

## PHYLOGENETIC DISTRIBUTION OF BODY NITROGEN COMPOSITION (% N) AMONG INSECTS

In a recent contrast of body nitrogen composition between insect predators and herbivores (Fagan et al. 2002), we extracted data from the literature on %N and several of its possible correlates including body size, for 154 species of insects representing 65 families and nine orders. In order to control for phylogeny in testing for difference in %N between trophic levels, and to examine the degree and pattern of phylogenetic conservatism of nitrogen composition, we plotted these data on a composite phylogeny extracted from the recent literature. This phylogeny, with nitrogen percentages and trophic levels (predator versus herbivore) superimposed, is presented in six figures below. Taxa not sampled in this study are not included in these figures. The phylogeny presented here is a 'metatree' in the sense of Ronquist and Liljeblad (2001), in that it combines phylogenetic analyses of varying degrees of robustness with current classifications not necessarily based on explicit phylogenetic analysis. The dataset can also be found in tabular form on this website.

**FIGURE W1** shows an estimate of relationships among the nine orders represented, in addition to a detailed phylogeny estimate and % N data for all the non-hemipteroid and non-holometabolan species sampled. Relationships among the orders follow Kristensen (1991; see also Wheeler et al. 2001). Within Orthoptera, we follow the tribe and subfamily classification presented by Otte and Nasrecki (1998). Within the genus *Melanoplus*, a composite tree for 5 of the 7 species in our database was assembled from recent molecular studies (Chapco et al. 1997, 1999; Knowles and Otte 2000). *M. keeleri* and "*Melanoplus sp.*," included in the dataset of Fagan et al. (2002), were used in analyses not requiring a detailed phylogeny but are absent from this figure because they could not be placed. We show only genus names for individual species unless multiple congeners were sampled; the full names can be found in the data table on this website.

**FIGURE W2** depicts an estimate of relationships among the species sampled from Hemiptera *sensu lato*. The tree follows; (Schuh 1981) and Schuh and Slater (1995) as regards deeper relationships and classification; Bourgoin et al. (1997) within Fulgoromorpha; J.R. Cryan, C. Bartlett and M.F. Whiting, manuscript in preparation, within Delphacidae; Dietrich (1999) within Cicadomorpha; Henry (1997) within Pentatomorpha, and Schuh (1976) within Miridae.

**FIGURE W3** shows an estimated phylogeny for our representatives from Coleoptera, following Lawrence and Newton (1982) and Kukulová-Peck and Lawrence (1993).

**FIGURE W4** depicts an estimate of relationships among the species of Hymenoptera sampled, following Ronquist et al. (1999).

**FIGURE W5** presents an estimated phylogeny for the species of Diptera included in this study. The tree follows Yeates and Wiegmann (1999), McAlpine (1989), and McAlpine et al. (1981, 1987) for higher-level relationships, and Pitnick et al. (1997) and Russo et al. (1995) for relationships within *Drosophila*.

**FIGURE W6** shows a phylogeny estimate for the species sampled from Lepidoptera. The tree follows Kristensen and Skalski (1999) among-superfamily relationships, Lemaire and Minet (1999) within Bombycoidea, and Mitchell et al. (2000) within Noctuoidea. The sample for the moth *Exartema* was included in phylogenetic analyses but not in those requiring data on body length.

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FIGURE W1. PALEOPTERA & LOWER NEOPTERA

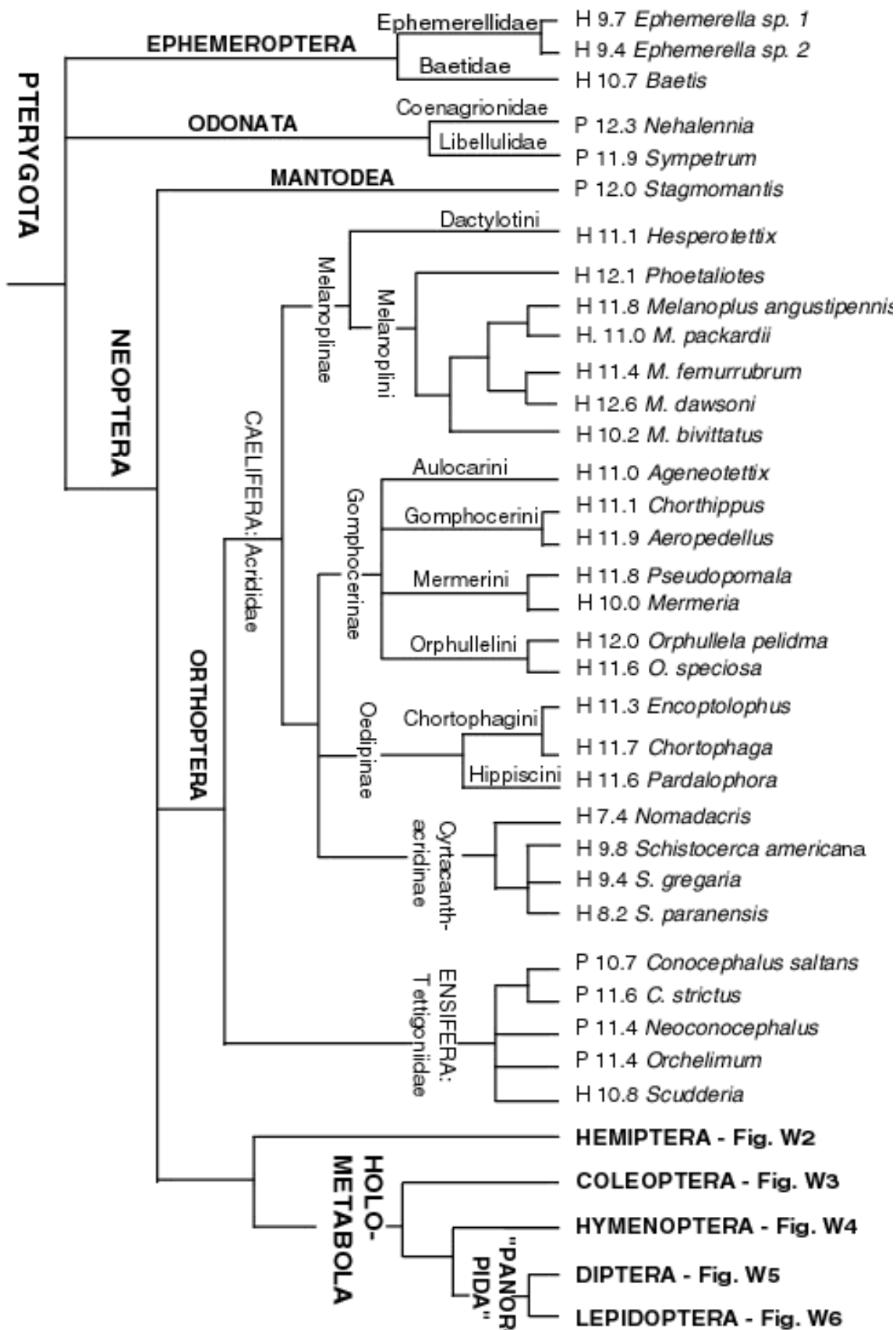
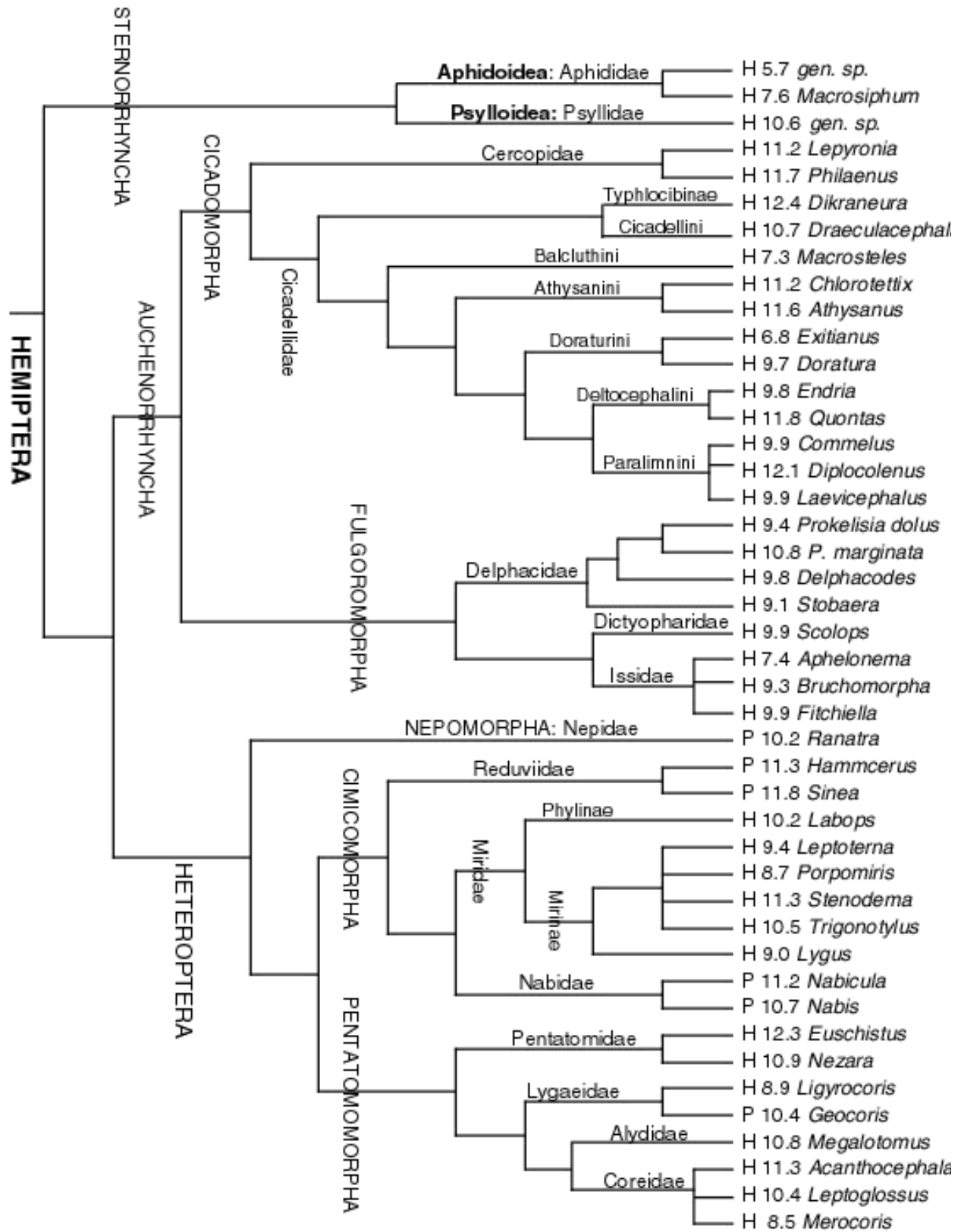
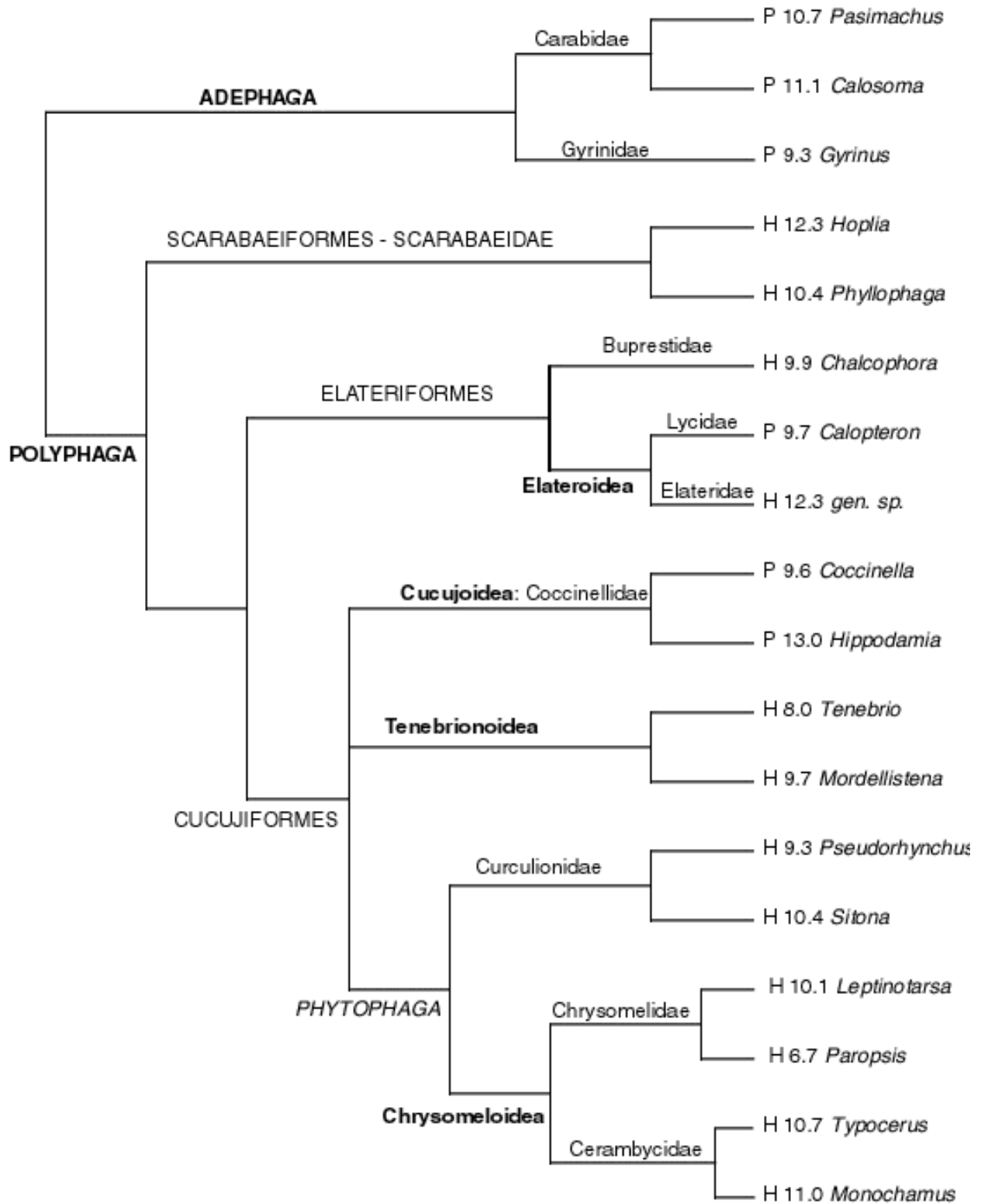


FIGURE W2.HEMIPTERA



**FIGURE W3. COLEOPTERA**



**FIGURE W4. HYMENOPTERA**

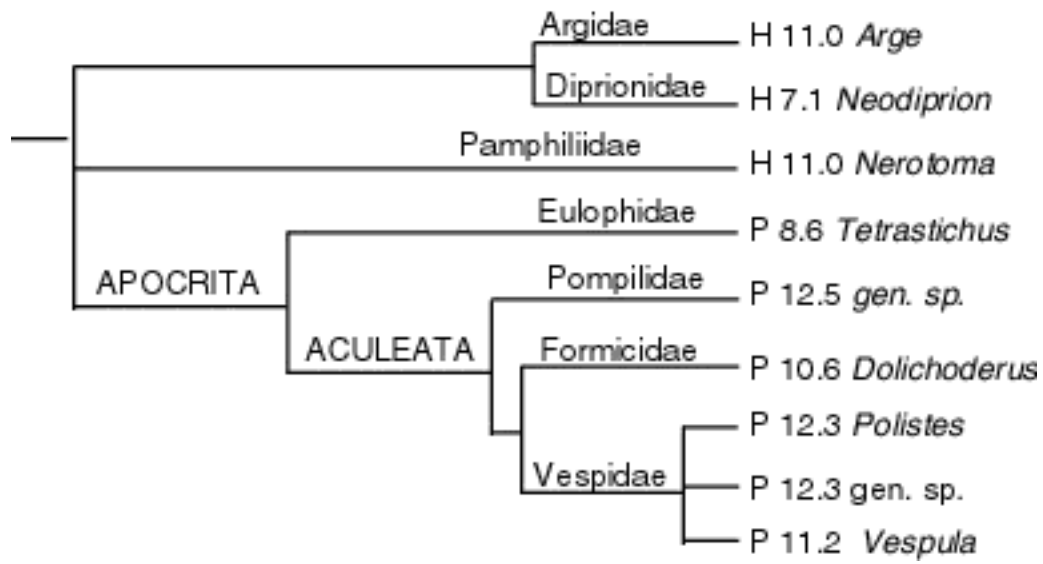
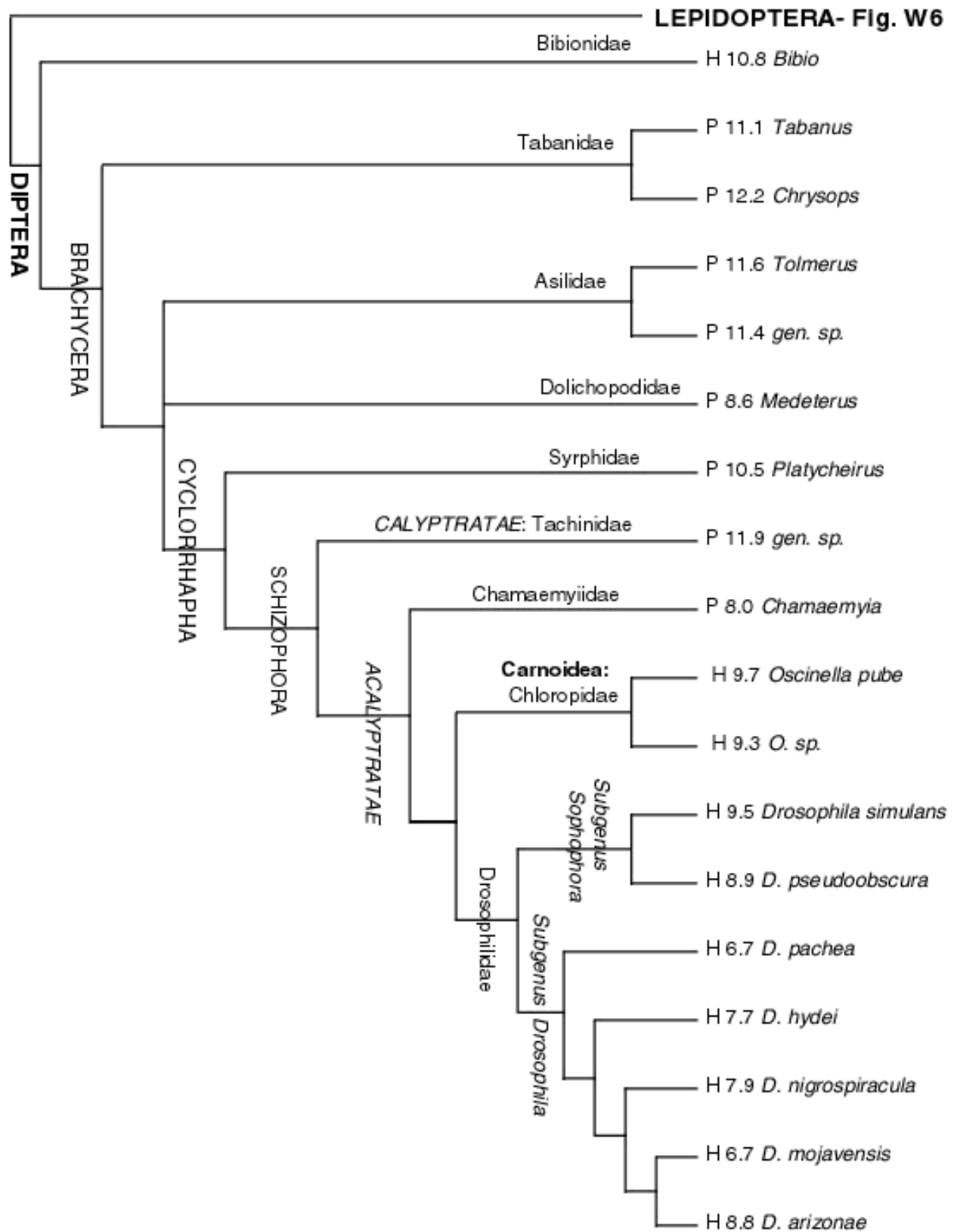


FIGURE W5. PANORPIDA: DIPTERA



**FIGURE W6. PANORPIDA: LEPIDOPTERA**

