The type material of Swedish bees (Hymenoptera, Apoidea) III

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This report presents the third part of the results of a taxonomic revision and examination of the actual, reputed or potential type material of bees of Swedish origin. Focus is on the status, depository, type locality, condition and history of name-bearing specimens. Here, 21 taxa have been examined. Lectotypes are designated for the specific taxa *Andrena cinerascens* Nylander, 1848, *A. **nanula*** Nylander, 1848, *Coelioxys hebescens* Nylander, 1848 (now forma of *C. rufescens* Lepeletier & Serville, 1825), *C. simplex* Nylander, 1852, *Osmia corticalis* Gerstaecker, 1869, *O. **mitis*** Nylander, 1852 (now *Hoplitis m.*) and the infraspecific taxon *Andrena marginata* var. *nigrescens* Aurivillius, 1903 (now subspecies of *A. marginata*) (bold= valid epithet). An already labelled but unpublished lectotype of *Coelioxys **mandibularis*** Nylander, 1848 is validated. *Osmia **laticeps*** Thomson, 1872 (**spec. rev.**) is found to be a senior synonym of *Osmia hyperborea* Tkalců, 1983 and a valid name. Re-evaluations are made of the reputedly enigmatic specific taxa *Apis rybyensis* Linné, 1771, *A. cariosa* Linné, 1758 and *A. obscura* Linné, 1764. According to a cabinet species label by Linné's disciple Thunberg, *A. rybyensis* is identical to *Apis **albipes*** Fabricius, 1781 (now *Lasioglossum a.*). *Apis rybyensis* is here classified as a *nomen oblitum*. *Apis cariosa* and *A. obscura* are probably not bees. Further taxa treated are *Halictoides **dentiventris*** Nylander, 1848 (now *Dufourea d.*), *Halictus fasciatus* Nylander, 1848, *H. **arenosus*** Ebmer, 1976 (now subspecies of *H. leucaheneus* Ebmer, 1972), *Lasioglossum **boreale*** Svensson, Ebmer & Sakagami, 1977, *Osmia **svenssoni*** Tkalců, 1983, *Nomada **fusca*** Schwarz, 1986, *Apis arctica* Quensel, 1802 and *Bombus **hyperboreus*** Schönherr, 1809.

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Basic to all work in biology are the taxa. Stability in the use of names of taxa promotes timeless communication in for example such important fields as conservation, ecology and geographic distributional trends. This report contains the third part of the results of a critical examination of the actual, reputed or potential type material of Swedish bees. A review of the history of the scientists and their numerous contributions of taxa as well as a description of the materials and methods used during the present studies were presented in part I (Nilsson 2007). The reader should consult that paper for more on the general scope and technical details of the work. Part II provided neotypification of two specific bee taxa, viz. *Andrena haemorrhoidalis* Fabricius, 1775 (now *Melitta h.*) and *Bombus balteatus* Dahlbom, 1832 (Nilsson 2008). The present contribution treats 21 taxa.

Material and methods

The respective abbreviations of institutions mentioned in the text below denote:

LSL = Linnean Society, London,
NHRS = Swedish Museum of Natural History, Stockholm,

ZMH = Zoological Museum, Helsinki,
ZMHB = Museum für Naturkunde, Berlin,
ZML = Zoological Museum, Lund, and
ZMU = Museum of Evolution, Uppsala (former Zoological Museum, Uppsala).

The examined taxa have been arranged alphabetically below family. The families of bees follow Michener (2007). Information on the present-day distribution of taxa is based on data collected within the Swedish WildBee Project (abbreviated below as SWBP) and stored at the Species Information Centre (ArtDatabanken), Swedish University of Agricultural Sciences (SLU), Uppsala.

Results

For easy access of the essential information on each taxon the respective presentation has been organized into two paragraphs. The first paragraph constitutes a mini summary and consists of a single sentence with five parts due to semicolon divisions (this format is moderated whenever relevant, e.g., in cases of data deficiency). The five parts mention the type status, type locality, original labelling, quality and identity of the name-bearing specimen or other type material primarily studied (see Nilsson 2007 for details). The second paragraph presents the background and taxonomical considerations. It also provides the necessary data and an express statement to accompany any typification according to the current nomenclatural rules (see www.iczn.org/iczn, ICZN 1999).

ANDRENIDAE

Andrena cinerascens Nylander 1848: 216

Lectotype ♀ ZMH [**here designated**]; SWEDEN, Skåne län, Skåne; Scania [printed]/ Dahlbom [hand]/ Coll. Nyldr [printed]/ 78 *cinerascens* [hand, W. Nylander]; good, except left antenna with segments 6-12 and left midtarsus with segments 4-5 lost; *Andrena humilis* Imhoff, det. L.A. Nilsson 2006.

The original publication described both sexes and mentioned that the material was from Scania due to A.G. Dahlbom. Nylander soon (1852b: 255) revised his ♂ *A. cinerascens* to *Andrena gwynana* Smith. Morawitz (1865: 65) assumed that Nylander's ♂ had the identity *Andrena fucata* Smith. However, no ♂ material labelled Dahlbom and/or Scania of the taxa *A. cinerascens*, *A. gwynana* and *A. fucata* is present in Coll. Nylander (ZMH) (L. Norén pers. comm. 2003, P. Malinen pers. comm. 2007). The ♂ remains enigmatic. Below the cabinet species label "*cinerascens*" there stand 3♀♀. Two qualify as syntypes of *A. cinerascens*. The third is a stylopized specimen of *Andrena fucata* (LAN pers. obs. 2006). The syntype specimen bearing Nylander's handwritten label "*cinerascens*" and the label "Mus. Zool. H:fors Spec. typ. No 5145 *Andrena cinerascens* Nyl." is here selected as lectotype and labelled so. The second specimen has a basic labelling identical to the lectotype except for a small handwritten label "78.". It bears also the label "Mus. Zool. H:fors Spec. typ. No 5143 *Andrena cinerascens* Nyl." and is here labelled as paralectotype. Both ♀♀ are identical to *Andrena humilis* Imhoff, 1832 according to the common interpretation of this species (e.g. Schmid-Egger & Scheuchl 1997: 26, Gusenleitner & Schwarz 2002: 350). This synonymy has been listed for a century (Dalla Torre & Friese 1895: 45, Friese 1895b: 202, Dalla Torre 1896: 131, Warncke 1967: 260, Dylewska 1987: 649, Schwarz & al. 1996: 41, Söderman & Vikberg 2002: 54, Gusenleitner & Schwarz 2002: 350). Finland as the type area of *A. cinerascens* is not correct (as in Warncke 1967: 260, Dylewska 1987: 649, Gusenleitner & Schwarz 2002: 350). The typification validates the synonymy and provides a correct type locality.

Andrena marginata var**.** ***nigrescens*** Aurivillius 1903: 202

Lectotype ♀ NHRS [**here designated**]; SWEDEN, Dalarnas län, Älvdalens kn, Särna parish, 61.40N/13.00E; *Dlc. alp./ Bhn.* [printed, C.H. Boheman]; fair, except posterior left tibia+tarsus and right antennal segments 3-12 lost; *Andrena marginata* Fabricius ssp. *nigrescens* Aurivillius, det. L.A. Nilsson 2007.

Nylander (1852a: 101) mentioned that there was ♀ material of a variant with dark-coloured tergites of the species *Andrena marginata* in NHRS but took no taxonomic action. Aurivillius, not citing Nylander's discovery, described the taxon from that material half a century later. He mentioned occurrence "In alpibus Scandinaviae" and that the bee had been found in the provinces of Dalarna and Jämtland. A search in NHRS, where Aurivillius had worked, as well as the other Swedish museums yielded no ♀ *Andrena*-material labelled with an epithet *nigrescens*. However, below the cabinet species label "*cetii* Schrank" (= a junior synonym of *A. marginata* Fabricius, 1776 according to e.g. Schwarz & al. 1996: 44) in Coll. Boheman (NHRS) two specimens that constitute syntypes were found. The 2♀♀ exhibit the distinctive characters mentioned by Aurivillius, viz. the abdomen dorsally blackish, the marginal areas of the tergites yellowish and the clypeus with two whitish spots (Fig.

Figure 1. ***Andrena marginata*** *var.* ***nigrescens*** *Aurivillius – a, b) lectotype ♀, abdomen and head – c) paralectotype ♀, head. This apparent subspecies, characterized by the mainly dark tergites and the spotted clypeus, was described from Dalarna and Jämtland but has not been observed since 1836. Length of abdomen ca. 5.5 and head width 2.8 mm. Photo: L.A. Nilsson.*

Guldsandbi ***Andrena marginata*** *var.* ***nigrescens*** *Aurivillius – a, b) lektotyp ♀, bakkropp och huvud – c) paralektotyp ♀, huvud. Denna uppenbara underart känns igen på de huvudsakligen mörka tergiterna och den fläckade munskölden. Biet beskrevs från Dalarnas fjälltrakter och Jämtland men har märkligt nog inte observerats sedan 1836.*

1). The first syntype specimen bears the label "*Dlc. alp*." (= *Dalecarlia alpibus* = mountaneous part of the province of Dalarna) and "*Bhn*." (= leg. C.H. Boheman). According to Stål (1873: 506), Boheman's collecting trip to Dalarna was made in 1832 and went to the Särna parish (indeed in the NW montaneous part of the province). The second syntype specimen bears the label "*Itl*." (= *Iemtlandia* = Jämtland) and "*Bhn*.". Beside these syntype specimens, there are 2♀♀ labelled "*Dv*." (= Dovre, Norway) and "*Bhn*." that also exhibit the distinctive characters and probably were seen by Aurivillius. According to Stål (1873: 506), Boheman's trip to Jämtland and Norway was made in 1836. The specimen from Dalarna is here selected as lectotype and labelled so. The specimen from Jämtland is here labelled as paralectotype. The specimens bear the green labels "Reg beedata SE Artdatabanken" no. 11090 and 8943, respectively.

The fact that the present infrasubspecific taxon was found at three relatively northern, high-altitude and widely scattered sites indicates a genetically and geographically distinct derivative and thus of subspecific rank, i.e. *Andrena marginata* F. ssp. *nigrescens* Aurivillius **stat. rev.** Warncke (1967: 291) and subsequent authors (viz. Dylewska 1987: 673, Gusenleitner & Schwarz 2002: 458) incorrectly mentioned the type locality as "S-Schweden". The nominate form of *A. marginata* (viz. *A. marginata marginata*) is however the lowland taxon, reaching northwards only to mid-Dalarna and Uppland (SWBP). Bafflingly, ssp. *nigrescens* seems since 1836 neither to have been found in Sweden nor in Scandinavia. To find the bee again is an interesting challenge. Intriguingly, since e.g. yet no ♂ is known, it cannot be ruled out that the bee is a distinct species. The typification provides authentic material and a correct type locality. The species *A. marginata* is nationally redlisted as VU, vulnerable, in Sweden (Gärdenfors 2005). The redlist considered only the nominate subspecies, however.

Andrena nanula Nylander 1848: 222

Lectotype ♂ ZMH [**here designated**]; probably RUSSIA, Siberia, but lacking original labelling; fair and complete, but left forewing broken and marginal

zones of tergites faded translucent; *Andrena nanula* Nylander, det. L.A. Nilsson 2007.

The description was based on both sexes, the material referring to as "Ex Helsingforsia Dom. J. M. J. af Tengström", "E Suecia Dahlbom" and "E Sibiria D. Sahlberg". Below the cabinet species label "*nanula*" in Coll. Nylander (ZMH) there stands only a single specimen, a ♂ labelled "Svecia aust.", "Dahlbom", "Coll. Nyldr", "87." and "Mus. Zool. H: fors Spec. typ. No 5151 *Andrena nanula* Nyl.". Its identity is *Andrena minutula* (Kirby), more exactly of the light-haired 2nd generation (det. L.A. Nilsson 2004). The labelling "Svecia australis" (= southernly Sweden) and the fact that Dahlbom was stationed in Lund make Skåne the most probable place of origin. The identity may lend some credit to Morawitz (1865: 71) who wrote that *A. nanula* Nylander is identical to *A. minutula* (Kirby). Nylander's short description of the *A. nanula* ♂ contains the passages "plerumque paulo minor" (in relation to the ♀ body length given as 5 mm) and "flagellis solum subtus rufis". The above Swedish ♂ has the body length 6.5 mm and the antennae evenly brownish, with no clear difference between upper and lower side (thus differing from both Nylander's description as well as *A. nanula* sensu auct., as in e.g. Schmid-Egger & Scheuchl 1997, Gusenleitner & Schwarz 2002). It is therefore concluded that the above ♂ is not original.

In the Palearctic collection in ZMH a ♂ specimen was found that bears the labelling "Spec. typ.", "Coll. Nyldr", "An Sib. F. Sahlb. annot. J. Sahlb. recens. Alfken", and "Mus. Zool. H:fors Spec. typ. No 5150 *Andrena nanula* Nyl". It thus lacks original labelling but has been interpreted by J.D. Alfken to represent Nylander's authentic material collected in Siberia by Sahlberg. The specimen has a body length of 5.5 mm, antennae yellowish below and brownish above, and characteristic microsculpture on the tergites, mesonotum and clypeus. It conforms to the original description as well as the current interpretation of the species *Andrena nanula* Nylander (as in e.g. Dylewska 1987, Schmid-Egger & Scheuchl 1997, Gusenleitner & Schwarz 2002). The specimen is here designated as lectotype and labelled so. The lectotype specimen has the marginal zones of the tergites less depressed than *A. nanula* ♂ from Sweden.

In the lack of a revision, leading taxonomical lists have mentioned Sweden rather than Russia or Finland as the type area of the species (viz. Warncke 1967: 290, Dylewska 1987: 519, Gusenleitner & Schwarz 2002: 511). The typification provides authentic material. In Sweden, the species is rare, only recorded from five provinces (SWBP), and redlisted as NT, near threatened (Gärdenfors 2005).

HALICTIDAE

Apis rybyensis Linné 1771: 13-14

Nomen oblitum [**here classified**]; type material ♂, presumed lost; SWEDEN, Södermanlands län, Haninge kn, Ribby, 59.07N/18.07E; leg. H. Söderberg.

The taxon was described from material collected at "Ryby" (presently the village Ribby in Haninge kn), S of Stockholm by Linné's student H. Söderberg. Authentic material has never been found in LSL or elsewhere and has been presumed lost, the species being mentioned as "Enigmatic; not yet identified" (Day 1979: 71). Warncke (1986: 110) wrote "*Apis rybyensis* Linné, 1771 = *Halictus calceatus* (Scop.)" (= now *Lasioglossum calceatum*), but without communicating any reason for such a synonymisation. Ebmer (1988b: 692) studied the original description in detail and concluded that the most probable identity was *Lasioglossum albipes* (Fabricius) ♂ (locus typicus is however not situated in "Süd-Schweden, Småland" as Ebmer wrote, but 30 km S of Stockholm in the province of Södermanland). Indeed, since Linné reported "abdominis segmentis stigmatibusque testaceis" (= tergites brick-red), "antennae filiformes, longitudine thoracis", "abdomen…. subcylindricum obtusum" and "tibiae in medio nigricantes", he could, considering the part of Södermanland in question, only have had the ♂ of either of the two mentioned *Lasioglossum*-species of the subgenus *Evylaeus* at hand (LAN pers. obs.).

One indication on the exact identity was found in Coll. Thunberg (ZMU). Below Thunberg's handwritten cabinet species label "*albipes* α. Sv. *rybyensis*" (box 24:29 place 19), there are 2♂♂ of *Lasioglossum albipes*, while below the next label "*albipes β* Sv." (place 20) there is a ♂ of *Lasioglossum calceatum* (LAN pers. obs. 2005). Thus, Thunberg stated on the cabinet species label for place 19 the synonymy of *albipes* variant α. of Sweden = *rybyensis* and verified this synonymy by his own material of a certain species while reserving variant *β* for another Swedish species. Carl Peter Thunberg (1743–1828) was Linné's student and an energetic entomologist. He had undoubtedly studied his teacher's insect collection. Day (1979: 71/81) listed *Apis rybyensis* under *species incertae sedis*. Ebmer (1988b: 693) concluded that it was most probably identical to *Lasioglossum albipes* but should be classified as a *nomen dubium*. According to Thunberg, *Apis rybyensis* Linné, 1771 is identical to and a (senior) synonym of *Apis albipes* Fabricius, 1781: 486. That Fabricius did not know of *Apis rybyensis* is logical because he was Linné's student in Uppsala 1762–1764, well before the description of the species.

According to ICZN (Article 23.9.1) the Principle

of Priority is not applied in a case where the senior synonym has not been used as a valid name after 1899 while a junior synonym has been frequently used as valid. Such a situation applies in the present case of *A. rybyensis* vs. *A. albipes*. Only Billberg (1820: 110) seems to have used *rybyensis* Linné as a valid epithet (he listed the species under the megachilid genus *Chelostoma* in the combination of *Chelostoma rybyensis*). *Apis rybyensis* Linné, 1771 is hereby classified as a *nomen oblitum* (Article 23.9.2.).

Halictoides dentiventris Nylander 1848: 195

Paralectotype ♀ ZMH [**examined**]; SWEDEN, Småland, coast; small silver-coloured rhomboid tag/ ♀/ Smålandia/ Boheman/ Coll. Nyldr [printed]/ Snb №. 48 Bhn [hand]; good, except both antennae lost; *Dufourea dentiventris* (Nylander), det. L.A. Nilsson 2006.

Nylander described the taxon from both sexes and mentioned that the material originated from "Karelia" (Appelberg), "Tavastia" (D. Kekoni) and "Smolandia D. Prof. Boheman". Ebmer (1976: 1) carried out a fixation and stated that the locality of the "Hololectotype" is Tavastia in Finland. He also designated a Swedish paralectotype. In addition to the labelling reported above, it bears the label "Mus. Zool. H:fors Spec. typ. No 5137 *Halictoides dentiventris*". The rhomboid silver-coloured tag indicates "coast" as origin of the specimen (B. Viklund pers. comm. 2005). Baker (1994: 1199) found that *Halictoides dentiventris* Nylander, 1848 is a junior synonym of *Dufourea dejeanii* Lepeletier, 1841. Ebmer (2001: 32) proposed conservation of the specific name *Halictoides dentiventris* Nylander. His application was approved by ICZN (2002). The species *Dufourea dentiventris* (Nylander) is redlisted as NT, near threatened in Sweden (Gärdenfors 2005).

Halictus fasciatus Nylander 1848: 275

Lectotype ♀ ZMH [**examined**]; SWEDEN, the southernly part; Svecia aust/ Dahlbom [hand]/ Coll. Nyldr [printed]/ 91. [hand]; excellent, except posterior right tarsus lost; *Halictus tumulorum* (Linné), det. A.W. Ebmer 1975.

The taxon was described from both sexes due to specimens "E Suecia australiore DD. Dahlbom et Boheman". Warncke (1973b: 284) erroneously reported "E-Schweden" as locus typicus. After having studied the Linnean collection in London in June – July 1851 (Norrlin 1913: 10), Nylander (1852b: 247) stated that his *Halictus fasciatus* was identical to *Apis tumulorum* Linné, 1758 (now *Halictus t.*). Alfken (1899: 122-123) did not study the type material but still interpreted *H. fasciatus* Nylander as different from *H. tumulorum* and erroneously mentioned that it was known to occur in "Finnland (Nylander)". Ebmer (1976: 2) studied Nylander's actual material in ZMH and found 1♀ and 2♂♂ that qualified as syntypes. He corroborated that the ♀ specimen, of the former Coll. Nylander but now in the Palearctic collection, is *H. tumulorum* and designated it as lectotype of *H. fasciatus*. In addition to the labelling reported above, the specimen bears the label "Mus. Zool. H:fors Spec. typ. No 5170 *Halictus fasciatus* Nyl.".

The 2♂♂ were standing below the cabinet species label "*tumulorum*" in Coll. Nylander, and Ebmer (1976: 2-3) found that they belonged to another species, viz. *H. fasciatus* auct. nec Nylander, for which he generated the new specific name *Halictus arenosus*, a taxon that he later (Ebmer 1988a: 359) revised to subspecific status within *H. leucaheneus* Ebmer, 1972 (see below). Ebmer's given reason for choosing the ♀ as lectotype of *H. fasciatus* was that "Der Holotypus (he means lectotypus) ist das einzige Exemplar das einen der Originalbeschriebung entsprechenden Fundortzettel trägt". Ebmer did not designate one of the ♂♂ rather than the ♀ as lectotype of *Halictus fasciatus* Nylander, a specific name that by 1975 had been used for over 140 years as valid (e.g. Smith 1876: 94, Alfken 1899: 122, Erlandsson 1960: 126, Warncke 1973b: 284). His action was controversial since it opposes the stability intention of the ICZN Code. Warncke (1986: 62) continued to use *H. fasciatus* as a valid name. Although Ebmer's action was destabilizing, it is valid according to the Code (I. Kerzhner & M. Schwarz, IK via MS, pers. comm. 2007). For fate of the 2♂♂, see next.

Halictus arenosus Ebmer 1976: 2

Lectotype ♂ ZMH [**examined**]; with all probability southern SWEDEN, Skåne, but the specimen bears no original labelling; good, except right antenna lost; *Halictus leucaheneus* Ebmer ssp. *arenosus* Ebmer, det. L.A. Nilsson 2007.

As mentioned above, the taxon was based on 2♂♂ in Coll. Nylander (ZMH). The 2♂♂ exhibit two labels attached by Ebmer. One ♂ bears a red rectangle reading "Allolectotypus" and then a second label reading on its upper side "HALICTUS Seladonia fasciatus Nyl. nom. nov. *arenosus* EB. det. A.W. Ebmer 1975" and on its lower side "Allolectotypus ♀→*tumulorum*, daher neues Name". The second ♂ bears a red rectangle reading "Allo-Para-lectotypus" and then a second label "HALICTUS Seladonia fasciatus Nyl. nom. nov. *arenosus* EB. det. A.W. Ebmer 19 " (year not filled in but obviously 75). Mysteriously, they both lack any original labelling. Because material from Dahlbom and Boheman in Coll. Nylander

Figure 2. ***Halictus leucaheneus*** *ssp.* ***arenosus*** *Ebmer ♀ (8 mm). This subspecies was with all probability described from the sandy heaths of Skåne. Photo by L.A. Nilsson.*

Stäppbandbi ***Halictus leucaheneus*** *ssp.* ***arenosus*** *Ebmer ♀. Denna underart beskrevs med största sannolikhet från Skånes sandhedar.*

generally bears at least substituted labelling, one may perhaps doubt whether the 2♂♂ are of Swedish origin and part of the type series of *Halictus fasciatus* "E Suecia australiore DD. Dahlbom et Boheman".

Figure 3. ***Coelioxys mandibularis*** *Nylander ♀ – with its characteristic mandibles like box corners (head width 3.2 mm). The type locality of this rather common parasitic bee is southern Sweden. Photo by L.A. Nilsson.*

Ängskägelbi ***Coelioxys mandibularis*** *Nylander ♀ – med sina karakteristiska käkar likt lådhörn. Typlokalen för denna ganska vanliga parasitiska biart är södra Sverige.*

Nylander's original paper (1848) was submitted on 6 December 1847 (as indicated by the journal). According to Norrlin (1913), Nylander did not make any journeys south of Sweden before that date. Moreover, the species *H. leucaheneus* does not occur in Finland or Karelia (Söderman & Leinonen 2003) while it is characteristic for the sandy areas in Skåne where both Dahlbom and Boheman collected (LAN pers. obs.). These circumstances point undisputably to southern Sweden, with all probability Skåne, as type locality and that the 2♂♂ are authentic, just as Ebmer concluded. The 2♂♂ conform to the current common interpretation of the species *Halictus leucaheneus* Ebmer (as in e.g. Pesenko & al. 2000, Amiet & al. 2004). The species *H. leucaheneus* Ebmer, 1972, represented by its subspecies *arenosus* Ebmer, 1976 (Fig. 2), is redlisted as VU, vulnerable, in Sweden (Gärdenfors 2005). According to Ebmer (1988a), the ssp. *arenosus* occurs in the temperate zone of Europe (the nominate ssp. *leucaheneus* is East Asian).

Lasioglossum boreale Svensson, Ebmer & Sakagami 1977: 219

Holotype ♂ ZMU [**examined**]; SWEDEN, Norrbottens län, Kiruna kn, Abisko, 68.20N/18.50E; T. lpm. Abisko 3.8. 73 *Chamaenerion* [hand, B.G. Svensson]; Excellent, complete and with genitalia exposed; *Lasioglossum boreale* Svensson, Ebmer & Sakagami, det. B.G. Svensson, A.W. Ebmer & S.F. Sakagami 1977.

The species was described from both sexes col-

lected in Sweden and Japan. In addition to the holotype, Svensson & al. (1977) designated a Swedish ♀ as allotype (ZMU, **examined**) and 5♂♂23♀♀ as Swedish paratypes (2♂♂10♀♀ in coll. B.G. Svensson, 2♂♂5♀♀ in coll. A.W. Ebmer and 1♂5♀♀ in coll. S.F. Sakagami, 3♀♀ in coll. H. Lundberg). The species is redlisted as DD, data deficient, in Sweden (Gärdenfors 2005).

MEGACHILIDAE

Coelioxys hebescens Nylander 1848: 251

Lectotype ♀ NHRS [**here designated**]; SWEDEN, Skåne län; *Sc*. [printed]; good, except left antennal segments 2-12 and pilosity on disc of mesonotum lost, and outer parts of left forewing ripped; *Coelioxys rufescens* Lepeletier & Serville f. *hebescens* Nylander, det. L.A. Nilsson 2007.

The taxon was described from both sexes on the basis of material from "Suecia australiori DD. Boheman et Dahlbom", "Ulaburgi" (apparently due to Nylander) and "Sibiria D. Sahlberg". Nylander also wrote that only the ♀ was distinctive (vs. his *Coelioxys acuta* = now *Coelioxys conica* (Linné)), viz. by its "valvula interiori…margine apicali convexo-obtuso". This character was illustrated (Nylander 1848: Tabulae III: Fig. 11*a*) and referred to as in "speciminis Suecici". Subsequently, Nylander (1852b: 284) revised the boreal distribution of his taxon *C. hebescens* to exclusively (southernly) Sweden. There is no authentic specimen in ZMH (L. Norén pers. obs. 2003, P. Malinen pers. comm. 2006). A ♀ lacking the distinctive character on the last sternite and a ♂, both labelled "Uleåborg" and "W. Nyl.", were obtained for study from ZMH but none of these qualify as syntypes (sex and dates do not conform to the information given in Nylander's original paper). According to Norrlin (1913), Nylander worked in Stockholm in the summer of 1842 and August – early October 1850. Below the cabinet species label "*rufescens* Lep." in Coll. Boheman (NHRS) there stand 2♀♀ labelled with the epithet *hebescens*. One bears the original label "*Sc*." (= Scania= Skåne) and a non-original label "*C. rufescens hebescens* Nyl.". The province label is identical to the ones used by C.H. Boheman. With all probability, this ♀ is a syntype. The specimen is here selected as lectotype and labelled so.

Some authors have treated *hebescens* as a variety of the species *Coelioxys rufescens* Lepeletier & Serville, 1825 (viz. Dalla Torre 1896: 491, Alfken 1912: 136, 1913: 76, Forsius & Nordström 1921: 73, Erlandsson 1955: 179). According to the most common as well as recently stable interpretation (e.g. Smith 1854: 259, Gerstaecker 1869: 169, Thomson 1872: 276, Janzon & al. 1991: 95, Warncke 1992: 42, Scheuchl 1996: 108, 2006: 174, Schwarz & al. 1996: 114), however, *C. hebescens* Nylander is a form (f.= forma) of the species *C. rufescens*. In Sweden, the bee *hebescens* seems to occur sporadically within the distribution of *C. rufescens* (LAN pers. obs.). The last sternite of *hebescens* (♀) exhibits neither a sharply pointed tip nor a sharp edge but an outline like an evenly rounded stern of a boat, thus principally different from the sharp last sternite in typical *rufescens* or other West Palearctic species of *Coelioxys*. This probably reflects that the shape of the last sternite is subject to a relative lack of genetic regulatory stability in *C. rufescens* and that the bee *hebescens* is unfit as a parasite. Warncke (1992) listed the West Palearctic *Coelioxys* species and their hosts. Of those with known host relationships, all exclusively or mainly attack *Megachile* except *C. rufescens* that exclusively attack *Anthophora*. Apparently, the bee *hebescens* reflects a lingering genetical consequence from the switch that, perhaps not so long ago, occurred in the host shift from *Megachile* to *Anthophora*. Frequency, occurrence and host relationship all indicate status of *hebescens* as a forma. The typification provides authentic material and one type locality.

Coelioxys mandibularis Nylander 1848: 252

Lectotype ♀ ZMH (B. Tkalců unpubl.) [**here validated**]; SWEDEN, the southernly part; Suecia aust./ Dahlbom [hand]/ Coll. Nyldr [printed]/ Snb №. 50 Dlbm [hand]; excellent, complete; *Coelioxys mandibularis* Nylander, det. B. Tkalců.

The taxon was described on the basis of ♀ material: "E Karelia (paroec. Sakkola initio m. Julii) Dom. J. G. Appelberg (Mus. Fenn.). E Suecia australiori D. Dahlbom". That the type material only originated from Finland is thus not correct (as in Warncke 1992: 41). A total of 3♀♀ labelled "Coll. Nyldr" was obtained for study from ZMH. Two qualify as syntypes, one of which is from Karelia and the other from Sweden. The Swedish ♀ has been labelled "Lectotypus *Coelioxys mandibularis* Nyl. ♀ Tkalců det." by B. Tkalců (loan HY 4462: 1982–1985, P. Malinen pers. comm. 2006). His designation has, however, not been published (M. Schwarz pers. comm. 2007). The specimen is relatively large (body length 11.5 mm) but conforms to the original description as well as the common interpretation of the species (as in e.g. Amiet & al. 2004, Scheuchl 2006). Tkalců's selected and already labelled lectotype is here accepted. The lectotype bears also the label "Mus. Zool. H:fors Spec. typ. No 5158 *Coelioxys mandibularis* Nyl.". The second ♀ is here labelled as paralectotype. It bears the labelling "♀", "Karelia", "Appelbg", "W. Nyld." and "Mus. Zool. H:fors Spec. typ. No 5157 *Coelioxys mandibularis* Nyl.". The typification provides authentic material and one type locality. In Sweden, the

species (Fig. 3) has been recorded up to Gästrikland and is not rare in the southern provinces (SWBP).

Coelioxys simplex Nylander 1852b: 279

Lectotype ♀ NHRS [**here designated**]; SWEDEN, Västra Götalands län, Bohuslän; *Bh./ P.Wg.* [printed]; good, except left antennal segments 6-12 lost; *Coelioxys elongata* Lepeletier, det. L.A. Nilsson 2008.

The taxon was described from ♀ material. Geographic information was only given as "In Svecia inferiore occurrit haec species, in Europa media frequenter obvia", collector or depository not being mentioned. In Coll. Nylander and in other collections at ZMH there is no specimen labelled *Coelioxys simplex* (L. Norén pers. obs. 2003, P. Malinen pers. comm. 2006). It must therefore be concluded that Nylander had seen authentic Swedish material during his studies at NHRS in August – early October 1850 (cf. Norrlin 1913: 9). At the time, C.H. Boheman was in charge of the collection. Below the cabinet species label "*simplex* Nyl." in Coll. Boheman (NHRS) there stand 4♀♀, two of which are from southern Sweden and qualify as syntypes. One ♀ bears the original labelling "*Bh*." (= Bohuslän) and "*P.Wg*." (= P.F. Wahlberg). It is here selected as lectotype and labelled so. The other ♀ bears the original labelling "*V.G*." (= Västergötland) and "*Dn*." (= J.W. Dalman). It is here labelled as paralectotype.

The type material conforms to current common interpretation of the species *Coelioxys elongata* Lepeletier, 1841 (as in e.g. Amiet & al. 2004, Scheuchl 2006). That the taxon is conspecific with, and a junior synonym of, *C. elongata* has been listed for long (viz. Gerstaecker 1869: 170, Smith 1876: 142, Saunders 1884: 195, Dalla Torre & Friese 1894: 35, Friese 1895a: 63, Dalla Torre 1896: 485, Forsius & Nordström 1921: 73, Vikberg 1986: 82, Janzon & al. 1991: 95, Warncke 1992: 41, Scheuchl 1996: 108, 2006: 174, Schwarz & al. 1996: 113, Söderman & Vikberg 2002: 57). The typification validates the synonymy and provides a type locality.

Osmia corticalis Gerstaecker 1869: 331

Lectotype ♂ ZMHB [**here designated**]; GERMANY, Pommern, Garz; Deutschland [printed] Garz Triepke S. [hand]; complete, excellent; *Osmia nigriventris* (Zetterstedt), det. L.A. Nilsson 2007.

The original description was based on material of both sexes: a pair from Pommern (leg. Triepke) and 1♀ "aus Schweden (Gyllenhal)". Gerstaecker wrote that the Swedish specimen was "mit den obigen Namen belegt", referring to "*Anthophora corticalis* *Gyllenhal i. lit.". Leonard Gyllenhal (1752–1840) was resident at Höberg in Västergötland, a province where he did most of his collecting. Clearly, Gerstaecker adopted Gyllenhal's manuscript epithet for the taxon. In ZMHB, where Gerstaecker's material is deposited, the pair from Pommern but not Gyllenhal's Swedish specimen could be found (F. Koch pers. comm. 2006). The German specimens, each one of which bears a red printed paper rectangle reading "Type", are syntypes of *Osmia corticalis* Gerstaecker. The ♂ bears the above basic labelling and also a (probably by Gerstaecker) handwritten folded label reading "*corticalis* Gerst.* *nigriventris* Gir. (nec Zett.) Garz. Triepke". The ♂ is here selected as lectotype and labelled so. The ♀ bears the same basic labelling as the ♂ but lacks any label with a species epithet. It is here labelled as paralectotype.

In Coll. Gyllenhal (ZMU) there are (in box 337) two relevant cabinet species labels, one reading "*Anthophora corticalis* Eg. ♂ Baalseb. in cort Pini" with 2♂♂ below and the other "*Anthophora corticalis* Eg. ♀" with 2♀♀ below (LAN pers. obs. 2006). Gyllenhal wrote "Eg." after names he had invented himself. These four specimens (which do not qualify as syntypes, since Gerstaecker (1869) never studied them), like in principal all others in the collection, are completely devoid of any original pin labelling. Gyllenhal's funny one-liner on the cabinet species label reveals the explanation for his invented epithet – he had found the insect, or literally "the Devil" (Beelzebub), in the cortex of pine. Strand (1909: 16/18) listed other bee specimens from Gyllenhal in ZMHB as "*H. leucophus*/ Svecia (Gyllenhal)" and "*H. malachurus*, K. Gyllenh., Suecia". Thus, the specimen data Gerstaecker reported probably came from such a simple labelling which almost certainly, in whole or in part, had not been attached by Gyllenhal himself but by collectors or museums after his death.

The German lectotype and paralectotype of *Osmia corticalis* Gerstaecker in ZMHB as well as the four specimens of *Anthophora corticalis* Eg. in ZMU all conform to current interpretation of the species *Osmia nigriventris* (Zetterstedt, 1838) (as in e.g. Amiet & al. 2004, Scheuchl 2006). The synonymy has been listed for over a century (Thomson 1872: 244, Friese 1891: 262, Dalla Torre & Friese 1895: 72, Schmiedeknecht 1907: 123, Friese 1911: 123, Blüthgen 1930: 810, Scheuchl 1996: 110, 2006: 178, Schwarz & al. 1996: 125). The typification validates the synonymy and provides one type locality.

Osmia laticeps Thomson 1872: 242 and *Osmia hyperborea* Tkalců 1983: 156

Lectotype ♀ ZML [**spec. rev.**]; SWEDEN, Skåne län, Ängelholms kn, Rössjöholm, 56.19N/13.06E; Rshm 6/6 / *laticeps* [hand, C.G. Thomson]; complete, with excellent coat and no pollen, but abdomen loose and glued to a piece of pinned cardboard; *Osmia laticeps* Thomson, det. L.A. Nilsson 2005.

*Figure 4. **Osmia laticeps** Thomson, ♂ and ♀ (8 resp. 9 mm). This species occurs widely in light boreal forest with flowering **Vaccinium**. Its type locality is Rössjöholm in NW Skåne. Note the anterior first long tarsal segment in the ♀. Photo by L.A. Nilsson.*

*Lingonmurarbi **Osmia laticeps** Thomson, ♂ och ♀. Denna art förekommer vitt spridd i ljus boreal skog med blommande blåbär och lingon. Dess typlokal är Rössjöholm i Skåne. Lägg märke till att honan har framfotens första segment långt och smalt.*

Thomson based the description on both sexes. No particular locality was mentioned but just "Sällsynt; troligen utbredd öfver hela Skandinavien" (= Rare; probably distributed over the whole of Scandinavia). Below the cabinet species label "*laticeps*" in Coll. Thomson (ZML) there stands only a single specimen, a ♀. Why there is no further (such as ♂) material is not known. Tkalců (1983: 154) designated and labelled the ♀ specimen as lectotype. He also reported that the specimen was identical to *Osmia uncinata* Gerstaecker, 1869, and accordingly concluded that *O. laticeps* Thomson was a junior synonym. Such a synonymy, but without the study of Thomson's type material, has been listed before and after Tkalců's lectotypification of *O. laticeps* (viz. Schmiedeknecht 1885-1886: 84, 1907: 123, Friese 1891: 262, 1911: 121, Dalla Torre & Friese 1895: 72, Dalla Torre 1896: 414, Ducke 1900: 257, Vikberg 1986: 82, Zanden 1986: 73, Janzon & al. 1991: 94, Schwarz & al. 1996: 128, Banaszak & Romasenko 1998: 123, Söderman & Vikberg 2002: 57, Scheuchl 2006: 181).

In the same paper, Tkalců (1983: 156) described the species *Osmia hyperborea* as new. The material consisted of 2♂♂ collected by B.G. Svensson near Abisko, very far north in the montaneous part of Sweden. Tkalců (1983: 156) described a holotype [**here examined**] (in ZMU) and labelled the second ♂ as paratype (in coll. B. Tkalců). The holotype bears the original labelling "T. lpm. Abisko 5/6 1974 B.G. Svensson" [printed+hand, B.G. Svensson]. The condition of the specimen is excellent, with all parts com-

*Figure 5. **Hoplitis mitis** (Nylander), a species described from Öland, Gotland and Småland. Here two ♂♂ are struggling for mating access to a ♀ (undermost). Body lengths ca. 9 mm. Gotland, Tofta skjutfält at 14.35h on 28 June 2004. Photo by L.A. Nilsson.*

*Klockgnagbi **Hoplitis mitis** (Nylander), en biart som beskrevs från Öland, Gotland och Småland. Här kämpar två ♂♂ om att få para sig med en ♀ (underst) i en blomma av stor blåklocka på Tofta skjutfält, Gotland.*

plete and with the genitalia mounted on cardboard. It was soon mentioned that *O. hyperborea* Tkalců may be a circumboreal taxon (T. Griswold in litt. to B.G. Svensson 1986 according to BGS pers. comm. 2005). Evidence for such a distribution has not yet been presented.

The taxon *O. hyperborea* was accepted as valid by some authors (as by Zanden 1988: 125, Janzon & al. 1991: 94). In the Central European catalogue it was listed as a synonym of *Osmia parietina* Curtis, 1828 (viz. in Schwarz & al. 1996: 126). In a treatment including identification keys of the Megachilidae of Europe it was not mentioned at all (viz. in Banaszak & Romasenko 1998). Shortly thereafter, Haeseler (1999) discovered the distinctive characters of the ♀ of *O. hyperborea*. From then on, the taxon seems to have gained general acceptance (as in Söderman & Leinonen 2003, Amiet & al. 2004, Scheuchl 2006). A re-examination of the lectotype (♀ specimen) of *Osmia laticeps* Thomson showed that it in all characters is identical to *Osmia hyperborea* Tkalců, 1983 (**syn. nov.**). Especially, the anterior first tarsal segment is 4X longer than wide and the outer part of the lamina (velum) of the anterior tibial spur is distinctly emarginate (conforming to the illustrations in Amiet & al. (2004: 118)). The head is 1.08X broader than long, a character evidently noticed by the sharp-eyed describer Thomson. The body length is 7.5 mm, which is small relative to most ♀♀ of the species (LAN pers. obs.). Less than 10 years of stable use as well as few authors and papers using the name *O. hyperborea* as a valid name do not support reversal of the Principle of Priority (ICZN Article 23.9., M. Schwarz in litt. 2008, A. Müller in litt. 2008). *Osmia laticeps* Thomson is a senior synonym and the correct name of the species (*Osmia laticeps* Friese, 1899: 64, described from Egypt, is a junior homonym, see Zanden 1986: 73). The holotype of *O. hyperborea* now bears a label "*Osmia laticeps* Thomson (= *hyperborea* Tkalců), det. L.A. Nilsson 2005". Luckily, the very misleading and for biological understanding detrimental epithet *hyperborea* must be abandoned for the relevant epithet *laticeps*.

The taxon *O. hyperborea*, as the name implies, was described by Tkalců due to material from an extremely northern locality. In Sweden, *Osmia laticeps* is now known from at least ten biogeographical provinces including (due to the lectotype) the very southernmost one Skåne (SWBP). The species is only very marginally "hyperboreal". Indeed, as more and more records have become known during the last decade, a regional distribution close to Thomson's original suggestion of "the whole of Scandinavia" seems very probable. The bee (Fig. 4) seems to be generally not rare in its typical habitat, viz. light and often rocky coniferous forest with flowering *Vaccinium* on which it is oligolectic (LAN unpubl. data). The species is now known also from Germany (Haeseler 1999, Amiet & al. 2004), Finland (Söderman & Leinonen 2003) and Lithuania (V. Monsevičius pers. comm. 2006).

Osmia mitis Nylander 1852b: 272

Lectotype ♂ NHRS [**here designated**]; SWEDEN, Gotlands län/kn, Gotland; *Gl./ Bhn*. [printed, C.H. Boheman]; excellent, complete; *Hoplitis mitis* (Nylander), det. L. Norén 2005.

Nylander (1848: 263-264) described the new species *Osmia tuberculata* on the basis of ♀ material from "G:la Carleby" in Finland. After studies of bees in Stockholm (NHRS) August – early October 1850, Nylander (1852a: 105-106) wrote that the cabinet ♂ material of *O. tuberculata* from Gotland and Öland was perhaps the hitherto undescribed ♂ of this species while the ♀ material from Gotland, Småland and Dovre suggested variation in the presence of the ventral tubercle (material all due to "D. Boheman"). He also suggested that the tubercle had perhaps been occasional in the originally described specimen from Finland. In his 1852a-paper Nylander provided a description of the ♂ but not really of the ♀. Clearly, at this point he was uncertain about the specific characters as well as the taxonomical status of the material. In his next publication (1852b: 272), Nylander reported that the species seen in Stockholm was new and provided *Osmia mitis* as a justified new name. In his revised list of species, Nylander (1852b: 284) did not include Finland but only Sweden in the distribution of *O. mitis*.

Below the cabinet species label "*mitis* Nyl." in Coll. Boheman (NHRS) there stand eight specimens. Seven qualify as syntypes: 2♂♂2♀♀ labelled "*Gl*." (= Gotland), 2♂♂ "*Oel*." (= Öland) and 1♀ "Sm." (= Småland). In addition, all these bear the label "*Bhn*." (= leg. C.H. Boheman). A ♂ from Gotland is here selected as lectotype of *Osmia mitis* Nylander and labelled so. It bears the green label "Reg beedata SE ArtDatabanken 13010". The remaining six specimens are here designated as paralectotypes. The paralectotype ♂ from Gotland bears the green label "Reg beedata SE ArtDatabanken 13011" and the two ♀ paralectotypes from this island bear similar labels with no. 13013 and 13014. The two ♂ paralectotypes from Öland bear similar labels with no. 13009 and 13012 while the ♀ from Småland bears the no. 13015. The lectotype and paralectotypes conform to the common interpretation of the species *Hoplitis mitis* (Nylander) (as in e.g. Amiet & al. 2004, Scheuchl 2006). The typification provides authentic material and a type locality. In Sweden, the species (Fig. 5) has probably gone extinct in four out of six provinces

and is presently known only to occur on Öland and Gotland (SWBP).

Osmia svenssoni Tkalců 1983: 154
Holotype ♂ ZMU [**examined**]; SWEDEN, Norrbottens län, Kiruna kn, Abisko, 68.20N/18.50E; T. lpm. Abisko bo nr. 3 [hand, B.G. Svensson]; excellent, complete and with genitalia mounted on cardboard; *Osmia svenssoni* Tkalců, det. B. Tkalců.

The species was described from both sexes. The individuals had emerged from a nest collected from the underside of a flat stone in subalpine heath (B.G. Svensson pers. comm. 2004). In addition to the holotype, Tkalců designated 2♂♂ and 3♀♀ as paratypes, of which 1♂ and 2♀♀ were stated to belong to Uppsala University and 1♂1♀ to coll. B. Tkalců. The species was listed as valid by Janzon & al. (1991: 94) but as a junior synonym of *Osmia uncinata* Gerstaecker by several authors (viz. Schwarz & al. 1996: 128, Söderman & Vikberg 2002: 57, Söderman & Leinonen 2003: 208). Any evidence for such a synonymy has not yet been presented. Recent comparative studies have indicated that it is a distinct species (Müller 2002, LAN pers. obs.). Except in Sweden, the taxon *Osmia svenssoni* has been found in the Kilpisjärvi area in northern Finland (J. Paukkunen pers. comm. 2007). The species *O. svenssoni* is redlisted as DD, data deficient, in Sweden (Gärdenfors 2005).

APIDAE

Nomada fusca Schwarz 1986: 434
Paratypes 2♀♀ NHRS [**examined**]; SWEDEN, Västerbottens län (further data by SWBP); det. M. Schwarz 1986.

The holotype and allotype of this species are from Finland but most of the paratypes are from Sweden (Schwarz 1986: 434-435). A search for the number of Swedish specimens labelled as paratypes yielded 27♀♀, viz. 16♀♀ in ZML (R. Danielsson pers. comm. 2008), 2♀♀ in NHRS, 8♀♀ in coll. M. Schwarz (MS pers. comm. 2007) and 1♀ in coll. L. Norén (LN pers. comm. 2005).

In Finland, Söderman & Leinonen (2003) treated *fusca* as a variety of *Nomada panzeri* Lepeletier. Such a treatment is, however, not warranted (M. Schwarz pers. comm. 2005). Subsequently, a recent re-determination of the *Nomada* material at ZMH corroborated the presence of the specific characters of *N. fusca* reported by Schwarz (1986) and showed that the species occurs in at least 11 provinces in Finland (J. Paukkunen pers. comm. 2007). In Sweden, the species is sympatric with, as well as distinctive in both sexes vs., *N. panzeri* and apparently restricted to the host *Andrena fucata* Smith (LAN pers. obs. 2000–2007). *Nomada fusca* (Fig. 6), just like its host, is a rather common and widespread bee in this country.

Bombus hyperboreus Schönherr 1809: 57 and ***Apis arctica*** Quensel 1802: 253
Holotype ♀ NHRS [**examined and labelled as holotype**]; FINLAND, Lapplands län, Enontekis district; ♀ [printed]/ Lapponia D: Grape [hand]; fair and with good colour, except right hindwing, left midtarsal segments 2-5, right midtarsal segments 4-5, left hindtibia+tarsus (these replaced with glued legparts from another species, seemingly a *Bombus* s.str. probably *terrestris* (Linné)) and right hindtarsal segments 3-5 lost; *Bombus hyperboreus* Schönherr, det. L.A. Nilsson 2007.

Conrad Quensel (1767–1806), at the time Curator of the Academy of Sciences Collections in Stockholm, described the taxon "*Apis Arctica*" from material obtained in Lapland 1798–1799 by Guiseppe Acerbi (1773–1846), an Italian traveller. A ♀ of the species was depicted on a coloured plate in Acerbi's book and the species description by Quensel (spelled Quenzel in the book) appeared in the plate caption and reads "nigra – thorace anticè posticèque fulvo, abdomine supra fasciis flavis fulvisque". Information was neither given about where in Lapland the material had been collected nor by whom. In a museum catalogue of the Academy of Sciences Collections in 1811 by O. Swartz (Swartz 1811) there is no specimen of *Apis arctica* (or *Bombus arcticus* or *B. hyperboreus*, see below) listed. This is due to the fact that Quensel's insect collection had not been obtained by the Academy but been purchased in the autumn 1806 by C.J. Schönherr whose collection much later (1848) became donated to NHRS (Löwegren 1952: 362). Insects obtained by Acerbi on his travel and described by Quensel are now in NHRS (B. Gustafsson pers. comm. 2006).

Very soon after his acquisition of Quensel's collection Schönherr described the taxon *Bombus hyperboreus* from a single ♀ from "Lapponia Tornensi, circa Enontekis; Grape", i.e. around Enontekis in present Finland by a young, later clergyman and politician, Isak Grape (1779–1855). It deserves attention that already in the beginning of the original text, Schönherr (1809: 57) simply wrote "*Apis arctica*, Acerbi Travels through Sveden" as an (inferior) synonym of his *Bombus hyperboreus*. Quensel's name was not mentioned in the paper by Schönherr. There is thus reason to believe that Quensel and Schönherr based their descriptions on the same unique specimen. Since Schönherr cited Acerbi, it is enigmatic why he generated a new name for the species. Apparently Schönherr, as well as later Dahlbom (1832: 42),

*Figure 6. **Nomada fusca** Schwarz, ♂ and ♀ (11 resp. 9.5 mm). This N European parasitic bee species is mainly known from Sweden, where it is rather common wherever the apparent host **Andrena fucata** Smith occurs. Photo by L.A. Nilsson.*

*Hallongökbi **Nomada fusca** Schwarz, ♂ och ♀. Denna Nordeuropeiska parasitiska biart är huvudsakligen känd från Sverige, där den är ganska vanlig varhelst den vitt spridda och uppenbara värdarten hallonsandbi **Andrena fucata** Smith förekommer.*

for some reason disregarded Quensel's description of *Apis arctica* in Acerbi's publication. Still, Dahlbom communicated elsewhere (1837: 281) that *B. hyperboreus* was "upptäckt af Acerby" (= discovered by Acerbi) and thus, although not explicitely, corroborated the synonymy.

Milliron (1960: 93) designated Schönherr's authentic specimen as lectotype and attached the label "Lectotype *Bombus hyperboreus* Schön. ♀ H.E. Milliron 1960". But as stated by Løken (1973: 114) the original description was based on a single individual. She reported it as the holotype with the original labelling as above and also the labels "40" and "holotype ♀ *B. hyperboreus* Schönherr A. Løken 1965". An examination of the labelling of the specimen showed that a printed label "♀" has been damaged in the centre by the pin, what is left now of the print resembling "40", and there is no label mentioning holotype or Løken. The specimen is hereby labelled as holotype. The deceptive replacement of most of the left hindleg probably results from an attempt to mask damage caused during handling of the specimen for public exhibition. *Apis arctica* is an apparent senior synonym of *Bombus hyperboreus* Schönherr, 1809 but was classified as *nomen oblitum* by Løken (1973: 114), an act declassing the discovery by Quensel and Acerbi (Quensel 1802) in favour of the acquisitive follower Schönherr for the sake of stability. According to ICZN (Article 23.9.), Løken's action is supported.

SPECIES INCERTAE SEDIS

Apis cariosa Linné 1758: 578

Type material not found [**presumed lost**]; SWEDEN, Skåne; coll. J. Leche; taxon never re-identified with any certainty.

The taxon was formally described in only two lines including also the information "*Habitat in* Europae *ligno carioso*". Earlier, in the 1st edition of Fauna Svecica (1746: 301 no. 1001), Linné had given a more detailed species description including "Habitat in antliis & siphonibus cariosis *Scaniae*. D. Leche". This means that the authentic material had been collected by his friend Johan Leche (1704–1764) in the province Scania (Skåne). The reason for mentioning Leche (many times) in Fauna Svecica was that he had showed a collection of more than 500 Scanian insects to Linné in Stockholm 1744 (Löwegren 1952: 355). Before, in a letter dated (n.s.) 27 July 1744, Leche mentioned that he wanted to speak to Linné and "öfwerlemna min samling af Insecter" ("deliver/donate my collection of insects") (E. Nyström pers. comm. 2008). This suggests that Linné not only studied the material but actually got it. In Coll. Leche (ZML) there are no bees (LAN pers. obs. 2008), and no material is pres-

ent in Åbo (now Turku) in Finland where Leche was appointed professor in 1748. A fire destroyed a large part of the old museum collections and most of Turku in 1827 (S. Koponen pers. comm.). Material of *Apis cariosa* has not been found in the Linnean collections and has been presumed lost (Day 1979: 58).

Warncke (1973a: 23, 1973b: 294, 1986: 93) interpreted *Apis cariosa* as "= *Halictus ? calceatus* (Scopoli, 1763)" and even listed it without any question-mark under "*Halictus calceatus* (Scopoli)" (now *Lasioglossum calceatum*). Such a synonymy is however impossible since the latter bee nests in the soil (see e.g. Pesenko & al. 2000: 237) while *A. cariosa* inhabited holes in rotten wood (cf. Linnaeus 1746: 301). According to Day (1979: 58) "there can be little doubt that the name applies to a species of *Hylaeus*, most probably *communis* Nylander". No reason for his conclusion was presented. In case of a *Hylaeus*, Linné's passage (1746: 301) "sed inter antennas flava" would indicate a ♂.

Only a weak indirect hint on identity was found in the old Swedish collections (LAN pers. obs. 2006). In Coll. Thunberg (ZMU) box 25:1 the cabinet species label no. 15 reads "*cariosa*" and below this epithet a second line "*Hyl. 4cinctus* F." in somewhat smaller letters. Below this label there stands a single ♂ of *Halictus eurygnathus* Blüthgen (det. L. Norén 2004). Below the preceeding cabinet species label (25:1 place 14 "*annulata* β Svec.") there stand two specimens, 1♂ *Hylaeus confusus* and 1♂ *H. gibbus*. Thunberg seems to have placed *cariosa* either in *Halictus* or *Hylaeus*.

There are several strong pieces of evidence that the authentic *cariosa* neither was *Hylaeus communis* nor a bee. In Linné's 1746 book, the size of the insect (in 1758 *Apis cariosa*) was referred to as similar to the preceding (in 1758 *Apis tumulorum*). The size of *Hylaeus communis* ♂ is considerably smaller than *Halictus tumulorum* ♂. Moreover, Linné described also *Apis annulata* (presently *Hylaeus annulatus*) in 1758. Since the type material of *A. annulata* in LSL consists of both sexes (Day 1979:49), he certainly would not have separated such a very similar species as *H. communis* (or any other Swedish *Hylaeus*) from it without referring to some relative character. His descriptions of *cariosa* and *annulata* are very different and placed with two species in between. Furthermore, Linné placed it in the systematic position before *Apis coarctata* (now *Eumenes coarctatus*) (Linnaeus 1746: 301), after *Apis ichneumonea* (now *Sphex ichneumoneus*) (Linné 1758: 578), and after *Apis ruficornis* (now *Nomada ruficornis*) (Linné 1761: 424), and again after *Apis ichneumonea* (Linné 1767: 959). This primarily points to a species of Sphecidae or Eumenidae, indeed two groups with many species exhibiting yellowish facial markings and nesting in holes in rotten wood. Still, there is a possibility that Linné never really had the opportunity to compare, because he may only have seen the insect in 1744 due to Leche whereas *A. annulata* was evidently found later.

Day (1979: 80) listed the taxon as "*Hylaeus cariosus* (L.) ?comb." and with "*communis* Nylander, 1852 [*Hylaeus*] ?syn." as a synonym. Thereafter, it has been listed under *Hylaeus communis* Nylander 1852 either with a question-mark (viz. Dathe 1980: 259, Vikberg 1986: 79, Schwarz & al. 1996: 12) or as *nomen dubium* (viz. Söderman & Vikberg 2002: 54, Söderman & Leinonen 2003: 56). However, any listing of *Apis cariosa* as a bee is highly doubtful. It is therefore best listed under *species incertae sedis*.

Apis obscura Linné 1764: 417

Type material not found [**presumed lost**]; Geographic origin and collector unknown. Taxon never re-identified with any certainty.

The insect was described by Linné in his catalogue of material in Coll. Queen Ludovica Ulrica. No information on locality or collector was given. The catalogue was published long after the manuscript had been finished (which it had even before the publishing of his 10th edition of Systema Naturae) (Wallin 2001). This is why Linné cited his catalogue issued in 1764 already in his work 1758. Linné listed a total of eight "*Apis*" species in his catalogue. Six were cited as already described while two (*Apis affinis* and *A. obscura*) were described as new. While he treated the six first both in his 10th (1758) and 12th (1767) edition of Systema Naturae, he did not mention any of the last two in these books. The reason for the exclusion pattern is unknown. The Queen's Collection was donated to Uppsala University in 1804. The same year it was catalogued by the entomologist Carl Peter Thunberg (1743–1828), one of Linné's students. There is no *A. obscura* mentioned in Thunberg's catalogue (H. Mejlon pers. comm.), indicating that there was no material of *A. obscura* in the collection. Later Schulz (1912: 56), who studied the Hymenoptera in the collection 1909, mentioned explicitely that the species *Apis obscura* was missing (while *Apis affinis* (now *Vespa affinis* (Linné) was present). In the species number series of the collection the number 8 (= the number in Linné's catalogue) is missing (Holm 1953: 10), indicating that no material exists. In the present Queen collection (ZMU), there is neither a cabinet species label "*obscura*" nor an empty space in the order which follows Linné's 1764 catalogue (LAN pers. obs. 2005).

Warncke (1970: 30) wrote that *Apis obscura* Linné is a senior synonym of the European bee *Andrena marginata* Fabricius, 1776 and even mentioned

Sweden as type locality. He discussed no reasons. Later (1986: 106), he listed it as doubtful, viz. "♀ (Schweden) = *Andrena ? marginata* F.". Linné's description included "subulata" (= long, narrow and tapering) to characterize the "lingva" (= tongue, he means proboscis) and "sessile, ovato-oblongum. Segmenta 4 ultima luteo-ferruginea" the abdomen. Apparently these two characters were the most decisive for Warncke's interpretation – they both remind of *A. marginata*. But this bee is small while the Queen's collection displays large and spectacular insects, thus mostly tropical ones. The respective habitat of the eight "*Apis*" species was given as "*America*", "*Indiis*" (2 spp.), "*Europa* australi", "*Calidis*" (3 spp.) and "- - - -", the last dashes representing *A. obscura*. Thus all with habitat information were non-Swedish. The geographically closest to Sweden "*Europa* australi" represented *Apis violacea*, now *Xylocopa violacea* (Linné, 1758). The latter species has a body length of at least 20 mm but Linné (1764) did not mention size in any of the eight species. Linné's reason for the epithet "*obscura*" clearly was not colour (abdomen described as yellowish) but thus rather "inconspicuous" or "modest in size", or even "not easily understood". The epithet itself suggests that this "*Apis*" deviated markedly from the rest. The systematic position, after six "good" bees and then the wasp *Vespa affinis* as well as being put last, suggests that the insect was not a bee. Day (1979: 68) speculated that *A. obscura* may perhaps be a cimbicid or other sawfly. Such an identity seems not possible, though, because Linné wrote that the proboscis was subulate. A sphecid or eumenid wasp seems more probable.

As concluded by Day (1979: 68), it seems most unlikely that Warncke's guess on *A. obscura* as a small (ca. 10 mm) bee from Sweden is correct. The synonymy stemming from Warncke has been listed in recent European bee catalogues as doubtful (Schwarz & al. 1996: 44, Gusenleitner & Schwarz 2002: 458). The insect was probaby neither a bee nor Swedish and remains highly enigmatic. It should therefore be listed under *species incertae sedis*.

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References

Alfken, J.D. 1899. *Halictus tumulorum* L. und seine Verwandten. – Ent. Nachr., Berlin 25: 114-126.

Alfken, J.D. 1912. Die Bienenfauna von Ostpreussen. – Schr. Phys.-ökon. Ges. Königsberg 53: 114-182.

Alfken, J.D. 1913. Die Bienenfauna von Bremen. – Abh. Naturw. Ver. Bremen 22: 1-220.

Amiet, F., Herrmann, M., Müller, A. & Neumeyer, R. 2004. Apidae 4. – Fauna Helvetica 9: 1-273.

Aurivillius, C. 1903. Steklar. Hymenoptera. 1. Gaddsteklar. Aculeata. Första Familjen. Bin. Apidae. – Ent. Tidskr. 24: 129-218.

Baker, D.B. 1994. Type material in the University Museum, Oxford, of bees described by Comte Amédée Lepeletier de Saint-Fargeau and Pierre André Latreille (Hymenoptera: Apoidea). – J. Nat. Hist. 28: 1189-1204.

Banaszak, J. & Romasenko, L. 1998. Megachilid bees of Europe (Hymenoptera, Apoidea, Megachilidae). Pedagogical University of Bydgoszcz, Bydgoszcz.

Billberg, G.J. 1820. Enumeratio insectorum in museo Gust. Joh. Billberg. – Gadelianis, Stockholm.

Blüthgen, P. 1930. *Osmia*. – In: Schmiedeknecht, O. Die Hymenopteren Nord- und Mitteleuropas. Ed. 2: pp. 808-822. Fischer, Jena.

Dahlbom, A.G. 1832. Bombi Scandinaviae. Monographice tractati et iconibus illustrati. – Berlingianis, Londini Gothorum.

Dahlbom, A.G. 1837. Kort underrättelse om skandinaviska insekters allmännare skada och nytta i hushållningen. En handbok för landtbrukare och naturforskare. – Berling, Lund.

Dalla Torre, K.W. v. 1896. Catalogus Hymenopterorum huscusque descriptorum systematicus et synonymicus. Vol. X. Apidae (Anthophila). – Engelmann, Lipsiae.

Dalla Torre, K.W. v. & Friese, H. 1894. Synonymischer Katalog der europäischen Schmarotzerbienen. – Ent. Nachr., Berlin 20: 33-43.

Dalla Torre, K.W. v. & Friese, H. 1895. Synonymischer Katalog der europäischen Sammelbienen. – Ent. Nachr., Berlin 21: 21-26.

Dathe, H. 1980. Die Arten der Gattung *Hylaeus* F. in Europa (Hymenoptera: Apoidea, Colletidae). – Mitt. Zool. Mus. Berlin 56: 207-294.

Day, M.C. 1979. The species of Hymenoptera described by Linnaeus in the genera *Sphex*, *Chrysis*, *Vespa*, *Apis* and *Mutilla*. – Biol. J. Linn. Soc. 12: 45-84.

Ducke, A. 1900. Die Bienengattung *Osmia* Panz. – Ber. Naturw.-Med. Ver. Innsbruck 25: 1-323.

Dylewska, M. 1987. Die Gattung *Andrena* Fabricius (Andrenidae, Apoidea) in Nord- und Mitteleuropa. – Acta Zool. Cracov. 30: 359-708.

Ebmer, A.W. 1976. Revision der von W. Nylander und J. Kriechbaumer beschriebenen Halictidae (Apoidea). – Nachrichtenbl. Bayer. Ent. 25: 1-6.

Ebmer, A.W. 1988a. Die europäischen Arten der Gattungen *Halictus* Latreille 1804 und *Lasioglossum* Curtis 1833 mit illustrierten Bestimmungstabellen (Insecta: Hymenoptera: Apoidea: Halictidae: Halictinae). 2. Die Untergattung *Seladonia* Robertson 1918. – Senckenb. Biol. 68: 323-375. (1987)

Ebmer, A.W. 1988b. Kritische Liste der nicht-parasitischen Halictidae Österreichs mit Berücksichtigung aller mitteleuropäischen Arten (Insecta: Hymenoptera: Apoidea: Halictidae). – Linz. Biol. Beitr. 20: 527-711.

Ebmer, A.W. 2001. Case 3157 *Halictoides dentiventris* Nylander, 1848 (currently *Dufourea*; Insecta, Hymenoptera): proposed conservation of the specific name. – Bull. Zool. Nomencl. 58: 32-33.

Erlandsson, S. 1955. Die schwedischen Arten der Gattung *Coelioxys* Latr. (Hym. Apidae). – Opusc. Ent. 20: 174-191.

Erlandsson, S. 1960. Notes on Hymenoptera. I. Investigation of the bee-fauna in south-eastern Sweden. – Ent. Tidskr. 81: 123-130.

Fabricius, J.C. 1776. Genera insectorum. – Bartsch, Chilonii.

Fabricius, J.C. 1781. Species insectorum exhibentes eorum differentias specificas, synonyma auctorum, loca naturalia, metamorphosia adiectis observtionibus, descriptionibus. I. – Bohnii, Hamburgi et Kilonii.

Forsius, R. & Nordström, Å. 1921. Verzeichnis der aus Finland bisher bekannten Apiden. – Not. Ent. 1: 71-77.

Friese, H. 1891. Osmien-Studien. – Ent. Nachr., Berlin 17: 257-267.

Friese, H. 1895a. Die Bienen Europa's (Apidae europaeae) I. Schmarotzerbienen. – Friedländer & Sohn, Berlin.

Friese, H. 1895b. Beitrag zur Bienenfauna von Baden und dem Elsass. – Ber. Naturf. Ges. Freiburg im Breigau 9: 194-220.

Friese, H. 1911. Das Tierreich. 28. Apidae I. Megachilinae. – Friedländer, Berlin.

Gärdenfors, U. (ed.) 2005. The 2005 red list of Swedish species. – ArtDatabanken, SLU, Uppsala.

Gerstaecker, A. 1869. Beiträge zur näheren Kenntnis einiger Bienen-Gattungen. – Ent. Zeitung, Stettin 30: 139-184, 315-367.

Gusenleitner, F. & Schwarz, M. 2002. Weltweite Checkliste der Bienengattung *Andrena* mit Bemerkungen und Ergänzungen zu paläarktischen Arten (Hymenoptera, Apidae, Andreninae, *Andrena*). – Entomofauna Suppl. 12: 1-1280.

Haeseler, V. 1999. Zur Kenntnis von *Osmia alticola* Benoist 1922, *Osmia maritima* Friese 1885 sowie der für Mitteleuropa bislang unbekannten *Osmia hyperborea* Tkalců 1983 (Apidae: *Osmia* (*Melanosmia* Schmiedeknecht 1885)). – Entomofauna 20: 449-460.

Holm, Å. 1953. Insects described in „Museum Ludovicae Ulricae", 1764. Unpublished typewritten catalogue, 11 pp. – Uppsala University Zoological Museum.

ICZN. 1999. International code of zoological nomenclature. Ed. 4. – The International Trust for Zoological Nomenclature, London.

ICZN. 2002. Opinion 2001. (Case 3157). *Halictoides dentiventris* Nylander, 1848 (currently *Dufourea dentiventris*; Insecta, Hymenoptera): specific name conserved. – Bull. Zool. Nom. 59: 145-146.

Janzon, L.-Å., Svensson, B.G. & Erlandsson, S. 1991. Catalogus Insectorum Sueciae. Hymenoptera, Apoidea. 3. Megachilidae, Anthophoridae and Apidae. – Ent. Tidskr. 112: 93-99.

Linnaeus, C. 1746. Fauna Svecica sistens animalia Sveciae regni: Qvadrupedia, Aves, Amphibia, Pisces, Insecta, Vermes, distributa per classes & ordines, genera & species. – Salvii, Stockholmiae.

Linné, C. v. 1758. Systema Naturae per regna tria naturae, secundum classes, ordines, genera, species, cum caracteribus, differentiis, synonymis, locis. Ed. 10, Tom I. – Salvii, Holmiae.

Linné, C. v. 1761. Fauna Svecica sistens animalia Sveciae regni: Mammalia, Aves, Amphibia, Pisces, Insecta, Vermes. Distributa per classes & ordines, genera & species, cum differentiis specierum, synonymis auctorum, nominibus incolarum, locis natalium, descriptionibus insectorum. Ed. 2. – Salvii, Stockholmiae.

Linné, C. v. 1764. Museum S:ae R:ae M:tis Ludovicae Ulricae Reginae Svecorum, gothorum, vandalorumque &c. &c. &c. In quo animalia rariora,

exotica imprimis insecta & conchilia describuntur & determinantur. – Salvii, Holmiae.

Linné, C. v. 1767. Systema naturae, per regna tria naturae, secundum, classes, ordines, genera, species, cum caracteribus, differentiis, synonymis locis. Ed. 12, Tom. 1. Pars 2. – Salvii, Holmiae.

Linné, C. v. 1771. Pandora et flora Rybyensis. Diss. resp. D. H. Söderberg. – Edman, Upsaliae.

Løken, A. 1973. Studies on Scandinavian bumble bees (Hymenoptera, Apidae). – Nor. Ent. Tidsskr. 20: 1-218.

Löwegren, Y. 1952. Naturaliekabinett i Sverige under 1700-talet. Ett bidrag till zoologins historia. – Almqvist & Wiksell, Uppsala.

Michener, C.D. 2007. The bees of the world. 2nd ed. – Hopkins, Baltimore.

Milliron, H.E. 1960. Recognition of bumblebee type specimens, with notes on some dubious names (Hymenoptera: Apidae). – Bull. Brookl. Ent. Soc. 55: 87-99.

Morawitz, F. 1865. Über einige Andrenidae aus der Umgegend von St. Petersburg. – Horae Soc. Ent. Ross. 3: 61-79.

Müller, A. 2002. *Osmia* (*Melanosmia*) *steinmanni* sp. n., a new bee species from the Swiss Alps (Hymenoptera, Apoidea, Megachilidae). – Rev. Suisse Zool. 109: 803-812.

Nilsson, L.A. 2007. The type material of Swedish bees (Hymenoptera, Apoidea) I. – Ent. Tidskr. 128: 167-181.

Nilsson, L.A. 2008. The type material of Swedish bees (Hymenoptera, Apoidea) II. *Andrena haemorrhoidalis* Fabricius 1775 and *Bombus balteatus* Dahlbom 1832. – Entomofauna 29: 1-5.

Norrlin, J.P. 1913. Minnesord öfver professor William Nylander. – Acta Soc. Sci. Fenn. 44: 1-43.

Nylander, W. 1848. Adnotationes in expositionem monographicam apum borealium. – Not. Sällsk. F. & Fl. Fenn. Förhandl. 1: 165-282.

Nylander, W. 1852a. Supplementum adnotationum in expositionem apum borealium. – Not. Sällsk. F. & Fl. Fenn. Förhandl. 2: 93-107.

Nylander, W. 1852b. Revisio synoptica apum borealium, comparatis speciebus Europae Mediae. – Not. Sällsk. F. & Fl. Fenn. Förhandl. 2: 225-286.

Pesenko, Y.A., Banaszak, J., Radchenko, V.G. & Cierzniak, T. 2000. Bees of the family Halictidae (excluding Sphecodes) of Poland: taxonomy, ecology, bionomics. Wydawnictwo Uczelniane, Bydgoszcz.

Quensel, C. 1802. Plate I. – In: Acerbi, G. Travels through Sweden, Finland and Lapland to the North Cape in the Years 1798 and 1799. 2. – Gillet, London.

Saunders, E. 1884. XII. Synopsis of British Hymenoptera. Anthophila; part II., Apidae. – Trans. Ent. Soc. London 1884: 159-250.

Scheuchl, E. 1996. Illustrierte Bestimmungstabellen der Wildbienen Deutschlands und Österreichs. II: Megachilidae – Melittidae. – Erwin Scheuchl, Velden.

Scheuchl, E. 2006. Illustrierte Bestimmungstabellen der Wildbienen Deutschlands und Österreichs. II: Megachilidae – Melittidae. Ed. 2. – Erwin Scheuchl & Apollo Books, Stenstrup.

Schmid-Egger, C. & Scheuchl, E. 1997. Illustrierte Bestimmungstabellen der Wildbienen Deutschlands und Österreichs unter Berücksichtigung der Arten der Schweiz III: Andrenidae. – Erwin Scheuchl, Velden.

Schmiedeknecht, O. 1885-1886. Apidae Europaeae (Die Bienen Europas). II. – Friedländer, Berlin.

Schmiedeknecht, O. 1907. Die Hymenopteren Mitteleuropas. Ed. 1. – Fischer, Jena.

Schönherr, C.J. 1809. Entomologiska anmärkningar och beskrifningar på några för svenska fauna nya insecter. – Kongl. Vet. Acad. Handl. 30: 48-58.

Schulz, W.A. 1912. Aelteste und alte Hymenopteren skandinavischer Autoren. – Berl. Ent. Zeitschr. 57: 52-102.

Schwarz, M. 1986. Zwei neue, europäische *Nomada*-Arten (Hymenoptera, Apoidea). – Entomofauna 7: 433-442.

Schwarz, M., Gusenleitner, F., Westrich, P. & Dathe, H.H. 1996. Katalog der Bienen Österreichs, Deutschlands und der Schweiz (Hymenoptera, Apidae). – Entomofauna Suppl. 8: 1-398.

Smith, F. 1854. Catalogue of hymenopterous insects in the collection of the British Museum. Part II. Apidae. – The Trustees, London.

Smith, F. 1876. Catalogue of British Hymenoptera in the collection of the British Museum. Ed. 2. Part I.— Andrenidae and Apidae. – The Trustees, London.

Söderman, G. & Leinonen, R. 2003. Suomen mesipistiäiset ja niiden uhanalaisuus. – Tremex Press Oy, Helsinki.

Söderman, G. & Vikberg, V. 2002. Suomen myrkkypistiäisten luettelo ja levinneisyys (Hymenoptera, Apocrita, Aculeata). – Sahlbergia 7: 41-66.

Stål, C. 1873. 37. Carl Henrik Boheman. Professor och intendent vid Riksmuseum. – Lefnadsteckn. K. Sv. Vet. Akad. Ledamöter 1: 505-523.

Strand, E. 1909. Die paläarktischen *Halictus*-Arten des Kgl. Zoologischen Museums zu Berlin, z. T. nach Bestimmungen von J. D. Alfken. – Arch. Naturgesch. 75, I (1): 1-62.

Svensson, B.G., Ebmer, A.W. & Sakagami, S.F. 1977.

Lasioglossum (Evylaeus) boreale, a new Halictinae (Hymenoptera: Apoidea) species found in northern Sweden and on Hokkaido, Japan, with notes on its biology. – Ent. Scand. 8: 219-229.

Swartz, O. 1811. Catalog öfver Kongl Svenska Wet. Academiens Museum. No 3. Insecta, Tom. 2. – Handwritten catalogue, Naturhistoriska Riksmuseet, Stockholm.

Thomson, C.G. 1872. Hymenoptera Scandinaviae. II. (*Apis* Lin.). – Berling, Lundae.

Tkalců, B. 1983. Die europäischen *Osmia*-Arten der Untergattung *Melanosmia* (Hymenoptera, Apoidea, Megachilidae). – Vest. Ceskoslov. Spol. Zool. 47: 140-159.

Vikberg, V. 1986. A checklist of aculeate Hymenoptera of Finland (Hymenoptera, Apocrita Aculeata). – Not. Ent. 66: 75-85.

Wallin, L. 2001. Catalogue of type specimens. 4. Linnaean specimens. Ed. 6. Museum of Evolution. – Zoology, Uppsala University.

Warncke, K. 1967. Beitrag zur Klärung paläarktischer *Andrena*-Arten (Hym. Apidae). – Eos 43: 171-318.

Warncke, K. 1970. Die unter dem Gattungsnamen *Apis* beschriebenen Andrenae (Apoidea Hymenoptera) und Fixierung von Lectotypen weiterer von Fabricius beschriebener *Andrena*-Arten. – Nachrichtenbl. Bayer. Ent. 19: 28-32.

Warncke, K. 1973a. Die unter dem Gattungsnamen *Apis* beschriebenen Bienen der Gattung *Halictus* (Apoidea Hymenoptera) und Fixierung von Lectotypen weiterer von Fabricius beschriebener Arten. – Nachrichtenbl. Bayer. Ent. 22: 23-26.

Warncke, K. 1973b. Zur Systematik und Synonymie der mitteleuropäischen Furchenbienen *Halictus* Latreille (Hymenoptera, Apoidea, Halictidae). – Bull. Soc. R. Sci. Liège 42: 277-295.

Warncke, K. 1986. Die Wildbienen Mitteleuropas, ihre gültigen Namen und ihre Verbreitung (Insecta: Hymenoptera). – Entomofauna Suppl. 3: 5-128.

Warncke, K. 1992. Die westpaläarktischen Arten der Bienengattung *Coelioxys* Latr. (Hymenoptera, Apidae, Megachilinae). – Ber. Naturf. Ges. Augsburg 53: 31-77.

Zanden, G. v. d. 1986. Untersuchungen an einigen wenig bekannten *Osmia*- und *Megachile*-Arten, mit Beschreibung zweier neuer Taxa (Hymenoptera, Apoidea, Megachilidae). – Reichenbachia 24: 65-74.

Zanden, G. v. d. 1988. Beitrag zur Systematik und Nomenklatur der paläarktischen Osmiini, mit Angaben über ihre Verbreitung. – Zool. Meded. 62: 113-133.

Sammanfattning

Uppsatsen presenterar tredje delen av resultaten av en taxonomisk granskning och revision av typmaterialet av bin av svenskt känt eller möjligt ursprung. Granskningens fokus har, som i del I (ET 128: 167-181, 2007), lagts på taxonomisk status, depositionsinstitution, typlokal, fysiskt tillstånd (”kvalitet”) samt historia av namnbärande exemplar.

I föreliggande uppsats utses lektotyper för artrangstaxa *Andrena cinerascens* Nylander, 1848, *A. **nanula*** Nylander, 1848, *Coelioxys hebescens* Nylander, 1848 (nu form av *C. rufescens* Lepeletier & Serville, 1825), *C. simplex* Nylander, 1852, *Osmia corticalis* Gerstaecker, 1869, *O. **mitis*** Nylander, 1852 (nu *Hoplitis m.*) och underartstaxon *Andrena marginata* var. *nigrescens* Aurivillius, 1903 (fet stil= giltigt epitet). En redan etiketterad men opublicerad lektotyp av *Coelioxys **mandibularis*** Nylander, 1848 giltiggörs. *Osmia **laticeps*** Thomson, 1872 konstateras vara en senior synonym till *Osmia hyperborea* Tkalců, 1983 och det giltiga namnet för arten i fråga. *Osmia laticeps* (Sv. lingonmurarbi) har sin typlokal belägen i NV Skåne. Nya bedömningar görs av de hävdat gåtfulla artrangstaxa *Apis rybyensis* Linné, 1771, *A. cariosa* Linné, 1758 och *A. obscura* Linné, 1764. En tidigare ouppmärksammad etikettnotis av Linnés lärjunge Thunberg indikerar att *A. rybyensis* är identisk med *Apis **albipes*** Fabricius, 1781 (nu *Lasioglossum a.*). *Apis cariosa* och *A. obscura* är sannolikt ej bin. Ytterligare taxa som behandlas är *Halictoides **dentiventris*** Nylander, 1848 (nu *Dufourea d.*), *Halictus fasciatus* Nylander, 1848, *H. **arenosus*** Ebmer, 1976 (nu underart av *H. leucaheneus* Ebmer, 1972), *Lasioglossum **boreale*** Svensson, Ebmer & Sakagami, 1977, *Osmia **svenssoni*** Tkalců, 1983, *Nomada **fusca*** Schwarz, 1986, *Apis arctica* Quensel, 1802 och *Bombus **hyperboreus*** Schönherr, 1809.