Notes on Pachliopta species:
Pachliopta phegeus (Hopffer, 1866) (Lepidoptera: Papilionidae)

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KEY WORDS
buraki, homonym, leytensis

Introduction

For a long time, Pachliopta phegeus Hopffer, 1866 was a quite unknown species, that often only was mentioned in the literature without further information (see list below). More than a century after its discovery, a new subspecies P. phegeus was described by Murayama (1978). However, there also is a misunderstanding about the nomenclature of the name Papilio phegeus Hopffer. That name and Papilio phegea Borkhausen were incorrectly declared homonyms (i.e., the same name ascribed to two species), because both phegeus and phegea were thought to be adjectives, thus male and female versions of the same word. A new name seemed to be necessary for the newer of the two names, which was Papilio phegeus, later Pachliopta phegeus, which became Pachliopta buraki Koçak. After that, the (older) form name leytensis was used in place of buraki. However, the names phegeus and phegea are both proper nouns and thus cannot be homonyms. This means phegeus is still valid and the species should be named Pachliopta phegeus, with the nominate form f. phegeus and the later described form f. leytensis.

Since 1983, Papilio phegeus Hopffer, 1866 is considered to be a primary homonym (the same name originally used for two species) of Papilio phegea Borkhausen, 1788 (Koçak 1983, Bridges 1988, Page & Treadaway 1997, 2003, 2004). This had strange consequences for the nomenclature of the species, as explained below. All figured specimens are from the collection of the author, now in Naturalis Biodiversity Centre, Leiden (RMNH).

Historical review of Papilio phegeus

<table>
<thead>
<tr>
<th>Year</th>
<th>Resolution</th>
</tr>
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<tbody>
<tr>
<td>Hopffer 1866</td>
<td>Papilio phegeus Hopffer</td>
</tr>
<tr>
<td>Semper 1886-1892</td>
<td>Papilio (Menelaides) phegeus Hopffer</td>
</tr>
<tr>
<td>Rothschild 1895</td>
<td>Papilio phegeus Hopffer</td>
</tr>
<tr>
<td>Jordan 1909</td>
<td>Papilio phegeus Hopffer</td>
</tr>
<tr>
<td>Bryk 1930</td>
<td>Papilio phegeus Hopffer</td>
</tr>
<tr>
<td>Ford 1944</td>
<td>Introduces Atrophaneura (for current Pardes, Pharmacophagus, Atrophaneura and Pachliopta)</td>
</tr>
<tr>
<td>Munroe 1961</td>
<td>Pachlioptera phegeus Hopffer (misspelling of Pachliopta)</td>
</tr>
<tr>
<td>Hiura &amp; Alagar 1971</td>
<td>Pachliopta phegeus Hopffer</td>
</tr>
<tr>
<td>Smart 1976</td>
<td>Pachliopta phegeus Hopffer</td>
</tr>
<tr>
<td>Murayama 1978</td>
<td>Pachliopta phegeus leytensis new subspecies</td>
</tr>
<tr>
<td>Igarashi 1979</td>
<td>Pachliopta phegeus Hopffer</td>
</tr>
<tr>
<td>Hancock 1980</td>
<td>Atrophaneura (Atrophaneura) phegeus Hopffer</td>
</tr>
<tr>
<td>Tsukada &amp; Nishiyama 1980</td>
<td>Pachliopta phegeus Hopffer</td>
</tr>
<tr>
<td></td>
<td>Pachliopta leytensis Murayama (with list of arguments for species status)</td>
</tr>
<tr>
<td>D’Abre 1982</td>
<td>Pachliopta phegeus Hopffer (? = leytensis Murayama)</td>
</tr>
<tr>
<td>Hancock 1983</td>
<td>Atrophaneura (Atrophaneura) phegeus</td>
</tr>
<tr>
<td>Koçak 1983</td>
<td>Pachliopta buraki [as replacement for phegeus Hopffer, 1866 nec phegea Borkhausen, 1788]</td>
</tr>
</tbody>
</table>
Koçak (1983) stated that *Papilio phegeus* Hopffer, 1866 is a primary homonym of *Papilio phegea* Borkhausen, 1788, a species currently known as *Protoerebia afra* (Fabricius), Nymphalidae, Satyrinae. He based his conclusion on the assumption that *phegeus* and *phegea* are both adjectives. If this was the case, *phegea* would be the female form of *phegeus* (incorrectly used because the gender of *Papilio* is male), and both words would in fact be the same. Consequently Koçak replaced the newer name, Hopffer’s *phegeus*, with *buraki*. This is, however, incorrect.

A thorough examination of several Greek and Latin dictionaries revealed that both are proper nouns. *Phegeus* (Φηγεύς) was a king of the fortified city of Psophis in Northwest Arcadia (in the centre of the Greek Peloponnese). *Phegea* (Φηγεα) is the earlier name of Psophis. A king and a city are clearly not the same, which means that *Papilio phegeus* Hopffer cannot be a homonym of *Papilio phegea* Borkhausen, in the same way that *Papilio helenus* Linnaeus, 1758 and *Papilio helena* Linnaeus, 1758 (now *Troides helena*) are not homonyms. Thus there is no need to replace *phegeus* by *buraki*.

There has been some disagreement in the literature as to which genus the taxon belongs in, either *Pachliopta* or *Atrophaneura* (see the list). This paper does not deal with this higher level taxonomic problem. Here, Racheli & Cotton (2010) and other authors are followed in placing *phegeus* in the genus *Pachliopta*.
Variation within *Pachliopta phegeus* (Hopffer)

In 1978, Murayama described a new subspecies for *P. phegeus*: *leytensis* (figure 1-4). Tsukada & Nishiyama (1980) mentioned *Pachliopta leytensis* as a species distinct from *Pachliopta phegeus* based on partial sympatry and the apparent absence of intermediate specimens, although there are no differences in the male genitalia. Authors who followed the unjustified action of Koçak (1983), concluded that *leytensis* is the oldest available name for *Pachliopta phegeus*, so its name should be changed to *Pachliopta leytensis* instead of *Pachliopta buraki*. Some considered *buraki* to be a form or subspecies of it, or a species of its own, leading to a confusing taxonomic and nomenclatural situation.

Page & Treadaway (2004), still following Koçak (1983) and mentioning that intermediate specimens were known known, described the taxonomy of the species as follows:

<table>
<thead>
<tr>
<th>Subspecies</th>
<th>Location</th>
<th>Date</th>
<th>Sex</th>
<th>Length (forewing)</th>
<th>Photographer</th>
</tr>
</thead>
<tbody>
<tr>
<td>f. <em>leytensis</em> Murayama, 1978</td>
<td>S. Leyte, E. Mindanao, Samar, Siargo</td>
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<tr>
<td>f. <em>buraki</em> Koçak, 1983</td>
<td>Bohol, Cebu, Dinagat, S. Leyte, S.-C. &amp; E. Mindanao, Panaon, Samar, Siargo</td>
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</tbody>
</table>

Taking the foregoing into account, the taxonomy/nomenclature has to be corrected to its original situation:

Pachliopta phegeus (Hopffer, 1866) [status revised]

f. phegeus (Hopffer, 1866) (= buraki Koçak, 1983) [status revised]

f. leytensis Murayama, 1978 [status revised]

Acknowledgements

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Literature


Racheli T & Cotton AM 2010. Papilionidae
Samenvatting

Notities over Pachliopta: Pachliopta phegeus (Hopffer, 1866) (Lepidoptera: Papilionidae)

Er was enige verwarring over de relatie tussen Pachliopta phegeus en de pas in 1978 beschreven Pachliopta phegeus leytensis Murayama, die door sommige auteurs als aparte soort werd beschouwd. Beide vlinders komen in de Filipijnen voor. Waar leytensis vliegt, komt ook altijd phegeus voor. Nu beschouwt men beide als vormen (forma’s) van één soort. Echter, er bestond ook een misverstand over de nomenclatuur van de soort waar beide vormen onder vallen. Pachliopta phegeus was oorspronkelijk beschreven in het genus Papilio. Onterecht waren Papilio phegeus (Hopffer) en Papilio phegea Borkhausen tot homonymen (dezelfde naam voor twee soorten) verklaard, ervan uitgaande dat phegeus en phegea de mannelijke en vrouwelijke vorm van hetzelfde bijvoeglijk naamwoord waren. Een nieuwe naam, buraki Koçak, leek nodig te zijn voor de jongste van de twee namen: P. phegeus werd P. buraki. Intussen was er een ondersoort van P. phegeus beschreven: P. phegeus leytensis. Daarmee werd leytensis de oudst beschikbare naam voor de soort: P. buraki werd van toen af P. leytensis. De namen phegeus en phegea zijn echter beide zelfstandige naamwoorden en zijn dus geen homonymen van elkaar. Dat wil zeggen dat phegeus zijn geldigheid terug heeft en de soort weer Pachliopta phegeus heet, met de nominaatvorm f. phegeus en de later beschreven vorm f. leytensis.

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