PHORETIC RELATIONSHIP BETWEEN HYDRA SP. (ANTHOMEDUSAE: HYDRIDAE) AND A DAMSELFLY NYMPH (ODONATA: CALOPTERYGIDAE)¹

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Phoretic relationships involving terrestrial arthropods are well documented (Lloyd et al., 1975; Zeh and Zeh, 1994; Gonzales et al., 2008). There are, however, fewer documented examples of phoretic relationships involving aquatic arthropods (Dosdall and Parker, 1998; Pennuto, 1997). Recorded examples of aquatic phoretic relationships include the protozoan *Epistylis* sp. on the exoskeleton of a fresh water crayfish, *Cherax tenuimanus*, as well as species of *Simulium* (Diptera: Simuliidae) on mayfly and dragonfly nymphs (Villarreal and Hutchings, 1986; Burton and McRae, 1972). Phoresy is primarily a dispersal mechanism, but it can also facilitate reproduction as in the case of the parasitic wasp, *Dimorphothynnus haemorrhoidalis* (Hymenoptera: Tiphiiidae) (Matthews and Matthews, 2010).

During April 2007, we collected an immature *Calopteryx* sp. (Odonata: Calopterygidae) with a *Hydra* sp. (Anthomedusae: Hydridae) attached to its dorsum in Burd Run, Shippensburg, Pennsylvania. This is the first record of phoretic behavior by *Hydra* sp. The specimen was prepared for scanning by electron microscope (SEM) examination using standard techniques (Stadtländer, 2007) i.e. dehydration through a series of ethanol concentrations, critical point drying, and sputter-coating with gold. The micrographs (Figure 1) clearly show that the *Hydra* sp. is attached by its basal disc near the base of the wing pads of the damselfly in a location that would probably not impede the mobility of the damselfly. The permanence of this relationship is not determined. A moulting event could easily dislodge the *Hydra* sp. from the damselfly. However, the *Hydra* sp. is well located to switch to the newly emerged *Calopteryx* sp. The nature of the relationship between these two species is also unclear, but it is possible that the *Hydra* sp. may benefit from the relationship in a manner similar to that hypothesized by Dosdall and Parker (1998) for the phoretic association between *Nanocladius branchicolus* (Diptera: Chironomidae) and *Argia moesta* (Odonata: Coenagrionidae). They suggested that the relationship benefited *N. branchicolus* by reducing interspecific competition for food, and reducing energy expenditure associated with relocation. *Hydra* spp. are relatively sedentary, typically found on rocks and vegetation. Łomnicki and Solbodkin (1966) describe an interesting mode of locomotion in response to overcrowding or lack of food where *Hydra* sp. produces a bubble and floats to the surface of the water to move short distances in relatively still waters. Much like the floating behavior, *Hydra

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