host: *Salix humboldtiana*.

Basionym: *Alnicola devia* Singer, Sydowia 4: 150 (1950).

≡ *Naucoria devia* (Sing.) Raithelh., Fl. Mycol. Argentina 2: 121 (1988).

Notes: only known from the type locality. The author has no opinion about this species.

Accepted name: Alnicola devia Singer.

diplocystis

Status: valid. Holotype (not visited): ARG, prov. Tucumán, Supra Tafi del Valle, 1-V-1949 (R. Singer n° T503, LIL). A part of the holotype (3 specimens, visited) sent by R. Singer to H. Romagnesi has been found in Romagnesi's herbarium (PC). Host: *Alnus jorullensis*.

Basionym: *Alnicola diplocystis* Singer, Sydowia 4: 151 (1950).

≡ *Naucoria diplocystis* (Singer) Raithelh., Fl. Mycol. Argentina 2: 120 (1988).

Notes: this is the most common *Alnicola* species growing under *Alnus jorullensis*, and apparently also *A. acuminata*, all along the Cordillera (Singer, 1950b: 152). Its distribution and affinities with the European species are still unclear.

Accepted name: Alnicola diplocystis Singer.

dubis

Status: valid. Holotype: F, Doubs, Deluz, 22 novembre 1953, herb. G. Métrod (PC). Host: *Alnus glutinosa*.

Basionym: *Alnicola dubis* Métrod ex P.-A. Moreau & Vidonne, Doc. mycol. 34 (133-134), 2005, in press.

Original name: *Alnicola dubis* ('*dubii*') Métrod, Bull. Soc. Natur. Oyonnax 14-15: 143 (1962 [1960-1961]) (inval., art. 36.1).

Notes: this taxon is validated and compared to *A. scolecina* ss. Lange (1938) by Moreau and Vidonne (2005).

Accepted name: Alnicola dubis Métrod ex P.-A. Moreau & Vidonne.

erebia

Status: valid. Holotype (not visited): NL, prope lacum 'Quackjeswater', insluar Voorne, 12 jul. 1972 (not found in Huijsman's herbarium, L). Host: *Betula* or *Salix*.

Basionym: *Naucoria erebia* Huijsman, Kew Bull. 31 (3): 585 (1976).

≡ *Alnicola erebia* (Huijsm.) Romagn., Bull. Fed. mycol. Dauphiné-Savoie 74: 19 (1979).

Notes: the author cannot interpret this species, with abundant clamp connections according to Huijsman (1976) but otherwise very similar to some four-spored collections of *A. salicis*. To be compared with *A. clavuligeroides* (P.D. Orton) Courtec.; possibly also an *Hebeloma*.

escharoides

Status: valid, not typified. Original material: none; authentic material: 1 unpublished plate directed by Fries, Femsjö, 26-IX-1854, Akerlund pinx. (S). Host: undefined.

Basionym: *Agaricus escharoides* Fr., Obs. Mycol. 2: 131 (1818): Fr, Syst. mycol. I: 260 (1821) ("*escharioides*", corrected by Fries, 1857-1863: 478).

≡ *Naucoria escharoides* (Fr. : Fr.) P. Kumm., Führer Pilzk.: 76 (1871).

≡ *Hylophila escharoides* (Fr. : Fr.) Quél., Enchir. Fung.: 104 (1886).

≡ *Alnicola escharoides* (Fr. : Fr.) Romagn., Bull. Soc. mycol. France 58: 126 (1942).

Notes: *Ag. escharoides* is a critical taxon, which nevertheless has been proposed as a neotype for *Alnicola* (Konrad, 1934) and as a lectotype for *Naucoria* (Horak, 1968). Whether *Ag. escharoides* can be considered as a member of the genus *Alnicola* or not is debatable. Fries (1818: 131; 1821: 260) originally describes a heavily veiled species, including probably *A. luteolofibrillosa* (Kühner, 1942: 7) but also *Tubaria conspersa* and related. Only *Ag. escharoides* β *naucosus* Fr. : Fr. (Fries, 1818: 132) is in agreement with the most usual interpretation of *Ag. escharoides* (Konrad and Maublanc, 1926, pl. 175 II; Lange, 1939, pl. 125E), as an alnicolous species with darkening stipe ("*l. c emarginatae, stipite fuscescente*"), but it contradicts the definition of *Ag. escharoides* typical: "*stipes (...) ut totus fungus pallidus, (...) lamellae primo subdecurrentes*". If this variety matches the current concept of *Alnicola escharoides* (defined by Konrad and Maublanc, loc. cit.) and can be considered as a typical *Alnicola*, it is certainly not representative of Fries' initial concept of *Ag. escharoides*.

Fries evolved in his concept of *Ag. escharoides* in the 'Monographia' (1857-1863: 383): this later description excludes collections with abundant veil (and consequently *A. escharoides* is cited below *Ag. conspersus* after this date). In fact he probably restricts it mainly to his former "var. *naucosus*" : the same indications, e.g. 'Supra Hallandsås Scaniae' are given for *naucosus* (1918: 132) and *escharoides* later (1836-1838: 201; 1857-1863: 383). By the way Fries emends *Ag. conspersus*, in which a wide part of his original typical *Ag. escharoides* is obviously included.

Amongst the aquarelles directed by E. Fries preserved at S, only one is labelled "*Agaricus (Naucoria) escharoides*" (n° 645: Akerlund pinx., Femsjö, 26.IX.1854, 5 specimens). These specimens are dark brown with pale gills, do not show any veil, and Fries has written and erased several names before choosing this one at last. The author rather tend to refer them to *Inocybe calospora* Quél.

The wide and somewhat unstable conception Fries had of *Ag. escharoides* (and of its limits with *Ag. conspersus*) is also illustrated by his reference (as "var." *sine nomine*; Fries, 1874: 264) to *Ag. pulverulentus* Schaeff., t. 226 (fig. II), a distant-gilled, white-spored fungi comparable to a *Laccaria*, and somewhat reminiscent of a *Tubaria* species, not of any *Alnicola*.

Konrad and Maublanc (1926) have interpreted *A. escharoides* as closely as possible to Fries' later descriptions (Fries, 1836-1838, 1857-1863, 1874); but not according to the original sense (Fries, 1818, 1821), which is significantly different. However it is premature to propose a name in replacement of *Ag. escharoides* without a deep taxonomic revision of all the taxa involved and a revision of Swedish collections.

In Moser's herbarium (IB) a collection labeled "*Naucoria escharoides*" from Femsjö (SW) might be considered as a reference, but corresponds to an unveiled taxon. At this early stage of the author's revision this collection cannot surely be identified to any currently well-circumscribed European taxon.

Ag. escharoides var. *naucosus* Fr. : Fr. seems to be the most correct name for *Ag. escharoides* ss. auct. pl.

fellea

Status: valid. Holotype (visited): CH, Le Locle, tourbière du Grand Cachot (herb. J. Favre n° GK 9457, G). Host: *Betula pendula* or *Pinus uncinata* according to Favre (1948: 133).

Basionym: *Alnicola scolecina* var. *fellea* J. Favre, Beitr. Kryptogamenfl. Schweiz 10 (3): 214 (1948).

≡ *Alnicola fellea* (J. Favre) Courtec., Doc. mycol. 16 (61): 48 (1985).

≡ *Naucoria fellea* (J. Favre) Raithelh., Metrodiana 7 (2-3): 53 (1978).

Notes: quite an enigmatic species, so far only known from the type collection. Favre compared it to *A. amarescens*, from which it differs consistently by spore shape and ornamentation. Possibly illustrated by Breitenbach and Kränzlin (2000, pl. 128) as *A. amarescens*. More investigations on this interesting taxon are required.

Accepted name: ***Alnicola fellea*** (J. Favre) Courtec.

fulgens

Status: valid, not typified. Original material in coll. J. Favre (G) and R. Maire (MPU); additional topotypic collections in R. Kühner (G). Substrate: manured peaty ground.

Basionym: *Naucoria fulgens* J. Favre & Maire, Bull. Soc. mycol. France 53: 267 (1937).

≡ *Fulvidula fulgens* (J. Favre & Maire) Kühner, Bull. Soc. linn. Lyon 8 (2): 44 (1939).

≡ *Alnicola fulgens* (J. Favre & Maire) Singer, Rev. mycol. (Paris) 4 (1-2): 68 (1939) (inval., art. 33.3); Not. Sect. crypt. Inst. bot. Acad. Sci. U.S.S.R. t.5, N: 7-9: 93 (1941).

≡ *Gymnopilus fulgens* (J. Favre & Maire) Singer, Lilloa 22: 561 (1949 [1951]).

≡ *Flammula fulgens* (J. Favre & Maire) S. Lundell, Fungi Exsiccati Suecici 55: 9 (1960).

Notes: this well-known taxon was at first tentatively classified in *Alnicola* sect. *Submelinoideae* by Singer (1939: 68; 1950a: 413), before being recognized as a *Gymnopilus*.

Accepted name: ***Gymnopilus fulgens*** (J. Favre & Maire) Singer.

fusispora

Status: valid, not typified. Original material not found in PRM and Brno. Host: undefined.

Basionym: *Galera fusispora* Velen., Novitates I: 128 (1939).

≡ *Alnicola fusispora* (Velen.) Singer, Fieldiana Bot. N.S. 21: 116 (1989).

Notes: Singer (1989) gave no justification of his combination in *Alnicola*. According to Velenovsky's (1939: 128) description, the author feels unable to interpret precisely this species, apparently belonging to the group of *A. macrospora*, and prefers considering it as a *nomen dubium*.

geraniolens

Status: valid. Holotype (visited): F, Santes, près de Lille (Nord), 20-X-1982, herb. R. Courtecuisse n° 82.10.20.03 (LIP). Host: *Salix viminalis*, *S. caprea*.

Basionym: *Alnicola geraniolens* Courtec., Doc. mycol. 13 (50): 55 (1983).

≡ *Naucoria geraniolens* (Courtec.) G. Keller in Keller & Moser, Biosystem. Ecol. 19: 177 (2001).

≡ *Naucoria amarescens* var. *geraniolens* (Courtec.) E. Ludwig, Pilzkompendium 1: 421 (2001).

Accepted name: ***Alnicola geraniolens*** Courtec.

gracillima

Status: invalid, art. 36.1. Original material (icon): pl. 125F in Lange (1939). Host: *Alnus glutinosa*.

Original name: *Naucoria scolecina* f. *gracillima* J.E. Lange, Dansk Bot. Arkiv 9 (5): 20 (1938) (inval.); Fl. agar. danica V: 21 (1939) (inval.).

Notes: no validating latin diagnosis was published by Lange (1940) for this taxon. It is interpreted by Moreau (2004) as a septentrional variant of *Alnicola umbrina*. Its taxonomic level and the opportunity of a validation requires further observations.

Accepted name: ***Alnicola umbrina*** (R. Maire) Kühner *s.l.* (see Moreau, 2004).

inculta

Status: valid. Holotype (visited by E. Horak): USA, Catskill mountains, Sept. 1887 (MICH). Host: willows and alders (most probably *Alnus* sp.).

Basionym: *Galera inculta* Peck, Ann. Rep. N.Y. St. Mus. 41: 69 (1888).

≡ *Galerula inculta* (Peck) G.F. Atk., Proc. Amer. philos. Soc. 48: 362 (1918).

≡ *Alnicola inculta* (Peck) Singer, Sydowia 9: 406 (1955) (comb. inval., art. 33.3).

≡ *Alnicola inculta* (Peck) Singer, Sydowia 15 (1-6): 71 (1961 [1962]).

Notes: already described by Singer (1955) to be an earlier synonym of *A. alnetorum*, this is confirmed by E. Horak's observations (personal notes, ZT). Peck (1888: 69) describes it correctly as looking like "*Clitocybe laccata* in its small glabrous striatulate form".

Accepted name: ***Alnicola inculta*** (Peck) Singer.

iodiolens

Status: valid. Holotype (visited): Germany: Berlin-Wannsee (Heckensorn), on the edge of "Grosser Wannsee", 1-12-86 (Hort. Bot. Berlin-Dahlem, 1 specimen in poor condition). Host: *Alnus glutinosa*.

Basionym: *Naucoria scolecina* var. *iodiolens* E. Ludwig, Pilzkompodium 1: 417 (2001).

Notes: although known only from one collection, this taxon close to *A. scolecina* ss. Lange (1938, 1939) is clearly defined by its very long spores and, according to Ludwig (2001), by its peculiar smell (inde nomen). This smell is distinctive in the genus *Alnicola*, if not due to the advanced age of the specimens; according to most other features it also comes close to *A. subconspersa* and *A. dubis*, the only significant difference being the very long spores. For redescription and further discussion see Moreau and Vidonne (2005).

Accepted name: '*Naucoria*' *scolecina* var. *iodiolens* E. Ludwig.

lactariolens

Status: valid. Holotype: JAP, Tomikawa, Otsu-shi, Shiga-ken, 15-VIII-1988, leg. T. Hongo & H. Cléménçon (HC 88/95, TNS); isotype (visited) in LAU.

Basionym: *Alnicola lactariolens* Cléménçon & T. Hongo, Mycoscience 35 (1): 25 (1994).

Notes: this species seems better placed in the genus *Anamika*, but the purplish spore print is unusual for this genus (B. Matheny, comm. pers.).

langei

Status: invalid, art. 32.3 and 34.2; as nomen novum for *Naucoria macrospora* J.E. Lange, illegit.

Original names: *Alnicola langei* J.E. Lange → Kühner in Kühner & Romagnesi, Bull. Soc. Natur. Oyonnax 10-11: 3 (1957); *Naucoria langei* J.E. Lange → Kühner in Kühner & Romagnesi, Bull. Soc. Natur. Oyonnax 10-11: 15 (1957).

= *Alnicola langei* (Kühner) Singer, Sydowia 30 (1-6): 207 (1977 [1978]) (inval.).

= *Alnicola langei* (Kühner) Romagn., Bull. Fed. mycol. Dauphiné-Savoie 74: 19 (1979) (inval.).

Notes: In Kühner's mind (in Kühner and Romagnesi, 1957: 11; unpublished notes, herb. G), *N. langei* is only a *nomen novum* for *N. macrospora* J.E. Lange (illegit.), including a 2-spored (typical, not seen by Kühner) and a 4-spored forma (described by Kühner, loc. cit. p. 9). If no

taxonomic value is given to the number of sterigmata in this group (Moreau and Deiana, 2004), the collection described by Kühner (in Kühner and Romagnesi, 1957) can be reported to *Alnicola macrospora* J.E. Lange → J. Favre (= *A. salicis*), or in a restricted sense to *A. saliceti* (see 'tetraspora' below). Kühner (1957) retrospectively admits that *A. bohémica* "4-sp." of Maire and Kühner (1934) also corresponds to this taxon. See also Horak and Moreau (2005).

Accepted name: Alnicola macrospora J.E. Lange → J. Favre.

leucocnemis

Status: valid. Holotype (visited): F, La Chapelle-en-Serval, près Fosses, Oise (PC).
Host: undefined.

Basionym: *Alnicola leucocnemis* Romagn., Bull. Soc. mycol. France 102 (2): 129 (1986).

≡ *Naucoria leucocnemis* (Romagn.) E. Ludwig, Pilzkomp. I Beischreib.: 53 (2001).

Notes: Related to *A. amarescens*, but the limit between both taxa needs to be precised (Moreau and Garcia, 2005; see also Hausknecht and Forstinger, 2004).

Accepted name: Alnicola leucocnemis Romagn. (if different from *A. amarescens*).

lignicola

Status: valid, not typified (original material not traced).

Basionym: *Alnicola lignicola* Singer, Rev. Mycol. (Paris) 4 (2): 67 (1939). Substrate: lignicolous on *Picea schrenckiana*.

Notes: according to Singer's description, this is a typical *Gymnopilus*, possibly *G. picreus* (Pers. : Fr.) P. Karst. ss. str. (Bon and Roux, 2002: 41). *Alnicolus fulgens* (currently a *Gymnopilus*) is mentioned by Singer (1939: 66) as a comparison.

Accepted name: Gymnopilus aff. picreus (Pers. : Fr.) P. Karst.

luteolofibrillosa

Status: valid, not typified (several original collections in herb. Kühner, G). Host: *Alnus viridis*.

Basionym: *Alnicola luteolofibrillosa* Kühner, Botaniste 17 (1-4): 175 (1926).

≡ *Naucoria luteolofibrillosa* (Kühner) Pilát, Klič: 271 (1951).

≡ *Naucoria luteolofibrillosa* (Kühner) Kühner & Romagn., Fl. anal. Champ. Sup.: 237 (1953) (comb. inval., art. 33.3).

Accepted name: Alnicola luteolofibrillosa Kühner.

macrospora

Status: valid, not typified. **Lectotype** (obligatory, **designed here**): Lange 1939, Fl. agar. danica 4 pl. 125B.

Basionym: *Alnicola macrospora* J.E. Lange → J. Favre, Beitr. Kryptogamenfl. Schweiz 10 (3): 131 (1948).

= *Naucoria macrospora* J.E. Lange, Dansk bot. Ark. 9 (5): 21 (1938) (inval., art. 37.1).

= *Naucoria macrospora* J.E. Lange, Fl. agar. danica 5 p. VI (1940) (illegit., not *N. macrospora* Pat. & Doassans → Bigeard & Guillemin, Fl. Champ. Fr. II p. 248 (1913).

= *Alnicola langei* J.E. Lange → Kühner in Kühner & Romagnesi, Bull. Soc. Natur. Oyonnax 10-11: 3 (1957) (inval.).

= *Naucoria langei* J.E. Lange → Kühner in Kühner & Romagnesi, Bull. Soc. Natur. Oyonnax 10-11: 15 (1957) (inval.).

= *Naucoria salicis* P.D. Orton, Trans. brit. mycol. Soc. 43 (2): 318 (1960).

Notes: Moreau and Deïana (2004) have redescribed this taxon focusing on its microscopical variability, but unfortunately had not noticed the haphazard validation of *A. macrospora* by Favre (1948: 130) and therefore used the name *A. salicis*, a posterior synonym (see under this name). The identity of this taxon with *A. mirabilis* is not excluded (Orton, 1960: 319).

Accepted name: ***Alnicola macrospora*** J.E. Lange → J. Favre.

melinoides

Status: valid, not typified. **Lectotype** (automatic, **designed here**): Bulliard 1792, Herb. Fr., pl. 560, fig. 1 (plate without text). Substrate: undefined (grasslands).

Basionym: *Agaricus melinoides* Bull., Herb. Fr., pl. 560, fig. 1 (1792): Fr. (latin name in “Table annuelle” of this publication).

≡ *Agaricus melinoides* Bull. : Fr., Syst. Mycol. 1: 266 (1821).

≡ *Naucoria melinoides* (Bull. : Fr.) P. Kumm., Führer Pilzk.: 77 (1871).

≡ *Alnicola melinoides* (Bull. : Fr.) Kühner, Botaniste 17 (1-4): 176 (1926).

Notes: The interpretation of *Ag. melinoides* as an *Alnicola* with necked cheilocystidia is due to Ricken (1915), and followed by a part of European authors (Kühner, 1926; Bon, 1979, 1992; Runge, 1990). But according to Watling and Gregory (1981: 167), *Ag. melinoides* has also been interpreted formerly as *Galera mniophila* (Lasch) Kühner by various authors, and as a *Conocybe* species by Fayod (1889) according to Singer (1978: 55, as *Conocybe mesospora*) and Watling and Gregory (loc. cit.: 167, as *C. tenera*). Cooke (1885, pl. 457) has made a clear illustration of *Galerina clavata* (Velen.) Kühner under this name.

Bulliard’s plate cannot (intuitively) be interpreted as an *Alnicola*, nor the associated description (in Bulliard and Ventenat, 1792-1793: 244) but rather as an undefined or collective species of *Galerina*. The author considers this name as a *nomen dubium*.

mirabilis

Status: valid. Holotype (visited by E. Horak): USA, NY, McLean, 19-VI-1903, leg. Whetzel, herb. G. Atkinson n° 15117 (CUP). Host: *Salix* sp.

Basionym: *Galerula mirabilis* G.F. Atk., Proc. Amer. philos. Soc. 58: 367 (1918).

≡ *Pholiotina mirabilis* (G.F. Atk.) Singer, Acta Inst. bot. Kamarov Acad. Sci. URSS, ser.2; 6: 425 (1950).

≡ *Alnicola mirabilis* (G.F. Atk.) Singer, Sydowia 9: 406 (1955) (comb. inval., art. 33.3).

≡ *Alnicola mirabilis* (G.F. Atk.) Singer, Sydowia 15: 70 (1961 [1962]).

≡ *Naucoria mirabilis* (Atk.) Watling in Watling & Gregory, Bibl. mycol. 82: 121 (1981) [illegit., non *N. mirabilis* Velen., Česke Houby 1: 522 (1921)].

Notes: the holotype also visited by R. Singer (January 1952), annotated : "*= Alnicola bohémica* (Velen.) Kühner = *N. hamadryas* ss. A.H. Sm. = *N. scorpioides* ss. Lange". Singer published this first synonymy (1955: 406), but revised it later (1961: 70) following Orton's opinion (1960: 319), as a possible synonym of *A. salicis* (= *A. macrospora*).

Accepted name: ***Alnicola mirabilis*** (G.F. Atk.) Singer.

paludosa Peck

Status: valid. Holotype (not visited): USA, Catskill mountains, sept. 1887 (MICH).

Host: willows and alders (most probably *Alnus* sp.).

Basionym: *Naucoria paludosa* Peck, Ann. Rep. N.Y. St. Mus. 41: 68 (1888).

≡ *Alnicola paludosa* (Peck) Singer, Sydowia 30 (1-6): 210 (1977 [1978]).

Notes: Singer (1977) considered this taxon as a synonym of *A. striatula* (P.D. Orton) Romagn. The material has not been revised by the author yet. Judging from Singer's and Peck's notes *A. paludosa* might be an American vicariant of *A. umbrina*. According to Murrill (1917: 178), *Ag. pallidomarginatus* Peck and *Naucoria uliginosa* Peck are also synonym; types have not been revised either.

paludosa Velen.

Status: valid, illegit. (non *N. paludosa* Peck, 1888). No type could be found in BRN or PRM. Host: willows and alders (most probably *Alnus* sp.).

Basionym: *Naucoria paludosa* Velen., Novit. Mycol.: 124 (1939).

Notes: according to Singer (1977: 208), this taxon is a synonym of *Alnicola scolecina* (consequently in the sense of Singer, loc. cit.: 210; see under this name).

phaea

Status : valid. Type = type of *A. badia* Kühner, not typified, see *badia*.

Basionym: *Alnicola badia* Kühner, Bull. Soc. mycol. France 47 (3-4): 239 (1931).

≡ *Naucoria phaea* Kühner → R. Maire & Kühner in Maire, Bull. Inst. bot. Barcelona 3 (4): 101 (1937) (nomen novum for *Alnicola badia* in the genus *Naucoria*, non *Naucoria badia* Murrill, 1917).

≡ *Alnicola phaea* (Kühner → R. Maire & Kühner) Romagn., Bull. Soc. mycol. France 58: 126 (1942) (comb. superfl., = *A. badia* Kühner).

Notes: see under **BADIA**.

Accepted name: ***Alnicola badia*** Kühner.

pseudoamarescens

Status: valid, not typified (original material in herb. R. Kühner, G., and H. Romagnesi, PC, visited). Substrate: charcoal, but probably ectomycorrhizal.

Basionym: *Alnicola pseudoamarescens* Kühner & Romagn. in Kühner, Ann. Sci. Franche-Comté 2: 17 (1947).

≡ *Naucoria pseudoamarescens* (Kühner & Romagn.) Kühner & Romagn., Fl. anal. Champ. sup.: 236 (1953) (comb. inval., art. 33.3).

≡ *Hebeloma pseudoamarescens* (Kühner & Romagn.) P. Collin, Doc. mycol. 19 (74): 61 (1988).

≡ *Hebeloma pseudoamarescens* (Kühner & Romagn.) Kühner & Romagn. ex A. Runge, Mitt. Arbeitsgemeinschaft. Pilzk. Niederrhein 8 (2): 94 (1990) (comb. superfl.).

Notes: this is a typical member of the genus *Hebeloma*, because of its gelified pileipellis and narrowly elliptic spores, as recognized by Romagnesi (1986) and Kühner (1987) themselves. Romagnesi (1989) postulated a synonymy with *Hebeloma funariophilum* M. Moser, not supported by type studies.

Accepted name: ***Hebeloma pseudoamarescens*** (Kühner & Romagn.) P. Collin.

pseudoscolecina

Status: valid. Holotype (visited): UK, Ripley, Surrey, 12-X-1952 (K). Host: *Alnus* sp.

Basionym: *Naucoria pseudoscolecina* D.A. Reid, Trans. Brit. mycol. Soc. 82 (2): 202 (1984).

≡ *Alnicola pseudoscolecina* (D.A. Reid) Courtec., Doc. mycol. 13 (50): 55 (1983).

Accepted name: ***Alnicola pseudoscolecina*** (D.A. Reid) Courtec. (if distinct from *A. umbrina* (R. Maire) Kühner).

rubriceps

Status: valid. Holotype (visited by E. Horak): UK, Norfolk, Surlingham, Tucks East, 16 oct. 1972 (Orton 4428, E). Host: not precised (deciduous trees).

Basionym: *Naucoria rubriceps* P.D. Orton, Notes Royal Bot. Gard. Edinburgh 41 (3): 600 (1984).

≡ *Alnicola rubriceps* (P.D. Orton) Courtec., Doc. mycol. 16 (61): 48 (1985).

Notes: E. Horak reported the type collection to have unclamped hyphae (not specified by Orton, 1984) and strictly bisporical basidia. It comes close to *A. macrospora*.

Accepted name: ***Alnicola rubriceps*** (P.D. Orton) Courtec.

salabertii

Status: valid. Holotype (visited): F, Hérault, Graissessac, terril de Garella, 29 oct. 2003 (P.-A. Moreau 03102993, LIP). Host: *Alnus cordata*.

Basionym: *Alnicola salabertii* Bon & Boutev. ex P.-A. Moreau & Guy Garcia, Bull. Soc. mycol. France 120 (1-4): 275 (2005).

= *Alnicola leucocnemis* f. *salabertii* Bon & Bouteville ad int., Bull. Fed. Assoc. mycol. médit. 18: 38 (2000).

Notes: a very distinct species, hitherto only reported under *Alnus cordata* (Bon and Bouteville, 2000; Moreau and Garcia, 2005). Possibly related to *A. diplocystis* Singer, but not comparable to any European taxon.

Accepted name: ***Alnicola salabertii*** Bon & Boutev. ex P.-A. Moreau & Guy Garcia.

saliceti

Status: valid. Holotype (visited by E. Horak): UK, Dorset, Studland, 11 Aug. 1971 (Orton 4187, E). Host: *Salix*.

Basionym: *Naucoria saliceti* P.D. Orton, Notes Royal Bot. Gard. Edinburgh 41 (3): 601 (1984).

≡ *Alnicola saliceti* (P.D. Orton) Courtec., Doc. mycol. 16 (61): 48 (1985).

Notes: Orton (1984) published this name in order to rename *N. langei* Kühner (4-spored form), invalid and ambiguous (Kühner and Romagnesi, 1957). According to Horak (pers. notes, ZT), the specimens constituting the holotype are variable concerning the number of sterigmata, some of them predominantly 2-sp. Therefore *A. saliceti* can also be interpreted as a single synonym of *A. macrospora* (= *A. salicis*), the differences between both species being very weak.

Accepted name: ***Alnicola macrospora*** J.E. Lange → J. Favre *s.l.*

salicetorum

Status: valid. Holotype (visited): UK, Warwicks, Bickenhill, leg. A.W. Brand, 10-X-1971 (n° AWB 184, K). Host: *Salix* spp.

Basionym: *Naucoria salicetorum* D.A. Reid, Trans. Brit. mycol. Soc. 82 (2): 202 (1984).

≡ *Alnicola salicetorum* (D.A. Reid) Courtec., Doc. mycol. 16 (61): 48 (1985).

Notes: the holotype and an additional collection show a pileic structure analogous to that of *Galerina permixta* (P.D. Orton) Pegler & Young. No subpellis can be distinguished. Therefore the author consider that this species belongs to the genus *Galerina*, close to *G. permixta* and *G. clavus* Romagn. The author provisionally considers it as a synonym of *A. clavuligera* Romagn. according to the study of holotypes and descriptions; the only discrepancy is the absence of veil in *A. clavuligera* according to Romagnesi (1942).

Accepted name: ***Galerina clavuligera*** (Romagn.) P.-A. Moreau.

salicis

Status: valid. Holotype (visited): UK, Thack Marsh, Surlingham, Norfolk, 5-IX-1959-Dorset (K). Host: *Salix* spp.

Basionym: *Naucoria salicis* P.D. Orton, Trans. Brit. mycol. Soc. 43 (2): 318 (1960).

≡ *Alnicola salicis* (P.D. Orton) Bon, Doc. mycol. 9 (35): 41, 49 (1979, March).

≡ *Alnicola salicis* (P.D. Orton) Romagn., Bull. Fed. mycol. Dauphiné-Savoie 74: 19 (1979, July), (comb. superfl.).

Notes: first described as a collective taxon, as a new name for

N. macrospora J.E. Lange. *Agaricus salicis* has been splitted by Orton (1984), the holotype of *A. salicis* being redescribed more correctly by Reid (1984: 203). see under *MACROSPORA*.

Accepted name: A. macrospora J.E. Lange → J. Favre.

scolecina

Status: valid, not typified. **Lectotype** (automatic, **designed here**): original plate by E. Fries (n° 665, S), published by Fries (1877-1884, pl. 124-1), mentioned in the protolog. Host: *Alnus* sp. (probably *A. incana*).

Basionym: *Agaricus scolecinus* Fr., Epicr.: 194 (1838).

≡ *Naucoria scolecina* (Fr.) Quél., Champ. Jura Vosges: 438 (1875).

≡ *Hylophila scolecina* (Fr.) Quél., Ench. Fung.: 101 (1886).

≡ *Hylophila sideroides* var. *scolecina* (Fr.) Quél., Fl. Mycol.: 87 (1888).

≡ *Alnicola scolecina* (Fr.) Romagn., Bull. Soc. mycol. France 58 (4): 122 (1942).

Notes: this taxon is interpreted in modern literature following Lange (1938) and Romagnesi (1942), as a bitter, not striate species, often growing cespitose. This is certainly not in conformity with Fries' definition (Fries, 1838), which concerns an originally very pale and glabrous species. Kühner (1980: 933, 967) suggested that *A. scolecina* ss. Fries might be identical to *A. inculta* (Peck) Singer (= *A. alnetorum*, inval.), what is acceptable according to Fries' (1877-1884, pl. 124-1) plate; moreover Fries specifies (loc. cit.: 22) that this plate represents a more coloured forma. At the opposite Singer (1977: 210), on the basis of personal collections near Femsjö, interprets *A. scolecina* as a small-spored species with acute cystidia. This taxon should be redefined and neotypified after a complete revision of Scandinavian species of *Alnicola*, and if revealed to be identical to *A. inculta*, asked for a rejection in favour of the last.

Provisionally Lange's (1938, 1939) interpretation (certainly inadequate but usual) is adopted by Moreau and Vidonne (2005).

Accepted name: Alnicola scolecina (Fr.) Romagn.

silvae-novae

Status: valid. Holotype (visited): UK, Denny, Hants, sept.1982 (K). Host: *Alnus* sp.

Basionym: *Naucoria silvae-novae* D.A. Reid, Trans. Brit. mycol. Soc. 82 (2): 206 (1984).

≡ *Alnicola silvae-novae* (D.A. Reid) Courtec., Doc. mycol. 16 (61): 48 (1985).

Notes: the bispory, probably accidental (and only partial) mentioned by Reid (1984) as a specific character of *A. silvae-novae*, cannot be considered as such, since it can occur potentially in all 4-spored species in *Alnicola*. By all other features this taxon is referable to *A. subconspersa* (because of veil and ground colour).

Accepted name: Alnicola silvae-novae (D.A. Reid) Courtec. (if different from *A. subconspersa*).

sobria

Status: valid, not typified. Original material : not located. Host: undefined.

Basionym: *Agaricus furfuraceus* β *sobrius* Fr., Obs. mycol. 2: 25 (1818).

≡ *Agaricus sobrius* (Fr.) Fr., Epicr.: 200 (1838).

≡ *Naucoria sobria* (Fr.) P. Kumm., Führer Pilzk.: 77 (1871).

≡ *Alnicola sobria* (Fr.) Kühner ex Konrad & Maublanc, *Agaricales*: 165 (1948).

Notes: this uncertain taxon is not described precisely enough by Fries (1818: 25, 1836-1838: 200, 1874: 263), Gillet (1876: 541, pl. 368) or Konrad and Maublanc (1948) to allow for a reliable interpretation. It might belong to *A. amarescens* group, but is better being abandoned.

Interpretation: *N. sobria* ss. Cooke = *Conocybe vestita* fide Kühner (1935: 157).

spadicea

Status: valid. Holotype (visited): GB, Monks Woods, Hunts., 28-VII-1965, leg. P.J. Houlton (K). Host: undefined.

Basionym: *Naucoria spadicea* D.A. Reid, Trans. Brit. mycol. Soc. 82 (2): 206 (1984).

≡ *Alnicola spadicea* (D.A. Reid) Bon, Doc. mycol. 20 (78): 40 (1990).

≡ *Alnicola spadicea* (D.A. Reid) Bon, Doc. mycol. 21 (83): 37 (1990) (comb. superfl.).

≡ *Naucoria salicis* var. *spadicea* (D.A. Reid) Ludwig, Pilzkomp. I: 407 (2001).

Notes: published a few months before *N. saliceti* P D. Orton, both names based on *Naucoria macrospora* f. *tetraspora* J.E. Lange (Lange, 1939, 1940). However it is not clear whether the holotype designed by Reid (1984) matches Orton's (1984) salicolous taxon, here reported to *A. macrospora* (see under *SALICETI*).

Accepted name: ***Alnicola spadicea*** (D.A. Reid) Bon (if different from *A. macrospora* J.E. Lange → J. Favre).

sphagneti

Status: valid. Holotype (visited): UK, Loch-an-Eilean, Rothiemurchus, Inverness-Shire, 27-IX-1955 (K). Isotype (visited by E. Horak) at E. Host: undefined.

Basionym: *Naucoria sphagneti* P.D. Orton, Trans. brit. mycol. Soc. 43 (2): 320 (1960).

≡ *Alnicola sphagneti* (P.D. Orton) Romagn., Bull. Fed. mycol. Dauphiné-Savoie 74: 19 (1979).

Notes: Orton (1960) reported *A. sphagneti* to *Agaricus conspersus* b *uliginosus* Fr.: Fr. (Fries, 1821: 261), a shortly described taxon which is difficult to interpret. Orton does not provide specific information about the host-tree; the presence of *Sphagnum* can only help to interpret *N. sphagneti* as a acidophilic, but certainly not bryotrophic species. Moser (1991 in Moser and Jülich, 1985-2003, *Agaricales* III Leif. 9, only left picture) report under "*Naucoria sphagneti*" a very singular taxon, which could match Orton's description. This possibly septentrional taxon of uncertain affinities requires a complete revision.

Accepted name: ***Alnicola sphagneti*** (P.D. Orton) Romagn.

striatula

Status: valid. Holotype (visited): UK, Kingthorpe, Yorks, 14-IX-1959 (Orton n° 1943, K). Host: *Alnus* sp.

Basionym: *Naucoria striatula* P.D. Orton, Trans. brit. mycol. Soc. 43 (2): 322 (1960).

≡ *Alnicola striatula* (P.D. Orton) Romagn., Bull. Fed. mycol. Dauphiné-Savoie 74: 18-19 (1979).

Notes: in the original sense of Orton (1960), this is a pale species devoid of reddish tones. Reid (1984) and Bon (1992) interpret it in a wider sense which virtually includes *A. umbrina* (Moreau, 2004). It might represent only a pale variant of *A. umbrina* with Atlantic distribution.

Accepted name: ***Alnicola striatula*** (P.D. Orton) Romagn. (if different from *A. umbrina* (R. Maire) Singer).

suavis

Status: valid, not typified. Original material : only 1 colour plate, published by Bresadola (1884 pl. 59). Other material identified by Bresadola (visited by E. Horak): IX-1882, leg. G. Bresadola (S): Host: *Alnus* sp. (probably *A. incana*).

Basionym: *Naucoria suavis* Bres., Fung. trident. I (4/5): 53 (1884).

≡ *Alnicola suavis* (Bres.) Kühner, Bull. Soc. mycol. France 47 (3-4): 242 (1931).

Notes: taxon not critical, but rare and possibly confined to *Alnus incana*. E. Horak's notes on Bresadola's material are conform to the literature (Kühner, 1931: 238; Horak, 1963: 78, pl. 4 fig. 24; Kränzlin and Breitenbach, 1997: 274).

Accepted name: ***Alnicola suavis*** (Bres.) Kühner.

subconspersa Kühner

Status: invalid, art. 36.1. Original material in R. Kühner (G) and H. Romagnesi (PC) collections, visited. Host: *Alnus glutinosa*.

Original name: *Naucoria subconspersa* Kühner in Kühner and Romagn., Fl. Anal. Champ. Sup.: 237 (1953) (inval., art. 36.1; sp. nov. for *Naucoria conspersa* ss. Lange 1939, fig. 125G)

= *Alnicola subconspersa* (Kühner) M.M. Moser in Gams, Kleine Kryptogamenfl. Iib(2) (1955) (basion. inval.).

= *Alnicola subconspersa* (Kühner) Romagn., Bull. Fed. mycol. Dauphiné-Savoie 74: 19 (1979) (basion. inval.).

Notes: first considered by Kühner (1942: 2) as a synonym of *A. luteolofibrillosa*, *A. subconspersa* is separated and published as a *species nova* ("*nomen novum*") (Kühner and Romagnesi, 1953) but not validated later (Kühner and Romagnesi, 1957). According to all studied material, *A. subconspersa* ss. Kühner represents lowland collections of *A. luteolofibrillosa* with longer spores and well-developed ring-like zone on the stipe. Orton (1960) used this name for another, very distinct species, probably closer from Lange's plate (1939: pl. 125G).

Accepted name: ***Alnicola luteolofibrillosa*** Kühner.

subconspersa P.D. Orton

Status: valid. Holotype (visited): UK, Badger Falls, Glen Affric, Inverness-Shire, 20-VIII-1955 (K). Host: *Alnus* sp. (probably *A. glutinosa*).

Basionym: *Naucoria subconspersa* P.D. Orton, Trans. Brit. mycol. Soc. 43: 323 (1960).

≡ *Alnicola subconspersa* (P.D. Orton) Bon, Doc. mycol. 9 (35): 41 (1979).

Notes: new name for *Naucoria conspersa* ss. J.E. Lange (1939) and, according to Orton (1960: 324), based on *Naucoria subconspersa* Kühner (1953: 237, inval.) but typified on British material and not in conformity with Kühner's intentions (see above). Nevertheless Orton's taxon seems to agree with Lange's plate and short description. Macroscopical description and variation range need to be completed for this apparently common and possibly early-fruited taxon.

Accepted name: ***Alnicola subconspersa*** (P.D. Orton) Bon.

submelinoides

Status: valid, not typified. Original material in R. Kühner collections (G), visited. Host: *Alnus viridis*.

Basionym: *Alnicola submelinoides* Kühner, Botaniste 17 (1-4): 175 (1926) ("*submelinoides*").

≡ *Naucoria submelinoides* (Kühner) R. Maire, Bull. Soc. mycol. France 47: 223 (1930).

≡ *Alnicola submelinoides* (Kühner) Bon (as "(Kühner ex Maire) Bon"), Doc. mycol. 9 (35): 41 (1979) (comb. inval., art. 33.6a).

≡ *Hebeloma submelinoides* (Kühner) Kühner, Hyménom. agaricoïdes: 235, 898 (1980).

Notes: Accepted as validly published in 1926, by a short line in a key. Detailed descriptions in Kühner (1931: 242; 1942: 5).

Accepted name: ***Alnicola submelinoides*** Kühner.

tantilla

Status: valid. Holotype (visited): CH, Val Nügli, 2550 m, 15-VIII-1950, herb. J. Favre n° GK13461 (G). Host: *Salix herbacea*.

Basionym: *Naucoria tantilla* J. Favre, Ergebn. wiss. Unters. schweiz. Natl. Parkes 5: 202 (1955).

≡ *Alnicola tantilla* (J. Favre) Romagn., Bull. Fed. mycol. Dauphiné-Savoie 74: 19 (1979).

≡ *Alnicola tantilla* (J. Favre) Kühner, Trav. sci. Parc natl. Vanoise 11: 124 (1981) (comb. superfl.).

≡ *Alnicola tantilla* (J. Favre) G. Gulden, Arct. Alp. Fungi 2: 43 (1988) (comb. superfl.).

Notes: a very widespread, arctic-alpine species perfectly described by Kühner (1981) as "*Alnicola chamitae*" (Moreau, unpublished). Collections from *Salix repens* (Reid, 1984: 212; Orton, 1984: 603; De Haan, 1999) seem to differ mainly in spore shape, slightly depressed above apiculus.

Accepted name: ***Alnicola tantilla*** (J. Favre) Romagn.

tetraspora

Status: invalid, art. 36.1. Original material: only Lange (1939) pl. 125D. Host: *Salix cinerea*.

Original name: *Naucoria macrospora* f. *tetraspora* J.E. Lange, Dansk Bot. Ark. 9 (6): 21 (1938) (inval.).

= *Naucoria langei* f. *tetraspora* (J.E. Lange) Kühner in Kühner and Romagnesi, Bull. Soc. Natur. Oyonnax 10-11: 9 (1957) (basion. inval.).

= *Naucoria alnetorum* f. *tetraspora* (J.E. Lange) G. Keller & M. Moser, Biosystem. Ecol. 19: 176 (2001) (basion. inval.).

Notes: renamed "*Naucoria spadicea*" by Reid (1984) and "*Naucoria saliceti*" by Orton (1984). Lange's description agrees with *A. salicis*, but Kühner's (1957: 9) description with pear-shaped superficial articles in pileipellis can also be referred to *A. saliceti* P.D. Orton, if proved to be distinct from *A. salicis*.

Accepted name: ***Alnicola macrospora*** J.E. Lange → J. Favre (see Moreau and Deiana, 2004).

umbrina R. Maire

Status: valid. Lectotype (Moreau, 2004): Algeria, Azazga, 20-XII-1913. Herbarium Champignons d'Afrique du Nord n° 2030, R. Maire (MPU). Host: *Alnus glutinosa* (handwritten on unpublished notes of R. Maire, MPU).

Basionym: *Tubaria umbrina* Maire, Bull. Soc. mycol. France 44 (1): 48 (1928).

≡ *Naucoria umbrina* (Maire) Maire, Bull. Soc. Mycol. France 46: 225 (1930) (illegit., non *N. umbrina* Bres.).

≡ *Alnicola umbrina* (Maire) Kühner, Bull. Soc. mycol. France 47: 241 (1931).

Notes: the combination of this taxon in the genus *Alnicola* is sometimes attributed to Singer (Singer, 1947: 246, 1949: 540, etc.). An earlier combination by Kühner (1931: 241) has been found, formally written in the legend of fig. B (art. 33.1) with explicit reference to the basionym p. 240. *Alnicola umbrina* has been revised by Moreau (2004).

Accepted name: ***Alnicola umbrina*** (R. Maire) Kühner.

umbrina Singer

Status: valid. Holotype: (not revised): CHILE, Salto de Laja near San Antonio, 2-IV-1967 (R. Singer n° M 6540, BAFC). Host: *Alnus* sp. (plantation).

Basionym: *Alnicola scolecina* var. *umbrina* Singer, *Sydowia* 30 (1-6): 276 (1978 [1977]).

Notes: it is unclear what Singer (1977: 202) had in mind when he created this name, almost homonym and possibly synonym of *A. umbrina* (Maire) Kühner. He had formerly used the latter name for Catalan (Singer, 1947: 246) and Caucasian (Singer, 1930: 98; 1939: 68) collections, but later doubted of Maire's (1928) taxon and choosed to rename it (Singer, 1977). However, so few is known about South American species of *Alnicola* that this taxon needs a

deep reevaluation before possibly being renamed at a specific rank. Singer's taxon is certainly close to Maire's *Tubaria umbrina* (Moreau, 2004).

Accepted name: to be precised.

velutina

Status: valid. Holotype (visited): USA, Connecticut, Redding, 27-VIII-1902 (F.S. Earle n° 1246, NYC).

Basionym: *Naucoria velutina* Murrill, North Amer. Fl. 10 (3): 177 (1917). Host: undefined (mosses in a swamp).

≡ *Alnicola velutina* (Murrill) Singer, Sydowia 15: 71 (1962).

Notes: Singer does not explicit his combination, probably based on a revision of the type; some scarce descriptive elements are in Singer (1977: 209). According to type revision this species is closely related to *A. badia*.

Accepted name: ***Alnicola velutina*** (Murrill) Singer.

zonata

Status: valid. Holotype (visited): Sweden, Medelpad, near Borgsjö, 4-9-1997 (Berlin-Dahlem). Host: undefined (not *Alnus*).

Basionym: *Naucoria zonata* E. Ludwig & Reil in Ludwig, 2001, Pilzkompodium 1: 422.

Notes: this extremely distinct species is isolated amongst European taxa by its small spores and cystidia, but seems to have relatives in North America. More macroscopical informations are required for this species, so far only known from the type collection (Moreau and Garcia, 2005). Also compare with *A. brevicystis* Métrod, inval., with distinctly smaller spores.

Accepted name: ***Alnicola zonata*** (E. Ludwig & Reil) P.-A. Moreau, **comb. nov.**

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