

ISSUES in URBAN ENTOMOLOGY

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It is customary for general overviews of a discipline to present a historical perspective, highlight major achievements in the field, honor major accomplishments, and attempt to look into a crystal ball and predict the future direction of the discipline. I, too, intend to touch on some of these major themes. In addition, however, I aim to address several major issues that have emerged in Urban Entomology in the last few decades, and concentrate on major changes and conflicts that are gripping this field today. At the same time, and with the obvious intention of stimulating debate within this community, I intend to point out actions that, in my opinion, have diverted urban entomology from its earlier trajectory.

The shifting nature of the discipline of urban entomology

Urban entomology is an integrative discipline, combining basic and applied (mission-oriented) biological and entomological research with social studies, policy and public health issues, and implementation of pest management. Early interest in this field was rooted in the need to rid structures of harmful pests, primarily those of public health concern. Yet, in recent years, the discipline of urban entomology has consistently and steadfastly shifted away from this public health foundation. Why? And is this a healthy course for our discipline?

Top-down vs. bottom-up recognition of the need for changes

A number of landmark events and discoveries have changed the face of urban entomology. Many have come from within the entomological and pest control communities as bottom-up innovations. Nevertheless, several major national initiatives in urban entomology, especially in the United States, had their origins in public interest groups and legislative and regulatory action, rather than from the foresight of urban entomologists. Interestingly, some of these top-down actions have compelled intensive research on alternative approaches, opened new market opportunities for industry, and even resulted in the adoption of new, lower-risk standards. Should our leadership role be limited to technical innovations? Do we have a responsibility to lead social and regulatory debates as well?

Need for a balance between short- and long-range research approaches

Some of our most severe urban pests are invasive species. They assemble and flourish in specific perturbed microhabitats, experience minimal competition and predation, and thus become dominant in the community. Yet it is surprising how little we know about them, especially in their native habitats. The native biology of major pests, the fire ant and the Argentine ant for example, is scarcely known. Are native populations restrained by competition, natural enemies, pathogens, or environmental factors? Are these species released from such constraints in their new habitats? Resolution of these questions will require extensive field work in native habitats, possibly at the cost of more short-range, mission-directed investigations.

Need for a balance between reductionist and synthetic (wholistic) research

New molecular biology tools offer exciting new opportunities in taxonomy, ecology, behavior, physiology, and genetics. There is intense pressure to use them in the ever more competitive research grants arena. Although they are viewed by many as basic, reductionist approaches, molecular tools have been used effectively to answer real-life issues, such as pest species- and colony-affiliation. Critical adoption of these, and other new research and extension tools, is essential if urban entomologists are to remain leaders in the academic, corporate, and government sectors.

Declining resources

A major down-turn of the global economy, coupled with unprecedented corporate mergers and severe belt-tightening at the local level, has created a state of conflict regarding the balance between research and extension efforts. Recent academic positions and resources in urban entomology have been largely extension-based, in support of major initiatives such as School IPM. In industry, too, the “research-to-development ratio” continues to shrink. We need to consider the long-range impact of these trends, particularly in view of the scant information available on public health issues (*Issue 1*) and new invasive species (*Issue 3*).

In summary, Urban Entomology in the United States enjoyed extraordinary growth in its early years. It continues to do so internationally, as evidenced by the ever increasing attendance at these conferences. In the United States, however, the discipline is at a critical cross-roads, as it has become unduly fragmented from its historical roots in public health entomology. A major challenge at the start of the 21st Century is to expand the reach of urban entomology into related disciplines, including environmental, veterinary, public health, horticultural, and the social sciences.