

## NOTES ON THE CORRECT SPELLING OF SPECIES-GROUP NAMES OF AUSTRALIAN BUTTERFLIES (LEPIDOPTERA)

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### Abstract

For the last 15 years, publications on Australian butterflies have most often used species-group names with their original spelling, regardless of generic placement, sometimes violating the requirements of the International Code of Zoological Nomenclature. Recently, two new checklists of Australian butterflies have been published in which gender agreement requirements are observed. In these, there are 17 cases of disagreement between the lists and/or between the designations of earlier workers. This paper seeks to resolve these differences.

### Introduction

Since 1926, the International Code of Zoological Nomenclature has required that, subject to certain conditions, adjectival species-group names should agree in gender with the genus in which they are placed or recombined. This can affect the way in which the ending of a species-group name is formed. These requirements are retained in the current 4th edition of the code (ICZN 1999). The interpretation of these rules is not always simple. Many generic names are often made up by their authors, using a mixture of classical Latin and Greek, as well as words from other sources. The gender then must be decided from the form of the word and other clues, such as how it was intended for use by the author. Similarly, many species-group names are various forms of nouns, either in the nominative case in apposition or in the genitive case (as with eponyms). Many proper names are used in apposition. In species and subspecies names the endings of nouns never change, regardless of the gender of the genus in which they are placed. Similarly, adjectives directly transliterated from Greek or other languages and not latinized retain their original spelling.

The first publication attempting to regulate Australian butterfly names according to gender agreement requirements was by Common and Waterhouse (1981). Subsequent books and checklists of Australian Lepidoptera (Nielsen *et al.* 1996, Braby 2000, Edwards *et al.* 2001, Braby 2004) have used the original spelling of all species-group names and thus in many cases species-group names used in these publications were incorrect under the strict requirements of the code.

Recently, Orr and Kitching (2010) and Braby (2010) independently published checklists of Australian butterflies in which gender agreement was observed. Orr and Kitching in general followed Common and Waterhouse (1981) but several of the names used in these three works did not agree. This paper examines these discrepancies and attempts to resolve, in each case, which of the alternative spellings given is correct. It is very much in the interest of nomenclatorial stability that there should be a consensus in these cases.



Braby (2010) also listed numerous synonyms. However, this paper does not consider the gender of these, as we consider this to be the task of the subsequent reviser, should any of these be reinstated as species-group names.

In the following, we write original Greek words in Roman transliteration with the following conventions:  $\bar{e}$  denotes  $\eta$  (eta);  $\bar{o}$  denotes  $\omega$  (omega); aspirated initial vowels (rough breathing) are preceded by 'h'; accented syllables are underlined. This will enable readers familiar with Greek to follow the original orthography.

### Names in dispute

The following names are listed as they appeared originally and as used subsequently by Common and Waterhouse (1981), Orr and Kitching (2010) and Braby (2010). All names are listed in chronological order of publication. Common and Waterhouse's bracket placement is modernised for conformity.

#### 1

Original combination: *Goniloba discolor* C. & R. Felder, 1859.

Common and Waterhouse 1981: *Hasora discolor* (C. & R. Felder, 1859).

Orr and Kitching 2010: *Hasora discolor* (C. & R. Felder, 1859).

Braby 2010: *Hasora discolora* (C. & R. Felder, 1859).

The adjective *discolor*, meaning 'of different colours', can be masculine, feminine or neuter. Although the forms *discolorus*, *-a*, *-um* did exist in late antiquity (used by writers such as Apuleius and Prudentius), this was not the form of the adjective chosen by the authors, who clearly intended it to be feminine.

Correct name: *Hasora discolor* (C. & R. Felder, 1859).

#### 2

Original combination: *Trapezites heteromacula* Meyrick & Lower, 1902.

Common and Waterhouse 1981: *Trapezites heteromacula* Meyrick & Lower, 1902.

Orr and Kitching 2010: *Trapezites heteromacula* Meyrick & Lower, 1902.

Braby 2010: *Trapezites heteromaculatus* Meyrick & Lower, 1902.

In this case the name ends with the Latin *macula*, a feminine noun, meaning 'a spot'. The addition of the Greek *hetero* to form *heteromacula*, meaning 'a different spot,' makes this name a neologism; *i.e.* it never existed in antiquity. However, as in Indo-European languages the last element determines the gender of a compound, it retains the structure of a feminine noun and as the authors combined it with the masculine genus *Trapezites* it seems clear they intended it as a noun. There is no justification for recasting it as an adjective (*heteromaculatus*).

Correct name: *Trapezites heteromacula* Meyrick & Lower, 1902.



### 3

Original combination: *Papilio polydorus queenslandicus* Rothschild, 1895.

Common and Waterhouse 1981: *Pachliopta polydorus queenslandicus* (Rothschild, 1895).

Orr and Kitching 2010: not listed.

Braby 2010: *Pachliopta polydorus queenslandica* (Rothschild, 1895).

The genus *Pachliopta* Reakirt, 1865, is a neologism constructed from Greek elements, thus its gender must be established by convention, no gender being specified by the author. The type species was *diphilus* Esper, 1793, a masculine proper noun and a synonym of *aristolochiae* Fabricius, 1775. Braby (2010) stated that the genus is feminine. This would appear to be justified under Article 30.2.4; 'If no gender was specified or indicated, the name is to be treated as masculine, except that, if the name ends in *-a* the gender is feminine, and if it ends in *-um*, *-on*, or *-u* the gender is neuter'. Moreover conventional usage by other authors also favours this view. The meaning of *Pachliopta* was intended to be '(larva) having the appearance of a thick chilopod' (Reakirt 1865).

Correct name: *Pachliopta polydorus queenslandica* (Rothschild, 1895).

### 4

Original combination: *Papilio arctous* Fabricius, 1775.

Common and Waterhouse 1981: *Xois arctoa* (Fabricius, 1775).

Orr and Kitching 2010: *Ypthima arctoa* (Fabricius, 1775).

Braby 2010: *Ypthima arctous* (Fabricius, 1775).

The generic name *Ypthima* appears to have no meaning in antiquity, but its form and normal usage suggest it is feminine, as stated by Braby (2010). *Xois* is also feminine. The specific name *arctoa* is clearly an adjective, meaning 'pertaining to the north star', and declines as *-us*, *-a*, *um* for masculine, feminine and neuter forms respectively.

Correct name: *Ypthima arctoa* (Fabricius, 1775).

### 5

Original combination: *Thecla aurifer* Blanchard, 1848.

Common and Waterhouse 1981: *Paralucia aurifera* (Blanchard, 1848).

Orr and Kitching 2010: *Paralucia aurifer* (Blanchard, 1848).

Braby 2010: *Paralucia aurifera* (Blanchard, 1848).

The specific name *aurifer* is an adjective meaning 'gold-bearing'. Its normal feminine form is *aurifera*. That Blanchard failed to use this form with a feminine genus (*Thecla*) may have been a *lapsus*, as was the usage of Orr and Kitching (2010).

Correct name: *Paralucia aurifera* (Blanchard, 1848).



## 6

Original combination: *Lycaena ignita* Leach, 1814.

Common and Waterhouse 1981: *Hypochrysops ignitus* (Leach, 1814).

Orr and Kitching 2010: *Hypochrysops ignitus* (Leach, 1814).

Braby 2010: *Hypochrysops ignita* (Leach, 1814).

*Hypochrysops* C. & R. Felder, 1860 is masculine under Article 30.1.4.3. (ICZN 1999): 'A compound genus-group name ending in *-ops* is to be treated as masculine, regardless of its derivation or of its treatment by its author'. Braby (2010) also considers it masculine. Therefore *ignitus*, *-a*, *-um*, an adjective meaning 'fervent' or 'glowing' derived from the masculine noun *ignis*, meaning 'fire', must be declined and the masculine *-us* ending applied.

Correct name: *Hypochrysops ignitus* (Leach, 1814).

## 7

Original combination: *Miletus erythrina* Waterhouse & Lyell, 1909.

Common and Waterhouse 1981: *Hypochrysops ignitus erythrinus* (Waterhouse & Lyell, 1909).

Orr and Kitching 2010: *Hypochrysops ignitus erythrina* (Waterhouse & Lyell, 1909).

Braby 2010: *Hypochrysops ignita erythrina* (Waterhouse & Lyell, 1909).

There was no Greek adjective *erythrinus* or Latin *erythrinus* in antiquity and no noun *erythrina*, but it has been used in biological nomenclature since Linnaeus, generally to indicate red coloration. In any case, since Waterhouse and Lyell combined the name *erythrina* with the genus name *Miletus* it was surely intended as a noun.

Correct name: *Hypochrysops ignitus erythrina* (Waterhouse & Lyell, 1909).

## 8

Original combination: *Hypochrysops piceata* Kerr, Macqueen & Sands, 1969.

Common and Waterhouse 1981: *Hypochrysops piceatus* Kerr, Macqueen & Sands, 1969.

Orr and Kitching 2010: *Hypochrysops piceatus* Kerr, Macqueen & Sands, 1969.

Braby 2010: *Hypochrysops piceata* Kerr, Macqueen & Sands, 1969.

There is no correct classical Latin adjective *piceatus*, but there is a participle *picatus*, meaning 'besmirched with pitch' as well as the adjective *piceus*, 'black as pitch'. However since the 19th century the form *piceatus*, *-a*, *-um* has been used in nomenclature in animals and plants for blackish organisms. Accepting the gender of *Hypochrysops* C. & R. Felder, 1860 as masculine (see above), the specific name would also have to take the masculine ending.

Correct name: *Hypochrysops piceatus* Kerr, Macqueen & Sands, 1969.



9

Original combination: *Hypolycaena litoralis* Lambkin, Meyer, Brown & Weir, 2005.

Common and Waterhouse 1981: not listed.

Orr and Kitching 2010: *Hypolycaena litoralis* Lambkin, Meyer, Brown & Weir, 2005.

Braby 2010: *Hypolycaena littoralis* Lambkin, Meyer, Brown & Weir, 2005.

The spelling given by Braby (2010) appears to be an unwarranted correction or a typographic error. The original spelling *litoralis*, meaning 'of the shore', is correct Latin, but even had it been incorrect, it would stand as published.

Correct name: *Hypolycaena litoralis* Lambkin, Meyer, Brown & Weir, 2005.

10

Original combination: *Lycaena acasta* Cox, 1873.

Common and Waterhouse 1981: *Candalides acastus* (Cox, 1873).

Orr and Kitching 2010: *Candalides acastus* (Cox, 1873).

Braby 2010: *Candalides acasta* (Cox, 1873).

The genus *Candalides* is masculine. However *Acasta* is latinized from *Akastē*, the name of one of the numerous daughters of *Okeanos*, a central divinity of ancient Greek mythology, being a personification of the ocean surrounding the land and father of all rivers, streams, springs and wells. Therefore *acasta* is a proper noun and does not change.

Correct name: *Candalides acasta* (Cox, 1873).

11

Original combination: *Zizera delospila* Waterhouse 1903.

Common and Waterhouse 1981: *Zetona delospila* (Waterhouse, 1903).

Orr and Kitching 2010: *Candalides delospilus* (Waterhouse 1903).

Braby 2010: *Candalides delospila* (Waterhouse 1903).

*Candalides* is masculine as noted by Braby (2010). The compound *delospilus* is not of ancient origin, but its elements are Greek: the first part is the adjective *dēlos* - 'visible, conspicuous'; its principal part, *spīlos* - 'a spot, fleck, or blemish', is a Greek masculine noun. That means that compounds with that as the final element would generally be nouns. However it is clear that when Waterhouse established this species as *delospila* in combination with the feminine genus *Zizera*, he intended the name to be feminine, *i.e.* an adjective derived from the Greek *spīlos* (because a masculine noun normally could have no feminine form). This is not the correct way to form the adjective from the Greek noun (which would be based on the word *spilōtos*) but it is the intention of the author, rather than the philological correctness, which determines the interpretation. As Waterhouse clearly intended an adjective in latinized form it must be declined. The meaning of it is presumably 'clearly spotted'.

Correct name: *Candalides delospilus* (Waterhouse 1903).



## 12

Original combination: *Holochila heathi aerata* Montague, 1914.

Common and Waterhouse 1981: *Candalides heathi aeratus* (Montague, 1914).

Orr and Kitching 2010: not listed.

Braby 2010: *Candalides heathi aerata* (Montague, 1914).

*Candalides* is masculine as noted by Braby (2010); *aeratus* is a Latin adjective meaning 'bronze-plated' which must take the masculine ending.

Correct name: *Candalides heathi aeratus* (Montague, 1914).

## 13

Original combination: *Lycaena lineata* Murray, 1874.

Common and Waterhouse 1981: *Erysichton lineata* (Murray, 1874).

Orr and Kitching 2010: *Erysichton lineata* (Murray, 1874).

Braby 2010: *Erysichton lineatus* (Murray, 1874).

*Erysichton* is masculine as noted by Braby (2010); *lineatus* is a Latin adjective meaning 'lined' which must take the masculine ending.

Correct name: *Erysichton lineatus* (Murray, 1874).

## 14

Original combination: *Lycaena serpentata* Herrich-Schäffer, 1869.

Common and Waterhouse 1981: *Theclinesthes serpentata* (Herrich-Schäffer, 1869).

Orr and Kitching 2010: *Theclinesthes serpentata* (Herrich-Schäffer, 1869).

Braby 2010: *Theclinesthes serpentatus* (Herrich-Schäffer, 1869).

Braby (2010) lists the genus *Theclinesthes* Röber, 1891 as masculine without justification. Common and Waterhouse (1981) treat the genus as feminine. There was no clue as to the gender of the genus from the original description as the type species is *Plebius (Theclinesthes) eremicola* Röber, 1891. The species name *eremicola* is a noun, meaning 'desert-dweller', which can be either masculine or feminine. It might be argued that since this name was associated with the masculine genus-group name *Plebius*, *Theclinesthes* was also intended to be masculine. However, also of importance is the derivation of the word *Theclinesthes*. It is conjectured here that the name is composed of the name *Thecl(a)*, *-in(us)* - 'fitting to, belonging to' and *esthēs* f. - 'clothing', to describe a similarity to the genus *Thecla*. In this case *Theclinesthes* must be feminine. The fact that all declinable species-group names in the genus were originally placed in feminine genera also means that this interpretation least disrupts the original spellings. It is, however, a case which might require an application to the ICZN for a formal ruling. The specific name *serpentatus*, *-a*, *-um*, is an adjective, meaning 'marked with snakes', presumably a fanciful reference to the sinuous underside markings.

Correct name (provisional): *Theclinesthes serpentata* (Herrich-Schäffer, 1869).



## 15

Original combination: *Utica albocincta* Waterhouse, 1903.

Common and Waterhouse 1981: *Theclinessthes albocincta* (Waterhouse, 1903).

Orr and Kitching 2010: *Theclinessthes albocincta* (Waterhouse, 1903).

Braby 2010: *Theclinessthes albocinctus* (Waterhouse, 1903).

The specific name *albocinctus*, *-a*, *-um* is an adjective meaning 'white-girdled'. Using the same argument applied above, *albocincta* should be retained in feminine form.

Correct name (provisional): *Theclinessthes albocincta* (Waterhouse, 1903).

## 16

Original combination: *Catochrysops cyta* Boisduval, 1832.

Common and Waterhouse 1981: not listed.

Orr and Kitching 2010: *Jamides cytus* (Boisduval, 1832).

Braby 2010: *Jamides cyta* (Boisduval, 1832).

In his original description, Boisduval (1832) provided no clues as to the origin of the name *cyta*. As its derivation is obscure, it should be treated as a noun and its original spelling conserved. We note Parsons (1998) listed this species as *Jamides cytus* (Boisduval, 1832) but, as there was no explanation, we must assume this was an unjustified correction which must be rejected.

Correct name: *Jamides cyta* (Boisduval, 1832).

## 17

Original combination: *Danis nemophila* Butler, 1876.

Common and Waterhouse 1981: *Jamides nemophilus nemophilus* (Butler, 1876).

Orr and Kitching 2010: *Jamides nemophilus* (Butler, 1876).

Braby 2010: *Jamides nemophila* (Butler, 1876).

*Nemophila* is a modern compound of Greek elements. The Greek word *philos* can be an adjective as well as a noun. The same is true for the feminine *philē*. The ICZN Code states that if there is any doubt (and there is in this case) the word is to be treated as a noun, meaning 'lover of glades'.

Correct name: *Jamides nemophila* (Butler, 1876).

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