



## The nomenclatural case of *Holopyga italica* Dahlbom, 1845 and *Colpopyga flavipes* (Eversmann, 1858) (Hymenoptera, Chrysididae)

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### Abstract

The case of the forgotten name *Holopyga italica* Dahlbom, 1845 and its currently used, junior subjective synonym *Hedychrum flavipes* Eversmann, 1858 (currently *Colpopyga flavipes*) is discussed. Since *H. italica* has been listed as a valid species after 1899, in the world catalogue by Kimsey & Bohart (1991), the reversal of precedence cannot be automatically applied to this case. However, provisions of the *International Code of Zoological Nomenclature* argue for the conservation of the name *Hedychrum flavipes* against that of *Holopyga italica*. The case will be referred to the International Commission on Zoological Nomenclature, for a ruling under its Plenary Power, and meanwhile the use of the junior synonym *H. flavipes* is to be maintained.

### Key words

Cuckoo wasps, *ELAMPINI*, taxonomy, reversal of precedence.

### Introduction

Various nomenclatural cases have been discovered in the **HYMENOPTERA CHRYSIDIDAE** in recent years, that have already been discussed (e.g., Paukkunen *et al.* 2014; Rosa *et al.* 2015*a–b*, 2017*a*; Rosa & Vårdal 2015; Rosa & Xu 2015) or which are waiting to be discussed. Some still open cases will require an Opinion of the International Commission on Zoological Nomenclature (‘the Commission’ below), e.g., the case of *Spinolia pulchra* Radoszkovsky, 1880 and *Spinolia dallatorreana* Mocsáry, 1889 (Rosa *et al.* 2015*b*). In this context, the case of *Holopyga italica* Dahlbom, 1845 is of particular interest for the European fauna, as it concerns a widespread, fairly common species, whose junior subjective synonym *Hedychrum flavipes* Eversmann, 1858 is the type species of the recently revalidated genus *Colpopyga* Semenov-Tian-Shanskij, 1954 (Rosa 2017). *H. italica* is the only species of cuckoo wasp that bears the name of this European country.

The name *Holopyga italica* has been forgotten for nearly a century, the time elapsed between its citation in the *Catalogus Hymenopterorum* by Dalla Torre (1892) to the catalogue of Kimsey &

Bohart (1991). During the revision of type material and original descriptions concerning Italian and European cuckoo wasps, I discovered a match between the old, almost forgotten name *H. italica* and the junior, currently used name *Colpopyga flavipes*. The purpose of this article is to discuss which name should be used, in order to preserve the stability of the nomenclature, and suggesting that a ruling by the Commission would be appropriate in this case.

## Material & methods

The nomenclatural definitions and articles refer to the current version of the *International Code for Zoological Nomenclature* (Anonymous 1999), herein referred to as ‘the Code’.

Images were taken with a Camera Olympus E-M1 Mark II and Olympus Zuiko 60 mm (Olympus Corporation, Shinjuku, Tokyo, Japan), stacked with the Helicon Focus 7.7.5 (Helicon Soft Ltd., Oakland, CA, USA) software, then enhanced with Adobe Photoshop (Adobe Inc., San Jose, CA, USA).

Abbreviations used in the text: ISEA-PAN, ‘Institute of Systematics and Evolution of Animals’ collection at the Polish Academy of Sciences (Kraków, Poland); PRC, Paolo Rosa private collection (Bernareggio, Italy).

## History of the name *Holopyga italica*

Dahlbom (1845: 4) described *Holopyga italica*. However, he did not mention this species in his following revision of the family *CHRYSIDIDAE* (Dahlbom 1854), the first monograph written in a modern sense, including keys, descriptions and diagnoses. As outlined by Rosa & Vårdal (2015), Dahlbom (1845, 1854) did not follow the Principle of Priority, a concept not yet established at the time, because precise codified nomenclatural rules did not exist, and conventions and unwritten rules on the matter varied between disciplines, countries and languages (see Rosa *et al.* 2017a). The case of *Holopyga italica* is not the only one: Dahlbom (1845) described *Hedychrum intermedium*, which was also not mentioned in the 1854 work, generating the well-known confusion between the names *H. intermedium* and *H. rutilans* Dahlbom, 1854 (Linsenmaier 1997; Rosa & Xu 2015). In other cases, Dahlbom (1854) changed the priority of previously described species. These changes resulted in confusion among subsequent authors, as shown in the cases of *Chrysis mediocris* Dahlbom, 1845, *Hedychridium cupreum* (Dahlbom, 1845) and *Holopyga amoenula* Dahlbom, 1845. He also changed the original interpretation of some species, after examination of further material, e.g. *Chrysura sulcata* (Dahlbom, 1845) (see Rosa & Vårdal 2015).

Mocsáry (1889) also did not mention *Holopyga italica* in his seminal monograph of the *CHRYSIDIDAE*, although he is believed to have reported all taxa known at the time, with original descriptions of species which he could not study directly. Most likely, he only referred to 1854 large work, being unaware of omissions or changed interpretations of taxa described in 1845 paper. Mocsáry’s (1889) monograph became a milestone until the arrival of the internet age, when many taxon descriptions became freely and easily available to everyone. His classification was followed by most museum curators, and some European *CHRYSIDIDAE* collections are still organised accordingly (Rosa *et al.* 2017b, 2020). The only author who listed *Holopyga italica* after Dahlbom’s (1845) description was Dalla Torre (1892). After him, the name *H. italica* disappeared from the literature until Kimsey & Bohart (1991) published the world catalogue of cuckoo wasps.

In the history of study of the family *CHRYSIDIDAE*, there are several cases of enigmatic species, based on short, inadequate descriptions, or on poor illustrations without any description, sometimes with no statement of locality, and whose type series are lost. This is not the case at hand. On the basis of the original description, *Holopyga italica* is an easily identifiable species which unambiguously refers to cuckoo wasps that in the current literature are referred to as *Colpopyga flavipes* (Eversmann, 1858). Its description and the country of origin are clearly given: “*Abdomen cyaneum (ventre virescenti violaceo). Corpus cyaneum 2 ½ lin. Long.*” and “*m# Italia, Milde*” [‘Abdomen blue (venter green-purplish). Body blue, 2 ½ lines long’ and ‘male, Italy, [leg.] Milde’]. No mention is made of the partly yellow legs, a quite unusual feature in the genus *Holopyga*, presumably because of the poor condition of the single specimen. The type locality Italy also matches with the known distributional range of *Colpopyga flavipes*. The type depository (Milde collection) is unknown (Kimsey & Bohart 1991) and I was unable to find the type specimen in the Stockholm collection (Rosa & Vårdal 2015) or in the Dahlbom collection in Lund (unpublished data).

As mentioned above, the only Italian or European cuckoo wasps species that matches Dahlbom’s (1845) original description is *Hedychrum flavipes* Eversmann, 1858, subsequently widely treated as *Hedychridium flavipes* and currently *Colpopyga flavipes* (Fig. 1A) (Rosa 2017). One syntype of *Hedychrum flavipes* is deposited in the Radoszkowski collection housed at ISEA-PAN together with the other *CHRYSIDIDAE* studied by Eversmann (Rosa *et al.* 2015b). This syntype has been examined and photographed (Rosa *et al.* 2015b: fig. 9). The number of syntypes was not provided in the original description, however based on the type locality (*‘in campis orientalibus et in promontoriis Uralensibus’*), it can be assumed that the author has examined at least two specimens. No lectotype was designated in Rosa *et al.* (2015b) as it was considered unnecessary, given the peculiarity of the species.

*Colpopyga flavipes* is the only European *Holopyga* or *Hedychrum*-like species that is entirely blue (or green-blue) including the venter of the metasoma (Fig. 1B). All other superficially similar but not actually closely related species such as *Hedychridium moricei* Buysson, 1904, *Holopyga fervida* (Fabricius, 1781) males, or *Hedychrum chalybaeum* Dahlbom, 1854 males, have the metasoma venter black, without green or blue metallic colour. Other blue *ELAMPINI*, e.g., *Omalus aeneus* (Fabricius, 1787) and *Pseudomalus violaceus* (Scopoli, 1763), are excluded because they have a medial notch on the apical margin of the last visible tergum, and *H. italica* is described within the species with *‘margo apicalis segmenti 3:ti, cataphractorum ultimi, integerrimus’* [‘Apical margin of the third segment armored and continuous’]. Therefore, no other species can be confused with *Holopyga italica*, which must be considered a senior subjective synonym of *Hedychrum flavipes*.

## Discussion

Although the Principle of Priority, stating that, for all taxa up to the family group, the first validly proposed name must be used, is one of the fundamentals of the *Code*, some cases have been recognized in which its strict application may threaten stability or universality of nomenclature and therefore cause confusion.

The Preamble of the *Code* states that “Priority of publication is a basic principle of zoological nomenclature; however, under conditions prescribed in the *Code* its application may be modified to conserve a long-accepted name in its accustomed meaning. When stability of nomenclature is threatened in an individual case, the strict application of the *Code* may under specified conditions be suspended by the International Commission on Zoological Nomenclature.”

According to Article 23.2 (“Purpose”), “the Principle of Priority is to be used to promote stability

and it is not intended to be used to upset a long-accepted name in its accustomed meaning by the introduction of a name that is its senior synonym or homonym [...] or through an action taken following the discovery of a prior and hitherto unrecognized nomenclatural act (such as a prior type fixation [...])”.

According to Article 23.9.1 (“Reversal of precedence”), when two conditions are both met, namely [23.9.1] the senior synonym has not been used as a valid name after 1899, and [23.9.2] the junior synonym has been used as a presumably valid name in at least 25 works published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years, an author may directly give precedence to the junior synonym (qualified as *nomen protectum*) over the senior one (*nomen oblitum*), without ruling of the Commission. In this case, the *nomen oblitum* remains an available name and can be revalidated subsequently, in the case where the presumed subjective synonymy proves incorrect.

The reversal of precedence cannot automatically be applied to the case of *Holopyga italica*, as it was listed as a valid name by Kimsey & Bohart (1991). It should be mentioned that the same authors listed the junior subjective synonym *Hedychrum flavipes* (in *Hedychridium* Abeille de Perrin, 1878) as a separate, valid species.

Article 23.9.3, however, states that “If the conditions of 23.9.1 are not met but nevertheless an author considers that the use of the older synonym or homonym would threaten stability or universality or cause confusion, and so wishes to maintain use of the younger synonym or homonym, he or she must refer the matter to the Commission for a ruling under the plenary power. While the case is under consideration use of the junior name is to be maintained”.

*Holopyga italica* has been universally known by its junior subjective synonym *flavipes* for one and a half centuries, formerly included in *Hedychridium* Abeille de Perrin, 1878 by most authors, and more recently in the genus *Colpopyga* Semenov-Tian-Shanskij, 1954. In this case, the reintroduction of the senior synonym would threaten the stability of the nomenclature. Indeed, after its description, only Dalla Torre (1892) and Kimsey & Bohart (1991) reported *H. italica* as a valid species. The name *flavipes*, conversely, has been largely used as valid in literature, under the following combinations: *Hedychrum flavipes* (e.g., Eversmann 1858; Radoszkowsky 1866, 1877; Kirchner 1867), *Holopyga* (*Hedychridium*) *flavipes* (Mocsáry 1889), *Hedychridium flavipes* (e.g., Trautmann 1927; Berland & Bernard 1938; Balthasar 1946, 1953; Linsenmaier 1959, 1987, 1999; Mingo 1985, 1994; Mingo & Gayubo 1985; Mingo *et al.* 1988; Madl 1990; Kimsey & Bohart 1991; Strumia 1995, 2005, 2009; Generani *et al.* 2002; Rosa 2004, 2005, 2006; Yildirim & Strumia 2006; Gonzáles *et al.* 2009; Strumia & Yildirim 2009; Jozan 2010, 2018; Strumia & Pagliano 2010; Pavesi & Rosa 2013; Rosa *et al.* 2013, 2015*b*; Arens 2014; Martynova 2015; Haris 2016; Zettel 2017; Majzlani & Tyrner 2019), and *Colpopyga flavipes* (Noskiewicz & Lorencowa 1963; Móczár 1964; Nikol’skaya 1978; Banaszak 1980; Vinokurov 2006*a–b*, 2007*a–b*, 2008, 2009*a–b*; Brustilo & Martynov 2009; Rosa 2017; Rosa *et al.* 2017*b*, 2019; Farzaneh *et al.* 2017; Strumia & Dawah 2019; Falahatpisheh *et al.* 2019; Wiesbauer *et al.* 2020).

Furthermore, *Hedychrum flavipes* is the type species of the genus *Colpopyga* Semenov-Tian-Shanskij, 1954, a small genus of cuckoo wasps that includes only four known species in the Palaearctic region, namely *C. flavipes* (Eversmann, 1858), *C. auriventris* Mercet, 1904, *C. temperata* Linsenmaier, 1959, *C. nesterovi* Rosa, 2017, and at least one species in the Nearctic region, *C. crassa* (Bohart in Bohart & Kimsey, 1978). *Colpopyga* was synonymised with *Hedychridium* Abeille de Perrin, 1878 by Linsenmaier (1959) and its members were included in the *H. flavipes* species group (Linsenmaier 1968). Noskiewicz & Lorencowa (1963) revalidated *Colpopyga* due to the unique morphology of the internal sternites and tergites, showing the main differences with the homologous segments on the genus *Hedychridium*, and various authors have considered *Colpopyga* to be a valid genus (Rosa 2017). Recent molecular phylogenetic analyses conducted by Pauli *et al.* (2019) revealed

that *Colpopyga* is more closely related to *Holopyga* Dahlbom, 1845 than to *Hedychrum* Latreille, 1802 and *Hedychridium* Abeille de Perrin, 1878, substantiating the treatment of *Colpopyga* as valid genus.



**FIGURE 1.** *Colpopyga flavipes* (Eversmann, 1858), male from Italy, Lazio (Latina), Borgo Santa Maria (PRC), Ph. P. Rosa. (A) Habitus, dorsal view. (B) Metasoma, ventral view.

## Conclusion

Despite the fact that *Holopyga italica* has unquestioned priority, according to the above reported provisions of the *Code*, I believe that the stability of the nomenclature will be better preserved by the maintenance of the junior synonym *flavipes* being in prevailing usage, used in scientific and general literature by more than 45 authors in more than 50 publications over the past 50 years. In contrast, only Dalla Torre (1892) and Kimsey & Bohart (1991) reported *H. italica* as a supposedly valid species. In this respect, this case is similar to that of *Hyla quoyi* Bory de Saint-Vincent, 1828 vs. *Hyla prasina* Burmeister, 1856 discussed by Dubois & Ohler (2018).

According to Article 23.9.3 (see above), if an author considers that the use of the older synonym would threaten stability or universality or cause confusion, and wishes to maintain the use of the younger synonym, the case must be referred to the Commission for a ruling under its Plenary Power (Article 81). While the case is under consideration, the use of the junior name must be maintained (Article 82). In this case, a conditional suppression of the older synonym is desired, to ensure that the older name is to be used only if *H. italica* is proven to be distinct (e.g., if studies reveal that Italian populations of *Colpopyga flavipes* are taxonomically different from topotypical ones).

An application will be made to the Commission, asking for the reversal of precedence among the two concerned synonyms. In the meantime, the junior name *flavipes* is to be maintained.

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