



A taxonomic revision of the genus *Arcynopteryx* Klapálek, 1904 (Plecoptera, Perlodidae)

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Abstract

Four known *Arcynopteryx* species are redescribed from the types and newly acquired material. Illustrations of the male and female genitalia, head and pronotal patterns and eggs are used to support species descriptions. *Dictyopteryx compacta* (McLachlan, 1872) is transferred to *Skwala* Ricker, 1943 with the valid name *Skwala compacta* (McLachlan, 1872) **comb. nov.**, and *S. pusilla* (Klapálek, 1912) is placed as a junior synonym of that species. For genus *Arcynopteryx* type species is fixed (under Article 70.3 of the Code) as *Arcynopteryx dichroa* (McLachlan, 1872), misidentified as *Arcynopteryx compacta* (McLachlan, 1872) in the original designation by Klapálek (1912).

Key words: Plecoptera, Perlodidae, *Arcynopteryx*, *Skwala*, holotype

Introduction

Genus *Arcynopteryx* was erected by Klapálek (1904) with type species *A. compacta* (McLachlan, 1872). Extending previous research, Ricker (1952) defined the diagnostic details of *Arcynopteryx*. The genus was characterized by an erect knob on the male hemitergal lobes; a well sclerotized, slender and needle-like stylet of the epiproct; a median and two adjacent lateral sclerotized bands interiorly of the cowl; both adults and nymphs with submental gills; and abdominal segments 1-3 divided by pleural folds. The arms of the mesosternal ridge meet the anterior corners of the furcal pits. The eggs are ovoid with a collar on low shoulders, and the chorion is covered with hexagonal follicle-cell impressions (FCIs); the flat floors contain punctations (Stark & Szczytko 1988).

Presently, five species of *Arcynopteryx* are recognized: *A. amurensis* Zhiltzova et Levanidova, 1978, *A. compacta* (McLachlan, 1872), *A. jezoensis* (Okamoto, 1912), *A. polaris* (Klapálek, 1912), and *A. sajanensis* Zapekina-Dulkeit, 1960 (DeWalt, Neu-Becker & Stueber 2012). According to Uchida (1992), *A. jezoensis* is most likely a junior synonym of *Skwala pusilla* (Klapálek, 1912). This conclusion was made on the basis of examining the type of *A. jezoensis* and comparison with specimens of *S. pusilla* collected in the Russian Far East (Uchida 1992).

A. dichroa (McLachlan, 1872), first described as *Dictyopteryx dichroa* (McLachlan 1872), was undeservedly forgotten, although during the first half of the 20th century *A. dichroa* was considered a distinct species (Klapálek 1912, Koponen 1949, Brinck 1949). The studies of this genus have often been limited by scarce material and by limited access to types. These factors have produced a degree of confusion. Klapálek (1912, fig. 8, page 13), for example, provides an illustration of “*Arcynopteryx compacta* McLachlan”, which is actually *A. dichroa* (McLachlan). Zhiltzova (1966) formally synonymized *A. dichroa* with *A. compacta*, although the evidence for this decision was not furnished. Zwick (1973) accepted the synonymy as definite.

This study presents a revision of the genus *Arcynopteryx*. The approach used in the research includes the study of types, literature descriptions, older pinned specimens and fresh material. The methods used involve aedeagal extrusion and detailed examination of the epiproct, hemitergal lobes, aedeagus and eggs with a dissecting microscope and scanning electron microscopy.