Although it may seem that the controversy over the relationship of the distinctive bruchines to other chrysomelids is relatively new, this is hardly the case. In early 19th Century classifications, for example, Bruchidae were included in the Rhynchophora. In 1874, Chapuis suggested they may best be treated as Phytophaga (equivalent to today Chrysomeloidea). LeConte and Horn (1883) agreed with this placement. Although Reid (1996) is correct in asserting that many authors have recognized the problem with keeping Bruchidae as a family, finding explicit statements, rather than vague (or clear) suggestions about their categorical rank, is more difficult. Böving & Craighead (1931), and Crowson (1953, 1960) doubted the verity of a family Bruchidae, but not until the study of Mann & Crowson (1981), were the Bruchinae explicitly treated as a subfamily within Chrysomelidae. Since then, this categorical rank has been supported by researchers including Chen (1985), Lawrence (1991), Lawrence & Britton (1994), and Reid (1995). Kingsolver (1995) and Verma & Saxena (1996) unintentionally solidified the case to maintain Bruchinae as a subfamily of Chrysomelidae. Kingsolver (1995) said: 1) The Bruchidae sprang from a common ancestor with Sagrinae, and 2) bruchids are relatively recently derived from this ancestor. Verma & Saxena (1996) further support this by providing a phylogeny with the Bruchinae clearly evolving from within the Chrysomelidae and as a sister group to the Sagrinae. Despite this, Mayr (1969) was used by Verma & Saxena (1996) to support the idea of Bruchinae as a family based on their ecological distinctiveness. We believe that adaptive zones or ecological distinctiveness are descriptors that may appear to be significant—when they are not—sound more significant than they actually are. We can all think of taxa that have some unusual attribute or natural history and we can all think of distantly unrelated taxa which share the same attribute or natural history.

How can it be logically demonstrated whether or not these features are necessary and sufficient for such ecological distinctiveness? Usually, the adaptive zones or ecological distinctiveness of a group of taxa grow fuzzy around the edges with time and additional knowledge of the group. An example of this is the Geadephaga versus Hydradephaga groups (Beutel, 1995). Aside from the grade/clade arguments (sufficiently discussed in Nelson, 1974), the inability to apply these descriptors consistently and the inherent variability of their significance among researchers clearly renders them useless for classification. Although we could cite any number of phylogeneticists, the principle concerning the taxonomic level of Bruchinae was addressed by Mayr, an evolutionary systematist. Mayr & Ashlock (1991:151) state, In ranking, no taxon should fall out of step with its sister groups. Reid (1995), Kingsolver (1995), and Verma & Saxena (1996) have all suggested the sister group relationship of Bruchinae to Sagrinae (either in words or illustrations). Therefore, following the argumentation of Mayr, the Bruchinae must be
ranked as a subfamily, comparable to its sister taxon. Classification must follow accepted phylogeny or it is not predictive.

Since most coleopterists agree on the close relationship of Bruchinae to Sagrinae, why maintain a classification that obscures this relationship? If a different classification is proposed, it can only be because the relationship is not accepted. In this case, it is the responsibility of that researcher to present reasons for a new hypothesis of relationships. This has not been done by any of the proponents for a family status of Bruchinae. We concur with Reid's (1996) conclusion that Kingsolver (1995) amply demonstrated the monophyly of the Bruchinae. To accept Bruchinae as a family, however, is to say that the shared, derived features it has with Sagrinae (summarized in Reid, 1995), are irrelevant. In our opinion, all available evidence continues to show Bruchinae as a subfamily of Chrysomelidae. This conclusion cannot logically be overturned by unique characters (autapomorphies), primitive characters (plesiomorphies), or ecological distinctiveness of the Bruchinae.

References


