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24 Hours: The 2005 Busey Woods BioBlitz

What brings more than 50 scientists together with interested amateurs and the general public for a 24-hour extravaganza to see how many species could be identified from a 59-acre urban natural area? The 2005 Busey Woods BioBlitz, which ran from noon on June 24 to noon the following day, was sponsored by the Urbana (Illinois) Park District and supported by a grant from the Illinois Department of Natural Resources. It featured many biologists on busman's holiday from their work at the Illinois Natural History Survey (INHS), and from various parts of the state. Armed with nets, binoculars, and other assorted gear, these scientists wrote down their observations, checked species off lists, examined samples of water and soil under a microscope, and generally looked everywhere they could think of in the quest for additions to the growing list of species identified during the blitz. Specialists spoke with the public, who were invited to learn about the biodiversity of this much loved park. The data collected were entered into a database called Mandala, which was originally created for a National Science Foundation PEET (Partnerships for Enhancing Expertise in Taxonomy) project dealing with specimen-based

systematics research of a poorly known family of flies (Therevidae) that are not only present in Illinois, but found worldwide. The database was first used at the Allerton BioBlitz in 2001 where 1,949 species were identified from nearly 3,000 observations recorded during a 24-hour period



INHS researcher Tim Smith, with net, searches for fishes during the 2005 Busey Woods BioBlitz in Urbana. Volunteer Jim Hoyt follows with a collecting bucket. Photo by Julie Miller, Urbana Park District

nearly 68% of the total number of species identified at Allerton? Part of the answer goes to the root of why biodiversity studies are important and why so many specialists are needed to do this work. Biologists working during the blitz were under no illusion that they would identify all of the species to be found in those 59 acres, and in fact, no one knew how many species might be there, because no one had ever really looked in such detail. This was both an opportunity to share with the public the kind of work and tools that it takes to conduct a bioinventory of a site, and to take a snapshot of its biodiversity. To do a thorough bioinventory of an area, the work that many of these biologists are engaged in throughout the state of Illinois, takes more than the quick snapshot in time allocated for this bioblitz. Changes through the season, caused by differences in temperature and moisture will also account for variation through time.

in this 1,500-acre park near Monticello, Illinois.

So why, in an area less than 4% of the size of Allerton Park, did scientists manage to find 1,327 species (in ~1,700 recorded observations), including a new state record for a planthopper, or

Bringing home the message about the importance of establishing baseline data for an area, being able to monitor changes in the biodiversity through time, and

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BioBlitz

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having specialists able to reliably track these changes, are important to enabling public understanding of the work being done by INHS scientists around the state.

While the numbers of scientists working during the Allerton and Busey Woods BioBlitzes were somewhat comparable, the mix of specialists was different. It is likely that the comparatively large difference between the numbers of beetles identified at Allerton (275) vs. Busey Woods (96), was due at least in part to a missing specialist. However, the difference in the number of conifers (Allerton, 10; Busey Woods, 1) was more likely due to decreased diversity reflective of the smaller area covered by the 2005 blitz than a lack of qualified botanists. Interestingly,

the numbers of higher plants identified, although fewer at Busey Woods (78 monocots; 300 dicots) than at Allerton (122 monocots; 392 dicots) were more indicative of the difference in the percentage of the total number of species identified, so less likely to have been influenced by changes in botanical expertise or interests of the scientists participating in the blitzes. However, such gross groupings presented here say little about the true diversity in these groups.

Add up all of the species of mammals (12), birds (54), fish (30), mollusks (11), reptiles (1), and amphibians (4), identified during the Busey Woods BioBlitz and the total (112) does not exceed the number of species of bees, ants, and wasps (132), butterflies and moths (156), or plant and true bugs (123) identified from the megadiverse insect

groups. However with the insect groups, as well as many of the fungi, bacteria, and lower plants, identifications to species are difficult even for specialists, who in the limited time of a bioblitz must often content themselves to distinguishing morphospecies, or groups of organisms with enough characters in common to be thought of as separate species, but for whom no name may be definitively put.

This 24-hour demonstration in a confined area gives a hint of the challenge facing us if we ever hope to document and begin to understand the impacts of the changes we make to our landscape, not just in 59 acres, but around the planet.

Gail E. Kampmeier, Center for Ecological Entomology

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