

Names of uncertain application and some previously unpublished synonyms, in the European *Cheilosia* fauna (Diptera, Syrphidae)

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37 nominal *Cheilosia* species appearing in recent European lists are shown to be either junior synonyms (15 taxa) or of such doubtful interpretation (22 taxa) that to list them as species is meaningless. The 118 *Cheilosia* species now known from Europe are listed, together with 13 additional species known from the periphery of Europe.

Justification is presented for regarding 22 of the European *Cheilosia* names listed as nominal species in Peck (1988) as being of such uncertain application that they can only be regarded as nomina dubia. It is recommended that in future species lists these names only appear as "doubtful species", until and unless some basis can be established for deciding to which species they apply. An additional 15 European *Cheilosia* names are established as junior synonyms and in the process lectotypes are designated for *Cheilosia angustipennis* Becker, 1894; *Cheilosia confinis* Becker, 1894; *Cheilosia curvinervis* Becker, 1894; *Cheilosia lenis* Becker, 1894; *Cheilosia mixta* Becker, 1894 and *Cheilosia omissa* Becker, 1894. An updated list of the European *Cheilosia* species is provided, taking into account the changes introduced in this text.

The new synonymies established are as follows: *C. barbata* Loew, 1857 (= *C. granulata* Becker, 1894, **syn. nov.**); *C. bergenstammi* Becker, 1894 (= *C. mixta* Becker, 1894, **syn. nov.**); *C. chlorus* Meigen, 1822 (= *C. strobli* Becker, 1894, **syn. nov.**); *C. flavipes* (Panzer, [1798]) (= *C. stupida* Becker, 1894, **syn. nov.**); *C. hypena* Becker, 1894 (= *C. amicorum* van der Goot, 1964, **syn. nov.**), *C. lenis* Becker, 1894 (= *C. angustipennis* Becker, 1894, **syn. nov.**; = *C. confinis* Becker, 1894, **syn. nov.**; = *C. curvinervis* Becker, 1894, **syn. nov.**; = *C. omissa* Becker, 1894, **syn. nov.**); *C. melanura* Becker, 1894 (= *C. aestivalis* Becker, 1894, **syn. nov.**); *C. pedestris* Becker, 1894 (= *C. romigi* Claußen & Van de Weyer, 2004, **syn. nov.**); *C. proxima* (Zetterstedt, 1843) (= *C. toniuci* Brădescu, 1977, **syn. nov.**); *C. rhynchops* Egger, 1860 (= *C. dacica* Brădescu, 1977, **syn. nov.**; = *C. drenowskii* Szilády, 1936, **syn. nov.**); *Melangyna quadrimaculata* (Verrall, 1873) (= *Cheilosia styriaca* Franz, 1989, **syn. nov.**).

Key words: *Cheilosia*, Europe, nomina dubia, new synonyms, species list.

Zusammenfassung

Von den in Peck (1988) für Europa aufgeführten nominellen Arten der Gattung *Cheiloscia* werden 22 Namen in ihrer spezifischen Zuordnung als so unsicher bewertet, dass sie lediglich als "nomina dubia" eingestuft werden können. Es wird daher empfohlen, diese Namen in zukünftigen Artenlisten zumindest so lange als "zweifelhafte Arten" zu führen, bis irgendeine Grundlage für ihre verlässliche Zuordnung geschaffen ist. Weitere 15 Namen europäischer *Cheiloscia*-Arten werden als jüngere Synonyme erkannt; in diesem Zusammenhang werden Lectotypen festgelegt für *Cheiloscia angustipennis* Becker, 1894; *Cheiloscia confinis* Becker, 1894; *Cheiloscia curvinervis* Becker, 1894; *Cheiloscia lenis* Becker, 1894; *Cheiloscia mixta* Becker, 1894 und *Cheiloscia omissa* Becker, 1894. Eine aktuelle Liste der europäischen *Cheiloscia*-Arten wird vorgelegt, darin werden die in der vorliegenden Arbeit eingeführten Änderungen berücksichtigt. Die folgenden neuen Synonyme werden festgestellt: *C. barbata* Loew, 1857 (= *C. granulata* Becker, 1894, **syn. nov.**); *C. bergenstammi* Becker, 1894 (= *C. mixta* Becker, 1894, **syn. nov.**); *C. chlorus* Meigen, 1822 (= *C. strobli* Becker, 1894, **syn. nov.**); *C. flavipes* (Panzer, [1798]) (= *C. stupida* Becker, 1894, **syn. nov.**); *C. hypena* Becker, 1894 (= *C. amicorum* van der Goot, 1964, **syn. nov.**); *C. lenis* Becker, 1894 (= *C. angustipennis* Becker, 1894, **syn. nov.**; = *C. confinis* Becker, 1894, **syn. nov.**; = *C. curvinervis* Becker, 1894, **syn. nov.**; = *C. omissa* Becker, 1894, **syn. nov.**); *C. melanura* Becker, 1894 (= *C. aestivalis* Becker, 1894, **syn. nov.**); *C. pedestris* Becker, 1894 (= *C. romigi* Claußen & Van de Weyer, 2004, **syn. nov.**); *C. proxima* (Zetterstedt, 1843) (= *C. toniuci* Brădescu, 1977, **syn. nov.**); *C. rhynchops* Egger, 1860 (= *C. dacica* Brădescu, 1977, **syn. nov.**; = *C. drenowskii* Szilády, 1936, **syn. nov.**); *Melangyna quadrimaculata* (Verrall, 1873) (= *Cheiloscia styriaca* Franz, 1989, **syn. nov.**).

Introduction

In 1894 Becker published his "Revision der Gattung *Chilosia* Meigen", in which he described what he believed to be more than 70 new European species in the genus known today as *Cheiloscia*. He subsequently described additional European *Cheiloscia* species in other publications. The catalogue of Palaearctic Syrphidae provided by Peck (1988) shows nearly all of those Becker's species names still listed as applying to distinct European species. But during the last 25 years more critical work on the genus has demonstrated 35% of those Becker's species names to be junior synonyms of other *Cheiloscia* species, many of them also described by Becker. Today it is possible to recognise that many of Becker's descriptions are inadequate as a basis for recognition of the taxa to which they apply, that his concept of intra-specific variability in *Cheiloscia* species was too narrow and that his descriptions were all too often based on insufficient material. The same could probably be said of most 19th century syrphid taxonomists, with the hindsight provided by 100 years of further taxonomic activity, but Becker's dominant position in respect of the genus *Cheiloscia* – he was responsible for describing

50% of the European *Cheilosia* listed in Peck (1988) – means that any shortcomings characteristic of his work have potentially serious implications to the study of this genus in Europe today.

Here we have attempted to identify those European *Cheilosia* names that are of such uncertain application that logically they can only be regarded as nomina dubia, so that continuing to include them in lists of recognised European species is meaningless, until and unless some basis can be found for adequately redefining the taxa to which they apply. While the starting point for this exercise has been the species names introduced to the literature by Becker, in his various publications, we have also tried, where possible, to highlight similar inadequacies in application of *Cheilosia* names introduced to the literature by other authors writing on the European syrphid fauna. Further, we have taken this opportunity to deal with previously unpublished synonymies among European *Cheilosia* species that have become apparent during revisionary work carried out on the European species by one of us (CC). Finally, in Appendix 1, we provide an updated list of European *Cheilosia* species, which takes into account the synonymies established here and excludes the names we recommend should be regarded as nomina dubia.

Previously unpublished synonymies

The following paragraphs provide details of the type material of 16 *Cheilosia* taxa that we conclude are junior synonyms of other species and include lectotype designations for *C. angustipennis*, *C. confinis*, *C. curvinervis*, *C. lenis*, *C. mixta* and *C. omissa*, in order to fix the identity and future consistent interpretation of these names. Taxa are considered in alphabetical order. In indicating the whereabouts of type material acronyms have been used for the names of various institutions. The acronyms used are as follows:

Acronyms of institutions holding type material referred to:

BMNH = The Natural History Museum, London

HNHM = Hungarian National Museum, Budapest

MGAB = Muséum d'Histoire Naturelle Grigore Antipa, Bucarest

NHMW = Naturhistorisches Museum, Wien

NMBA = Naturhistorisches Museum des Benediktinerstiftes Admont

RMNH = National Museum of Natural History, Naturalis, Leiden

UMO = University Museum, Oxford

ZMAN = Instituut voor Taxonomische Zoölogie, Zoölogisch Museum, Amsterdam

ZMHU = Zoologisches Museum der Humboldt Universität, Berlin

aestivalis Becker, 1894: 472 (*Chilosia*)

Syntypes 1 ♂ 1 ♀ (ZMHU) lost, "Süd-Tirol, vom Rolle-Paß, 20. Juni" [Italy: Alps].

In 1990 the Loew/Becker collection included a pin without a specimen, labelled "*aestivalis* Beck." and 1 ♀ labelled "*aestivalis* Beck.", "Schweiz 44/42". This latter specimen cannot be a syntype, because it is not from the type locality. It is a small ♀

of *Cheilosia melanura*. The diagnostic characters provided by Becker (1894) for separation of *C. aestivalis* and *C. melanura* fit well within the range of variability of *C. melanura* as currently recognised. For this reason we conclude that *Cheilosia aestivalis* Becker, 1894 should be regarded as a junior synonym of *Cheilosia melanura* Becker, 1894; syn. nov.

amicorum van der Goot, 1964: 425 (*Cheilosia*)

Holotype ♀, in RMNH, labelled, "M. Nebrodici, Biviere di Cesarió, 1250-1350 m, 30-VII - 7-VIII 1961", "Italia, Sicilia, V. S. v.d. Goot", "Holotype" [red], "*Cheilosia amicorum* nov. spec. det. V. S. v.d. Goot 1963". Paratype ♀, in RMNH, with the same data as the holotype, but labelled as "Paratype". – Holotype and paratype are *Cheilosia hypena* Becker, 1894. We conclude that *Cheilosia amicorum* van der Goot, 1964 should be regarded as a junior synonym of *Cheilosia hypena* Becker, 1894; syn. nov.

angustipennis Becker, 1894: 483 (*Chilosia*)

Lectotype ♀, "St. Moritz (Schweiz)", here designated, in ZMHU.

Described from 2 females. Lectotype labelled "St Moritz 28/6 9904", "*angustipennis* B. det. Becker", "Typus", "Zool. Mus. Berlin". – Both wings broken; one wing is glued to a piece of card and pinned with the specimen. The lectotype is *Cheilosia lenis* Becker, 1894. The second ♀ syntype mentioned in the description, from Reinerz (Schlesien) [Poland], is apparently lost. We conclude that *Cheilosia angustipennis* Becker, 1894 should be regarded as a junior synonym of *Cheilosia lenis* Becker, 1894; syn. nov.

Syntypes of *C. lenis* could not be found in the Loew/Becker collection in ZMHU (CC 1990/1996). But 1 ♂ and 1 ♀ syntype of *C. lenis* were located in the Girschner collection, now in BMNH. The ♂ is labelled "Syntype" [round, blue-margined], "Dip-pesthal 16.V.87" [presumable East Germany], "Grschn", "Ex Girschner Collection". The ♂ has been labelled (CC 1992) as the lectotype and is now so designated. The genitalia were dissected, stored in glycerol or partly embedded in Entellan and pinned with the specimen. The lectotype is a little mouldy and is lacking the left fore leg, but is otherwise in fair condition. It agrees fully with Becker's original description. The second syntype is labelled "Syntype" [round, blue-margined], "*Chilosia lenis* Beck. Original.", "Sammlung Girschner", "Ex Girschner Collection", it was labelled as paralectotype in 1992 (CC).

confinis Becker, 1894: 465 (*Chilosia*)

Lectotype ♂, "Wiener Schneeberg" [Austria], here designated, in ZMHU.

Described from an unspecified number of males and females. Lectotype labelled "Wien Schneeberg 6/6 90 25032", "*confinis* Beck. det. Becker", "Typus", "Zool. Mus. Berlin". 2 females labelled "Rolle-Paß 20/6 25585", "*Ch. confinis* B. det. Becker" and one of these females with the additional labels "Zool. Mus. Berlin" and "Typus" have been labelled as paralectotypes. A further female labelled "Coll. H. Loew", "*confinis*

Beck." is not considered a syntype. Lectotype and paralectotypes are *Cheilosia lenis* Becker, 1894. We conclude that *Cheilosia confinis* Becker, 1894 should be regarded as a junior synonym of *Cheilosia lenis* Becker, 1894; syn. nov.

curvinervis Becker, 1894: 484 (*Chilosia*)

Lectotype ♀, "Reinerz (Schlesien)" [Poland], here designated, in ZMHU.

Described from an unspecified number of females, but only the lectotype in ZMHU. Lectotype labelled "Reinerz", "Lectotypus *Cheilosia curvinervis* Becker ♀ des. Claußen 1990", "*Cheilosia* ♀ *omissa* Beck. det. Claußen 1990". This specimen is *Cheilosia lenis* Becker, 1894 as currently recognised. We conclude that *Cheilosia curvinervis* Becker, 1894 should be regarded as a junior synonym of *Cheilosia lenis* Becker, 1894; syn. nov.

dacica Brădescu, 1977: 11 (*Cheilosia*)

Holotype ♂, "Roumanie, Carpates Méridionales, Massif du Retezat, clairiere Gemenele (1930-2000m) de la réserve scientifique Gemenele – Taul Negru, environ 6km ESE de Gura Zlata; 25.VII.1974", in MGAB.

Holotype labelled "Mt. Retezat P. Gemenele 1930m, 25.VIII.1974 leg. Vl. Brădescu", "Holotypus ♂ *Cheilosia dacica* Vl. Brădescu", "*Cheilosia rhynchops* Egg., det. Stuke & Claußen 2006". Characters of the adult and the larvae will be discussed elsewhere (Stuke & Claußen in prep.). We conclude that *Cheilosia dacica* Brădescu, 1977 should be regarded as a junior synonym of *Cheilosia rhynchops* Egger, 1860; syn. nov.

drenowskii Szilády, 1936: 67 (*Chilosia*)

Syntypes presumably lost (Horn et al. 1990: 386, 439), "Alibotuschgebirge ... 1500m" [South-Bulgaria], formerly in HHNM.

Described from an unspecified number of males and females. Characterised by Szilády (1936) as related to *Cheilosia siciliana* Becker, 1894. European *Cheilosia* related to *C. siciliana* and known to occur in the Balkan Peninsula are *C. lenta* Becker, 1894 and *C. rhynchops*. The description of *C. drenowskii* fits in all respects both of these species. We propose that *Cheilosia drenowskii* Szilády, 1936 should be regarded as a junior synonym of *Cheilosia rhynchops* Egger, 1860; syn. nov., the more common and more predominantly black pilose of these two taxa.

granulata Becker, 1894: 388 (*Chilosia*)

Holotype ♀, lost, "aus Deutschland" [Germany], formerly in coll. H. Loew (ZMHU).

The type could not be found in the Loew/Becker collection in 1990/1996 (CC). *C. granulata* was characterised by Becker (l.c.) as very close to *C. barbata* Loew, but differing slightly in its smaller 3rd antennal segment, paler legs, and more coarsely punctured mesoscutum. All of these characters fit well within the range of variation of *C.*

barbata as currently understood. We conclude *Cheilosia granulata* should be regarded as a junior synonym of *Cheilosia barbata* Loew, 1857; syn. nov.

metallina Becker, 1894: 398 (*Chilosia*)

Holotype ♀, in coll. Bigot, now in UMO. Type locality: Nearctic, erroneously given as "Frankreich" [France] in Becker (1894).

Holotype labelled "*metallina* n. sp. m.", "*Ch. metallina* Beck. coll. Bigot", the latter inscription on the underside of a round blue label. Type locality not given. Type in fairly good condition, but antennae lost and scutellar marginal setae partly broken. – The type was compared with a female of the Nearctic *Cheilosia hoodiana* (Bigot, 1883) from "Mts. Moscow/Ida Jly 10/RC Shannon" [USA: Idaho]; it was concluded that these specimens were conspecific (CC in 1988).

Cheilosia metallina Becker, 1894 should be regarded as a junior synonym of *Cartosyrphus hoodiana* Bigot, 1883. This synonymy was previously published in Barkalov (1998: 76), but without further information.

mixta Becker, 1894: 481 (*Chilosia*)

Lectotype ♀, "Lermoos in Bayern" [Germany], here designated, in ZMHU.

Described from an unspecified number of females. Lectotype labelled "Lermoos Fernst. 10/7.78", "*Chilosia mixta* Becker ♀ det. K. Malski 19", "Lectotypus *Cheilosia mixta* Becker ♀ des. Claußen 1990". A further female labelled "Breslau bot. Gart. 28.4.51", "Coll. H. Loew", "11516", "*mixta* Beck.", is here accepted as paralectotype and labelled accordingly. Lectotype and paralectotype are *Cheilosia bergenstammi* Becker, 1894. We conclude that *Cheilosia mixta* Becker, 1894 should be regarded as a junior synonym of *Cheilosia bergenstammi* Becker, 1894; syn. nov.

omissa Becker, 1894: 466 (*Chilosia*)

Lectotype ♂, "Wiener Schneeberg" [Austria], here designated, in ZMHU.

Described from an unspecified number of males and females. Lectotype labelled "Wiener Schneeberg 6/6 90 25028", "Typus", "*omissa*", "Zool. Mus. Berlin"; specimen in good condition. 1 ♂ labelled "Wölfelsfall 17/5 26526" [Poland], "*Cheilosia omissa* Beck. ♂, det. K. Malski 19", "Typus", "Zool. Mus. Berlin"; antennae lost, is labelled as paralectotype. Lectotype and paralectotype are *Cheilosia lenis* Becker, 1894. We conclude that *Cheilosia omissa* Becker, 1894 should be regarded as a junior synonym of *Cheilosia lenis* Becker, 1894; syn. nov.

romigi Claußen & Van de Weyer, 2004 (*Cheilosia* [*Taeniochilosia*])

Holotype ♂, "Italy, Prov. Aosta, Fenille (Val Savarenche), 1150m"; in ZMAN.

C. romigi was described only recently, and with the description features are provided for separation of this taxon from all of the then known European species of the subgenus

Taeniochilosia with a red 3rd antennal segment. The type material of *Cheiliosia pedestris* Becker, 1894 was re-examined during preparation of the present text. The female holotype of *C. pedestris* in NHMW is labelled "♀ Visp 11/6" [Switzerland, Rhone valley], "Alte Sammlung", "*pedestris* Beck. det. Becker." [in Becker's hand]. The holotype is in fairly good condition, except that the right wing is missing. Re-examination revealed that Becker's (1894: 452) recognition of *C. pedestris* as a member of his species-guild with hairy eyes, bare face and scutellar marginal bristles was erroneous. The eyes in the type of *C. pedestris* are bare, even under high magnification, and the legs are completely black, except for the apices of the femora and the bases of the tibiae, that are narrowly of a vaguely brownish colour. *C. pedestris* should thus be consigned to the subgenus *Taeniochilosia*, a fact not previously taken into account in studies of the genus. From comparison between the type material of *C. pedestris* and *C. romigi* we conclude that *Cheiliosia romigi* Claußen & Van de Weyer, 2004 should be regarded as a junior synonym of *Cheiliosia pedestris* Becker, 1894; syn. nov.

strobli Becker, 1894: 524 (*Chilosia*)

Holotype ♂, "Nieder-Oesterreich (Merk)" [Austria], in NMBA.

The ♂ in NMBA is accepted as the holotype, because only a single measurement is given for wing- and body-length in the original description. In cases where more than a single specimen were included in the description, Becker (1894) consistently provided intervals of measurements. Holotype labelled "1265", "*Cheiliosia strobli* [!] Becker, Typen-Exemplar rev. G. Morge 1961", "*Ch. brachysoma* Egg. [unreadable inscription in shorthand] /5 ♂" [green, in Strobl's hand], "*Ch. Strobli* [!] Beck.", "Holotypus *Cheiliosia strobli* Beck. ♂, det. Claußen 1988", "*Cheiliosia chloris* Meig., ♂ det. Claußen, 1988". The holotype is *Cheiliosia chlorus* Meigen, 1822. We conclude that *Cheiliosia strobli* Becker, 1894 should be regarded as a junior synonym of *Cheiliosia chlorus* Meigen, 1822, syn. nov.

stupida Becker, 1894: 413 (*Chilosia*)

Holotype ♂ presumedly lost (Horn et al. 1990: 439), "Ungarn" [Hungary], formerly in HHM.

The original description of *C. stupida* fits perfectly the concept of *Cheiliosia flavipes* (Panzer, [1798]), especially the broadly yellow apices of the femora, flat face, body completely pale pilose, lack of scutellar marginal setae, and wide parafacial strips, that are considered as diagnostic. Because of these characters we conclude that *Cheiliosia stupida* Becker, 1894 should be regarded as a junior synonym of *Cheiliosia flavipes* (Panzer, [1798]), syn. nov.

styriaca Franz, 1989: 62 (*Cheiliosia*)

Holotype ♀, "Jägerboden b. Kaiserau nächst Admont" [Austria: Steiermark], in NHMW.

Described from 2 females. Holotype and female paratype are *Melangyna quadrimaculata* (Verrall, 1873). We conclude that *Cheilisia styriaca* Franz, 1989 should be regarded as a junior synonym of *Melangyna quadrimaculata* (Verrall, 1873); syn. nov.

toniuci Brădescu, 1977: 13 (*Cheilisia*)

Holotype ♂, "Roumania, Carpates Méridionales, Massif du Retezat", in MGAB.

Holotype labelled "Mt. Retezat v. Lapusnicul Mare P. Rotunda, 1100m, 27.VII.1975, leg. Vl. Brădescu", "Holotypus ♂ *Cheilisia toniuci* Vl. Brădescu", "*Cheilisia proxima* (Zett.) det. Claußen 1990", genitalia dissected and pinned with the specimen. The holotype is *Cheilisia proxima* (Zetterstedt, 1843). We conclude that *Cheilisia toniuci* Brădescu, 1977 should be regarded as a junior synonym of *Cheilisia proxima* (Zetterstedt, 1843); syn. nov.

European *Cheilisia* names of doubtful application

More than 20% of Becker's European *Cheilisia* names remain of very uncertain application and have seemingly been retained in lists largely because there is no secure basis for deciding what to do with them. We list these doubtful taxa in Table 1, together with equally doubtful European *Cheilisia* taxa originating with other authors. In compiling this table we have used various indicators of the status of each taxon. These indicators may be defined as follows:

- Criterion A: original description adequate i.e. sufficiently diagnostic to demonstrate that the taxon is distinct from all other known European *Cheilisia* species
- Criterion B: type material available i.e. known not to have been destroyed or lost or so damaged as to be rendered unrecognisable
- Criterion C: still listed for country of origin i.e. still listed as a species occurring in the country/countries from which its type material was derived. A question mark (?) in Table 1 denotes cases where the type material originated in a country for which there is no recent syrphid list (e.g. Austria, European Russia). A blank denotes cases where no country of origin was given in the original description of the taxon.
- Criterion D: cited for other countries i.e. listed as occurring in at least one European State other than the State(s) from which the type material was derived. Instances of listing that have subsequently been proved to be due to misdetermination have been discounted.
- Criterion E: included in keys provided in revisions/reviews of the species group to which the taxon supposedly belongs. Blanks in Table 1 indicate cases where there have been no recent revisions of the species groups involved.

In reality, no credibility can be attached to any published record of an occurrence of these taxa until and unless their identity as distinct species is established by comprehensive redescription, accompanied by neotype designation. That being so it is our contention that, in the interim, all of them should be regarded as nomina dubia and, in

Species name	Criterion				
	A	B	C	D	E
<i>acutilabris</i> Becker, 1894	no	no	?	no	no
<i>atriseta</i> (Oldenberg, 1916)	no	yes	yes	no	no
<i>baldensis</i> Marcuzzi, 1941	no	no	yes	no	no
<i>barovskii</i> Stackelberg, 1930	no	?	?	no	
<i>brachiptera</i> Palma, 1863	no	no	yes	no	
<i>brevipennis</i> Becker, 1894	no	no	no	no	
<i>christophori</i> Becker, 1894	no	no	?	no	
<i>curvitibia</i> Becker, 1894	no	no	yes	yes	
<i>gerstaeckeri</i> Becker, 1894	no	no		yes	no
<i>gibbosa</i> Becker, 1894	no	?	no	no	no
<i>imperfecta</i> Becker, 1921	no	no	yes	no	
<i>ingrica</i> Stackelberg, 1958	no	no	?	no	no
<i>longifila</i> Becker, 1894	no	no	no	no	
<i>parvicornis</i> Becker, 1894	no	no	no	no	no
<i>planifacies</i> Becker, 1894	no	no	yes	yes	
<i>polita</i> Becker, 1894	no	no	yes	yes	
<i>signaticornis</i> Becker, 1894	no	no	no	no	no
<i>strigillata</i> Becker, 1894	no	no	?	no	
<i>submodesta</i> Becker, 1922	no	no	no	no	no
<i>umbrisquama</i> Becker, 1894	no	no	no	yes	
<i>varians</i> Becker, 1889	no	no	yes	no	no
<i>violaceozonata</i> Palma, 1863	no	no	yes	no	

Table 1: Doubtful European *Cheilosia* taxa, with indications of their status in respect of the five criteria (A-E) described in the text.

countries where these names are still in use, they should in future be relegated to a category of "doubtful species", rather than being given equal status with well-established species. Similarly, we recommend that these names no longer appear in lists of European species other than in a separate section headed, as in Peck (1988), "Doubtful species of *Cheilosia*", to indicate that there is currently no basis upon which to establish the identity of the species to which these names apply.

Discussion

With the synonyms established here taken into account, and the doubtful taxa listed above also removed, the surviving European *Cheilosia* names originating with Becker are surprisingly few – only 27, to be exact (see list in Appendix). If one examines the question of why this might be, apart from ill-defined species concepts that resulted repeatedly in description of the same taxa a number of times under different names, the most significant factor would seem to be loss of type material that rendered taxa uninterpretable – a loss caused primarily by the hostilities in Europe during the first half of the 20th century. Did these lost types represent species that were extant in Europe in the 19th century, but which have since become extremely scarce, or extinct, so that they have not been found subsequently? We cannot know. Many of Becker's species were described from montane/subalpine locations in the Alps and it is clear that subalpine habitats there have suffered badly during the last hundred years, due firstly to overgrazing, then due to "improvement" (primarily use of fertilisers) and now due to effects of climatic warming. It is demonstrable that the greater part (68% – see Speight et al., 2006) of Europe's *Cheilosia* biodiversity occurs in montane/subalpine habitats and, although further investigation is much needed, there are indications that this diversity may now be shrinking (Speight and Castella, 2005). Work on diverse *Cheilosia* faunas, like that of the Alps, can only be inhibited by nomenclatural confusion and difficulties of determination. Hopefully, the present text may contribute somewhat to a reduction in the level of nomenclatural confusion involved.

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Appendix: Revised list of European *Cheilosia* species

Geographic coverage of list: Europe, bounded to the East by the Ural Mountains and the river Ural southward to the Caspian Sea; bounded to the South by the Black Sea, the Mediterranean and Caucasus mountains. Also included on the list are 11 species known from along the south-eastern border of Europe in the Caucasus Mountains, plus *C. parva* (Morocco) and *C. sulcifrons* (eastern Turkey). While these additional

Areas	species	subspecies
Europe	118	3
restricted to Morocco	1	
restricted to the Caucasus and/or eastern Turkey	12	1
Σ	131	4

Table 2: Number of taxa included.

species are not strictly European, they would seem to be European in origin and their occurrence in Europe would not be unexpected.

List of European *Cheilosia* species

Format: name, author, year of publication, range for species with restricted distribution (e.g.: CA = Caucasus and its spurs, MO = Morocco, TR = Turkey). Both Peck (1988) and Barkalov (1998) show synonyms of the species they list. In the list presented here synonyms that have been published since Barkalov (1998) are indicated, including those established in the present text. The complex synonymy and status of the taxa included here as *C. morio* (Zetterstedt) and *C. scanica* (Ringdahl) will be dealt with in a separate publication (Claußen and Doczkal, in preparation). *Cheilosia marokkana* Becker, 1894 was recently synonymised with *Cheilosia latifrons* (Zetterstedt, 1843) by Kassebeer (1998). Re-examination of the type material of *C. marokkana*, *C. latifrons*, and *C. griseiventris* provides grounds to regard *C. marokkana* as a junior synonym of *C. griseiventris* and not as a junior synonym of *C. latifrons* (Claußen & Reemer, in press), a course that has been followed here.

abagoensis Skuffin, 1979 – (CA, NW-spurs)
areae Dufour, 1848
ahenea (von Roser, 1840)
alba Vujić & Claußen, 2000
albipila Meigen, 1838
albitarsis (Meigen, 1822)
 = *lapponica* Becker, 1894 – Syn. by Doczkal (2000)
alpestris Becker, 1894
alpina (Zetterstedt, 1838)
andalusiaca Torp Pedersen, 1971 – (Spain)
angustigenis Becker, 1894
antiqua (Meigen, 1822)
aristata Barkalov & Ståhls, 1997
armeniaca Stackelberg, 1960 – (CA: Armenia)
atypica Barkalov, 1993 – (CA)
bakurianiensis Kuznetzov, 1987 – (CA)
balkana Vujić, 1994
barbata Loew, 1857
 = *granulata* Becker, 1894 – Syn. by Claußen & Speight (present text)
beckeri Strobl, 1910
bergenstammi Becker, 1894
 = *mixta* Becker, 1894 – Syn. by Claußen & Speight (present text)
brachysoma Egger, 1860
bracusi Vujić & Claussen, 1994
brunnipennis Becker, 1894
 = *schineri* of Becker, 1894, not Egger, 1860
 – misdetermination
caerulescens (Meigen, 1822)
caerulescens callosa Skuffin, 1977
canicularis (Panzer, 1801)
carbonaria Egger, 1860
chlorus (Meigen, 1822)
 = *strobl* Becker, 1894 – Syn. by Claußen & Speight (present text)

chrysocoma (Meigen, 1822)
clama Claussen & Vujić, 1995
clausseni Barkalov & Ståhls, 1997
crassisetia Loew, 1859
cumanica Szilády, 1938
cynocephala Loew, 1840
derasa Loew, 1857
fasciata Schiner & Egger, 1853
faucis Becker, 1894
flavipes (Panzer, 1798)
 = *stipida* Becker, 1894 – Syn. by Claußen & Speight (present text)
flavissima Becker, 1894 – re-instated by Claußen & Ståhls (2006)
 = *pallipes* of authors, not Loew, 1863 – misdetermination
fraterna (Meigen, 1830)
frontalis Loew, 1857
gagatea Loew, 1857
gigantea (Zetterstedt, 1838)
 = *gracilis* Hellén, 1914 – Syn. by Nielsen & Claussen (2001)
griseifacies Vujić, 1994
griseiventris Loew, 1857
 = *marokkana* Becker, 1894 – Syn. by Claußen & Reemer (in press)
grisella Becker, 1894
grossa (Fallén, 1817)
herculana Brădescu, 1982
hercyniae Loew, 1857
himantopus (Panzer, 1798)
 = *naso* Becker, 1894 – Syn. by Stuke & Claußen (2000)
 ? *delutior* Strobl, 1897 – Syn. by Stuke & Claußen (2000)
 = *fulvitaris* van der Goot, 1964 – Syn. by Stuke & Claußen (2000)

- hypena* Becker, 1894
 = *amicorum* van der Goot, 1964 – Syn. by Claußen & Speight (present text)
- iberica* Marcos-García & Claussen, 1989
- illustrata* (Harris, 1780)
- illustrata portschinskiana* Stackelberg, 1960 – (CA)
- impressa* Loew in Schiner, 1857
- impudens* Becker, 1894
- ingerae* Nielsen & Claussen, 2001
- insignis* Loew, 1857
- katara* Claussen & Vujić, 1993
- kerteszi* Szilády, 1938
- kuznetzovae* Skufjin, 1977
- laeviseta* Claussen, 1987
- laeviventris* Loew, 1857
- lasiopa* Kowarz, 1885
- laticornis* Rondani, 1857
- latifrons* (Zetterstedt, 1843)
- latigenis* Claussen & Kassebeer, 1993
- lenis* Becker, 1894
 = *angustipennis* Becker, 1894 – Syn. by Claußen & Speight (present text)
 = *confinis* Becker, 1894 – Syn. by Claußen & Speight (present text)
 = *curvinervis* Becker, 1894 – Syn. by Claußen & Speight (present text)
 = *omissa* Becker, 1894 – Syn. by Claußen & Speight (present text)
- lenta* Becker, 1894
- limbicornis* (Strobl, 1909) – (Spain)
- loewi* Becker, 1894
- longula* (Zetterstedt, 1838)
- lucashovae* Barkalov, 1993 – (CA, TR)
- marginata* Becker, 1894
- melanopa* (Zetterstedt, 1838)
- melanopa redi* Vujić, 1996
- melanura* Becker, 1894
 = *aestivalis* Becker, 1894 – Syn. by Claußen & Speight (present text)
- melanura rubra* Vujić, 1996
- montana* Egger, 1860
 = *braueri* Becker, 1894 – Syn. by Claussen (1998)
 = *thammeri* Szilády, 1938 – Syn. by Claussen (1998)
- "*morio* (Zetterstedt, 1838)" – status and nomenclature under review
- mutabilis* (Fallén, 1817)
 = *ruralis* (Meigen, 1822) – Syn. by Claußen & Speight (1999)
- nebulosa* Verrall, 1871
- nigripes* (Meigen, 1822)
- nivalis* Becker, 1894
- orthotricha* Vujić & Claussen, 1994
- pagana* (Meigen, 1822)
- paragigantea* Barkalov, 1993 – (CA)
- paralobi* Malski, 1962
- parva* Kassebeer, 1998 – (MO)
- pascuorum* Becker, 1894
- pedemontana* Rondani, 1857
- pedestris* Becker, 1894
 = *romigi* Claußen & van de Weyer, 2004 – Syn. by Claußen & Speight (present text)
- personata* Loew, 1857
- pictipennis* Egger, 1860
 = *buerschii* Delkeskamp, 1942 – Syn. by Claussen (1998)
 = *zmlampis* Violovitsh, 1975 – Syn. by Claussen (1998)
- pilifer* Becker, 1894
- pini* Becker, 1894
- pollinifacies* Stackelberg, 1968 – (CA)
- proxima* (Zetterstedt, 1843)
 = *glirina* Rondani, 1857 – Syn. by Claußen & Speight (1999)
 = *toniuci* Brădescu, 1977 – Syn. by Claußen & Speight (present text)
- pseudogrossa* Stackelberg, 1968 – (CA)
- psilophthalma* Becker, 1894
- pubera* (Zetterstedt, 1838)
- ranunculi* Doczkal, 2000
- reniformis* Hellén, 1930 – (boreal)
- rhodiolae* Schmid, 2000
- rhynchops* Egger, 1860
 = *dacica* Brădescu, 1977 – Syn. by Claußen & Speight (present text)
 = *drenowskii* Szilády, 1936 – Syn. by Claußen & Speight (present text)
- rogersi* Wainwright, 1911 – (NW-Africa, southern Spain)
- rotundiventris* Becker, 1894
- ruficollis* Becker, 1894
- rufimana* Becker, 1894
 = *subarctica* Hellén, 1955 – Syn. by Nielsen & Claussen (2001)
- sahlbergi* Becker, 1894
- "*scanica* Ringdahl, 1937" – status and nomenclature under review
- schineri* Egger, 1860
- schnabli* Becker, 1894
- scutellata* (Fallén, 1817)
- semifasciata* Becker, 1894
 = *saxifragae* Hering, 1924 – Syn. by Schmid (2000)
- siciliana* Becker, 1894 – (Italy)

sootryeni Nielsen, 1970 – (northern Scandinavia)
soror (Zetterstedt, 1843)
subpictipennis Claussen, 1998
sulcifrons Kaplan, 1981 – (TR)
teberdensis Barkalov, 1993 – (CA)
thessala Claußen & Stähls, 2006
tonsa Sack, 1938
transcaucasica Stackelberg, 1960 – (CA)
urbana (Meigen, 1822)
 = *fulvipes* (Wiedemann in Meigen, 1822)
 – Syn. by Claußen & Speight (1999)
 = *ruralis* of authors, not Meigen (in part)
 – Syn. by Claußen & Speight (1999)
 = *praecox* (Zetterstedt, 1843) – Syn. by Claußen & Speight (1999)
 = *punctigenis* Hellén, 1914 – Syn. by Claußen & Speight (1999)

uviformis Becker, 1894
vangaveri Timon-David, 1937
variabilis (Panzer, 1798)
varnensis Claußen, 2000
velutina Loew, 1840
venosa Loew, 1857
verae Stackelberg, 1968 – (CA)
vernalis (Fallén, 1817)
 = *glabrata* Meigen, 1838 – Syn. by Claußen & Speight (1999)
vicina (Zetterstedt, 1849)
vujici Claussen & Doczkal, 1998
vulpina (Meigen, 1822)

Doubtful European species of *Cheilosia*

acutilabris Becker, 1894
atriseta (Oldenberg, 1916)
baldensis Marcuzzi, 1941
bardus (Harris, 1780)
barovskii Stackelberg, 1930
brachiptera Palma, 1863
brevipennis Becker, 1894
christophori Becker, 1894
corydon (Harris, 1780)
curvitibia Becker, 1894
flavicornis (Fabricius, 1781)
funnebris (Harris, 1780)
gerstaeckeri Becker, 1894
gibbosa Becker, 1894
imperfecta Becker, 1921

ingrica Stackelberg, 1958
longifila Becker, 1894
means (Fabricius, 1798)
nigricornis Macquart, 1829
parvicornis Becker, 1894
planifacies Becker, 1894
polita Becker, 1894
signaticornis Becker, 1894
strigillata Becker, 1894
submodesta Becker, 1922
tarditas (Harris, 1780)
umbrisquama Becker, 1894
varians Becker, 1889
violaceozonata Palma, 1863

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