Sexual dimorphism prevails throughout the Lepidostomatidae with characteristics so bizarre that McLachlan (1876) referred to this group as the ‘curiosity shop’ of Trichoptera. Adult males of Lepidostomatidae exhibit a variety of secondary sexual modifications, especially those of the maxillary palps, antennal scapes, wings, and forelegs. In the genus Lepidostoma, secondary sexual characters are more highly modified than in other genera of the family, and are so different that often their unique characteristics can be used to distinguish between closely related species which have similar male genitalia. Many species have the male antennal scapes each with a varied combination of the following characters: basal process and/or other processes bearing large, uniquely modified setae; mesal or lateral basal cavities sometimes bearing numerous vertical striations; false joint near midlength; and bulbous. In other species these modifications are absent and the male scape is simple and nearly cylindrical. The male maxillary palps are usually modified; the first segment sometimes has extra apical or mesal lobes and the second segment may be spatulate or lobiform, flexible, and quite variable in length. Sometimes other body parts are modified to accommodate the maxillary palps, such as cavities in the frons or in the mesal surfaces of the scapes within which the apices of the maxillary palps are concealed. The scapes of some Chinese species each have a subapicoventral, knoblike process that is held by a spatulate apical segment of each maxillary palp. The shape, size, and number of the setal warts of the head, pronotum, and metanotum can vary greatly; sometimes small cavities or protrusions are found on the mesoscutum. The male foretibiae are notched or broadly expanded in some species. Male forewings often have costal folds of various length and width. Furthermore, all of these secondary sexual characters bear variously modified setae and scales.

An important consideration is the inability to discover reliable larval characters that are diagnostic for many of the proposed genera, subgenera, and species groups within the Lepidostomatidae (Kerr & Wiggins 1993, Ross 1946). However, a number of monophyletic species groups in North America can be recognized by their different larval cases and geographic distributions (Weaver 1988).
In Trichoptera, differences in wing venation and the maxillary palps have been used traditionally as a basis for recognizing new genera, and because such modifications are common within the Lepidostomatidae, it is little wonder that these oddities were used as a basis for generic discrimination that contributed to a chaotic conglomeration of 63 proposed generic names for Lepidostoma. It seems ironic that these striking secondary sexual characters that generated a fascination in the workers who first saw them and perhaps attracted many people to study lepidostomatids, also generated such chaos. This problematic issue has been discussed by (Dudgeon 1999, Ito 2001, Mosely 1939a, Myers & Sperling 2002, Ross 1938b, Weaver 1983, 1988, 1993), and is especially conspicuous when comparing species that share general characteristics but are from different regions of the world. In addressing this issue, Ross (1944) was the first to take substantial measures to define the genus Lepidostoma in a broader sense. When he synonymized nearly all of the Nearctic lepidostomatid genera he stated: 'An astonishing number of bizarre characters have been developed by the males. Some have leaflike legs, others extremely wide wings or folded-back portions which form large pockets filled with black scales; still others have the maxillary palpi variously developed into spoon-shaped structures with long extensible membranous organs. Organizing and correlating the differences found in both male and female genitalia give us ample evidence that this entire complex is a compact phylogenetic group. The secondary sexual characters so strikingly developed in the males appear to have no relation to the phylogeny of the true species groups in the genus. It seems necessary, therefore, to consider this entire complex as one genus."

Therefore, in resolving the problem of dubious lepidostomatid genera of the Old World, I find that this situation is similar to the one previously amended by Ross and for which I propose a similar solution, to recognize the genus Lepidostoma in a broader sense now. All subgenera of Lepidostoma and Dinarthrum are suppressed. The genus presently contains 350 extant species and 6 fossil species († precedes names of fossil taxa).

**Lepidostoma Rambum, 1842**

Lepidostoma Rambur, 1842; type species, Lepidostoma squamulatum Rambur (syn. of Phryganea hirta Fabricius), selected by Ross (1944).

**Acrunoecia** Ulmer, 1907c; type species, Mormonia parvula McLachlan, monobasic; syn., suppressed because type species was transferred to Dinarthrum by Martynov (1913a).

**Acrunoeciella** Martynov, 1909a; type species, Acrunoeciella chaldyrense Martynov, monobasic; syn., suppressed because type species was transferred to Dinarthrum by Martynov (1926).

**Adinarthrella** Mosely, 1941; type species, Adinarthrella brunnea Mosely (replaced by Lepidostoma ylesomi nom. n.), original designation. Syn. n.

**Adinarthrum** Mosely, 1949a; type species, Adinarthrum kerseum Mosely, original designation. Syn. n.

**Agoerodella** Molesy, 1941; type species, Agoerodella punctata Mosely, original designation. Syn. n.

**Agoerodes** Mosely, 1949a; type species, Agoerodes convolutus Mosely, original designation. Syn. n.

**Aleponya** Banks, 1908; type species, Aleponya bryanti Banks, original designation; syn. of Lepidostoma according to Ross (1944).

**Aleponyoides** Sibley, 1926; type species, Lepidostoma winconsinense Vorhees (syn. of Aleponya bryanti Banks), original designation; syn. of Lepidostoma according to Ross (1944).

**Anacruncocia** Mosely, 1949b; type species, Anacruncocia atania Mosely, original designation. Syn. n.

**Arcadopsyche** Banks, 1930; type species, Arcadopsyche prominens Banks, monobasic; syn. of Lepidostoma according to Ross (1944).

**Atomyia** Banks, 1905; type species, Atomyia modesta Banks, original designation; syn. of Lepidostoma according to Ross (1944).

**Atomyiella** Tsuda, 1936; type species, Atomyiella japonica Tsuda, original designation; syn. of Dinarthrum according to Tsuda (1941).

**Atomyiodes** Ulmer, 1911; type species, Atomyiodes bipinosa Ulmer (syn. of Olemira mexicana Banks), monobasic; syn., suppressed because type species was transferred to Lepidostoma by Denning (1962).

**Ayabeopsyche** Tsuda, 1942; type species, Ayabeopsyche nipponica Tsuda; syn., suppressed because type species was recognized as syn. of Phryganea hirta Fabricius by Kuanski & Weaver (1992).

**Crunobiodes** Martynov, 1928; type species, Crunobiocella batunica Martynov, monobasic; syn., suppressed because type species was transferred to Goerodes by Schmid (1959a).

**Crunobiidae** Martynov, 1928; type species, Crunobiocella flavula Ulmer, selected by Fischer (1970); syn. of Goerodes according to Mosely (1939a).

**Crunociella** Ulmer, 1905; type species, Crunociella brunnea Ulmer, monobasic; syn. of Goerodes according to Jacquemart (1961b).

**Dinarthrodes** Ulmer, 1907c; type species, Maniconeura destructa Ulmer, monobasic. Syn. n.

**Dinarthrella** Mosely, 1941; type species, Dinarthrella shanta Mosely, original designation. Syn. n.

**Dinarthrum** Ulmer, 1907a; type species, Maniconeura albardana Ulmer, original designation; syn., suppressed because type species was transferred to Goerodes by Ito (1997).

**Dinarthropis** Ulmer, 1913; type species, Dinarthropis picea Ulmer, monobasic. Syn. n.

**Dinarthrum** McLachlan, 1871; type species, Dinarthrum ferox McLachlan, monobasic. Syn. n.

**Dinogeroiades** Martynov, 1928; type species, Dinogeroiades relictia Martynov, monobasic; syn., suppressed because type species was transferred to Maniconeura by Martynov (1936).

**Dinomyia** Martynov, 1909b; type species, Dinomyia djerkuana Martynov, monobasic. Syn. n.

† **Electraulax** Ulmer, 1912; type species, † Electraulax breviscula Ulmer, selected by Fischer (1970). Syn. n.

**Eodinarthrum** Martynov, 1931; type species, Eodinarthrum pusillum Martynov, original designation. Syn. n.