

VARIATION IN THE GILLS OF ZYGOPTERA*

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The gills of the nymphs of Zygoptera show features which serve as accurate indices to specific and generic relationships within the suborder. The separation of closely allied species is frequently accomplished with ease by observing the outline of the gill, pigmentation, tracheation and so on. This feature should probably take precedence over the characters of the labium which cease to be of great importance in groups of less than family size.

The groups showing the more marked variations in gill structure are found with the Coenagrionidae, but there are also variations in the gills of Lestinae which serve to distinguish the different species. In the genera of Coenagrionidae the species grouped by means of gill structure conform remarkably to the groups of species, or superspecies, as based on adult characteristics. This feature is evident to a greater degree in *Enallagma*, and the groups based on both nymphal and adult characters are seen below:

BASED ON ADULT STRUCTURE

Enallagma civile.
Enallagma carunculatum.
Enallagma calverti.
Enallagma hageni.

Enallagma geminatum

Enallagma exsulans.
Enallagma antennatum.
Enallagma traviatum.

Enallagma signatum.
Enallagma pollutum.

BASED ON NYMPHAL GILLS

Enallagma civile.
Enallagma carunculatum.
Enallagma calverti.

Enallagma hageni.

Enallagma geminatum

Enallagma exsulans.
Enallagma antennatum.
Enallagma traviatum.

Enallagma signatum.
Enallagma pollutum.

*Based on data now being published in a bulletin of the Illinois State Laboratory of Natural History.