

## Phylogenetic Analysis Phase I: Test of Monophyly

After discovering highly distinct male genital morphologies and in some instances also a distinct overall appearance departing from typical *Corydalus* (e.g., male mandible length, antennal shape, or wing venation) in several South American species, it became necessary to evaluate their phylogenetic placement with respect to other Corydalinae genera before engaging in a species level analysis. Glorioso's (1981) genus level phylogeny of the subfamily supports the monophyly of American dobsonflies. Yet, characters defining *Corydalus* (e.g., his characters 14, 27, and 49') were not always all-inclusive when considering the atypical species. The possibility existed, therefore, that  $\geq 1$  of the distinct species would fall out of *Corydalus* and closer to a different genus. Conversely, an outgroup (e.g., *Platyneuromus* or *Chloronia*) could conceivably fit inside the species group a priori considered to conform to *Corydalus*. It also is of general interest to observe whether the relationships between the American genera, as well as between Old World taxa, correspond to previous analyses.

Ninety-five adult morphological characters were scored for 20 taxa, including representative species of all currently recognized dobsonfly genera (Table 33). Fishflies (the Chauliodinae genera: *Archichauliodes*, *Chauliodes*, *Dysmicohermes*, *Neohermes*, *Nigronia*; Appendix 2) were specified as the outgroup. The grouping *Corydalus* sensu stricto (or the term typical *Corydalus*) is used informally to include *Corydalus* species clearly falling within the typical generic groundplan (i.e., similar to the type species). All North and Central American species can be considered in this category. The term