

Research Briefs are summaries of recent insect-or arthropod-related literature of interest to entomologists

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Ah-choo! Dust mites and cockroaches in our schools.

Tranter, D. C. 2005. Indoor allergens in settled school dust: a review of findings and significant factors. *Clinical and Experimental Allergy* 35: 126-136.

When we send our children off to school, we expect that they will be spending their days in a clean and healthy classroom environment. If our children have trouble with asthma or allergies, we can take action to clean up our homes, but we may still wonder what they are coming in contact with at school. Tranter provides an interesting review of research on indoor allergens found in settled school dust. Most of these studies concentrate on four agents as primary indicators of possible asthma exacerbation in school-aged children: cat, dog, dust mite, and cockroach allergens. He provides summaries of sample collection and analytic methods (I was surprised by the great variation employed in the cited studies), differences based on the type of room tested (e.g. kitchens vs. classrooms), the type of surface where collections are made (e.g. carpet vs. bare floor), etc. In general, our homes represent a greater allergen exposure risk to our children than our schools, but schools can cause problems too. The information in this article may lead to standardized testing for these entomological invaders in our schools and better intervention that will lead to the expulsion of problem pests from the learning environment.

Trophy display, bad housekeeping, or decoys? The role of hanging prey carcasses in a spider's web.

Chou, I-Chia; Pi-han Wang; Pao-Sheng Shen; & I-Min Tso. 2005. A test of prey-attracting and predator defence functions of prey carcass decorations built by *Cyclosa* spiders. *Animal Behaviour* 69: 1055-1061.

As a collector of Diptera, I often find myself peeking into spider webs in the field to see what they are collecting. I have occasionally stolen some very unusual specimens out of spider webs (that's where I found my first bot fly!). If you have ever spent some time really looking at spider webs, you have probably noticed that some spiders seem to decorate their webs with silken designs or the bodies of their prey. While most orb-weaving spiders get rid of their prey carcasses when they are done feeding, *Cyclosa* spiders keep the wrapped-up remains and arrange them in a line in their web. A variety of hypotheses have been proposed to explain these strange web displays. By manipulating the presence of prey carcasses on the webs and carefully monitoring the spiders, webs, prey, and predators, Chou et al. were able to provide some intriguing insights into the lives of these spiders. While the hanging corpses may lower the amount of new prey that is captured, they may also serve as effective decoys to confuse predatory vespid wasps.

Better techniques for capturing beetles and bugs.

Moir, M. L.; K. E. C. Brennan, J. D. Majer; M. J. Fletcher; & J. M. Koch. 2005. Toward an optimal sampling protocol for Hemiptera on understorey plants. *Journal of Insect Conservation* 9: 3-20.

Hansen, J. E. & T. R. New. 2005. Use of barrier pitfall traps to enhance inventory surveys of epigeic Coleoptera. *Journal of Insect Conservation* 9: 131-136.

Whether you are currently involved with an on-going biodiversity survey or collecting insects with general entomology class, why not use the most efficient sampling procedures available? These two articles will help optimize the diversity of species that you can collect in a short amount of time. Moir, et al. evaluated seven methods to maximize the diversity of species of Hemiptera (*sensu lato*) from understorey and/or canopy plants. While no single method yielded overwhelmingly better results, they suggest that beating, sweeping, and hand collecting are the most time-efficient methods, while a combination of beating and vacuum sampling provide the most effective methods for standardized sampling. Hansen and New compare catches of beetles in standard pitfall traps and various patterns of barrier pitfall traps in terms of abundance of specimens and diversity of species. The addition of barriers to the pitfall traps yielded huge increases in both the number of specimens and the species diversity. Both of these investigations show real progress in improving the cost-effectiveness and efficiency of biodiversity surveys.

Tick-borne diseases in the United States – an overview.

Amsden, R. R.; S. Warmack; & P. O. Gubbins. 2005. Tick-Borne Bacterial, Rickettsial, Spirochetal, and Protozoal Infectious Diseases in the United States: A Comprehensive Review. *Pharmacotherapy* 25: 191-210.

With so much press about ticks and Lyme disease, the other human diseases that can be carried by ticks may be overlooked. As entomologists, we are often asked by family, friends, or members of the health care community about tick-borne disease. Amsden, Warmack, and Gubbins provide a comprehensive review of these diseases from a pharmacist's perspective. Detailed information is given on the epidemiology, detection, and treatment of tick-borne diseases, including ehrlichiosis, tularemia, Rocky Mountain spotted fever, etc. I gave a copy of this article to my family physician on my last visit, and he thought it was both interesting and useful. My only disappointment with this article was the lack of pictures of the ticks themselves and early, visual symptoms of the diseases.