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The type material of Swedish bees

II. *Andrena haemorrhoidalis* FABRICIUS 1775

and *Bombus balteatus* DAHLBOM 1832

(Hymenoptera, Apoidea)

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Abstract

Neotypes are proposed for the bee species *Andrena haemorrhoidalis* FABRICIUS 1775 (presently *Melitta haemorrhoidalis*) (Melittidae) and *Bombus balteatus* DAHLBOM 1832 (Apidae) described from Uppsala and Lapland, respectively.

Zusammenfassung

Neotypen für die Bienenarten *Andrena haemorrhoidalis* FABRICIUS 1775 (jetzt *Melitta haemorrhoidalis*) (Melittidae) und *Bombus balteatus* DAHLBOM 1832 (Apidae), aus Uppsala respektive Lappland beschrieben, werden vorgeschlagen.

Introduction and methods

The present paper constitutes the second part of the examination and taxonomic revision of the Swedish type material of bees. The first part (NILSSON 2007) included a short

history of the scientists and their contributions. For general scope, methods and further details of the work the reader should consult that paper. Here, neotype fixations are provided for two specific bee taxa, *Andrena haemorrhoidalis* FABRICIUS 1775 and *Bombus balteatus* DAHLBOM 1832. Both have been found to lack authentic material and need a correct type locality where FABRICIUS collected and a name-bearing basis in the original name source cited by DAHLBOM, respectively. The following museum acronyms are used: NHRS Natural History Museum Stockholm, ZML Zoological Museum Lund, ZMU Museum of Evolution (former Zoological Museum Uppsala) and ZMUC Zoological Museum University of Copenhagen.

***Andrena haemorrhoidalis* FABRICIUS 1775: 377**

Neotype ♀ ZMUC [here designated]; Sweden, Uppsala län/kn, Uppsala, Ekeby, N Svettis, 59.51°N/17.37°E, *Campanula rapunculoides*, 22.VII.1998, leg. N.E. SJÖDIN; *Melitta haemorrhoidalis* (FABRICIUS), det. N.E. SJÖDIN 2001.

The original description reads: "A. nigra, ano ferrugineo. Habitat in Sueciae nemoribus. Media. Labium tomento cinereoso. Tibiae posticae rufae". No collector was mentioned, which (since other collectors were mentioned where relevant elsewhere in the publication) means FABRICIUS himself. An inventory of material in the FABRICIUS collections (ZMUC) stated that no type material of *Andrena haemorrhoidalis* existed (ZIMSEN 1964: no. 1026). A recent search in the collections yielded the same result: the material must be regarded as lost (L. VILHELMOSEN, ZMUC, pers. comm. 2007). Also a recent world-wide list indicated no authentic material of the taxon and a need for relevant fixation (D. MICHEZ, pers. comm. 2007). A neotype is hereby selected and labelled so in order to obtain a fixation of the taxon to the type locality in the woodlands where FABRICIUS collected, namely in Uppsala in middle Sweden (ICZN Article 75.3., especially 75.3.5. and 75.3.6.).

The Dane Johann Christian FABRICIUS (1745-1808) lived 1762-1764 in Uppsala where he was one of Carl von LINNÉ's students. In those days the town was quite small and nature was only a few minutes away (even today, there are woodland areas within town) largely due to the massive intersecting glaciofluvial deposits. Johann Christian's main interest was entomology and there is various evidence of his collecting in Uppsala. For example, LINNÉ (1767: 955) described the bee *Nomada fabriciana* including the information "Habitat Upsaliae. FABRICIUS.". Apparently, FABRICIUS brought his own collection of insects from Uppsala when he returned to Denmark because the actual species descriptions based on material from the Swedish woodlands, such as of e.g. *Andrena haemorrhoidalis*, appeared in his subsequent and first work on insect systematics (1775).

The species has been listed in the genus *Melitta* since DALLA TORRE (1896: 188). The proposed neotype ♀ is a newly emerged, complete and very beautiful specimen that in all aspects conforms to the current interpretation of the species *Melitta haemorrhoidalis* (FABRICIUS) (as in, e.g., CELARY 2005, SCHEUCHL 2006). The specimen represents the dark-haired form that is typical for the ♀ (but not the ♂) sex of the species in middle Sweden. The original description and the extant population of the bee in Uppsala leave no doubt about that FABRICIUS only described the ♀. The most striking characters are an extensive blackish hairiness contrasted by the orange-red tip of the abdomen as well as

the scopa. It thus conforms exactly with FABRICIUS's very short description that used the most obvious characters. In closer detail, the ♀ also displays golden knee tufts, a yellowish-white haired clypeus and narrow grey hair fringes on the tergites.

The oligolectic species is, just as it probably was in LINNÉ's and FABRICIUS's days, fairly common in Uppsala. At least today, occurrence is mainly due to the relative commonness of the plant *Campanula rapunculoides* for pollen in gardens, ruderal places and along fences and hedge rows in this town (LAN pers. obs.). The neotype specimen has the label data as given above and in addition a green label with an individual number: "Reg beedata SE ArtDatabanken 8944". The neotype is with respect for the scientific history and young FABRICIUS, LINNÉ's great disciple in entomology, deposited in FABRICIUS's own collection, the so-called "Kiel collection" in ZMUC.

***Bombus balteatus* DAHLBOM 1832: 36**

Neotype ♀ ZMU [here designated]; Sweden, Lappland; *Bombus balteatus* DAHLBOM, det. L.A. NILSSON 2007.

The taxon was described from a unique ♀. According to DAHLBOM (1832: 36), the specimen originated from "Lapponia Tornensi ad Enontekis" where it had been "detected" by clergyman Isak GRAPE (1779-1855). DAHLBOM also wrote that the specimen had been presented him by Carl Johan SCHÖNHERR (1772-1848), a former silk manufacturer who was a passionate entomologist and collector. ANDER (1967: 186) concluded that DAHLBOM had returned the material brought by SCHÖNHERR because none of the specimens mentioned in DAHLBOM's monograph was found in ZML where DAHLBOM had worked. SCHÖNHERR's collection is principally in NHRS due to a donation in 1848. In a hand-written inventory of the donated material, the curator indicated that "1" specimen of "*Bombus balteatus* DAHLB.", thus possibly the type, was to become deposited in the NHRS collection (BOHEMAN 1850: *Bombus* No. 6).

MILLIRON (1960: 89) designated a lectotype. However, as stated by ANDER (1967: 186) it was not based on type material and thus invalid. Subsequently, neither the targeted search by ANDER (1967: 186) nor by LØKEN (1973: 105) recovered the authentic ♀ for an intended fixation of the taxon. Further, also a recent extensive search for the specimen in NHRS was negative (LAN pers. obs. 2007). Interestingly, DAHLBOM (1832: 36) provided also the information "'*B. balteatus*' in litteris a Dom. *Gyllenhal denominatus*" about the described specimen. DAHLBOM's text passage and adopted manuscript name thus indicate that DAHLBOM himself was certain that Leonard GYLLENHAL (1752-1840) had both examined the original specimen and invented its name *Bombus balteatus*. GYLLENHAL was stationed at Höberg and SCHÖNHERR at Sparresäter, only some 30 km from each other in the province of Västergötland but at a distance of ca 350 km from ZML (with DAHLBOM's office).

DAHLBOM's reference to GYLLENHAL suggests that authentic or non-formal authentic material may be present in GYLLENHAL's collection. Indeed, in the GYLLENHAL collection (ZMU) Box No. 343 there are two cabinet species labels with the actual name in the hand of the owner: "*Bombus balteatus* Eg. ♀ Lappon." and "*B. balteatus* ♀. var". As is shown due to numerous other "signed" unique species names elsewhere in the collection (LAN pers. obs. 2007), GYLLENHAL wrote "Eg." (rather than mihi) after names he had invented himself. The abbreviation "Lappon.", written below the species name,

denotes material from Lapponia (= Lapland). Below the two labels there stand 2 ♀ ♀ and 1 ♂ of *Bombus balteatus* DAHLBOM, respectively (det. LAN 2007). Like nearly all specimens in GYLLENHAL's large insect collection the 2 ♀ ♀ specimens lack any original labelling on their pins. It remains unknown if one of the 2 ♀ ♀, via SCHÖNHERR as a courier, was studied by DAHLBOM. Still, the three specimens undisputably represent the, albeit possibly non-formal, original source of the name *Bombus balteatus*.

For a best-possible fixation of DAHLBOM's taxon, the first ♀ in GYLLENHAL's collection is hereby designated as neotype and labelled so. The specimen is also supplied with a green individual label: "Reg beedata SE ArtDatabanken 8945". The old ♀ exhibits a surprisingly intact coat and hair colour but lacks both the antennae. The specimen conforms well with DAHLBOM's description, which almost exclusively was based on coat colouration characters, and agrees with the current interpretation of the species (e.g. as in LØKEN 1973).

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