BRAUERIA (Lunz am See, Austria) 19:24 (1992)

# THE MEDICAL IMPORTANCE OF CADDISFLIES

David E. Bowles

United States Air Force Armstrong Laboratory,
Occupational Medicine Division, Environmental Biology Branch,
Brooks AFB, TX 78235

Caddisflies normally are not considered medically important insects. However, my interest in their medical importance was spurred recently when I was tasked to identify two caddisflies (Hydroptilidae, Orthotrichia aegerfasciella (Chambers), 1 male, 1, female) collected from a hospital surgical suite while a surgical procedure was being performed. The presence of any arthropod under such aseptic circumstances is obviously undesirable.

Most trichopterists probably are unaware of potential negative health effects associated with contacting caddisflies. Caddisflies can cause allergic responses (asthma and dermatitis) in sensitive individuals who come in contact with wing hairs or other body parts. Trichopterists who collect adult caddisflies by aspiration may receive significant exposure to wing hairs. The literature suggests that hypersensitivity to caddisflies may be quite common among allergy patients. The range of reported responses is broad, ranging from minor annoyance to near incapacitation. Some patients sensitized by exposure to caddisfly antigens have developed cross-reactivity to shellfish and stings of venomous insects. This could result in life-threatening situations for individuals with a predisposition for severe IgE-mediated reactions (anaphylaxis) due to contact with arthropod proteins.

Below, I have provided a list of selected publications that address caddisfly allergins. This list is not exhaustive, but includes the more pertinent articles. These papers provide for informative and interesting reading. On somewhat of a humorous note, Parlato (1929) confused caddisflies with sandflies (Diptera: Psychodidae: Phlebotominae) and attributed them to be the cause of 'Oriental Sore' (Leishmaniasis). For caddisfly workers employed by medical organizations, this information may prove useful for justifying research on caddisflies.

Kagen, S. L., Yunginger, J. W., and S. R. Wynn. 1986. Occupational respiratory allergy due to caddis fly aeroallergins [abstract]. J. Allergy Clin. Immunol. 77:192.

Kino, T., J. Chihara, K. Fukuda, Y. Sasaki, Y. Shogaki, and S. Oshima. 1987. Allergy to insects in Japan. III. High frequency of IgE antibody responses to insects (moth, butterfly, caddis fly, and chironomid) in patients with bronchial asthma and immunochemical quantitation of the insect-related airborne particles smaller than 10 μm in diameter. J. Allergy Clin. Immunol. 79:857-866.

Koshte, V. L., S. L. Kagen, and R. C. Aalberse. 1989. Cross-reactivity of IgE anitbodies to caddisfly with Arthropoda and Mollusca. J. Allergy Clin. Immunol. 84:174-183.

Munroe, E. G. 1951. Pest Trichoptera at Fort Erie, Ontario. Can. Entomol. 83:69-72.

Osgood, H. 1934. Comparison of reagins to separate species of caddis fly. J. Allergy 5:367-372.

Osgood, H. 1957. Allergy to caddis fly (Trichoptera). J. Allergy 28:113-123.

Parlato, S. J. 1929. A case of coryza and asthma due to sand flies (caddis flies). J. Allergy 1:35-42.

Parlato, S. J. 1929. Sand fly (caddisfly) as an exciting cause of allergic coryza and asthma. II. its relative frequency. J. Allergy 1:307-312.

Parlato, S. J., P. J. LaDuca, and O. C. Durham. 1934. Studies of hypersensitivity to emanations of caddis fly (Trichoptera). V. a report of its distribution. Ann. Int. Med. 7:1420-1430.

Peterson, D. G. 1952. Observations on the biology and control of pest Trichoptera at Fort Erie, Ontario. Can. Entomol. 84:103-107.

Wirtz, R. A. 1984. Allergic and toxic reactions to non-stinging arthropods. Ann. Rev. Entomol. 29:47-69